Proceedings of the

PUBLIC HEALTH CONFERENCE ON RECORDS AND STATISTICS

Meeting jointly with the

NATIONAL CONFERENCE ON MENTAL HEALTH STATISTICS

14th National Meeting

June 12-15, 1972

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Public Health Service
Health Resources Administration
National Center for Health Statistics
Rockville, Maryland 20852

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Shoreham Hotel...June 12 15, 1972
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Director, Public Health Service
Region VI, Kansas City, Missouri
(August 25, 1968)

Mr. Mortimer Spiegelman
Metropolitan Life Insurance Company
(March 25, 1969)

Mrs. Sandra H. Kinch
Director of Health Statistics
N.Y. State Department of Health
(October 24, 1970)

Dr. John Storck
National Center for Health Statistics
(March 25, 1971)

Dr. Paul Bruyere
Deputy Director, Division of Health
Examination Statistics
National Center for Health Statistics
(October 2, 1971)

Mrs. Frances I. Chamberlain
National Center for Health Statistics
(April 3, 1973)

FOREWORD

The Fourteenth National Meeting of the Public Health Conference on Records and Statistics was a joint meeting with the National Conference on Mental Health Statistics. The Public Health Conference meets biennially under the sponsorship of the National Center for Health Statistics bringing together registrars and health statisticians for a week of consultation and discussion on current problems of interest to health statistics staffs in local, State, and national organizations. The Mental Health Conferences are held annually by the National Institute of Mental Health to share experiences and discuss problems relating to the operation of mental health statistics programs throughout the country. This was the first time the conferences combined their resources to offer a joint program.

The publication of these proceedings will give some indication of the impact of this significant joint conference. Dr. Vernon E. Wilson's address on the "Role of Health Statistics in Achieving Effective Health Care Systems" has become a landmark in defining the uses of statistics. Papers on such important subjects as statistics on unmet needs for mental health care, population trends having implications for health, the Cooperative Federal-State-Local Health and Mental Health Statistics Systems, and many others will provide administrators, educators, and statisticians with information on recent developments in their fields.

Perhaps the most important accomplishment was bringing together professional statisticians whose paths cross infrequently and yet whose work is closely related. The opportunity to meet new colleagues and to exchange ideas will be of lasting value to the participants.

Other facts make this Conference one to remember. It was the biggest one ever, with 700 registrants. The Standing Committee of the PHCRS reported later that it was the best Conference that NCHS had ever sponsored. It was also the last one organized by Mr. Junior K. Knee, Executive Director of PHCRS and Assistant to the Director of the Office of State Services, NCHS. Mr. Knee had been in charge of organizing meetings for State and local registration and statistical officials for some twenty-five years.

To Mr. Knee and his Secretariat Staff we express our deep appreciation for their contribution to the considerable success of the Fourteenth National Meeting.

ANDERS S. LUNDE
Chairman
Public Health Conference
on Records and Statistics

PURPOSES AND OBJECTIVES

Every two years, the National Center for Health Statistics brings together the registrars and health statisticians from the official health agencies across the country for a week of mutual consultation and discussion on current problems of major concern to health statistics staffs in local, State, and national organizations. These conferences are known as the National Meetings of the Public Health Conference on Records and Statistics and have come to be recognized as the principal national meeting of workers in this field. As has been customary, the American Association for Vital Records and Public Health Statistics (AAVRPHS) holds its national meeting in conjunction with the PHCRS and has scheduled its independent sessions on June 15 and 16.

This year for the first time the PHCRS National Meeting is being held jointly with the National Conference on Mental Health Statistics. These National Conferences are held each year by the National Institutes of Mental Health to share experiences and work out solutions to problems relating to the operation of mental health statistics programs. The objective of the 1972 meeting is to come to grips with both policy and technical aspects of strengthening the national, State, and local health and mental health statistics systems to better meet planning and program evaluation needs in improving our health care systems. In addition, special sessions are being scheduled for registrars and data processors on collection and processing of vital records and for mental health statistics executives on selected problems of particular interest to the field.

These conferences of representatives from all parts of the country have been of continuing help to local, State, and national offices in developing and improving our national systems of health and mental health statistics. This has been evident, particularly in statistical studies undertaken in recent years which provide a better framework for comprehensive health planning activities.

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FIRST PLENARY SESSION
Monday, June 12, 1972

Role of Health Statistics in Improving the Health Care System

Contents

First Plenary Session

Call To Order

Dr. Anders S. Lunde, *Director, Office of State Services, National Center for Health Statistics*

I would like to start by indicating that the entire first section of Secretary Elliot L. Richardson's White Paper on "A Comprehensive Health Policy for the 1970's,"[1] which the Administrator sent to all HSMHA Public Advisory Committee Chairmen and Members, which includes the Standing Committee of this organization, deals with the current status of statistical knowledge in the area of health. This ranges from the traditional mortality statistics, through health services and manpower statistics, to economic statistics.

The White Paper strongly implies that it is not what we know, which is indeed considerable, but what we do not know and need to know, which is also considerable, that must be the focus of research and statistical reporting during this decade. Data must be provided for the disparities in health status among the subpopulations of the nation; gross or aggregate measures of health care resources must be supported by more refined measures; medical costs must be more fully evaluated and a number of indices of health and well-being must be improved if they exist, or invented if they do not.

In a more recent statement,[2] the Secretary, in talking about the HEW potential for the '70s, pointed out that "we are standing at a unique juncture in the course of history. At no other time have we been so aware both of how breathtakingly close we have come to realizing the promise of America for all its citizens and of how painfully far we are from locating and gathering all the resources that would fulfill that promise tomorrow."

He concludes, "We . . . are charged with the fourfold task, to identify the problems of the people . . .; to eliminate the gaps between prom ise and performance . . .; to make the besı possible use of resources. . . ."

He said, "We know much remains to be done. . . . But we also know . . . we are bringing closer the fulfillment of the promise of America."

In this responsibility, the statistician and related people in the health fields have a positive role to fill and the art and science of statistics can contribute greatly to the understanding of health status. Never has there been a period of greater opportunity for those in the fact finding and analysis business to contribute so much."

With this background of challenge, I call the 14th National Meeting of the Public Health Conference on Records and Statistics to order. In greeting all of you in this meeting, I wish to call attention to the fact that it is a joint meeting with the National Conference on Mental Health Statistics. In the past our relations with the mental health statisticians have been very close; they have had a place in our Conference programs and been involved with NCHS activities. In line with the trends of our times and particularly as we are together in the Health Services and Mental Health Administration, it seemed only natural to the planners of the Conference that the mental health statisticians be invited to the Conference, not only to attend but to actively participate in it.

So we especially greet the statisticians and allied personnel who work in mental health programs and we know we don't need to ask all of the old Conference hands to go out of their way to get acquainted and make them welcome.

The addition of this group adds considerable professional depth to our meeting.

Next, I wish to greet, on behalf of all of us in this country, our visitors from other nations, beginning with the single representatives. I will ask them to stand.

First, Mr. Frank Rooke-Matthews, Head, Marriage and Registration Division, General Register Office, England and Wales. (Applause)

Second, Mr. Gad Nathan, Central Bureau of Statistics, Jerusalem, Israel. (Applause)

And now, a host of people from Statistics Canada, and in introducing them I would like to read a letter from Mrs. Sylvia Ostry, the new Chief Statistician of Statistics Canada. "Dear Mr. Woolsey: My deepest thanks for your note of congratulations on my appointment as Chief Statistician at Statistics Canada. I would also like to thank you for inviting me to attend your biennial Public Health Conference, and will take every opportunity to extend the close relations enjoyed between Statistics Canada and the National Center for Health Statistics."

From Statistics Canada, and I will ask you to hold your applause until they are all standing: Mr. Lorne E. Rowebottom, Assistant Chief Statistician of Canada, Health and Welfare Division; Mr. Cecil E. Baldwin, Chief, Public Health Section; Mr. John B. Davis, Chief, Institutions Section; Mr. Marcel Jolicoeur, Chief, Mental Health Section; Mr. Glenn B. McConkey, Health Statistics Planning Officer; Mr. Peter Mix, Senior Analyst, Mental Health Section; Mr. Cyril R. Nair, Statistician, Health and Welfare Division; Mrs. Jean Spear, Special Assistant, Program and Management Evaluation, Socio-Economic Statistics Branch; Mr. N. E. Tompkins, Operations Officer, Vital Statistics Section; and Mrs. Margita Weisz, Senior Liaison Officer, Institution Section.

And now let's give them a hand. (Applause)

But we have others from Canada, and I hope they are here. These must be the provinicial officers. Mr. Pierre Dionne, Department of Social Affairs, Government of Quebec; Mr. Andre B. Hurtubise, Department of Social Affairs, Government of Quebec; Dr. Daniel LeTouze, Director, Research and Planning, Department of Health, New Brunswick; Mr. J. H. Doughty, Director, Division of Vital Statistics, Department of Health Services and Hospital Insurance, Victoria, British Columbia; and Mr. D. Hamelin, Director of Statistics, Department of Health and Social Services, Winnipeg, Manitoba. (Applause)

Next, I have greetings to a number of people who have come here from other countries, especially the NCHS foreign trainees. And then we will move to visitors from afar. For some of them it's been a long trip. They have made the trip and we are delighted to have them with us.

Mr. Dennis Askwith, San Juan Family Planning Project, University of Puerto Rico; Dr. Antonio S. Medina, Director, San Juan Family Planning Project, University of Puerto Rico; and Mrs. Rosita Perez Hernandez, Director, Statistical Section, Mental Health Program, Department of Health, San Juan, Puerto Rico.

Will they please stand. (Applause)

Not so far from them come Mr. Keith Callwood, Director of Vital Records and Statistical Services of the Virgin Islands Department of Health, and Mrs. Mariel Williams, Deputy Local Registrar, Vital Records and Statistical Service, Virgin Islands Department of Health, Virgin Islands.

Will they please stand. (Applause)

By himself comes Mr. Alvis B. Carr, Jr., Assistant to the Health Director, Canal Zone Government. Next, from Guam, we have two representatives—Mrs. Betty Guerrero, Administrator, Comprehensive Health Planning, Department of Public Health and Social Services, and Mrs. Julita V. Santos, Territorial Registrar of Vital Statistics, Department of Public Health and Social Services of the Government of Guam. Will they stand?

In addition, we have a far-flung visitor, Dr. Thais Yeremian, Director, Comprehensive Health Planning, Government of American Samoa, Pago Pago. Dr. Robert C. Marvit, Research and Records Coordinators, Mental Health Division, Hawaii Department of Health, and Mr. George H. Tokuyama, State Registrar [and Assistant Chief], Hawaii Department of Health, Mr. Roger Clark and Mr. Francis Kester come from Alaska. (Applause)

We are delighted that you have joined us.

For some unknown reason, we have never marked the presence of the HSMHA Advisory Committee, known as the Standing Committee of the Public Health Conference on Records and Statistics. These distinguished members have served faithfully during the interim between

Conferences, have evaluated the work of the technical consultant panels, recommended ways of improving data collection, analysis, and presentation, and have generally assisted in the programs of the National Center for Health Statistics.

As we thank those members now leaving the committee as their terms expire—Dr. Mildred K. Kaufman, Mr. George H. Ormrod, Dr. Richard D. Remington, and Dr. Henry S. Shryock—we greet the new members whose terms now begin: Dr. Jeanne C. Ridley, Dr. Margaret Bright, Miss Margaret E. Drolette, Miss Regina Loewenstein, Mr. George H. Tokuyama and Mr. Everett H. Williams, Jr. I will ask that they stand, old and new. (Applause)

In addition to this group, we have a number of guests and participants who serve on our several Technical Consultant Panels. They, too, give of their time and effort to improve the health statistics of our country. I will not ask them to stand because that would mean that perhaps a quarter of us would be standing.

We also wish to thank the staff of the Biometry Branch of the Office of Program Planning and Evaluation, National Institute of Mental Health, for their work in planning the Conference, and the Planning Committee of our own National Center for Health Statistics. And last, but by no means least, the staff of the PHCRS Secretariat, Office of State Services, National Center for Health Statistics, and its very shy Executive Secretary, Mr. Junior Knee, who refuses to be introduced. Let's give them all a hand. (Applause)

We trust that the deliberations of this Conference will result in a greater cooperation and increased correspondence in the statistical field between our Federal, State and local agencies, and between the various segments of the statistical profession, to the end that, as a result of our mutual efforts, the improvement of the health of our people, as foreseen by the Secretary, may be brought about.

It is the custom to bring a special welcome from the Office of the Secretary of the Department of Health, Education and Welfare to these Conferences.

As you know, our affairs in that office are handled by Dr. Merlin K. DuVal, Assistant Secretary for Health and Scientific Affairs. Dr. DuVal's representative today is one who is well acquainted with our work. He knows about health statistics and is involved with developing the health data strategy of our country. He is Mr. Scott Fleming, Deputy Assistant Secretary for Policy and Development.

Mr. Fleming is on leave of absence from the Kaiser Permanente Medical Care Program, where he was an Executive Vice President and the Corporate Secretary of Kaiser Foundation Health Plan and the Kaiser Foundation Hospitals. Because we are all interested in States, I always try to mention the background of some of these people. He was born in Idaho and has lived in several other western states, primarily Nevada, Texas, and California. World War II interrupted his studies, and after military service, he started his legal training at the University of Chicago and completed it at the University of California in Berkeley.

In addition to bringing a greeting, Mr. Fleming is going to give us a few wise words of his own. In introducing him, I must apologize to him and to you. We seem to have published the wrong picture in the program. You see there Dr. Roger Egeberg, Special Assistant for Health Policy, Department of Health, Education, and Welfare. Now, Dr. Egeberg promised to come two years ago, but at the last minute the President sent him to Arkansas. This year he had to leave in a hurry for a consultation in Europe.

I think to make up for this, we shall have to arrange in 1974 either to leave that picture blank, with a big question mark in its place, or to promise Mr. Fleming that willy-nilly, we shall put his picture in that place, whether he or someone else is on the program. It is a privilege to introduce to this assembly Mr. Scott Flemming.

GREETINGS

Mr. Scott Fleming, *Deputy Assistant Secretary for Policy and Development, U.S. Department of Health, Education, and Welfare*

Thank you very much. I think the idea of putting a picture of a question mark is probably the most appropriate when you are dealing with delegates from the Office of the Secretary.

I have had occasion to appear in substitution for other people a number of times since I have been in the Department. I regret that Dr. Egeberg and Dr. DuVal were both unable to appear in person. I do have a message from Dr. DuVal, the Assistant Secretary for Health and the man for whom I work and the man who was very instrumental, along with the very impressive Secretary of the Department, Mr. Richardson, in persuading me to come and see whether or not I could make some contribution to the policy and activities of HEW.

The following is the message from Monte DuVal: "It is with great pleasure that I send greetings to all of you assembled for this joint national meeting.

"The Public Health Conference on Records and Statistics and the National Conference on Mental Health Statistics have an impressive record of leadership in the development of health statistics in the United States.

"Your work has given the nation indispensable tools for measuring health progress and charting future courses of action.

"It is particularly gratifying that your two groups are meeting concurrently for the first time. This is a major step toward the improved coordination of health statistic programs, not only in the Federal Government but also in the States and communities. That is one of the Department's most important objectives for the coming years.

"I am confident that the deliberations of this meeting will help greatly in hastening the achievement of this objective. I wish you a most enjoyable and successful conference."

That is the message from Dr. DuVal.

I just want to add a brief word or two. Whenever we meet, any of us, to address some problem on which policy is supposed to be developed within the Department, the meeting is barely underway before someone is complaining that we don't have the data that we need. There is indeed a lot of data, but somehow or other there still continues to be a problem of the nature, the timeliness, the relevance of the data for the policy oriented work within the Department.

I also know that just as there is no such thing as a free lunch, there is no such thing as a free number, at least not a number that has validity and meaning. Hence, the problem is not one of data collection and organization alone. It is one of efficient, effective, cost-effective data collection and organization—the problem of obtaining that which is needed for policy making within both the public and the private sector in a manner that is least costly and least burdensome to both the public and the private sector.

It is indeed a very significant challenge. There is one other dimension that I know you are aware of which deserves emphasis and that is the issue of timeliness.

This came through most clearly in some of the work that people in the Department were attempting to do in support of the activities of the Commission on the Health Services Industry under the Phase 2 economic controls. There was and is, and for the indefinite future I am sure will continue to be, a very significant problem in finding out, with reasonable validity and currency, what is happening in the field of health care costs.

These problems of getting the data that are needed in order to make our programs, public and private, more effective and more responsive; to obtain these data economically and efficiently; to organize them and make them available in a timely fashion, are a big enough set of challenges for all the talent that is represented here. I wish you the greatest degree of success in meeting the challenges. Thank you.

DR. LUNDE: Thank you. Some of us are meeting our busy administrator, the next speaker, for the first time. For most of you, who do not know who I am talking about, I can perhaps best make him known to you as Mr. Woolsey's boss. It's sometimes hard for us to think that a boss has a boss, but that's how it is.

Dr. Vernon E. Wilson has been directly involved in the health field for over 20 years. He started out in pharmacology, and in the same year in which he received his master's degree in that subject, he received his Doctor of Medicine degree. I think that combination explains why he is such a success as an administrator.

When Mr. Woolsey goes to his office with a policy headache, Dr. Wilson knows how to take care of it in more ways than one.

After serving as Dean and Professor of Pharmacology at the University of Kansas, Dr. Wilson became, in the course of time, Acting Dean of the School of Medicine and Acting Director of the Missouri Medical Center.

Later he was Executive Director for Health Affairs of the University of Missouri, and just before he was called to this present position in 1970, he was Vice President for Academic Affairs at that university.

Dr. Wilson has held many important national committee assignments with the American Medical Association, the Association of American Medical Colleges, and the United States Public Health Service, to name a few.

The State appointments will have a particular appeal to this audience. Dr. Wilson has served on State commissions related to mental health, dental health, medical education, and hospitals.

It is with great pleasure that we present our distinguished administrator, Dr. Wilson, to make the keynote presentation, "The Role of Health Statistics in Achieving Effective Health Care Systems." Dr. Wilson.

THE ROLE OF HEALTH STATISTICS IN ACHIEVING EFFECTIVE HEALTH CARE SYSTEMS

Dr. Vernon E. Wilson, *Administrator, Health Services and Mental Health Administration, Department of Health, Education, and Welfare*

Let me first welcome you on behalf of the Health Services and Mental Health Administration to this 14th National Meeting of the Public Health Conference on Records and Statistics. Through its national meetings and technical consultant panels this Conference has, by its work since 1949, made great contributions to the field of health statistics and thereby to the health of the American people.

To you who are newcomers to the Conference, as I am myself, and particularly to the members of the National Conference on Mental Health Statistics, I offer a special welcome. It is good to see a joint meeting of your two groups. It is an example of coordination in health statistics which is one of our highest priorities in HSMHA.

This opportunity for me is far more than a ceremonial occasion. For a working conference you should have a working speech. This is such an effort, for our success or failure in handling problems of data gathering and data sharing are the only foundation upon which a rational and effective health care program can be made available to all Americans. We owe you much for what you have done in the past, and your reward is that we expect even more in the future. This decade may well be the most important 10 years for health care in the history of our Nation.

The Problem

Improving the health care delivery system is, of course, the primary mission of HSMHA. I don't need to recite the litany of problems that characterize and handicap the system—manpower shortages and maldistribution, inflationary spirals in costs, unequal access to health care, the need to insure quality of care during a period of rapid change. Nor is it necessary, particularly for this audience, to repeat the figures that dictate the magnitude of the total health enterprise we are trying to influence. You have heard them and in fact assisted in producing them.

I would like to pose to you, however, the basic question which faces us in HSMHA. How do we make a relatively small resource of dollars and people serve most effectively to bring about changes in the total enterprise? How do we get some leverage on this system which really is not systematized at all? How do we best combine our resources with the vastly greater resources of the third-party payment system, the wisest counsels of the providers of care, and the increasingly well-articulated concerns of consumers, to design something better?

The problem, in short, is one of grand strategy. And it is not one that can be solved in a monolithic way for the Nation as a whole, nor in isolation by either the public or private sector. HSMHA's problem is mirrored in virtually every State, every city, every metropolitan area, and county. The Partnership for Health Act of 1966 moved much of the critical decisionmaking on health planning out of Washington, starting an accelerating trend toward decentralization. Thus, total strategy involves very large numbers of decisions in communities, areawide and State planning agencies, as well as in the health agencies of the Federal Government and in the deliberations of policymakers in HEW, the Office of Management and Budget, and the Congress itself.

Add to these long-range planning decisions the multitude of day-to-day options that face the managers of health programs and I think you will agree that the overall efforts to change and direct this huge enterprise involve myriads of choices.

Data Needs

For any investment of magnitude, rational choices and decisions require reliable and continuing baseline data. I don't mean that the data make the choice automatic—far from it. There are times, I am sure, when it is better public policy, or better program management to overrule or ignore the hard evidence, but even these decisions should be made with the facts clearly understood.

In my opinion, the health care industry is woefully deficient in its acquisition of data required for effective policymaking, planning, evaluation, and day-to-day management. These deficiencies cover both the types of data available and the depth of detail. No self-respecting manufacturing industry would ever feel it could achieve its goals, or stay in business, without a substantial investment in a thorough statistical analysis of its market potential, its resources and finances, and its everyday activities. The health industry has no statistical effort of comparable magnitude. It is one of HSMHA's highest priorities to attack this deficiency.

Perhaps I can best convey the general problem by discussing our agency's specific needs. We must have first program management data, data related to the health of specific target populations and to the activities of our programs designed to reach these populations. Second, we need baseline statistics describing health and health care in the whole population. We require that the two types of data be maximally compatible both in definitions and in the process used, permitting us to compare the performance of our programs against the overall performance of the health industry.

Statistics on available resources and their use, both within organized programs and in the health care industry as a whole, are another necessity. Again, to interpret these we must be able to relate them to the characteristics of the people being served.

This may seem an overly managerial approach to health. Certainly I would plead guilty to a belief that some of the know-how developed in attempting to use statistics to improve the health of our economy might well be adapted to improving the health of our people.

Let me add, however, that I also agree with the National Center for Health Statistics—an organization which I greatly admire—that statistics are not solely for administrators and planners and decisionmakers. The research worker, seeking to add to the sum of human knowledge, must also be served. Of even greater importance, the general public needs information. It is a duty of government in a democracy to provide the people with impartial data on the state of the Nation's health. The voters, after all, constitute the most important evaluation team of all and their legislative representatives must be reliably informed.

Meeting the Needs

In recognition of these varied needs, and with the conviction that our goals in health care require it, HSMHA has launched two major programs to strengthen our ability to produce timely and reliable health data. The first I shall treat very briefly for this program is really internal to our organization. In it we are attempting to define a core set of information which all the service programs receiving assistance from HSMHA will be asked to report. We are working also to assure maximum compatibility between these data and the baseline data from the surveys operated by the National Center for Health Statistics (NCHS). Naturally, achieving compatibility means some change by everyone concerned. But as a result we shall be able to make the measurements of impact and the comparisons between target and general population which I mentioned earlier.

This activity will have to be very carefully coordinated with the effort of the Association of State and Territorial Health Officers to develop standard data on State-operated health programs—an effort in which HSMHA is financing the development work through a contract.

The other major effort is one which you have been hearing about at this Conference since 1968—the Cooperative Federal-State-local Health Statistics System. This is our strategy for improving baseline data.

Someone might well ask: What is wrong with that beautiful multi-colored set of reports and the fat volumes of vital statistics that come out of NCHS? If you could just bring them up to date (and, incidentally, we think we are now well on the way), wouldn't they satisfy everyone's needs for basic health statistics? Aren't you in danger of overkill on this data bit?

My answer would be an unqualified *NO*. Data needs, particularly those of State and local agencies, are not being met despite a great effort to do so.

Let me illustrate with a single example of statistics on hospital care. Every health planning body—local, State, or national—watches or should watch the hospitalization experience of the people within its jurisdiction. How often are they hospitalized? For what conditions and how long? How much does it cost?

The need for information is evidenced by the vast amount of data collection that goes on. The hospital record rooms groan under the load: forms which provide information for third-party payors, public and private; forms for the abstracting services which feed back statistics for institutional management; forms for possibly hundreds of studies launched by State governments, hospital planning councils, Regional Medical Programs, church groups, and many more. In addition, there is the Federal effort which produces statistics on utilization under Medicare and the NCHS Hospital Discharge Survey, an attempt to cover the entire population.

The objective of these studies is laudable indeed; but the total result is highly unsatisfactory. Many jurisdictions still have no reliable statistics representing the experience of the people to whom that government is responsible. Even fewer have anything that can be compared with data for a neighboring jurisdiction or for the Nation as a whole.

This kind of hit-and-miss, every-man-for-himself approach is needless and wasteful. There has to be a more cost-effective way of obtaining the data we need, and there is. For short, we call it the Cooperative System.

Contrast the gathering of hospital statistics under this system with what goes on now. Under this system, everyone concerned—Federal and State agencies, planning councils, voluntary organizations—would use a basic patient abstract form and a common claims form. The hospital would prepare this core information *once*, returning it to a central agency—State, area, or regional. This agency, using previously agreed-upon classifications and processing techniques, would provide computer tapes for the use of all legitimate consumers—local, State, and Federal. To assure confidentiality, no information identifying individuals would be on the tapes.

As necessary, this basic reporting could be supplemented by special studies or by providing space on the abstract for additional, specialized items.

Extend this principle to other basic types of data and you have the Cooperative System.

If management information systems are developed compatibly over the next decade, the collection of such data can increasingly be machine produced from the management process thus opening up new possibilities for research in correlation of baseline data to operating procedures.

Undoubtedly, my example is oversimplified but I hope not overly optimistic. I chose it because of the importance of the data and because it illustrates several shortcomings of our current efforts. One is the unnecessary and unproductive duplication of data gathering. Are our statistical resources so great that we can continue this extravagance?

Another shortcoming is the lack of uniformity in defining and classifying the information being gathered. I am pleased indeed that there has been so much progress toward agreement upon a uniform abstract for hospital statistics.

This effort further lacks continuity over time—because of intermittent and inadequate funding, the projects come and go.

Finally, like any other single data set, hospital statistics must be supplemented by many other sets. Hospitalization will always be an important segment of our total medical care system—but still only one segment. It cannot, therefore, be analyzed in isolation. It must be studied in relation to long-term care on the one hand and ambulatory or clinic care on the other.

In time, the Cooperative System will comprise the different data collection components—ambulatory and long-term care, health facility and health manpower inventories, household interview and other survey systems, to name a few—required to provide continuing statistical evidence covering the health of the entire population and the entire health industry.

For many of these components, know-how and experience are quite limited. This is why, as many of you know, our work toward a Cooperative System began with a research and development phase. It is a partnership of the National Center for Health Statistics and the National Center for Health Services Research and Development. In this phase, we are supporting projects to improve our knowledge, emphasizing the testing of prototype components which, if successful, can be adopted throughout the system.

Future Developments

Over the next 10 years, we see the system evolving from research and development to implementation and the establishment of a network of centers—State, regional, or local—operating comprehensive data collection systems which will serve agencies at all levels of government.

For its part in this system, the Federal Government will act as coordinator, pay a fair share of the costs of operating the entire set of systems, and receive in return basic data for its own use.

I think you will agree that the Cooperative System is doomed to failure if it is just laid down on top of everything that is now going on. More duplication of activities we don't need. Those with power over the purse strings are not likely to be sympathetic to new initiatives in statistics, in the face of competing priorities that promise direct services to people, unless the statistics can be produced in a cost-effective way and can be demonstrated to have predetermined usefulness.

It follows from this that an enormous effort is needed. In my example of hospitalization statistics I more than "glossed over" the great amount of time and work that has gone into this one form, the Uniform Hospital Discharge Abstract. In every statistical area, the matter of common definitions and standards is a most complex and difficult job. It is also one which must have top priority in the next few years. Everyone will have to be ready to give a little in order to achieve a completely coordinated system that doesn't burden the recordkeepers and doesn't duplicate data collection activities any more than is absolutely needed.

It is in this area of standard setting that the Public Health Conference on Records and Statistics, through its technical consultant panels, is going to play a crucial role. In your work on the standard certificates of birth and death, marriage and divorce, you have shown that unanimity is possible. In fact, for the vital statistics component, what remains to be done is only to institute a uniform system of processing and a fair reimbursement by the Federal Government for data supplied to it by State statistical centers. There is no reason why this component should not proceed to implementation very rapidly.

The vital statistics data represent some of our oldest and most valued health indices—perinatal and infant mortality rates, rankings of causes of death, as well as such measures as health services received during pregnancy. These data are going to be of increasing concern to public policymakers because of their relevance to the rate of population growth in this country.

There are a few other areas in which we won't be starting completely from scratch. I have mentioned the Uniform Hospital Discharge Abstract. We are also moving toward agreement on a basic record for ambulatory care services—progress for which, incidentally, Dr. Kerr White of Johns Hopkins University deserves a great deal of credit.

Nevertheless, there is a long road ahead not only in arriving at standards but also in persuading existing systems to change over and in some cases to give up what they are doing to a central statistical agency. I hope you will help us with this selling job also. You can have an enormous influence in your States and communities.

Giving in (to develop common standards); giving up (to reduce duplication of activity)—this is the heart of what we mean by cooperative. It is absolutely necessary and I think you will agree it is not going to be at all easy. But we are determined to try and I believe we are going to succeed. Our purpose is to essential to health progress to allow failure.

But in this great effort in system building, I urge that we all remember and understand why we build. The statistics are not an end in themselves. They are only worthwhile when they are used with purpose—as an aid to policymaking, program planning and management, evaluation, public education, and research. Thus at every stage the user as well as the statistician must be involved. Every data system's value must be demonstrated before it is installed. Only in this way can we be sure of avoiding a statistical overkill.

I am not suggesting that we who are administrators and planners now know all there is to know about how best to use quantitative evidence. Here too we need research and demonstration, of the kind that has taught us to link statistical indices with control mechanisms in managing our national economy; and training in the application of statistics. In this area, the Data Use Laboratory being considered by the National Center for Health Statistics is a most promising proposal, as is the expansion of the curriculum of its Applied Statistics Training Institute to include courses in methods of use.

I have tried this morning to convey to you my conviction that the data on which we in health administration build our plans must be improved, and my commitment to the undertaking. The program I have outlined is a formidable challenge. We in HSMHA can help. We stand ready with several kinds of contributions: First, technical assistance (we will be expanding our capacity for this in several parts of the agency); second, support for demonstration projects through the National Center for Health Services Research and Development; and third, through the National Center for Health Statistics a sharing in the operational costs of data systems which meet agreed-upon standards and supply data for national use.

Ultimately, success depends upon you and the organizations you represent. I ask that you give the undertaking the very high priority it merits. This is a critical era for the health care system in the United States. Momentous changes are in the offing. The decisions which shape and direct those changes must be based upon hard evidence. We look to you to give us what we need.

It is good to be with you.

DR. LUNDE: Thank you for the message you have given us, Dr. Wilson, and for pointing out the direction of the future.

Before I introduce our next speaker, I want to introduce one of the finest statisticians in the field of public health in the United States, Dr. Bernard Greenberg, who has just been named Dean Designate of the School of Public Health of the University of North Carolina. Will Dr. Greenberg please stand. (Applause) The statisticians are taking over.

We at the National Center for Health Statistics look upon Kerr White as an old friend. Whenever we get into a bind on a host of problems, from medical care statistics to scientific research problems, from vital statistics and mental health statistics to morbidity and hospital statistics, someone is bound to ask if Kerr White couldn't be consulted about it.

My own association with him was strengthened in connection with his membership on the Standing Committee of the Public Health Conference on Records and Statistics some years ago. Looking back, it seems to me that during those years Kerr wrote most of the resolutions you read about and which were passed on to the Administrator or to the Secretary for consideration.

Our Canadian associates, Kerr, will be interested to know that you were born in Winnipeg, Manitoba.

Dr. White received his AB degree from McGill University and went on from there to Yale University Graduate School to study economics. World War II came along, as it did for many of us, and he served in the Canadian Army overseas for four years. After the war he returned to McGill to receive his M.D. degree.

Dr. White has pursued a research and academic career, being associated in turn with the University of North Carolina School of Medicine, the London School of Hygiene and Tropical Medicine, the University of Vermont College of Medicine, where he was chairman and professor in the Department of Epidemiology and Community Medicine, and finally the Johns Hopkins University School of Hygiene and Public Health, where he is professor of medical care and hospitals.

He has been a member of committees and an author of papers too numerous to mention here, all attesting to his versatility and his dedication to our work in public health.

I am proud to present to you Dr. Kerr White, who will discuss priorities for health services information.

Dr. White.

PRIORITIES FOR HEALTH SERVICES INFORMATION

Dr. Kerr L. White, *Professor of Medical Care and Hospitals, School of Hygiene and Public Health, The Johns Hopkins University*

Six years ago in addressing this Conference I suggested that the vital statisticians of the country might revitalize their profession by taking on the task of developing a broad range of medical care statistics. These new measures would be designed to assist policymakers and administrators in organizing our health resources more effectively and efficiently to meet the health needs of society. I suggested that State and local vital statistics units be expanded to State Centers for Health Statistics, analogous in their concern with those of the National Center for Health Statistics. Further, it was suggested that we should strive to create systems for regularly reporting data from all levels of our health care organization, including hospitals and sources of ambulatory care, as well as from household interview and health examination surveys.[3]

Today I was asked to address you on the subject of priorities for health services information. In reflecting on this assignment, I concluded that there was really no basis for changing the major priorities discussed six years ago. It seems to me that it might be more useful to reflect on the progress made in the interim.

What has happened since 1966? To me, it seems to amount both to a great deal and yet not very much. There has been an enormous amount of activity, a little action but not too much accomplishment. The whole enterprise is reminiscent of love among the elephants. It is initiated and accompanied by much trumpeting and bellowing, takes place on a very high plane and requires a long time before any results are discernible! Perhaps that is the way it has to be when one is trying to cope with huge problems.

First, the trumpeting and bellowing! Loose talk abounds and jargon substitutes for thought. Terms such as "health data systems," "hospital information systems," "comprehensive health planning statistics," "mental health statistics," "peer review," "utilization review," and "quality assurance" are widely employed without specification of their intrinsic informational value or their prospects for helping to achieve policy objectives or influence decisions. The ready availability of computers has often hindered matters more than it has helped. Because data can be captured and stored, on the one hand, or can be retrieved and manipulated automatically, on the other, does not mean that they should be. To place great emphasis, for example, on automating the clinical record seems to me to distort priorities with respect to the realistic contributions of computers to improving health care in the foreseeable future. This is a trivial problem compared to the major issues associated with redirecting and reorganizing the nation's health services. Indeed, there is little point in automating mousetraps when we are trying to deal with elephants!

Now for the lofty plane on which all this takes place! The planning of information systems is often removed from realistic awareness of what data physicians, nurses, receptionists, admission officers, record librarians, fiscal intermediaries, hospital administrators, the general public or sick people, can, or are prepared to provide. Requirements or requests for even more data are unlikely to be heeded unless they are seen and believed to have a bearing on the improvement of patient care and on the running of the health services. Need to know and reason for knowing have to be made crystal clear by those designing the specifications for data collection. At another level of abstraction, engineers and systems analysts design elaborate flow charts that purport to reflect, on the one hand, the way a "health care delivery system" works and, on the other, the manner in which it is believed data will improve matters. Unfortunately the central feature that characterizes the vast bulk of medical transactions is ignored.

In space, defense and to an increasing extent in the air, ship and rail transportation industries, human beings are subservient to technological transactions. These major service systems of contemporary industrialized societies are technologically based and human beings manipulate the controls which are increasingly protected from human failure—they are designed to be "idiot proof." In medicine, the reverse holds. As psychiatrists have taught and most other clinicians now recognize, the patient-physician relationship is at once both the largest and most sensitive element in the entire array of health services. It is this highly personal, intimate one-to-one relationship between the physician—and perhaps a physician surrogate such as a nurse practitioner—and the patient that establishes and moderates the confidence and trust required for the exchange of honest information. If you do not believe me, reflect on your own experience with doctors or your own expectations as you approached the health care establishment. Better still, eavesdrop on a busy primary care physician as he goes about his day's work.

To the statisticians working in the mental health field this emphasis is unnecessary, but it should be recognized by all of us concerned with designing information systems. In medicine, technology can be used to support the intensely personal transactions between patients and physicians, not to supplant them, and certainly not as the primary mode by which the patient interacts with the health care establishment. At least this is my view of the situation and I believe it is the view of the overwhelming bulk of the people we serve. Whatever we do in the way of improving health statistics we need to recognize these medical facts of life and to design our information systems with the concrete operational realities of providing patient care and health care foremost in our minds. That implies that statisticians, communications scientists, systems analysts, engineers, and computer technologists have to know a great deal about the way medical care is provided before they can make useful suggestions for improving matters.[4]

Finally, what about the long gestation period before any results are obtainable? The enormous size of the health care industry in the United States is partly responsible. We are talking about what may soon be the second largest industry in the country, approaching an expenditure level of $80 billion annually or 8 percent of the gross national product and one of the largest items in the Federal budget. No wonder it all takes a long time before results are apparent. However, size seems to be less of a problem if, as in the case of the elephants, you know what you are trying to do!

The overriding problem in health care in the United States is that until quite recently we have had no national health policy. Even now we have only a "strategy" and we have no clear loci for policy analysis and decisionmaking at Federal, State or local levels nor, so it appears, even within the institutional or professional organizations that provide health services and purport to give leadership. Once organizational responsibilities for policy analysis and decisionmaking have been fixed, the specifications for information systems to support their needs can be developed. Similarly, where authority for population surveillance of health needs, and for monitoring the efficacy, effectiveness, and efficiency of health services has been assigned, the necessary information systems can be designed. Again when the agencies and institutions for providing personal health services to defined populations have been identified, the development of patient care management systems required to relate resources, services, and needs is possible. The reason that airlines, banks, and large contemporary production industries have good information systems is because they know what they are trying to do. In health we have not yet specified our objectives except in rather general terms, such as improving access to care, containing costs, and elevating quality.

So much for the activities and the actions of the past few years. What about the accomplishments? First, there has been a gradual recognition in most quarters that large-scale social enterprises require reliable information for decisionmaking, and planning, if not for management. In a country which still enjoys the advantages of diversity and pluralism in its health care arrangements, it is essential to have comparable information that makes informed choices and decisions possible. How can we choose, if we cannot compare? At decentralized operating levels, the need is for management information. In what is essentially an agglomeration of decentralized health care arrangements in the United States, it seems silly to talk about "managing" the nation's health care system from Washington, D.C. Stimulating, monitoring, guiding, supporting, and probably regulating, yes, but managing, no. The former are inductive processes characterized by learning, knowing, planning, standard setting, and evaluating and the latter is a deductive process of organizing, implementing, administrating, monitoring, and evaluating. It is increasingly recognized that both types of information systems are needed but for different purposes and at different levels of organization and responsibility.[5] More importantly, it is being realized that policy analysis, as well as research and development, directed at improving health services in contrast to just operating them as they are, requires the purposeful generation of focused information.[6]

Let me be clear, however, that I am not suggesting that quantitative information is the only basis for decisionmaking. Nonquantifiable factors, especially political and social considerations, and above all judgments in the light of contemporary values, are equally, perhaps even more important, but gradually some of these too will become susceptible to the influence of social arithmetic. Information contributes to an iterative process designed to improve the climate of decisionmaking in health just as it does in other industrial and social enterprises. I believe we have made progress in our thinking at all levels in this regard.[7]

Second, a clear national commitment has been made to create Federal-State-local health statistics systems that will coordinate all health statistics, including, of course, those bearing on mental health problems. This important innovation recognizes as a matter of great urgency the need for multipurpose data collection for use at different administrative levels by different agencies, through the introduction of coordinated instruments and forms for capturing data. It recognizes the powerful contributions to be made by imaginative forms designers in collecting data and by computer technologists in aggregating and manipulating inputs from differing instruments, forms and code sheets and in providing outputs in an equal diversity of formats. The latter can be designed for use by a wide variety of agencies and institutions each concerned with specific needs, services, and accomplishments related to different population groups. This capacity of the computer to accept data in different formats, to manipulate, aggregate, and analyze it and to provide output again in equally diverse formats for different purposes cannot be overestimated. The principles are simple but the implications for health statistics are enormous. As a start it implies the need for many more health statisticians trained in contemporary information theory, in computer technology, in management sciences, and in health care organization as well as in fundamental statistical concepts and methods. It requires the development, promulgation, and widespread, if not universal, use of comparable and compatible terms, definitions, and classification schemes and the integration of data generated through surveys with that generated from records of operating health care organizations and systems. And above all it requires the fullest cooperation of statisticians at different levels of government and in different data collection and processing agencies.

Third, a start has been made on the promulgation of uniform terms, definitions and classifications that can be used for hospital discharge abstract systems and for ambulatory medical care record systems. As in the case of the terms and definitions employed on birth and death certificates, a uniform hospital discharge abstract data set has been developed and is now being tested and evaluated in five settings. Its use is a requirement for receipt of Federal funds for Experimental Health Services Delivery Systems, for participation in Federal-State-local health statistics systems and in a variety of demonstration projects. The uniform hospital discharge data set will be introduced shortly into the National Hospital Discharge Survey conducted by the National Center for Health Statistics and the Survey itself is being expanded and the publishing of the results accelerated. The uniform hospital discharge data set has been adopted by many State health data committees and also by virtually all of the regional hospital discharge abstracting systems throughout the country. We hope that it will shortly be adopted by the mental hospitals of the country and by the Veterans Administration. It is about to be adopted by the Social Security Administration for use on the revised Medicare claims forms.[8,9]

More recently progress has been made in the development of a uniform basic data set for ambulatory medical care records. Presumably this basic data set will eventually be refined and advocated for use in encounter forms that describe patient-physician contacts in a wide variety of ambulatory medical care settings including the offices of private practitioners, hospital outpatient departments, clinics, and Health Maintenance Organizations, and it will also be used in the forthcoming National Ambulatory Medical Care Survey to be conducted by the National Center for Health Statistics. The problems of ambulatory medical care statistics and progress in the development of the National Ambulatory Medical Care Survey will be discussed this afternoon, but suffice it to say at this point that this is undoubtedly one of the most important and exciting innovations in contemporary health statistics.[10]

Three other developments deserve mention for they constitute substantial progress. The first is the development of reporting documents, including registration and encounter forms, and more importantly the creation of model tables for reflecting information required both for patient care and for management of Health Maintenance Organizations. This set of recommendations represents a carefully conceived presentation of the kinds of information needed for purposes of meeting the health needs of populations enrolled in formally organized health care systems.[11]

The second example is the MADOC (Medicare Analysis of Days of Care) Report prepared by the Office of Research and Statistics of the Social Security Administration. This regular report compares predicted with actual length of stay data for selected hospital admissions by individual hospitals within areas. By use of a multiple regression technique, a number of factors that influence hospital utilization can be incorporated and those that are generally regarded as external to the hospital separated from those that are traditionally regarded as within the control of the hospitals. Among the interesting features of this analysis are provision for controlling for variations in the case-mix of hospitals and the use of selected charges for certain ancillary services as proxy measures of the intensity of care provided and the severity of the patient's condition. But of course the whole exercise is limited to Medicare patients and tells nothing about the rest of the hospital's activities or accomplishments. It is an important start but only a start.[12]

The final development is the now widespread recognition by clinicians that it is the patient's problem that matters, not the diagnosis attached to his disease, his visits or admissions. The "problem-oriented" medical record advocated by Weed reflects the realities of the great bulk of clinical practice. As psychiatrists and primary physicians have known for a long time, patients do not present with diagnosis, they present with symptoms, conditions, and, above all, with problems. They want help in understanding and resolving their health problems. The belated recognition by academic clinicians that the health care establishment's only responsibility is to identify, prevent, ameliorate or resolve the health problems of individuals and populations must now be accepted by health statisticians and health care administrators and reflected in the information systems they develop.[13]

So much for what seem to me to be the most promising recent accomplishments in improving the nation's knowledge about its health services and health care. Let me turn now to consideration of the principles that should guide the evolution of this field in the immediate future and that should determine the priorities for data collection.

First, there needs to be a clear political commitment to the enunciation of national health policies that establish objectives and standards as a basis for encouraging, stimulating, requiring, or providing mechanisms that will relate society's health resources to its biological and psychological health needs. Associated with this commitment is the need to establish a health policy research and anlaysis capability within the Office of the Secretary of the Department of Health, Education, and Welfare. It should be the function of this continuing group of permanent civil servants to consider the possible options available to the decisionmakers and to suggest the possible implications of various courses of action. Information about health problems and health services is essential grist for this important mill. Related to this activity is the need for coordination of all statistical efforts in health in a centralized authority within the Office of the Secretary. Perhaps a Bureau of Health Statistics headed by a presidentially appointed Commissioner of Health Statistics akin to the Commissioner of Labor Statistics or the Director of the Bureau of Census is needed. Such a bureau could combine the functions of the National Center for Health Statistics and elements of the Office of Research and Statistics of the Social Security Administration, the statistical activities of the National Institute of Mental Health, the information and data activities of the National Center for Health Services Research and Development and other health related statistical responsibilities in the Department of Health, Education, and Welfare. This function, or something similar, it seems to me, is essential if information from records systems, either those associated with payment systems or with the provision of direct services, and those derived from health surveys are to be interrelated, complementary, and comparable. If agencies at State and local levels in a universal national health insurance system are to be responsible for monitoring and planning health services and for relating those services to resources and budgets, it will be essential that all data be comparable on the basis of uniform terms, definitions, and classifications. The Bureau of Health Statistics, of course, would not operate all of the Department of Health, Education and Welfare's health data systems but it would be responsible for developing most of the systems and for establishing the design and performance standards for all of them in much the same way that the Office of Management and Budget now approves questionnaires, survey instruments, and forms design.

A commitment to the development of a policy research and analysis capability and to a centralized health statistics function in the Office of the Secretary seem essential if we are to raise the level of empiricism in evolving health policies for the country.

Second, we need to understand the differences between data, information, and intelligence. Data consist of bits of discrete observations or facts that when aggregated provide simple descriptions of events, or the characteristics or attributes of people, things, or places. When tabulated in some purposeful way, particularly so that differences and variations are illuminated and questions are posed or answers provided, the aggregated data constitute information. For example, age-sex standardized tabulations for all patients admitted annually to all hospitals in a standard metropolitan statistical area with a diagnosis of cardiac failure or, better still, with the problem of shortness of breath, arrayed by hospital length of stay could describe deviations from the means and medians and suggest the need for further examination of these differences. This would constitute raw data tabulated as information. It would be a start but we should go much further. For example, I should like to see tabulations by the interval between the patient's admission to hospital and the last visit of the patient to a physician, by living arrangements at home (that is by whether the patient lived alone, with another responsible person present or in a multiperson household), by use of cardiac drugs at the time of admission, by presence of other chronic diseases, and by case-fatality rates. Information of this kind starts to become useful in understanding the needs of individuals and populations, but to be really influential it has to be turned into health "intelligence." For example, if age-sex standardized rates show that patients admitted to hospital with cardiac failure who have not seen a physician for over a year stay twice as long as those who have seen a physician, or if the age-sex standardized case-fatality rate for patients in hospitals of 50 beds or less is twice that for those in hospitals of 500 beds or more, the policy analysts will begin to get some insight into the workings of our health care arrangements and into the possible benefits of improved referral arrangements or even regionalization of hospitals.

To achieve this level of utility, information needs to be recast, analyzed, and presented so that those responsible for policy analysis and decisionmaking can understand and appreciate both what the problems are and where the problems are. Later they should be able to evaluate the impact of changes on the problems by measuring what has changed and how much it has changed. "Intelligence" about the system is substituted for information and for raw data;

in other words, the military notion of "intelligence" should be applied to the management of our health services.

Statistical systems in this sense constitute the core of our social memory and our collective experience—the term, according to Oscar Wilde, "that everyone gives to his mistakes." How else can we benefit from our mistakes as well as from the pluralism and diversity of health care arrangements in this country? How else can we choose, how else can we know how to intervene, support, encourage, or stop specific services or practices? How else can we identify high risk groups which need special forms of care or followup? As in the case of the elephants, what is the value of a memory, if you do not have anything worth remembering?

In summary, what I have tried to say so far is that we need a posture of leadership and of decisionmaking at Federal, State and local levels that recognizes the need for clear enunciation of health policies, based on the analysis of "intelligence" generated by information systems designed by well-trained health statisticians and health care administrators. All of this should be under the aegis of the coordinated Federal-State-local health statistics systems and must include the creation of strong State Centers for Health Statistics. Both survey and record systems should be related through mechanisms for approving the design and installation of systems and for controlling their quality. Provision should be made for the adoption of uniform terms, definitions, and classifications that are either advocated or required in much the same fashion that the uniform reporting of births, deaths, and other vital events has progressed in this country. Uniformity will not be achieved overnight but a start can be made.

Now let me briefly discuss *PRIORITIES* for data collection. Let me suggest some features of health statistics that can be defined by six terms that also start with the letter "P"—six "P's" for "priorities." Above all I believe that our health information systems should be *PROBLEM-ORIENTED*, that is to say that they should be focused essentially on the problems that *PATIENTS* and *POPULATIONS* present locally, regionally, and nationally to our health care systems. They should be *PERSON-RELATED* so that with due protection for confidentiality individuals can be identified, and where appropriate events, such as their hospital admissions or physician contacts, can be linked within practices, institutions, health care systems, and perhaps within communities and, for some purposes, even regionally or nationally. The data should be *POPULATION-BASED* so that the determination of denominators related either to enrolled populations or to geographically defined populations will permit demographic standardization of the data as the principal means of making comparisons. There is perhaps no need to emphasize to statisticians that data should be *PERIOD-EXPLICIT* and *PLACE-SPECIFIC* but it may be important to emphasize that all requests for data should be characterized by extreme *PARSIMONY*. Ask only for as little data as we need now and as much as we can fully justify today.

I believe that if some of these points were more widely appreciated by those responsible for development of health information systems throughout this country, more progress would have been made in less time. There is nothing new or secret about these matters. They have been the subject of reports and discussions sponsored by the World Health Organizations.[14,15]

Once again, after six years what are the priorities for data? To my way of thinking, the single most useful and most readily available information base for improving the health care arrangements in this country would be through the universal requirement that all hospitals, general and mental, short-term and long-term, private and public, install and participate in a regional hospital discharge abstract system. Florence Nightingale pointed out 120 years ago that it is only when we know the characteristics of the patients and their clinical status, and we have some measure of hospital efficiency, usually reflected in budgets, costs or charges, that we have any way of comparing the accomplishments of one hospital with another or of all hospitals within a community with those in other communities. It is the single most powerful method of examining the work of hospitals in relationship to their effectiveness and their efficiency.

The second priority should be assigned to developing information about ambulatory medical care. It is at this level that the bulk of medical practice occurs and it is the arena of greatest concern to the consumers. The problems of primary medical care, the use of physician surrogates and allied health personnel, the organization of services, as well as the objectives of medical education can only be sensibly debated and decisions made when data on ambulatory medical care are available at national, State, and local levels. Progress in this field has been made but much more needs to be done.

Finally, I would give high priority to the development of management information systems for Health Maintenance Organizations. It is the concept of the enrolled population and of responsibility for the management of the health care problems of this defined population combined with incentives for prudent use of resources that is likely to have the greatest overall impact both on the care of patients and on the costs of medical care.

With all of these developments of course the National Health Survey through its continuing household interviews, the National Health Examination Survey, the National Hospital Discharge Survey, and selected ad hoc surveys should be continued. It is only through these methods that we have measures of the needs of populations that permit comparisons to be made between users and nonusers or between enrollees and those not enrolled in health care systems.

My final priority is reserved for urging increased financial support and large scale improvements in the training of health statisticians. We urgently need a larger cadre of professionally trained health statisticians who are familiar with the operations of health care institutions, with modern principles of communications science, management science, and information systems as applied to large scale social and industrial enterprises and who are also familiar with contemporary thinking about health care organizations and problems. If we could double the ranks of those present today, we could evolve a national health intelligence system that could exert more constructive influence on our health care system than the mere provision of more money and more doctors.

Thank you.

DR. LUNDE: Thank you for this strong statement, Dr. White, on ways in which to move in order to realize the challenges given us by our Administrator, Dr. Wilson.

Dr. Wilson is leaving now, and we say farewell, and thank you for coming. Let's give him a hand. (Applause)

Although he did not intend that I should recognize him, I wish to introduce another of our distinguished guests at this time, Dr. Robert van Hoek, Director of the National Center for Health Services Research and Development. Will you please rise. (Applause)

I hope that our next speaker heard the Administrator correctly, and I hope I did, too, when he said that in HSMHA there are no bosses.

Our next speaker is a man we can thank for seeing to it that we have a conference such as this. While Mr. Knee is Executive Director of the Conference and puts the show on the road, and I am Chairman of the Standing Committee of the Conference and generally see to it that the appropriate Conference topics are brought to the attention of the Committeee, Mr. Woolsey, for the past two conferences, has acted as Chairman of the NCHS Conference Planning Committee.

He always seems a little bit ahead of the rest of us in thinking about conference topics and people and ideas, and that is because of his vast experience in the field of statistics related to health.

Theodore Dwight Woolsey, after receiving honors in mathematics at Yale, joined the Bureau of the Census, then later joined the New York Health Department, where he worked in vital statistics. He left New York for the Johns Hopkins School of Hygiene and Public Health and took graduate work in biostatistics.

During World War II he was involved in establishing the current mortality sample at the Bureau of the Census and later, while in the Navy, he helped reorganize the Navy medical statistics system.

Following the war, he joined the Division of Public Health Methods in the Public Health Service and told us yesterday at an orientation conference that he remembered the day—it was July 1, 1946. There he took a major role in the planning of the National Health Survey. He helped write the National Health Survey Act, and when the NCHS was formally established in 1960, he became head of the Health Survey Division.

He was Deputy Director of the Center under Forrest Linder and, on Dr. Linder's retirement, succeeded him as Director.

His outstanding service to public health was recognized a few years ago when he received HSMHA's Superior Service Award.

We are very proud of our Director. I think I should say to those of you who are new to our Conferences, and particularly to those of our colleagues who work in the field of mental health, that if you see Ted in the hall or at a meeting during this week, he would appreciate it if you would introduce yourself to him and just say "Hi, Ted." So please make friends with our friendly director.

In some countries there is a position known as the senior or chief health statistician. In our country Mr. Woolsey really fills that position.

I am very proud to introduce Mr. Woolsey, who will speak on "Using Statistics in Health Planning and Decisionmaking."

Mr. Woolsey.

USING STATISTICS IN HEALTH PLANNING AND DECISION MAKING

Mr. Theodore D. Woolsey, *Director, National Center for Health Statistics, Health Services and Mental Health Administration*

This is *my* first opportunity at our 14th National Conference to say "Hello, again"—all at once—to all our friends and colleagues who have done so much to make these Conferences a pleasure and a profit in the past. The staff of NCHS joins me in a warm welcome to all of you and especially to the Mental Health Conferees who may be here for the first time.

Believe it or not, Mort Kramer, Chief of the Biometry Branch, NIMH, and I have been friends and have worked together for about 33 years. We were both statisticians in the New York State Health Department in 1939. It is a reminder of old times to be teaming up again with him on this Conference.

But now to my topic. It is a topic which is intended to set you thinking about a subject which has interested me for years:

I have always believed that if the producers of statistics would pay more attention to studying the uses being made of the product of their efforts, they could do a better job in planning their work. In fact, to try to make good on this conviction I initiated a contract study of users and uses of NCHS statistics a few years ago. This study was not a complete success, but it was, I think, a desirable effort to throw light on something which you don't see much about in the statistical literature, that is, the *way* people use statistics. You know, that is something we *don't* know much about.

It has become a part of the conventional wisdom that statistics assist decisionmaking. I believe this is true, but it just ~~isn't~~ good enough to keep saying it. We need ~~some~~ systematic study of the process or, at the very least, some good case histories to illustrate how our statistics have influenced important decisions. Not only would such information help the producer make the product more useful, but it would help justify the support we ask for. And it would have a third benefit; it would help educate the user in better ways of making statistics work for him.

Because of my convictions on this matter, shared by many others, NCHS is proposing the establishment, as a part of the Center, of a Health Data Use Laboratory. The purpose of the Laboratory will be to catalog real life examples of appropriate uses of statistics by federal, State, and local planners; to promote better use through development of courses for the Applied Statistics Training Institute; and to provide technical assistance in this field. This would be a natural follow-on to the completion by one of the Conference TCPs of the book entitled "Statistics for Comprehensive Health Planning" which is now available here at the Conference in final form. I hope you will read it.

Incidentally, since confession is good for the soul, I will tell you that, despite this long-standing interest of mine, a draft of a budget justification we prepared for our Center programs came back from Dr. Wilson some months ago with a note in his own handwriting to the effect that the text appeared to have been written by someone who thought that the statistics were an end in themselves. I re-read it and agreed. Thus, I was faced with a sharp reminder that the statistician's preoccupation with the techniques of data collection, processing, and analysis may draw his attention away from the interests of the consumer, even though he may publicly declare that the purpose of the undertaking is certainly to secure the information needed by the consumer. Incidentally, I think our justifications read much better since that episode.

This preoccupation of the statistician may be one of the reasons why there has been so little study of the uses of statistical information. Lots of people have inventoried the users, but few have conducted research on how data are being used and how they can better be used.

Another reason why such research has been neglected is that it is not a simple matter by any means. We found this out in the NCHS study I referred to. We confined the study to uses of the baseline types of statistics that NCHS publishes. The major problems, not really satisfactorily resolved, were four:

(1) How does one define "a use?" To count and classify episodes of use one needs to define them and this proved difficult.

(2) Who, of all those who see the data, is the user? Which one should answer questions about the use?

(3) In analyzing the experience of users should the great variety of uses be given varying weights according to their importance? And, if so, how? And . . .

(4) How does one get the user to describe his use in a way that will help us to improve the product?

But one outcome of the study which may perhaps be helpful in further investigation was a sort of empirical classification of the kinds of purposes that users of health data have in mind. This was based on our NCHS experience in responding to requests for statistics.

It is a rudimentary classification, and it is confined to purposes in the use of descriptive data; that is, it is not intended to cover experimental results. As an aside, it should be remembered that vital and health statistics are not infrequently gathered as part of a designed experiment. The polio vaccine field trials in which poliomyelitis case statistics were used in evaluating the effectiveness of the vaccine is a good example. However, my classification omits that sort of single hypothesis-testing purpose.

The classification has four major categories:

I. *Planning and management of public and private endeavors in the health industry.*

II. *Research in the areas of demography, health, and health services.*

III. *Teaching and the improvement of clinical practice.*

IV. *Evidence in litigation.*

I could give examples in all of these, but for the sake of brevity I'll confine myself to the first major category. It has seven subcategories, and it seems to me they are all relevant to the principal theme of this session of the Conference. They proceed from original problem identification through program planning and program management to end-result evaluation, and each subcategory of the purposes makes different demands upon the statistics. Here they are, with illustrations of each:

Subcategory One: *Identifying emerging new problems or potential problems in health or the health industry. This includes routine monitoring of time series and looking for developments of concern to policymakers. (It may also include setting forth already known or suspected problems in quantitative terms.)* A short title might be simply *Trend Analysis.*

Three examples among many from our experience: first) identification of the rising problem of chronic respiratory disease morbidity and mortality; second) pointing to the slowing trend of the decline in infant mortality; third) drawing attention to the falling proportion of physician-patient encounters taking place in the home. These were items for the immediate agenda of the planners and policymakers.

Subcategory Two: *Projecting forward in time to anticipate future problems or future needs.* Short title: *Projecting Needs.*

A couple of examples: first) projecting statistics on utilization of physician services within demographic subgroups, and projecting the population subgroups themselves, in order to estimate future needs for physicians under stated conditions; second) combining statistics on uncorrected vision defects among children and birth rate trends to estimate needs for vision conservation services in schools.

Subcategory Three: *Assisting in the selection of strategies for dealing with problems, or in the selection of problems for priority attention in the face of limited resources,* which we can call *Selecting Strategies and Priorities* for short.

Some of the best examples of this purpose were the cost benefit analyses done some years ago for disease control programs in this Department. There was one on arthritis and another on motor vehicle injury prevention and several others. A great deal of data on disability and mortality was used. Also, we are constantly asked to rank order diseases as causes of death or disability. Others have used these same figures to rank order diseases in terms of their economic costs. Some of this rank ordering has by now so permeated the thinking of health policymakers and legislators that they have forgotten that it was statistical data that originally helped them form the judgments. There are other diseases that are as highly fatal, as painful and as disfiguring as cancer, but cancer affects more people. Hence, the national effort now underway. But who remembers the part that statistics played in that national decision? It is so obvious we tend to overlook it as a purpose of statistical systems.

Subcategory Four: *Measuring the "market" for contemplated new services; costing out programs; preparing budgets.* That is *Market and Budget Analysis.*

We have a number of examples in our files that fall into this category. The cost of a continuing education program for nurses was based on statistics of the number and distribution of nurses of particular types. The cost of a program of diabetes early detection can be roughly calculated from survey data on untreated cases in the population. Pharmaceutical firms use statistics on disease incidence and prevalence to estimate the potential payoff of research and marketing of new drugs. Casket manufacturers and the baby products industry are avid consumers of statistics on deaths and births, for market analysis purposes.

Sometimes we can cite instances where a better use of available statistics on the potential market would have saved a great deal of money and grief. I read the other day, but I cannot vouch for its accuracy, that teachers' colleges are still turning out teachers for elementary schools at the same rate as they did ten years ago. I wonder if they know what is happening to the numbers of babies being born. It would seem they had better start doing some market analysis.

Subcategory Five: *Educating the public, in the very broadest sense, and drawing public attention to problems to elicit legislative or budgetary support, or to change public behavior.*

Public Education is a broad category of uses. Many of the National Commissions, such as the one on Heart Disease, Cancer and Stroke and the one on Product Safety, have used quantities of health statistics for purposes I would put in this category. The Congressional hearings that led to the Medicare legislation used statistics on the trend of insurance for hospital and surgical care among people 65 years of age and over to point up the need for a public program. The Select Committee on Nutrition and Human Needs used statistics from the National Nutrition Survey, conducted by the Nutrition Program in the Public Health Service, to draw public attention to problems of under-nutrition in the U.S. Statistics on the frequency of accidental injuries of various types are used in health education campaigns to warn the public of certain hazards.

I am sure many of you can cite other examples from your own experience. In our concern with improving the technology of program planning and management we must not forget that governments in a democratic society have a responsibility for disseminating impartial information to the citizen, the consumer of health services, to enable him to participate in the decisionmaking process in a more informed way.

Subcategory Six: *Program management; that is, measuring the input and immediate output of ongoing programs; and using data as a sensor for feedback mechanisms.*

A great deal of the health statistical effort at the present time is going into statistics which have this purpose. The Medicare statistical system is perhaps the biggest activity of this type in the health field, but in this group I would also put the NIMH statistics on Community Mental Health Center services and characteristics of the catchment areas. They are used to monitor the operations of the program and indicate the need for corrective action if things go wrong. They also serve to show whether target populations are being reached and quantitative goals are being met.

The statistics which serve this purpose come chiefly from what I call program management data; that is, the data originate in the operation of the program. The records often serve purposes other than the statistical purpose, perhaps patient management or a claim for reimbursement. However, baseline data also are brought to bear in meeting this purpose. For example, the statistics put together for a Community Mental Health Center catchment area include census statistics and could include vital statistics and statistics on medical and nursing manpower and other health facilities in the area.

Thus, baseline data systems often help to serve program management purposes. However, I believe that program management data, although greater in total volume, are much less frequently useful for baseline statistical purposes, such as identifying emerging problems, measuring the market, educating the public, and so forth. The audience for such statistics, therefore, tends to be more specialized, but the link between statistical results and action is usually more obvious.

Finally, the seventh rubric in my classification's major category of "Planning and management of public and private endeavors" is as follows:

> *Measuring progress toward ultimate goals; mesasuring eventual program accomplishment, as contrasted with immediate output; and assisting in the process of program evaluation.* A short title could be just *Program Evaluation*, but that is an oversimplification.

Again, we can cite many examples from our own experience. Statistics on cigarette smoking are used to measure progress in programs to reduce smoking. Lung cancer and emphysema mortality rates are also watched, since reduction of mortality and morbidity from diseases associated with smoking is the ultimate goal.

The Health and Nutrition Examination Survey program for nutritional surveillance will be used to show whether efforts toward improved food stamp, surplus commodity distribution, and food fortification are succeeding in alleviating problems of under-nutrition.

Trend data on measures of health and of use of health services for the white population and for minority groups are watched for signs of reduction in the disparities between these groups in their opportunities for health and health care.

Really rigorous evaluation requires experimental data with control groups, and so forth, and I have ruled out such purposes in this classification, but descriptive statistics also help because, if the problem the program was intended to attack is still there 10 years later, at least one can make the evaluative statement: "Whatever we are doing, it isn't succeeding."

In another paper, as yet unpublished, I have provided subcategories for Research, Teaching and Improvement of Clinical Practice; and Evidence in Litigation; but the foregoing is the most relevant part for this Conference session. You may wonder why I have omitted such purposes as actuarial analysis, or you may have other ideas for a logical structure with which to study uses of health statistics. However, if this brief review stimulates your interest and criticism, it will have served its purpose. We are intending to refine the classification and try again to study what uses are being made of NCHS statistics as a part of our program of self-evaluation. Perhaps a Conference Technical Consultant Panel could address itself to this problem.

In conclusion, I want to mention very briefly some apparent trends in uses that have come to our attention and make one general observation about using statistics. The three trends we have noted are particularly the following: increasing demand for small area data for local planning purposes and national program evaluation; statistics with elaborate cross-classification for use in mathematical deterministic or Monte Carlo type models; and statistics that unambiguously show the results of particular courses of action in the field of health services to help policymakers make better choices.

It is obvious why small area data are needed for local planning, but why should small area statistics be required for program evaluation? Because so many of the programs are initiated within selected small jurisdictions, and evaluators wish to compare change in areas covered and not covered by the particular program. The Maternal and Child Health Service uses small area infant mortality data in this way to good advantage.

Why mathematical models? Apparently because of increasing need to answer questions of the type: "What would be likely to happen if we did A?" Models are a cheap and quick way of getting an answer—cheaper, and quicker, that is, than actually trying A.

Why more unambiguous results statistics? Much the same reason, I am sure, as that for mathematical models. And statistics that show outcomes represent what is undoubtedly the greatest unmet need in health statistics today. The use of purely descriptive data in highly aggregated form is unsatisfactory. The policymaker wants but cannot find statistics that show the outcome of specific program initiatives. Again, descriptive statistics in more fine-grained detail, particularly geographic detail, and showing change over time, are analyzed to provide the answers, in the absence of true experiments.

But all of these trends are indicative of one general trend—an effort to bring to bear more sophisticated management methods in the field of health. Surely, as statisticians we ought to be helping to the best of our ability.

Finally, I would like to see some of the witchcraft taken out of this business of using statistics. You surely have frequently run across the person who thinks that if he just gets the statistics lying around into an information system in that big magic computer with lots of fancy software to manipulate the data, all the decisionmaking will be automatic. I'm afraid the computer systems people are selling us a bill of goods sometimes on what you can do with so-called "information systems." There is nothing automatic about the process of decisionmaking in a field as complex as the design and management of the health care system.

All the statistics you can think of wouldn't lead by themselves to a unique solution of the typical problem. Many nonquantitative, subjective factors, such as political considerations, for example, will enter into the selection of a course of action. Once in a while, I am sure, it is better to ignore the quantitative information completely. This is what Dr. Wilson said earlier and, as a statistician, I can agree.

But let me end on a very positive note: ever since the term "state-istics" was invented, and increasingly since the days of our particular patron saint, William Farr, it has been recognized that statistics are essential to statecraft. Man manages his affairs better in the presence of quantitative information on the condition of the state.

Thank you.

DR. LUNDE: Thank you, Ted, for giving us this background in health planning and for providing us with future steps to take to assist us in decisionmaking.

I have two or three announcements to make, but before I go on to the announcements, I have one further statement to make about our visitors. Now that we have introduced the, let us say, government types, particularly on the Federal level, I want to say a word about the State organization, AAVRPHS, the American Association for Vital Records and Public Health Statistics. They are a very active group and we are glad that they are participating with us in this Conference.

One announcement is this. Down to the left, in what is called the Lower Bird Cage Walk, we have a book table and exhibition booths from several agencies and organizations. You will find their material of great interest to health statisticians.

The final announcement is this.

Two years ago we were very disappointed. We had you all seated and the photographer was half an hour late. In the meantime the room got colder and colder, the engineers couldn't turn off the air conditioning equipment, and although the Surgeon General said that it was very healthy to live in such an atmosphere, most people left when it got to be about 20 below zero. So our group photograph showed half the room empty.

This time Mr. Knee has organized something special for you. He said that the sun will shine, and he is going to have the group photograph out here on the terrace.

So after this meeting is over, which will be in a moment, please meet by the reflecting pool. We want you in that photograph. It's most important for our records.

I thank you for coming today and for participating in this program, and now I declare the opening session adjourned. Thank you.

The first plenary session is now ended.

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Concurrent Session "A" -UNIIB

Statistics in Action in the Health Care Systems 14 pt Baskerville

Three papers were presented to describe the role and application of statistical information in distinct aspects of the health care system—specifically, the administration of medicare, evaluation of maternal and child health care programs, and planning for new health programs. The session then turned to discussions by State Health Department representatives on uses of statistical information in their State health care programs.

Presentations described statistical information that is available, the roles played in making decisions about specific health care programs, and the utility of information provided by various sources, such as surveys, hospital discharge records, birth and death records, and disease registers, in planning new care programs as well as in monitoring and evaluating existing programs. Reflected here also were the difficulties encountered in health care programs decision making for want of adequate or relevant statistical information.

The session was targeted at pointing up the importance of health statistics as compared with other factors involved in developing and directing the decision making process for the health care system.

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Dr. Paul J. Sanazaro, *Deputy Associate Administrator for Development, Health Services and Mental Health Administration*

This is Concurrent Session "A," "Statistics in Action in the Health Care System."

If there was one word that was over used this morning, it was the word "use." This session addresses itself specifically to the utility of health statistics in influencing decisionmaking in the health care system. The program has been planned to give you a reasonable sample of the decisions and evaluations that are made at Federal, State, and local levels.

The papers will be presented serially, without questions, until all three have been presented—the first three by West, Millner, and Sultz. We will then have questions from the floor. The questions need not be written, and the panelists have asked for the privilege of declining to answer questions that may tend to incriminate them. Other than that, they are looking forward to it.

We will have a short standing break at 3:00 o'clock. No one will be allowed to leave, so that when we resume the program the remaining three speakers will have equal opportunity for an audience.

Leading off this afternoon's program, we have a panelist that needs no introduction, Howard West. He has been in charge of the Office of Research and Statistics from the beginning of the Medicare program. If anyone can, it is Howard—who can tell us the program uses of Medicare data and bolster it with some examples.

18 pt Bold

PROGRAM USES OF MEDICARE DATA: SOME EXAMPLES

Mr. Howard West, Director, *Division of Health Insurance Studies, Office of Research and Statistics, Social Security Administration*

I'd like to take a few minutes at the very outset to make sure that everybody understands that I am talking about the Medicare program, which is a program of health insurance for the aged, which means people 65 and over, and not about the Medicaid program, which we find is often confused with Medicare.

The Medicare program's legislation, —and the program, incidentally, began in the middle of 1966—requires a considerable amount of data just to operate. This requirement, in turn, assumes the ability to handle masses of information on the part of the program.

Let me give you some key aspects of the data requirements.

In the hospital insurance portion of the program, there are limits on the use of hospital days, which are not restricted in terms of where they are used but in terms of how many days are available to be covered under the program.

This meant that a central record needed to be kept for the utilization of hospital days by beneficiaries in the program.

There are, at the moment, some 20 million beneficiaries, so this gets to be a very large record-keeping system, since about a fifth of them use a hospital in any one year.

In the medical insurance portion of the program, there is a requirement that a $50 deductible be paid prior to any benefits being available. Again, these benefits are available anywhere in the country, so that a central record of the extent to which people met that $50 deductible was necessary. Again, a rather massive record-keeping system, since in this instance something like 80 percent use some medical care services, although not that many, by any means, reach the $50 deductible level.

So under the legislation we have a very significant implication for data.

Along with these very elementary types of descriptions that I have given you of basic requirements there are many other requirements for data. For example, all hospitals are paid on a cost basis by means of a rather complicated cost reimbursement formula. This means that the hospitals participating in the program, which are nearly all of the hospitals in the country, have had to develop and provide and maintain rather detailed cost information. Here again, massive data flows into the program relative to this aspect of it. This is true for extended care facilities and other parts of the program in which different providers are participating.

I want to give you now just a few examples of the kinds of uses to which some of the data, which are by-products in part of this massive data system, have been put.

Let me say that the statistical system within the Medicare program is in itself a by-product of this massive data collection system, and it is a by-product which flows from different levels of sampling in the main frame data system.

One aspect is a 20 percent sample for which diagnosis and procedures are coded for each hospital discharge, another aspect being a five percent sample of the utilization of covered medical care services.

Both of these samples—and, as a matter of fact, most of the data which come from the program—are handled centrally. There are almost no requirements for utilization data being provided by the intermediaries in the program (which we call program data). There are requirements for intermediaries to provide data as to their operations and, of course, much of these data are related to program decision making and program activity.

Because of the fact that we have, as I mentioned, a data system covering the entire enrolled population, and we have, as I have not yet mentioned, a means of identifying each person covered in the program, we have a very firm population base. We have, because of the use of the health insurance claim number, which is an adaptation of the Social Security number, a means of linking together all of the data reflecting utilization by these beneficiaries of medical care services—be they in the hospital or out of the hospital—and all other elements of the covered portion of the program, remembering the fact that the $50 deductible knocks cut a fair amount of utilization information.

Because we can link together the utilization that the individual beneficiary makes of the program, it is possible to look at utilization by beneficiaries of the various covered services no matter where they occur. The example I will give you relates to something which you have all heard a lot about recently, which is Health Maintenance Organization.

When the HMO idea was being thought about, one of the critical questions which arose was in terms of the extent of savings which should be projected relative to this program, since HMO type services are supposed to be more economically delivered than regular type services.

What level under a 100 percent payment would be equitable to shoot at, as a capitation payment for HMOs? The level which I think you probably are all familiar with, that's been talked about, is 95 percent of the cost of delivering these same services in the area in which the HMO would operate.

Now the question was, what was the experience under Medicare, because Medicare had in its capitation arrangements 30-odd and possibly more, (it has fluctuated) group practice prepayment plans. What was known before we looked at data was what the capitation payment was for the Part B services under Medicare, that the plan itself provided. What wasn't known was all of the costs of the hospital services, the Extended Care Facilities services, home health, etc., and the use of physical and related services not provided by the plan, which were also available to the beneficiaries.

It is possible, as I mentioned earlier, to link together for the individuals in the program their total use of Medicare services. Because each individual is identified with a number and because in this instance all beneficiaries who were enrolled for Medicare in these prepaid group practice plans had been identified, it was possible to link all of this information and to identify the total cost to the Medicare program of delivering Medicare coverage services to these beneficiaries.

I might add that the 95 percent looks pretty good.

There is rather considerable variation among prepaid group practice plans. The interesting thing to me, at least, that turned up in these data is that there was more use of out of plan physician and related ambulatory care and hospital care services by members of these prepaid group practice plans than anybody had thought.

It's hard to give you a firm figure as a minimum because the final data are not in, but it seems pretty clear that about 15 percent of the cost of physicians' services in the total cost of group practice prepayment services are for services used outside of the plans' own physician groups.

The second use of Medicare data that I would like to talk about is something that we call MADOC, which is an acronym for Medical Analysis of Days of Care.

MADOC is an attempt to identify in a very simple way, but by a very complex statistical procedure or set of procedures, those hospitals where it seems indicated there is some need to investigate or to visit relative to the length of stay experience being reflected.

What is used in MADOC is the 20 percent sample of hospital discharges from almost all hospitals in the United States, which have been divided into 275 geographic areas for comparison purposes.

These areas essentially are based on the Hill-Burton areas but have been modified somewhat in order to conform, to the extent possible, to areas serviced by a single intermediary in the program. Each area contains a minimum of five hospitals, at least 1000 beds, and a maximum of 50 hospitals. Some of the Hill-Burton areas were divided in order to get down to 50 hospitals and some of them were combined in order to get to 1,000 beds.

What is involved in MADOC essentially is a multiple regression analysis of length of stay in which length of stay is the dependent variable, and there are a whole series of independent variables, not all of which enter the equation each time because there are certain requirements for entry.

The first of these major variables are those related to primary discharge diagnosis, since length of stay clearly varies with the diagnosis. We have individually recorded the 29 diagnoses which occurred most frequently in a sample of medicare short stay hospital discharges, as well as combinations of these, whether or not there was surgery, and whether there were other complicating factors, in an attempt to get some clear reflection of the complexity or severity of each case.

There are hospital variables—12 of them—including such things as the number of adult beds, the number of services provided by the hospital, type of control, and so on.

There are some patient variables, primarily age, sex, and race. There is an attempt to reflect some treatment variables, essentially by the use of charge data for ancillary services, for example, the total charges for radiology.

What we have tried to do, in thinking through this regression analysis, is to allow those variables over which the hospital essentially has no real control to enter the regression and to be in the regression equation. We have tried to exclude those few things which were available in the data over which the hospital did have some control. For example, the length of pre-operative or post-operative stay, the day of the week of admission and discharge, and things of that nature. I think it should be clearly stated that there are quite a number of elements of information which probably are related to length of stay which are not in the data.

The MADOC system is essentially used by intermediaries, to the extent it is used at all, to allow them to select from the data. We indicate in the data those institutions which have an expected length of stay which is significantly, different from their actual length of stay in either direction. The objective is to point those energies of the intermediaries and of those concerned with the way in which hospitals operate, to the operation of those particular hospitals.

Recently, in actual experience, one of the largest intermediaries and the most adamant disbeliever in the utility of these data went out and examined hospitals which the MADOC system indicated were worth looking at particularly, and made a 180 degree turn relative to the utility of these kinds of data in selecting hospitals to be examined in terms of their utilization profile.

I want to mention just quickly one other example of the use of data within the system. In the Part B medical care portion of the Medicare program, data are used on a continuing basis by the carriers to establish what we call reasonable and customary charges.

What is entered into a massive data system in carriers' offices are the charges that a physician makes for a specific procedure which he is billing for, from which there is established a customary charge for him for that procedure.

These customary charges for physicians for each procedure are then manipulated statistically to get a distribution of charge levels from which is created what is known as the prevailing charge. This originally was specified as the 83 percentile of the frequency distribution of charges for that procedure and has been recently cut to the 75 percentile.

I might say the 83 percentile was originally specified by us as one standard deviation, but that seemed too complicated for many of the carriers and it was translated into the 83 percentile, now cut to the 75th.

These are hard data reflecting actual charges and weighted by the number of times the procedure is done, so that a physican who is doing a particular procedure three times as often as another physician gets a higher weight in terms of the prevailing distribution.

I have some more examples, but I think my time has ended. Thank you.

DR. SANAZARO: If there are some procedures used by the Medicare program that are of special interest to you, your questions can bring out the undelivered part of Howard's talk.

Our next speaker is Dr. Lawrence Millner, whose background is in psychology at Washington University. He has a doctorate in health organization research from St. Louis. Since 1969 he has been with the Alliance for Regional Community Health, which is the area-wide

Comprehensive Health Planning agency for the entire St. Louis metropolitan area.

He has served as Director of Pre-payment Insurance Planning, Director of Health Care Finance, and Director of Research. He will describe the application of statistics in metropolitan area health planning.

APPLICATION OF STATISTICS IN METROPOLITAN AREA HEALTH PLANNING

Dr. Lawrence M. Millner, *Vice President, Health Organization Services, Medserco, Inc., St. Louis, Missouri*

This particular topic, Application of Statistics in Metropolitan Area Health Planning, led me to think first of which statistics and then which applications.

In talking about the comprehensive health planning world, health is divided into three areas—physical, mental, and environmental.

There are many needs such as special studies and various types of data gathering and analysis to be addressed under each of the three headings. While I was director of research for the Alliance for Regional Community Health (ARCH)—an areawide comprehensive health planning agency—what we attempted was to develop some type of framework that could take the data that were common to all three of these areas and get the most mileage out of them. Then whenever something special was needed for a particular study, one could analyse the current data base and collect the new data which were needed, based upon what data already existed. This seemed to be a more sensible approach than trying to gather data on the whole world.

One of the big problems in a planning agency is that the resources available are far from limitless. Another is that the direction, the mandate from the board of directors, is quite often not what one would choose if he had his "druthers." Within this type of framework one must be as careful as possible with what he does and its implications.

What I shall do now is present one way we worked with a particular situation. The staff was given a charge by the board to develop a facilities plan by a certain date. Really what this charge was all about was to go through a decision-making process, the planning process, including aspects such as how a decision is made, which decisions are based upon objective data, which are based upon subjective data (even though a lot of people try to consider this as objective data), which are based upon value judgments, and which are based upon decisions as to certain qualitative aspects of the health system. Then I will show some of the methods and implications of the particular study which was done in our area.

Specifically, the agency was given a charge by the board in June 1971 to develop a plan for hospital facilities in the area. The board then declared a three month moratorium on hospital bed construction review for the area. This gave the staff three months to develop a report. The board also decided that they would set up a committee structure for the report, hire a consultant to come in to work with the staff and with the committee, and try to give a little more credibility and perhaps do a better job than could be done otherwise. Within this type of framework and the time limit of three months to develop and areawide hospital plan, this is what we did.

First, a subcommittee—the physical health subcommittee—was established to deal with this problem. The staff began and/or intensified much data collection and analysis, and began to develop a strategy for the entire operation. After almost two months had elapsed the consultant was selected and hired.

We realized that this might be the staff's only chance in the reasonable future to get a moratorium on anything. Therefore, even though we had a very limited charge and a very limited time, it was decided to sit back and take a little better look at the totality of what was going on. Even though what the board wanted was a hospital plan, we could try to use this opportunity to educate the board and the community and get things on a more even keel.

We stated first to the subcommittee and then ultimately to the board the framework which we developed. We would develop a system of broad goals, then narrow sub-goals, and then more specific guidelines and criteria. The goals were to relate to the total "comprehensive health system," the sub-goals to the "health care system," and the guidelines and criteria would relate only to the "health facility sub-system," or rather to a certain part of that sub-system.

We first convened the committee to talk about the goals of the health system. There were grumblings such as "What's this all about?" and "What about hospital X?" and other kinds of negative statements. We ended up, however, after a couple of meetings, with three goal statements—not of the health facility sub-system, not even of the health care system, but three goals of the health system. Each of these was stated explicitly and was clarified by having along with the goal statement a paragraph about what was meant.

The "we" referred to above is not just the staff. The "we" is the staff, consultant, and subcommittee, because all parties finally did hash out exactly what these statements were to be.

Then the same was done to develop the sub-goals. Under each goal there were perhaps four to six sub-goals. These sub-goals were less global than the goal statements, but they were still qualitative statements about characteristics that we would like to see the system possess.

What we had then, in a very short time, was something that the agency had never had before, and based upon my experience something that many planning agencies don't have. This was an explicit set of principles to work by. These principles seem inherent in an organization's becoming a comprehensive health planning agency, but an agency needs to state them explicitly in order to defend its integrity in a highly political situation.

We finally came up with three statements. I will read you the three goal statements, to give you an idea of the thinking at the time.

Goal number one, "High priority should be given to the prevention of illness and the minimization of the effect of ill health." The clarification explained that the health system, not the health care, but the health system, should be constructed so that diseases which are preventable are prevented and the bulk of health care becomes preventive maintenance as opposed to episodic responses to complaints. Treatment should be such as to provide not only for the preservation of life but also for the greatest reduction of disability and the achievement of optimal social functioning of the individual.

This was the first goal. It didn't require any data, it didn't require anything but a decision on the part of the agency.

This decision was made first by the subcommittee and the board had a chance to accept or not. This used the board in its role as representative of the community.

The second goal was that "high quality, appropriately utilized, comprehensive health services should be available and accessible to all residents of the ARCH area." These words are very simple, but there is a lot of confusion and complication in them. One of the first things we did was develop a glossary which goes along with the report, so that people know what we mean.

The third goal was that "health care services should be provided at the lowest possible cost without sacrificing high quality."

There was a lot of grumbling until finally the right words were picked out and everyone had his input, but several people on the subcommittee didn't really see how this was going to relate to the charge of where to build hospitals in 1975, 1980, and 1985. However, the majority decided to go along with this approach.

The sub-goals were then developed relating directly to each one of these goals. So what we soon had was the framework within which to develop some guidelines and criteria which were specific not to the total health system or to the total health care system but rather to the health facility's sub-system. But because of the method of development, each specific criterion was consistent with the total goals of the health system. We didn't even deal with the entire health facility's sub-system. We refined it down into three areas, three types of facilities. These types of facilities were free standing, ambulatory, general medical-surgical centers; short term general hospitals; and short term specialty hospitals. As we narrowed down our focus to meet the board's charge, we kept hammering away at the fact that this was not a comprehensive health plan, this was not even a comprehensive facilities plan. But we were now getting down to respond more precisely to the charge.

In a very short time the staff and the subcommittee, along with the consultant, came up with some 75 guidelines and criteria which were more or less quantitative. When we started going through these (we read through every one of them at the meetings) people started getting very hot under the collar and said such things as "How can you possibly make statements like that" or "What's this all about?" in response to specific guidelines and criteria. When we went back and showed how the guidelines and criteria were based upon the goals and sub-goals that had been accepted by the subcommittee and were logically built from them, a lot of the parochialism and some of the individual interests were put into a new perspective.

While all this was going on at the subcommittee level, the staff of the agency, especially in the research area, had made several decisions. One was that we would be unable to develop any original data. We would have to use only sources that were already available in the community. This was in 1971, so we didn't even have a lot of the census information that became available later. We were going to work with what we had and concede that we were basing our report in part on some very incomplete data. But this, once again, is the way of life.

During the summer, when we were preparing the data, I or someone on my staff would give a progress report to the subcommittee of what kind of data we had. We had utilization data on the hospitals from the past several years. We had some census data and some from local surveys. As we presented our information many subcommittee members would say "Gee, that's nice," or "What does it mean?" or "Who cares?"

We took the attitude that these were good questions. The data don't intrinsically mean anything. By themselves they are meaningless. But interpreted within such a framework as was being developed the data became a powerful, useful tool.

We have a two-State area, seven counties, and deal with two regional offices of HEW. Various parts of the political subdivisions keep their records in one way or another. Some information was available by tracts, some by zip code, and we had to work this way. Between the subcommittee, the consultants, and mainly the staff, we divided up our universe into 25 study areas. We collected our information and statistics based upon various kinds of real world situations such as data availability, service areas, and other factors. We collected information and divided our area to take advantage of anything that we could use. So we developed and published a set of figures for the total area, one for the Missouri side, one for the Illinois side, one for each county, and then the city of St. Louis, which is a county by itself, and then we went into each of the 25 areas.

We divided the city or the counties into areas which were coterminous with the census and we tried to keep as closely as possible to the zip codes, so we didn't lose very much. In certain areas, such as the city of St. Louis and County of St. Louis, we used current planning areas because there was information we didn't want to lose and there was not time to re-do it. We developed those areas and with this we were able to finally come up with a pretty fair description of the area.

This description was put out as Volume 2 under separate cover. The qualitative part of the report, goals, sub-goals, guidelines, and criteria, all the recommendations and background, came out as Volume 1. These qualitative statements about the system hopefully will be constant over time, although the data by which we interpret them will change. The guidelines and criteria will change with the state of the art, but the goals and sub-goals will remain. I expect to see them remain fairly constant.

The data volume is being updated and changed all the time. Therefore it is kept separate.

Finally, after we had developed with the subcommittee the guidelines and criteria to go along with all the goals and sub-goals, we were able to run all the data we had through this framework to develop statements as to where we were in relation to the ideal we had set.

Let me give you an example of the kind of data elements we did use and then what we were finally able to do with them in creating a profile for each of the areas and for the total area. We used this type of information: 1960 to 1970 population change, and projections and the percentage change from 1970 to 1990, at five year intervals. This was done for each county and study area as well as for the total area.

Then we used the 1970 age breakdown. We didn't have sex on this, but we did a 1960 and 1970 racial analysis. A lot of the hospital movement seems to proceed along racial areas as well as economic lines, and for whatever kind of biases or philosophies one has, this statistic was a very interesting and important one.

Also from the census housing data we used indices of overcrowding, the number of total units that were occupied and unoccupied, to give some economic picture of the type of communities we were dealing with. Since we didn't have income information, we used monthly rent and the value of housing as an economic indicator for the communities.

For the total area and for the counties we used the vital statistics as an indication of health status. For the smaller areas the vital statistics of course were not available.

For hospital utilization we had the total number of beds; the beds for medical, surgical, OB, GYN, and psychiatric; and for each hospital the average daily census, number of beds, and average length of stay.

Also we got some information from the AMA and the AOA on the number of physicians, their practice status, and their specialities. The only thing the agency has gathered which was primary data was patient origin statistics (done prior to this). These data elements had been at our disposal, but up until we had the framework we would perhaps publish them or do some individual reviews with them. But the response of others was "So what? What does it mean if you have this many beds or that length of stay, etc.? How can you base a decision on that?"

But taking the goals, sub-goals, guidelines and criteria, and the value judgments made by the committee and the staff, and running our data through them we were able to produce a number of recommendations which people could understand.

Items about future actions of the agency weren't necessarily data related. The recommendation that received the greatest amount of both praise and damnation was the one which said that in view of the anticipated surplus of beds in some counties no additional beds should be approved by ARCH before 1975 unless clear new evidence showed an unmet need. This was based upon data.

This is the question that the board had been looking for an answer to. But until there were both goal statements and organized data the answer couldn't be made and documented.

This is just a very quick run of what we did, one example of a way to deal with a particular kind of charge and the somewhat unreasonable length of time within which to act. But with even the barest data elements and a short period of time a small staff can come up with some useful results.

This experience also helped the agency understand what data were *needed* for decisions. We soon discovered what data we needed, what kind of new information was necessary to make what kinds of decisions and where to get it—as well as when not to wait for or attempt to get more data. By way of conclusion, the setting in which this plan or any other is going to be implemented will affect the shape of the plan. It will dictate the needs, the quality, and the quantity of changes that are needed.

The pursuit of the goals and sub-goals which were developed is undertaken in the face of things as they are today. If you want to make a change, the change has to be undertaken in the light of the situation as it is as well as the desired future shape. Thank you.

DR. SANAZARO: Dr. Millner's paper illustrates what Dr. White was saying this morning. That is, if you know what you are trying to do, it's a lot easier to find out how you are doing.

Our third speaker, Dr. Sultz, is currently Professor of Social and Preventive Medicine at The State University of New York at Buffalo. He comes by his doctorate by the unusual route of dentistry, and I guess he decided he could fill a greater need in his present capacity.

He is best known for his work as principal investigator on the Community Services Research and Development Program in Buffalo. He will present to us his working model based on his program.

Dr. Sultz.

COMMUNITY SERVICES RESEARCH AND DEVELOPMENT — A WORKING MODEL

Dr. Harry A. Sultz, *Professor, School of Medicine, State University of New York at Buffalo, Buffalo, New York*

Our topic for the day emphasizes the role of statistics in improving the health care system and for the afternoon our session title includes the words "in action." Until quite recently public health has been thought of as producing great quantities of statistics resulting in very little action. Those outside the rather tightly knit group of statistics producers seemed singularly unimpressed with our data. If statistical findings were accepted as meaningful, there were usually enough vested interests in maintaining the status quo to forestall significant change. In the last few years, however, broad improvements in the health care system, if not actually initiated, seem always just around the corner. Certainly a growing capability, and most important, an increasing willingness to identify and document the deficiencies of the system constitute a necessary prerequisite to the planning and implementation of improved health services.

Understanding the situation, be it measuring health needs, evaluating effectiveness of service, describing, testing, or in any way providing the basis for sound decision-making is a mandatory initial step in planning for better health care. And this means statistics. Relevant, reliable, hopefully valid, and, so important, understandable statistics presented in such a way that the community people of all disciplines who are the local decisionmakers, can grasp their significance.

I would like to present to you today the results of some seven years of experimentation with this concept in the context of a community service research and development program. It has been entitled a working model. I am not sure that it is a model, but I attest to the fact that it involves a lot of activity, referred to loosely as work. Ordinarily, when I stand before my colleagues to present the findings of some research endeavor, I can comfortably claim a high degree of objectivity, since I present the methodology and the data and let the findings speak for themselves. Now I find myself describing what I do and how I do it, and that makes objectivity a most elusive characteristic. However, Arthur Emanuel Hertzler has written in his book, *The Doctor and His Patients*, "He that tooteth not his own horn, the same shall not be tooted." On the basis of that sage counsel, I shall proceed.

In September, 1965, a program was initiated to provide long-term support for a multidisciplinary core staff to operate in the area of community services research and development. It has been funded by the National Center for Health Services Research and Development. The program design provided for a broad-based approach to the problem of community research. It permitted the maintenance of competent researchers from several health and related fields to operate as an ongoing team and provided the support necessary to explore and assess the specific areas within the community in which research was needed and for which the findings would have immediate practical application. Program staff was then expected to be able to conceive and implement well-founded new projects in areas of high community priority. The core staff also provided experienced and competent supervision for additional staff employed for specific projects. Because of long-standing familiarity with the community, its needs and its services, the program staff could most effectively interpret and report the findings of each study and suggest practical applications of new information.

During the first year or two, this arrangement was basically a two-way street linking the research capability of the Department of Preventive Medicine, State University of New York at Buffalo, with the large Department of Health of Erie County, New York. Simplistically and optimistically, we set out to apply the methods of research to the problems of health service and then to use the findings of that research to design new or improved services.

I would like to mention the fact that in the early 1960's I was considered an epidemiologist because I applied epidemiologic methods to the study of disease. When I turned those same methods to the study of service, I fell from grace with the majority of epidemiologists whose interests remain quite parochial. Thankfully, now some find, but still too few, epidemiologists are applying their talents to the provision of service.

Our undertaking predated the implementation of the Federal legislation calling for the development of the Comprehensive Health Planning agencies and Regional Medical Programs. They also called for a similarly broad approach to the assessment of community health problems with particular emphasis on the removal of obstacles to the efficient and effective delivery of health services.

The presence in the community of our university-based research unit, which was known to have some multidisciplinary expertise, a record of productivity, and a reputation for objectivity produced a very interesting response among a wide variety of agencies and groups.

Other departments and schools of the university, a number of voluntary health agencies, and other departments of county government viewed this research unit as a community resource for the conduct of studies of interest to them. Program evaluation became a major activity.

For several years, the unit had many opportunities to become involved in a wide range of health service research projects. We elected to do those projects that were compatible with our interests, feasible, and gave promise of the most immediate practical application of the findings. It was a selective yet rather passive manner of determining research direction.

In recent years, however, the development of an active Regional Medical Program and Comprehensive Health Planning Council in Western New York has added a new dimension to our operation.

Neither of these planning groups considered it appropriate to maintain a large research unit to provide an inhouse research capability. Yet both organizations were legislatively mandated to develop and work from a common data base. It naturally followed that our unit, on the basis of its past experience, would be interested and capable of doing many of those studies required by RMP and CHP for planning purposes. A three-way arrangement evolved. CHP and RMP relate at several levels to each other. To this relationship is added Community Services Research and Development producing an innovation on the eternal triangle. In this case, however, it is a harmonious development which benefits all parties. Our unit became the research arm of the triumvirate and assumed a far more active role in initiating research activity. Instead of conducting a series of loosely related and sometimes unrelated studies, we decided to make an attempt to "get it all together" and that is how our version of the community health information profile was conceived.

Its implementation would combine, for the purposes of efficiency and comprehensiveness, the technological developments in the field of data processing and the availability of many kinds of health related data presently collected and retained in a number of agencies and institutions. There is no logical reason that information obtained for service purposes should not be retrieved, tabulated, and combined with other data to provide a continuous health information monitoring system which would keep pace with the continually changing situations in the health field and provide current assessments for program planning. Limited health care resources, facilities, and manpower demand continual adjustment and realignment to extract the greatest benefit and efficiency in the provision of health care. This, in essence, is the philosophy underlying the Community Health Information Profile System of Western New York.

Just as good medical therapy begins with an accurate diagnosis, sound community planning starts with an accurate community diagnosis. The objectives of the program, therefore, are to provide essential data to planning and decision-making bodies.

The personnel of the Community Services Research and Development Program with its CHIP component include representatives of the disciplines of epidemiology, social work, sociology, statistics, geography, and data processing. The combined capabilities of these individuals permit them to: (1) design and implement special field studies to obtain data, (2) combine these data with data obtained from a wide variety of other sources, (3) analyze and interpret the findings, and (4) visually demonstrate relationships through the use of a variety of computer-drawn figures to provide the observer with clear and easily understood presentations of the findings.

The need for identification and access to the many kinds and sources of data existing in the community necessitated a survey of all service and research agencies that are potential sources of data for inclusion in community profiles. The cataloging of the data sources provides quick identification and access for specific purposes.

The present support of core staff and data processing equipment makes it possible to carry out these projects with additional funding only for field personnel employed for specific data gathering purposes on a short-term basis. The projects, therefore, are easily implemented and efficiently and economically conducted. Collaborative arrangements with CHP, RMP, county legislatures, individual departments of county governments and a number of voluntary agencies provide the necessary additional financial support. These collaborative efforts attest to the acceptance of this unit within the region of Western New York as an expert, objective, and authoritative research organization. As a further example of their trust, the wide array of agencies involved in these collaborative efforts exhibit confidence that the confidentiality or sensitivity of the data released for this research will be adequately safeguarded.

A community health information profile does not tell the community how to solve its problems. It describes the problem but the solutions must come from those within the community who provide and those who use the health care services under consideration. Many factors must be considered in the planning process. The health services in any area are provided by a variety of public and voluntary agencies and private practitioners, whose perceptions of community health needs differ from one another. The achievement of agreement about priorities for health services, the long-range directions that these should take, and organizational or institutional responsibilities must evolve from the interaction of community leaders and influences. The community health information profile provides comprehensive and timely information for the policymakers as a basis for their decisions. In addition, the data now recorded serves as a baseline for comparison with future data to assist in evaluating the consequences of those decisions.

The profile is an important first step in the planning process. Its value, however, depends wholly on the initiation of the succeeding steps and the purposes they serve.

Before a profile study can be initiated, the community must be organized to develop an understanding of the purpose and an endorsement of the project. If they don't want it to begin with, they will not accept the findings that result. Given the total cooperation required to successfully carry out the project, it becomes very important to design a presentation format that reduces large volumes of data to clear and easily understood visual impressions of the findings. Anyone who has experienced the difficulty of interpreting data through the use of many-celled tables or long lists of varying rates can appreciate the opportunity of providing quick understanding through the use of a graphic presentation which permits rapid visual comparisons. We have found that computer-drawn figures most effectively serve this purpose. The following figures provide examples of the presentation formats.

Figures 1 and 2 are SYMAPS. These particular figures present two ways of illustrating the areas served by a hospital. The first is the traditional way a hospital determines its own service area by looking at the proportion of its patients, be it emergency room, outpatient or inpatient in each census tract. The second shows the same hospital's emergency patients as a proportion of all emergency room patients for each census tract.

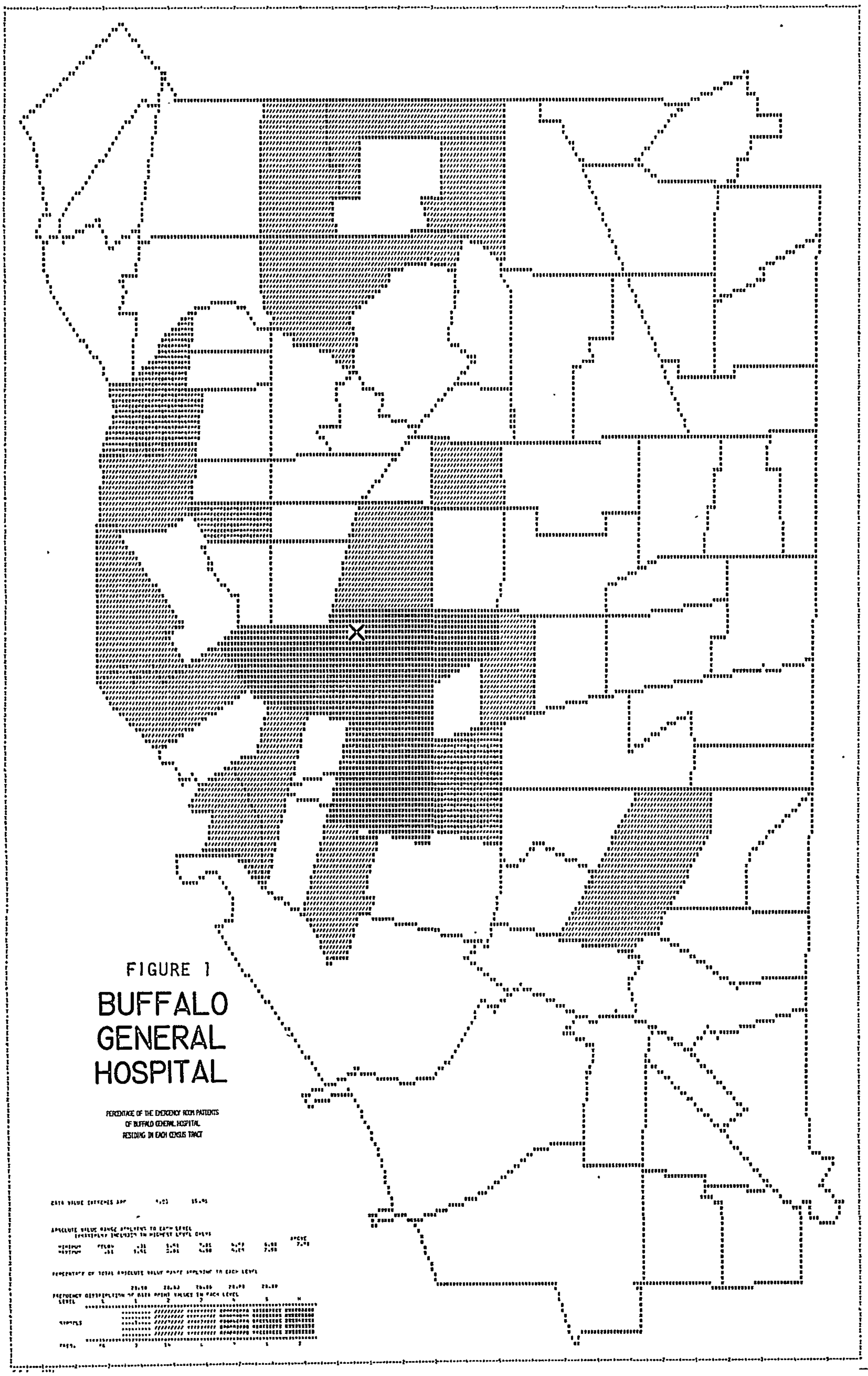


Figure 1. Percentage of the emergency room patients of Buffalo General Hospital residing in each census tract.

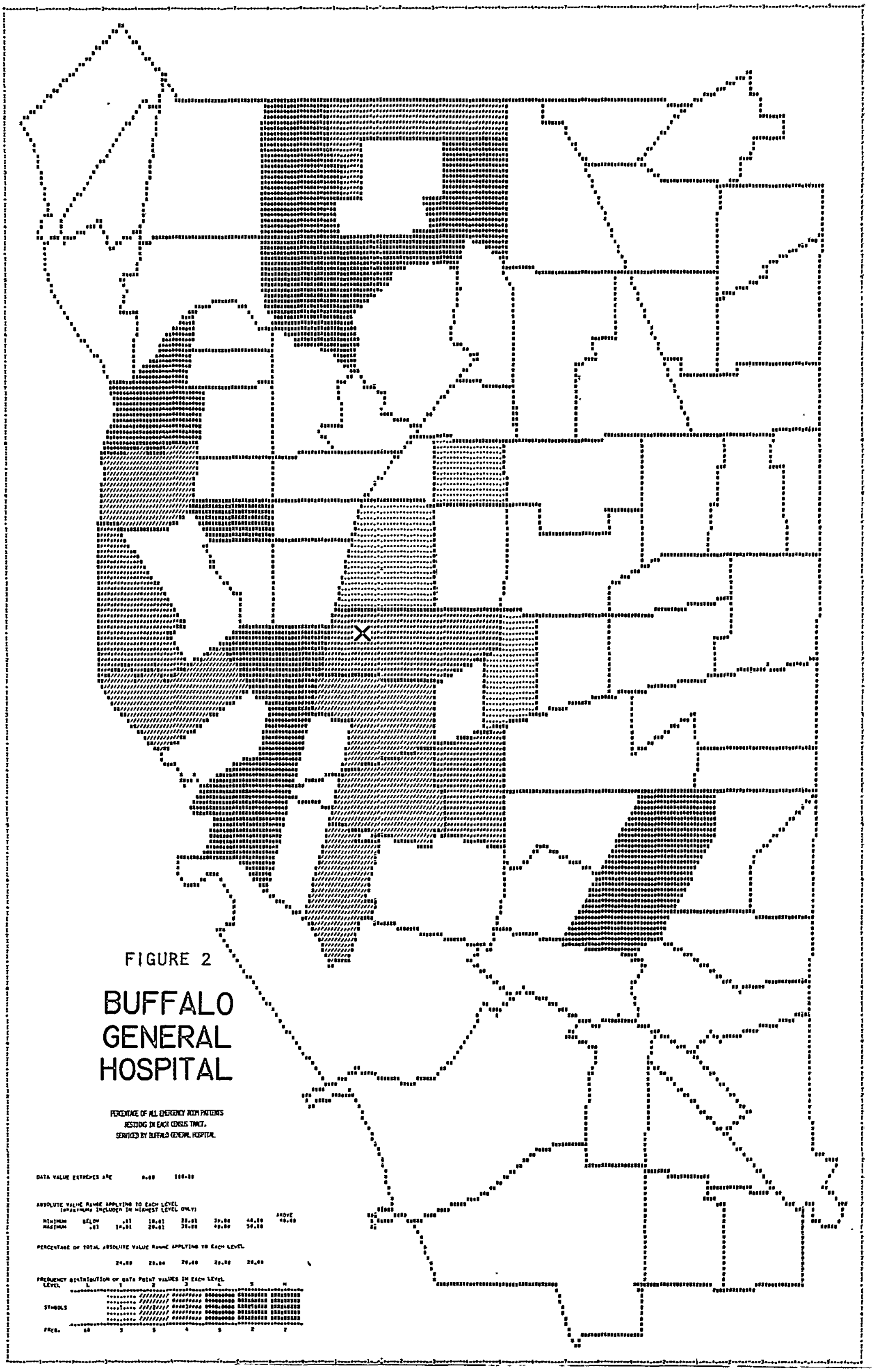


Figure 2. Percentage of all emergency room patients residing in each census tract serviced by Buffalo General Hospital.

It is possible for most of the patients using a particular hospital to come from one area, yet these patients constitute a small proportion of the patients from that area utilizing hospital services. This type of figure can demonstrate that some proportion of an area's residents prefer another hospital. Figure 3 presents three standard deviational ellipses. This figure illustrates the size of the service areas for three hospitals and utilizes address matching and location plot programs to array the residences geographically and encompasses 75 percent of the users. Since the residences of patients utilizing a particular service are not symmetrically distributed around a facility, this figure can illustrate this deviation from an even distribution. These ellipses also show the overlap of service areas. The shape of the standard deviational ellipse reflects the influence of utilization factors such as transportation, geographic obstacles, competing facilities, and patient preference. Cross tabulations can be illustrated in a single figure such as the age-sex pyramid presented in Figure 4. It was possible to show 18 age categories and each sex as a percentage of the emergency room population of a specific hospital. Figure 5 is a tridigram, a computer-drawn diagram presenting a three-dimensional frequency distribution of three variables. The tridigram illustrates the number of patients by age utilizing specific hospitals. Figure 6 is a computer-drawn map which we call a locus plot. The two series of concentric circles are drawn around alternate locations for a neighborhood health clinic. The circles enclose the location of the homes of the potential patients at the clinic at 50 percent, 75 percent, and 90 percent intervals. This figure is based on nothing more than the addresses of 1,000 consecutive patients seen at the existing clinic. The computer, through the use of address matching and locus plot programs, arrayed the residences geographically to produce this simple but dramatic visual presentation which illustrates variation in locational efficiency.

A continuing self evaluation of this program has been in progress on several levels for the purposes of periodic adjustment of techniques and procedures for improvement. First, the technology is constantly refined and compared with that of others to maintain the capability at the highest level of performance. Second, the methods of community organization, development of collaborative relationships, and presentation of the findings are reviewed to determine their degree of effectiveness and acceptability as the necessary prerequisites to achieve the goals of influencing constructive planning and implementation activities. Third, for the purpose of efficiency, there is a constant effort to select from the many variables which have potential application to community profiles those which are most significant as identifiers and predictors of health status and problem circumstances.

There is full recognition that this effort is in its infancy and that it must develop on a trial and error basis to reach a higher level of sophistication.

This operational system is intended to create a module which can be replicated in other areas. As State and regional systems are designed to achieve the Cooperative Federal-State-local Health Statistics Systems necessary to serve the national purpose, the Community Health Information Profile System of Western New York will strive for the compatibility necessary to make it an integral part of the broader effort. Thank you.

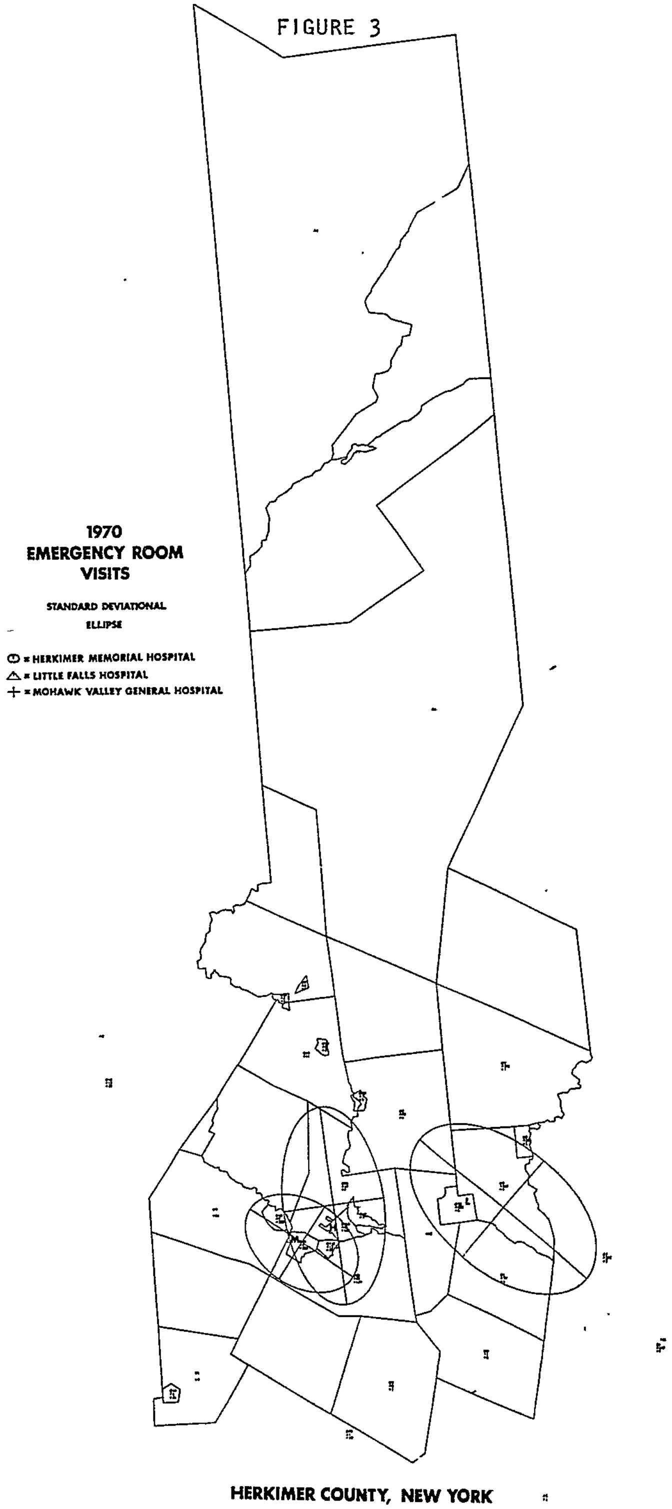
DR. SANAZARO: Are there questions of our panelists from the audience?

MR. DELP: I am Richard Delp, Health Planning Program, Office of Governor of Arkansas. I was interested in the first map that had to do with what was it—the emergency care delivered in one hospital, and then you contrasted it to the emergency care patients in the same geographic area.

Would you come back to the map and run that by again?

DR. SULTZ: The numerator consists of the emergency room patients of a hospital, distributed geographically by census tract. In one case the denominator is all of the emergency room patients of that hospital, distributed by census tracts. In effect what we are looking at is the proportion of that hospital's own patients residing in each census tract, which gives it a very biased assessment because all of its patients may come from its immediate census tract and yet there may be many, many more patients in those census tracts going elsewhere, so that it can either say it's doing a good job or a poor job.

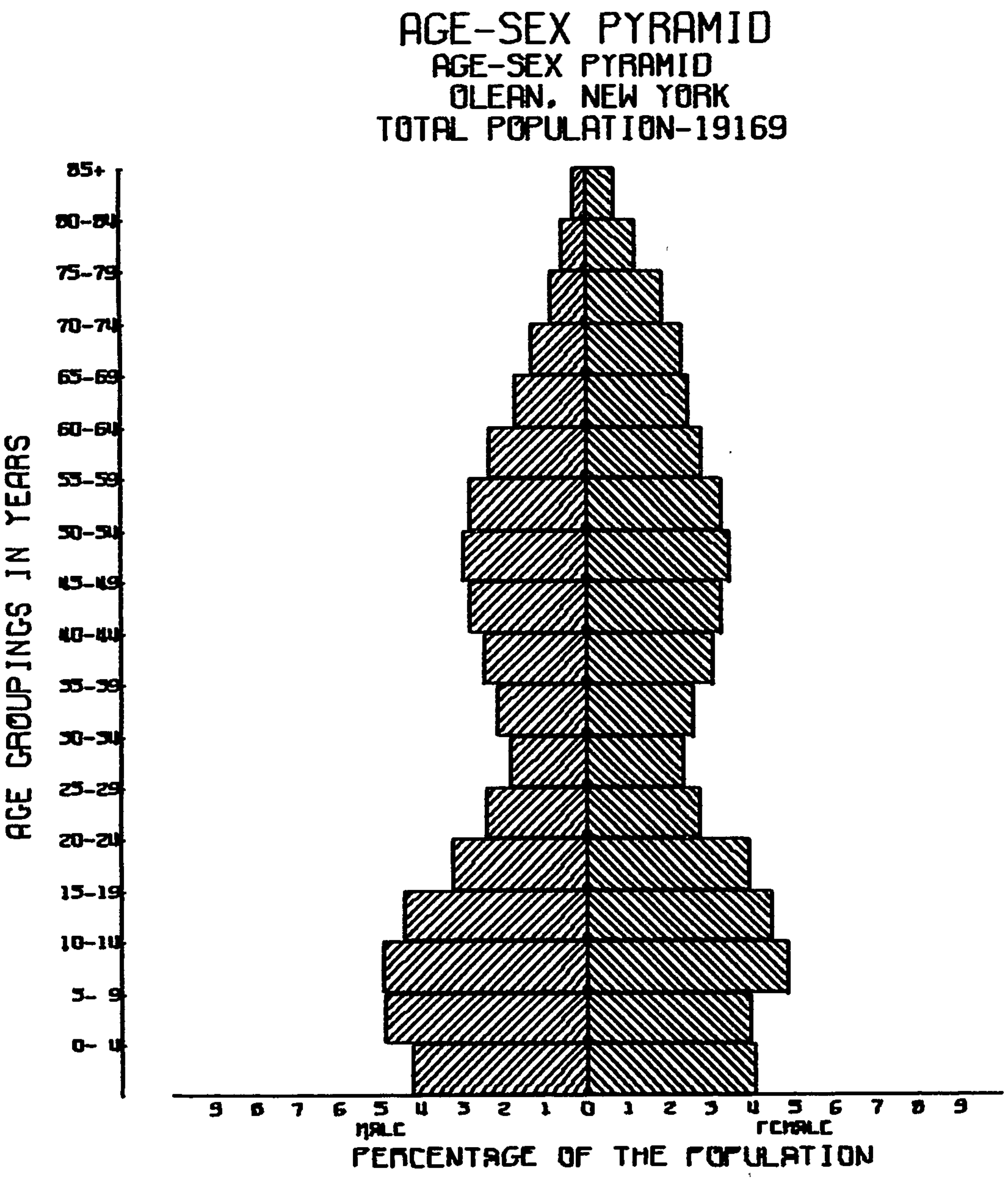
FIGURE 3



SOURCE: Community Health Information Profile: Herkimer County, New York, 1971. Community Services Research and Development Program, Department of Social and Preventive Medicine, State University of New York at Buffalo.

Figure 3. 1970 Emergency room visits.

FIGURE 4



SOURCE: Community Health Information Profile: Cattaraugus County, New York, 1972. Community Services Research and Development Program, Department of Social and Preventive Medicine, State University of New York at Buffalo.

Figure 4. Age-Sex Pyramid for Olean, New York.

The second figure uses as a denominator all emergency room patients using any hospital, distributed by census tract.

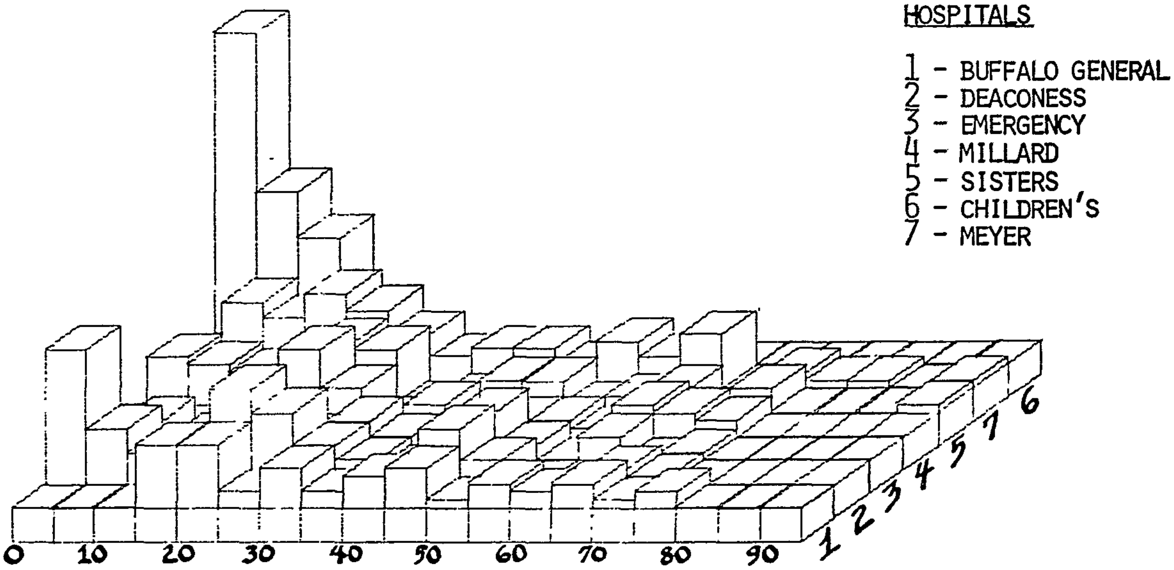
So then we ask the question, "What is the proportion of all emergency room patients in each census tract served by the particular hospital that we are looking at?"

Then even though it may have few patients in some remote census tract, it may be all of the emergency room patients in that tract, you see. So that's why you can get a heavily shaded area out there where you wouldn't notice it in the first type of analysis.

MR. DELP: Thank you.

FIGURE 5

AGE OF PATIENT BY FIVE YEAR INTERVALS



SOURCE: Community Health Information Profile. Community Services Research and Development Program, Department of Social and Preventive Medicine, State University of New York at Buffalo.

Figure 5. Age of Patient by five year intervals.

MR. WILLIAMS: Jim Williams, Comprehensive Planning Service, HSMHA. I noticed you referred to data going to the committees, Comprehensive Health Planning—to the board, I guess you put it—and this brings up a question. Does the data that you supply them in effect make the decisions for them, or do they maintain control? And if so, how?

DR. SULTZ: That's a good question. We make it very clear that we are making a diagnosis, using the analogy of a physician and a patient. The proper treatment and effective treatment is based on an accurate diagnosis. We make it very clear that we are making a diagnosis and the treatment selected is going to come out of their deliberations. I think you would agree that comprehensive health planning has a kind of negative management power. It can discourage what shouldn't be done and it can encourage what should be done.

I think all we are trying to do is give them the information on which to decide what should be done and what shouldn't be done. This kind of objectivity, we feel, this getting out of the fight that takes place after we present the data, makes it very clear to people that we don't have a vested interest in what they do afterward, if they will permit us the opportunity to give them the data on which to make the decision.

Actually we do have a vested interest. We watch very carefully what happens afterward, but we claim we are not going to do anything other than present the facts for their information.

DR. SANAZARO: Dr. Millner, would you like to answer that same question?

DR. MILLNER: Yes. It's pretty much along the very same answer that Dr. Sultz gave. That is the committees, or the board, after you present this have complete authority, at least in the

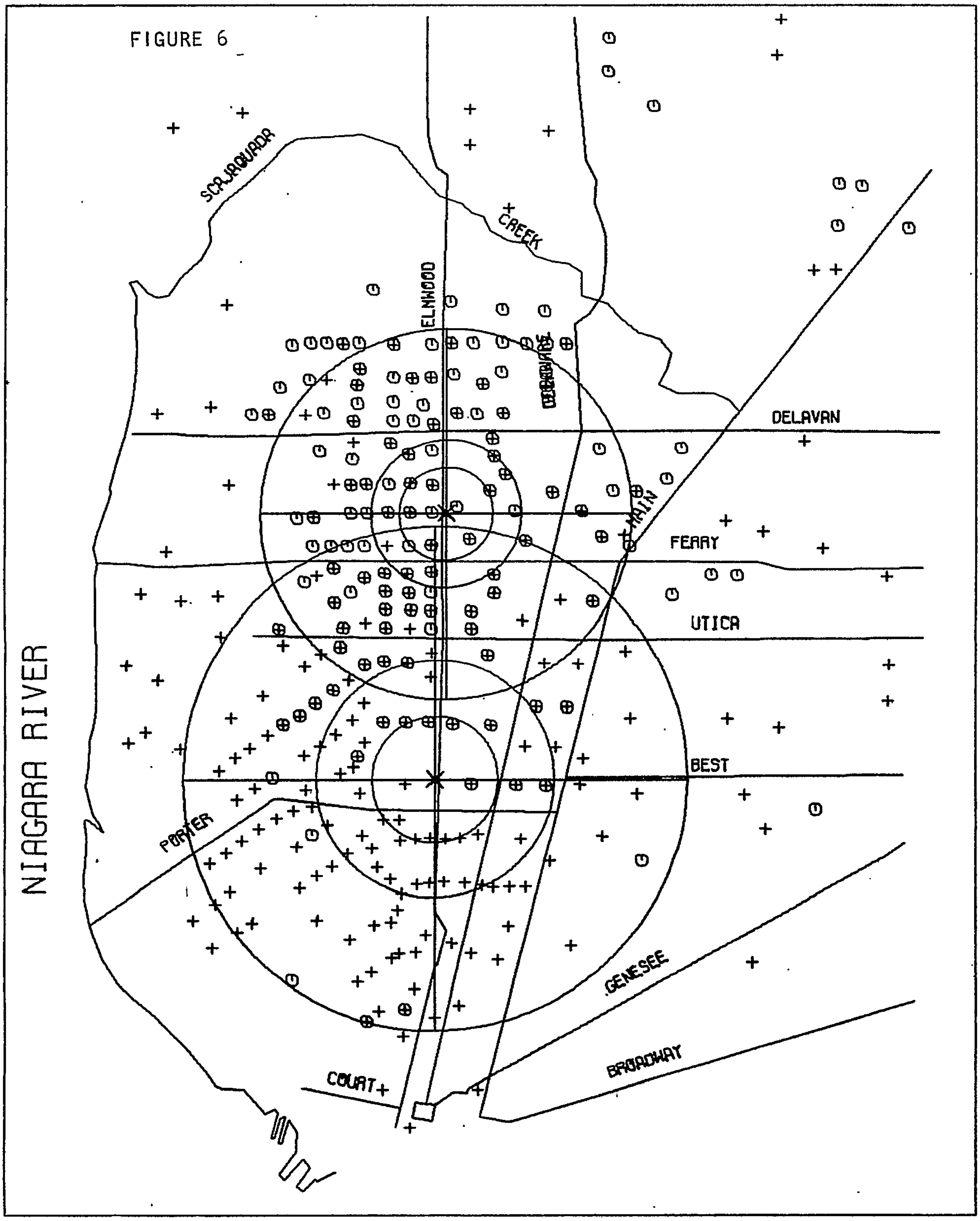


Figure 6. Alternate locations for a neighborhood health clinic.

instance of our example, to either accept or reject this or any other report submitted to them. In fact, they continually maintain the authority to change their mind, reverse themselves on anything in the report or any of the decisions based upon any of the information that is in the report.

So as you say, you present the information in as clear, as lucid a form as you can.

The people who are on the boards or on the committees of the various agencies, especially comprehensive health planning because of its particular nature and its strength and its consumer representation, quite often you will find do not act on very good, sound, seemingly technically valid information as you would like them to. It is still the decision-makers making the decision based upon many other things besides just the data.

DR. SULTZ: I would like to add, because I think you made this point before, the clout in this kind of thing comes from having the community know the situation.

Hospitals can get along with departments that are operating at under 25 percent utilization and carry all those extra beds as long as nobody really knows about it. Once it becomes known, they do something. You can build up a lot of clout in a community by getting the information widely disseminated and understood. Then the competition among hospitals becomes very obvious and they start to think about what's best for the community. I think you have probably experienced that.

DR. MILLNER: Yes. One example that we found extremely interesting along this very line, one of the things that a lot of the hospitals were planning on doing, was building satellites. This seemed to be the thing—keep the inner city facilities and we will build a satellite in the county. Until this particular report had been developed, the fate of the satellite hospitals was never made very clear.

Quite often what would happen was that a hospital which was being very overcrowed in the county, having built facilities in the county perhaps 10 years ago, now came before the agency saying, "We need to expand our facilities because we are already running at 103 percent occupancy or 110 percent occupancy, so we need more beds."

Until we got this report and looked at it the way we did, and took a look at their original home facilities in the city and found out it was working at about 62 or 63 percent occupancy, we didn't really get the total picture. I think the community found another bit of information that they never had before.

DR. SANAZARO: Is there any way to relate your kind of analysis to that presented by Howard West in the form of MADOC? Did you ever make any reference to Social Security statistics?

DR. MILLNER: This is one of our sources of data. Fortunately in St. Louis, aside from the planning agency, there is also a hospital council which, for reasons known best to itself, always collected these things on a monthly basis, monthly utilization statistics, even though they never did the analysis of them.

So we were able to check it with some of the things that we got from the community profile data center on the medical utilization statistics. Ours were more recent, but we did use them as a check to see if our '68 and '69 data were similar to this. So it was very helpful.

DR. SANAZARO: In trying to classify Howard's descriptions and examples of his program uses of data and comparing these with the classification that Ted Woolsey gave us this morning, I can't reconcile the two. Howard, how would you classify those uses that you presented?

MR. WEST: It seems to me that just the few that I picked were really three completely different types.

The first one, which had to do with a fundamental policy decision being made in the Congress as to the viability of the HMO concept as a cost savings device, is the kind of thing which depends entirely on the validity and the comprehensiveness of a set of data. It is the kind of answer that was not fundamentally designed into the program as a specific.

It was designed into the program as many other things were which would allow the answers to be given to questions which depended upon knowing what sort of medical care services were being delivered to individuals.

I don't know how Ted would have classified that, but it's having available a fundamental set of specifics, such as the ability to identify people and to follow them, which is unique to the Medicare program, I think. This allows you to answer many, many questions which relate to people and to the cost of providing service, which you can't do by any other means.

The use of data for determining what are reasonable charges is the kind of approach to the use of data, which has always been available to insurance companies and to Blue Shield plans, and which in a vague and general way were sometimes used in the way of which we are using them. I think to a much greater extent the data weren't used for these kinds of purposes. It is an example of how a particular program specifies a way in which to reach certain decisions which are almost entirely dependent on data.

This is a direct use of information which flows to make automatic decisions, which are a function of the arithmetic of the situation.

DR. SANAZARO: Do you want to talk about MADOC too?

MR. WEST: MADOC is really quite different. MADOC is an attempt to describe the manner in which a system seems to operate.

What we are measuring here and what we are attempting to do is to identify what the hospital might have had as a length of stay experience, based upon its patients mix and its other characteristics. Here we are using a whole series of items of information simultaneously in an attempt to get a very simple, single figure, which allows a hospital or anybody else to look at two lengths of stay—one the actual and one the expected under the circumstances—and make certain judgments which in turn obviously have to be followed up by confirmation of those judgments by what I call looking at the hospital itself and how it operates.

DR. SANAZARO: Ted?

MR. WOOLSEY; I was sort of mentally classifying these as I heard about them. I forget which order you presented them in, but the one having to do with accumulating the costs that was used in determining the 95 percent level I would put (maybe a little questionably) in what I call sub-category four, which is called Market and Budget Analysis Purposes, since it seemed to be part of the process of trying to cost out a program.

The other two, it seemed to me quite clearly, fell in the area of which I called Program Management, particularly using data as they do in feedback mechanisms. In both cases, the information on customary and usual charges and on the possible over utilization or under utilization were being used to bring the situation under control. So I would have classified both of those in that category, which was sub-category six.

Some of the other uses that I heard talked about perhaps came under the area of either Program Planning or, in some cases, Public Education. There was a good deal of emphasis on the need to present the data in very simple form to bring the public decisionmakers along with you, these being the public members of the planning committees. I am not exactly sure about this. I would need to think about it a little more, but I think that's roughly where I would put those uses.

DR. SANAZARO: That's very helpful. It's nice to have a taxonomy of that elusive art called "decisionmaking."

Yes.

MR. FRASER: Todd Fraser, Assistant Director, Harvard Center for Community Health and Medical Care. Some 16 States already have passed what has been referred to as a certificate of need type of legislation and probably another 10 or 14 have this in the books. To what extent in your State, if this has been done, do you have inputs to the decisionmakers concerning the need for expansion of hospital facilities? What comes from your information base to that group?

DR. MILLNER: In our particular instance the question is premature. We are among the 20 or so whom you have left out, who aren't actively pursuing this yet. We are still not doing it. I assume that when this type of endeavor does occur, we would participate in it. But as of now, it is not even in the books.

DR. SULTZ: We have had some application prior to the development of this particular technique. Each proposer would be required to justify the need, which was done in very gross ways and could neither be accepted nor rejected because the information just wasn't there. So many of the decisions were rather political. Since then, we have developed data which have become the basis for justification of need, particularly for the expansion of or the construction of facilities in terms of the need for nursing home beds, hospital beds—that kind of thing.

I'd like to use that question to say one more thing, because Ted Woolsey said something this morning which I think is very important. Some of those uses that he mentioned could be classified as market research, if it were in industry, and this is really the kind of thing that we are talking about when we are talking about a certificate of need. To give you an example, we have in Buffalo, New York, a $23 million county hospital being built. The decision as to what goes into that facility in the way of services and even where the facility was located was based on less information than I am sure a McDonald's Hamburger Stand would have required before setting up a new location.

These kinds of justifications have been sadly lacking in the health facility area and I think are absolutely required to get rid of the situation in which we have glaring deficiencies in one place and glaring unnecessary duplications in another.

MR. MESARD: Louis Mesard, Chief, Biometrics Division, VA, Washington, D.C. There was a plea this morning for uniformity in definition. I think you two men on the extremes here represent two different States and you mentioned using hospital discharge records. How much effort have both of you expended to make your information uniform so that it could be exchanged? I think there is a uniform hospital discharge abstract.

DR. SULTZ: We just have not related personally. I think we both relate to the National Community Profile Center which provides some guidance in the development of community profiles. I think this is an effort which is in its infancy. You struck a very important note in that if we are going to develop any expertise and sophistication, we are going to have to avoid, each of us, reinventing the wheel as we go along. There is going to have to be some sort of conference of profile makers somewhere along the way so that we can standardize our techniques.

Do you want to say something on that, Dr. Millner?

DR. MILLNER: Yes, I echo your sentiments entirely. What we did is try to standardize the type of information. We analyzed the information by where patients from a certain area went to hospitals and where hospitals from a certain area drew their patients. Since the time of this report, our patient discharge service has been in the planning. It should start fairly soon, and we have been very careful within the State, at least, to work with other agencies—the other "B" agencies and the "A" agencies—to make sure we will be using the same type of forms that they will be using. Also we check with the ones that have the various abstracts, the discharge services.

That has been done. We do try to keep some of the basic data elements that are on the national scene and we did make a very conscious attempt to keep almost all of the same data elements as in the State.

DR. SANAZARO: As was mentioned this morning, the uniform hospital discharge data set is only being tested in five geographic areas in the United States. Pending the results of a definitive evaluation, the data set will not be publicized or promoted, except in selected demonstration sites, like the Experimental Health Service Delivery Systems, and in certain data projects. Perhaps it would be well to close this session with an informal report on the status of the technical specifications of those uniform hospital discharge data items by Mr. West, who is chairman of the subcommittee of the National Committee on Vital and Health Statistics dealing with that.

MR. WEST: The subcommittee that was charged with the development of a basic minimum of items and the definitions which are critical for uniformity of these items has essentially completed its work. The subcommittee used rather completely, I think, the experience with the tests and the recording of experience of where the problem areas were with certain of the items which had been included in the test situation. On the basis of the results of the tests the subcommittee re-examined all of the items and all of the definitions and about the middle of May made a report of the parent committee, which is the U. S. National Committee on Vital and Health Statistics, detailing both the basic minimum data set and the definitions.

I think you will find, when this information begins to get broad exposure, that there is nothing really revolutionary in all of this.

What is revolutionary is the fact that, hopefully, there is a basic minimum set and a useful set and an adoptable set of definitions for all these items, so that if these items and their definitions are utilized in hospital discharge data everyone receiving and using such data essentially will be using the same sorts of information.

There is an option obviously, where you are dealing with a basic minimum set of data, for additional items and information. I would judge that most hospitals and most planning groups would want more than the basic minimum set of information.

What was attempted here was to get down to things which there just wasn't much question about and try to design all these things so that for all of them there would be, across the country, the same meaning.

DR. SANAZARO: Thank you. The discussions on the Cooperative Federal-State-local System will go into more details for that part of your question that has to do with the sequence which will be followed in calling the uniform data sets to the attention of all who are involved, what will be required in the way of conformity and what mechanisms will be used for making the transition.

I am now going to thank our first panel for their contribution.

(After a brief intermission, Concurrent Session "A" continued.)

DR. SANAZARO: We begin the second half of our program on the uses of health statistics with their application in Rhode Island.

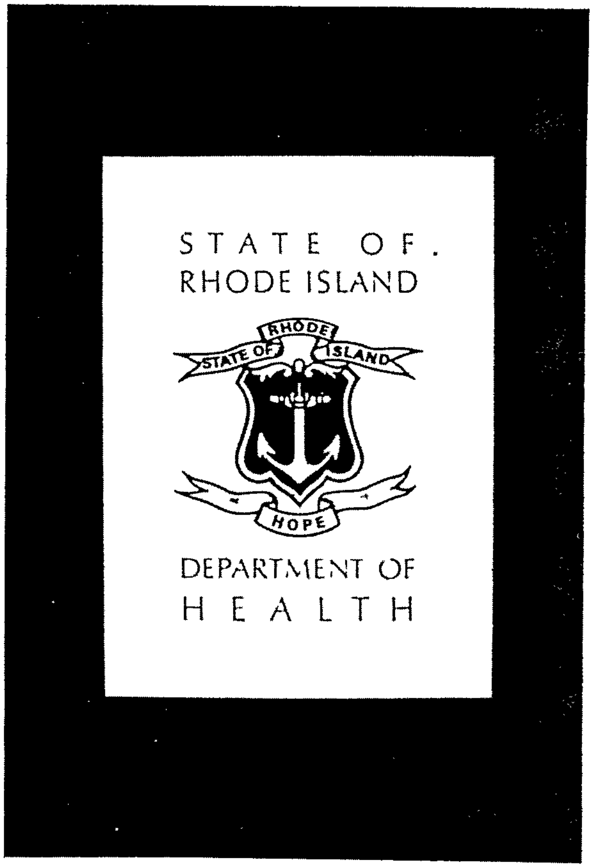
Our speaker is Dr. Joseph Edward Cannon, a physician and MPH cum laude from Harvard. He has been Director of Health in Rhode Island for over 10 years, and he will admit to holding a faculty title at the University of Rhode Island. He has pioneered in the use of health statistics for planning and management on a statewide level.

Dr. Cannon.

USE OF VITAL STATISTICS DATA BY CENSUS TRACTS IN PROGRAM PLANNING AND DEVELOPMENT

Dr. Joseph E. Cannon, *Director of Health, Rhode Island Department of Health*

When we get into statistics from Rhode Island I must honestly confess that we are so small that any good statistician looking at these things would say, "beware, these are skewed because of the size of the sample." As an example, the town of Westerly has some 20,000 people and one year it had three suicides, the highest rate in the whole State. I don't know that that's very significant, but we do feel that some of these figures are of importance to us in our planning. The first slide is the seal of the State of Rhode Island, and its motto is Hope. I should mention that there was a governor of Massachusetts back in the 1700's named John Winthrop, who called Rhode Island "The home of the otherwise minded." This slide shows the census tracts in Rhode Island, some 213 census tracts in the State and 37 in Providence. We are, I think, the



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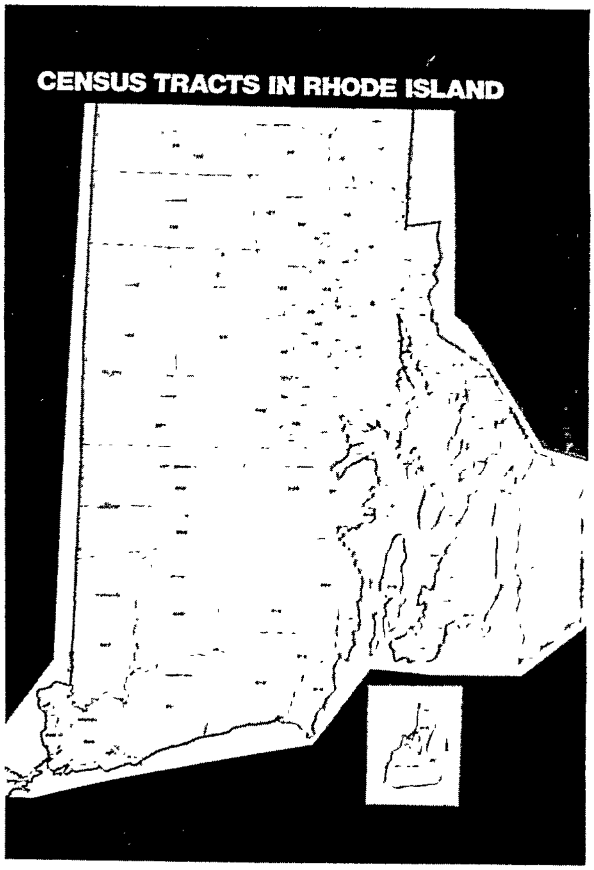
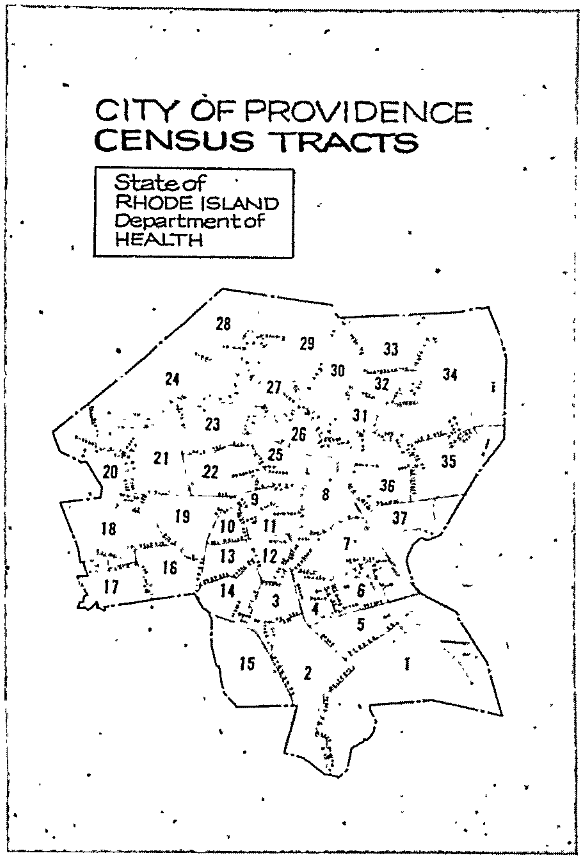
HEALTH

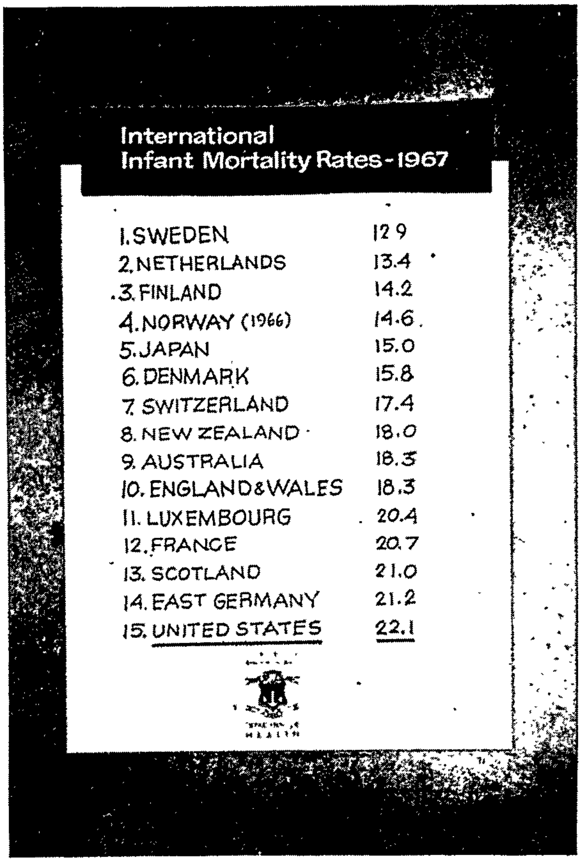




CITY OF PROVIDENCE
CENSUS TRACTS

State of
RHODE ISLAND
Department of
HEALTH

first State to be completely census tracted. When we learned this, we decided to try to use it as a tool. We thought, as an example of how we use these data, to use what we call progressive magnification. If you will look at this slide you will see the international infant mortality rates in 1967 with the United States 22.1, and like on

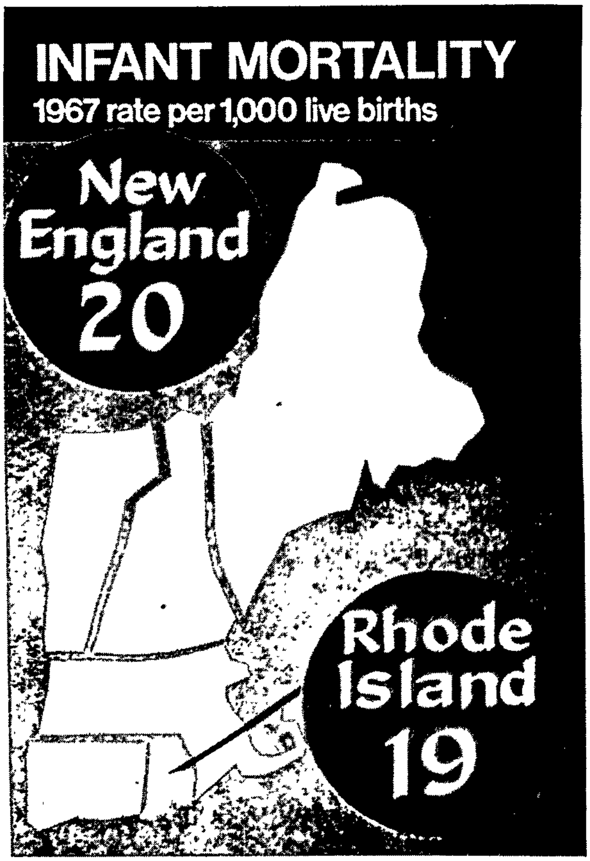


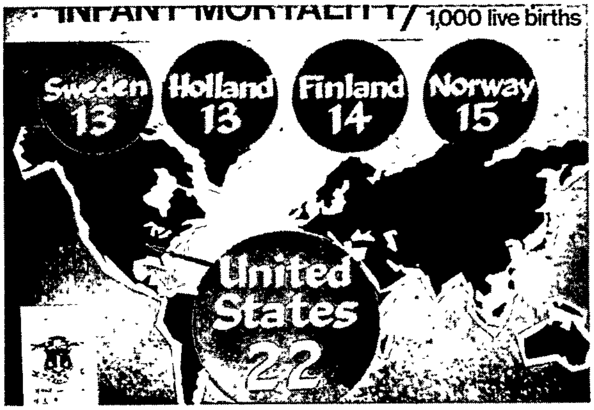
International
Infant Mortality Rates - 1967

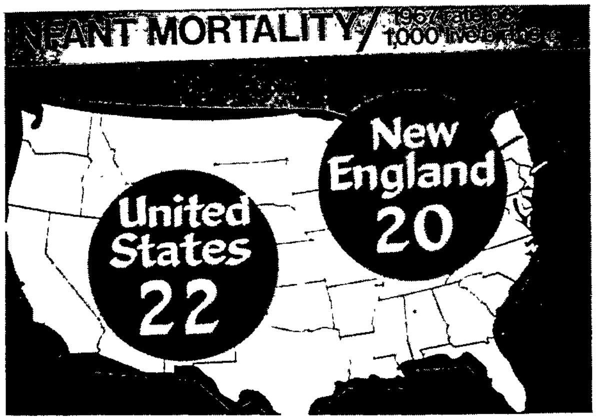
1. SWEDEN	12.9
2. NETHERLANDS	13.4
3. FINLAND	14.2
4. NORWAY (1966)	14.6
5. JAPAN	15.0
6. DENMARK	15.8
7. SWITZERLAND	17.4
8. NEW ZEALAND	18.0
9. AUSTRALIA	18.3
10. ENGLAND & WALES	18.3
11. LUXEMBOURG	20.4
12. FRANCE	20.7
13. SCOTLAND	21.0
14. EAST GERMANY	21.2
15. UNITED STATES	22.1

a little map of infant mortality, there are the Scandinavian countries.

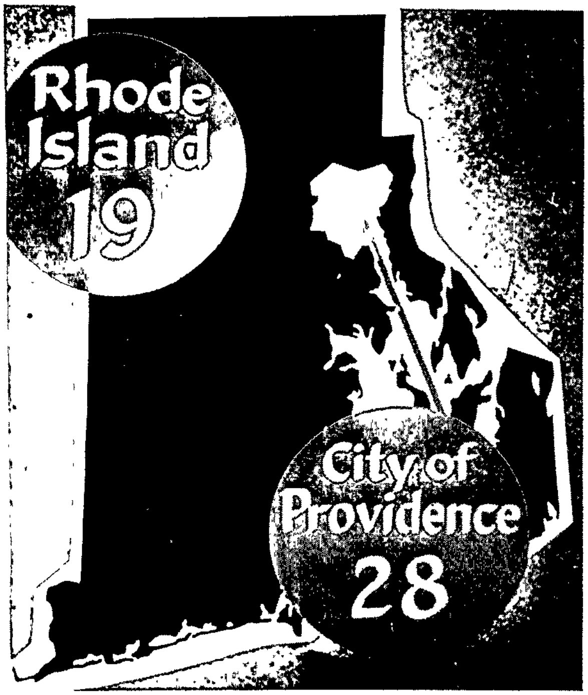
And here we are, the United States and New England. Here is New England and Rhode Island. We are looking better all the time. Now we look at Rhode Island and then we come to





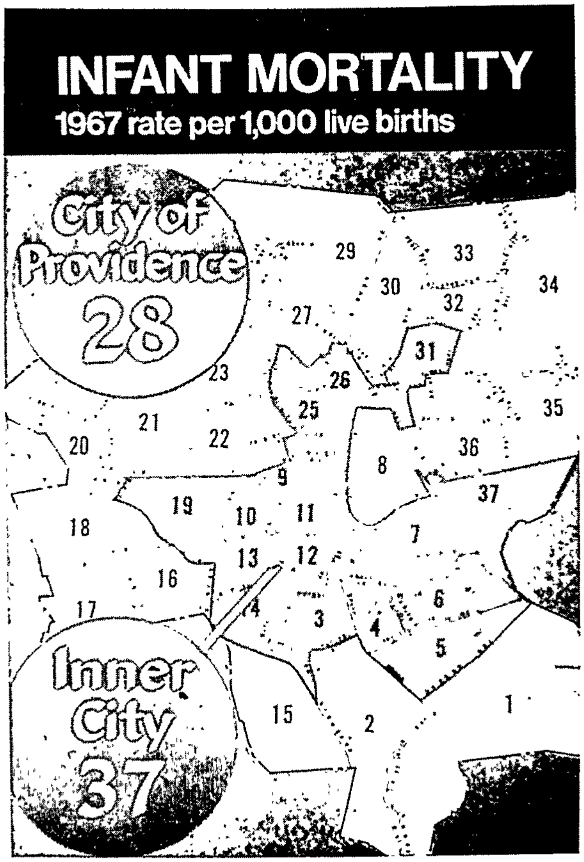


INFANT MORTALITY
1967 rate per 1,000 live births



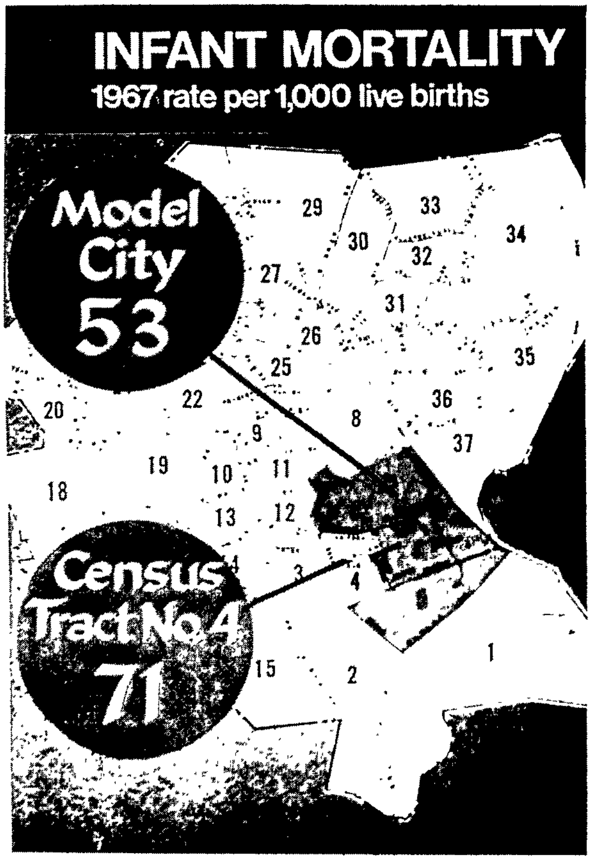
the City of Providence, which is our major city and the capital, and you can see some difference there.

Now we look at Rhode Island, the City of Providence, and the inner city. I think you will see quite a significant difference there. These are our poorer census tracts.



Then the inner city and the model city. Isn't that a beautiful comparison? It's 53 in the model city area.

Let's try the next one. Here we have the model city and one census tract in that area with an infant mortality rate of 71.



STATE OF RHODE ISLAND
DEPARTMENT OF HEALTH

FANT MORTALITY
7 rate per 1,000 live births
VERALL RATE COMPARISONS

Sweden	13
Netherlands	13
Finland	14
Norway	15
United States	22
New England	20
Rhode Island	19
Providence	28
Inner City *(16 Tracts)*	37
Model City *(4 Tracts)*	53
Worst Prov. Tract	71

Now let's look at that overall chart again. Quite a difference between Sweden, Providence, and the worst Providence tract.

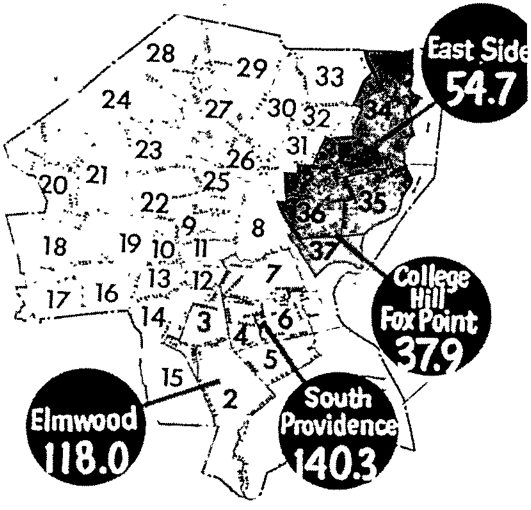
Lets look at fertility rates. Here we see South Providence. This is inner city, the model city area. If you look at it, the inner city has 110.5 and the model city has 140.3. The East Side, which is our very well-to-do area, has 54.7, and another area, Elmwood, is quite high.

Illegitimate birth rates, we are showing the same picture. I think you will see as we go

City of Providence - 1970
FERTILITY RATES
Per 1,000 Women - Ages 15-44

STATE OF RHODE ISLAND
DEPARTMENT OF HEALTH

United States	87.6	Inner City	110.5
Rhode Island	84.9	Model Cities	140.3
Providence	89.8	Rest of City	77.6



through. I happen to come from the section called Upper Mount Pleasant and Elmhurst and you can see we are quite pure up there, as compared to South Providence and the west end. Of course, we are also quite older up there.

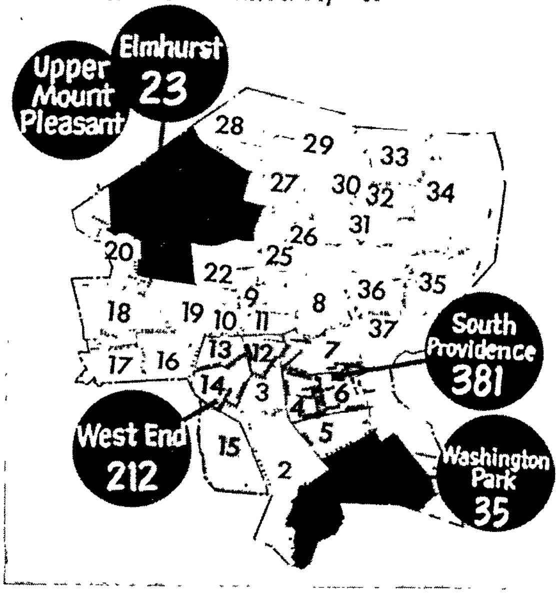
Premature birth rate. Wanskuck is quite high and South Providence is quite high. Again these are the impoverished areas. Hope is well-to-do. College Hill is where all the professors come from and they don't have too many babies anyway. Their rate is relatively low.

City of Providence - 1970

ILLEGITIMATE BIRTH RATE

Per 1,000 live births

United States	97 (1968)	Inner City	229
Rhode Island	73	Model Cities	331
Providence	151	Rest of City	85

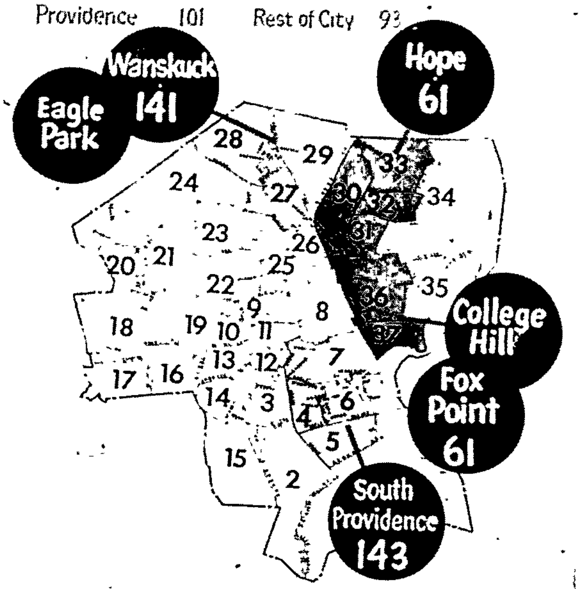


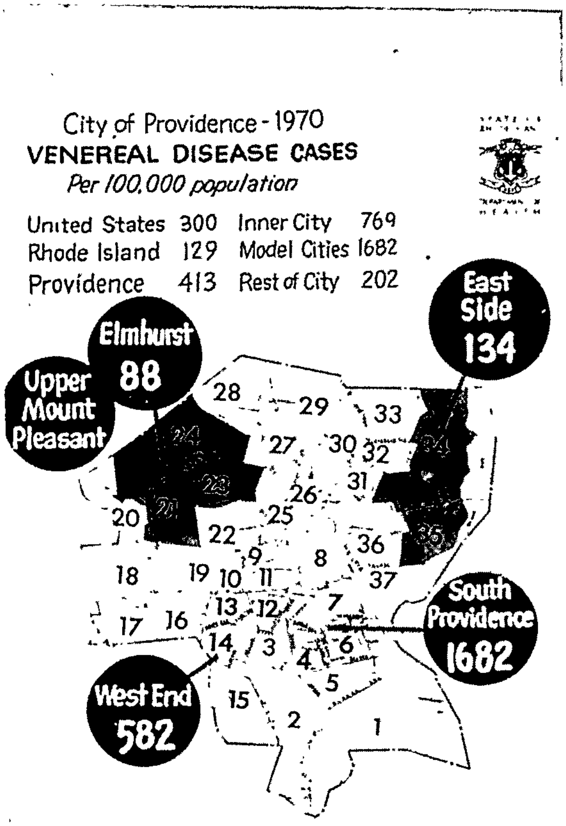
City of Providence - 1970

PREMATURE BIRTH RATE

Per 1,000 live births

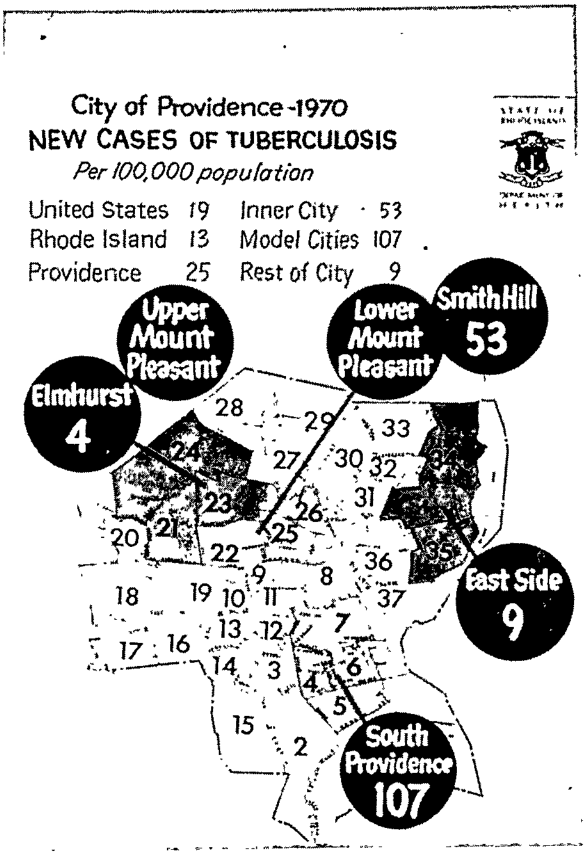
United States	82 (1968)	Inner City	111
Rhode Island	77	Model Cities	144
Providence	101	Rest of City	93





Venereal disease. I almost don't have to tell you this. Just take a look at it and you are seeing the same picture all through there again. Again the Elmhurst area. As I said, we are quite pure and this bears it out.

New cases of tuberculosis. Look at South Providence again.



Diabetes death rate.

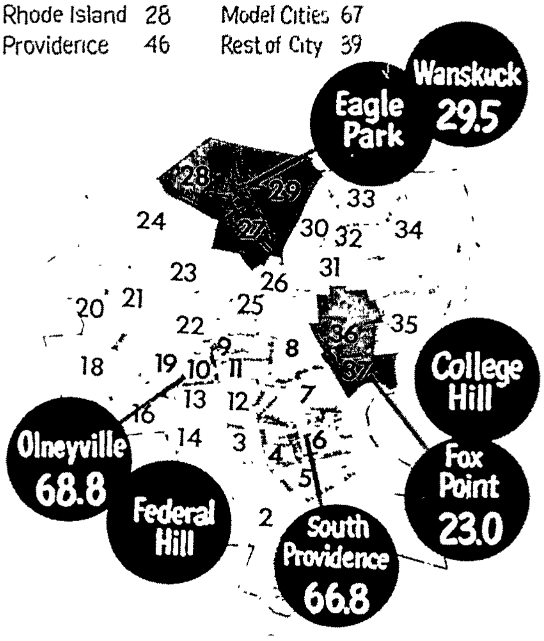
Deaths from lung cancer. This is a little strange in a way because the age of death is much lower in South Providence than it is in other areas. Washington Park has a very high

City of Providence -1970

DIABETES DEATH RATE

Per 100,000 population

United States	19 (Est)	Inner City	59
Rhode Island	28	Model Cities	67
Providence	46	Rest of City	39

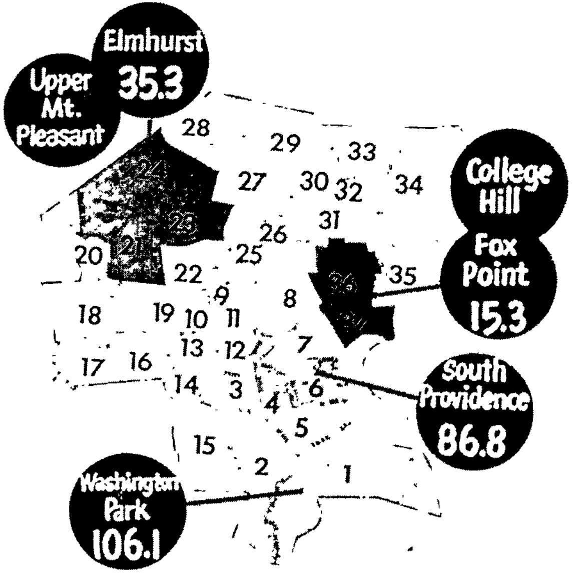


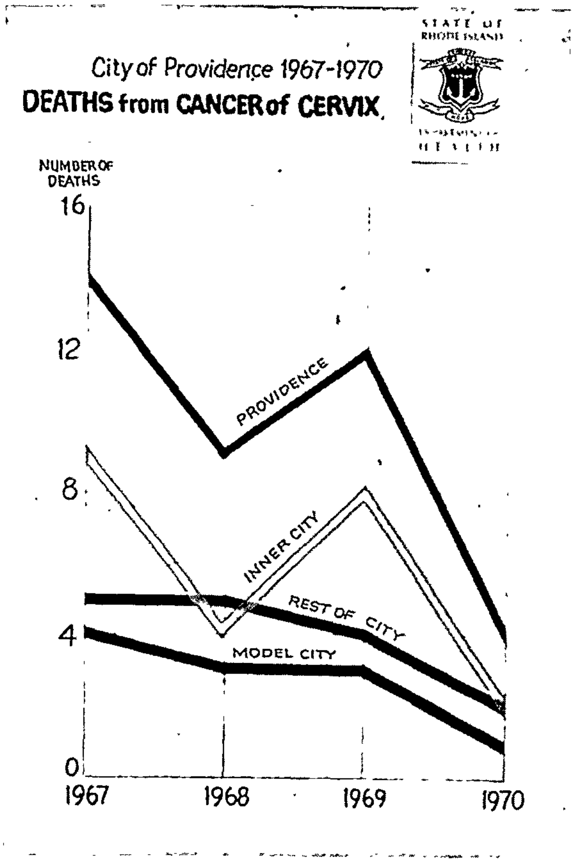
City of Providence -1970

DEATHS FROM LUNG CANCER

Per 100,000 population

United States	34	Inner City	75
Rhode Island	42	Model Cities	87
Providence	60	Rest of City	50





incidence of older, impoverished people: Cancer of the cervix, in other words, is very high in the impoverished areas, and the areas with the high percentage of blacks, and cancer of the breast is very high in the areas where there are those who do not nurse.

That was relatively short and I think that I might add to it by saying that what we have done is concentrate our resources in those areas that have shown the greatest needs.

As an example—and again I don't know how statistically significant it is, but it looks good to us—cancer of the cervix. Sometime back we threw every resource we had into that area. We tried public health nurses and we were not very successful. We tried neighborhood aides and I hate to tell you the words they used, but it worked. They would go into the neighborhood and into the home and they would say to Susie, "Hey, Susie, take this and do this with it, and I will wait for you." And the last figure we had on the rate of cancer of the cervix had dropped, we think significantly. I am not sure about statistically, but it is a lot less.

We have seen the same thing in VD, where we have concentrated resources.

Infant mortality rate. In that model cities area where we have an infant maternity care project the rate has dropped significantly.

There are other areas—VD, TB—where we are throwing in every resource we have.

I want to go back to some other things we are trying to do in Rhode Island.

We are doing some surveys of needs in the community and these are very, very well done in the sense that they are statistically valid—who gets service from whom, what physician, what type of hospital.

We are involved in the development of uniform abstracts. Since we do have franchising of health facilities in Rhode Island, we can require any hospital to give us any data we want. Of course we are reasonable in our approach.

We get all MAP and PAS data and we can do much as MADOC does in our own limited little way with some of that material and we are finding some very interesting things.

We have just gotten every hospital in the State to agree that they will census tract every admission and discharge by census tract, which will be of value to us.

We now have available to us the Medicaid data by census tract. All of these we think will be valuable tools to see where we put our resources.

DR. SANAZARO: Thank you.

Next we are going to hear from Mr. Strawn Taylor whose background is in statistics and public health, from North Carolina and Michigan respectively, again speaking from the vantage point of the Director of the 314(a) Agency, for Kentucky.

PRACTICAL ASPECTS INVOLVED IN THE USE OF HEALTH STATISTICS IN STATE HEALTH CARE PROGRAMS

Mr. Strawn W. Taylor, *Director of Staff for the Kentucky Comprehensive Health Planning Commission*

I would like to say, first, that I am speaking from a point of view of working with 15 regional national agencies in our State and also 17 State agencies that spend approximately $200 million a year totally in the health field.

I'd like to make two or three points that I think are significant.

As an "A" agency we did not go the route of trying to produce a lot of facts. I know one State agency that spent $300,000 on computerizing all the statistics they could find. I haven't really been convinced that they have done much with that data after they put it on the computer.

In our case what we did was simply put out a guideline which suggested to our regional council how they might put data together and how they might get consultants to talk about the impact on the health of the people and to talk about population, demography, and population risk, high risk groups, and what have you.

We put the burden, I think as some other States did, on the applicant or on the person being reviewed to have to demonstrate the facts that they felt were pertinent.

I'd say that we did do one or two things. We got a firm to synthesize the National Health Survey information for our populations in each of our regions. We sent that to our regions and I don't think they have used it. I don't know exactly why. I thought it was an excellent thing myself, but when you send it to the operations people and to the consumers and people on councils, they do not seem to care or know how to use that information.

What they do know and what they are finding out how to do is to support or reject a $10 million application of a hospital. That's what we are confronted with regularly and that is why we must get better facts than we have gotten to date on hospital utilization. We have five or six situations under surveillance, where the State Health Council really would like to stop the hospital from proceeding with expansion plans, and the hospital is urgent to move ahead. Hospital requests for large amounts of money require an excessive amount of time of the State Council, but we are convinced that it is a priority which must be faced in the public forum. We were being forced into this by the consumer and provider sitting at the same table. Consequently, staff must focus on facts in this area.

I would like to relate to you about four or five projects which demonstrate poor use of data and statistics.

The first one was a bad experience with a Statewide health manpower study. A Statewide manpower committee was set up, and this committee was composed of two hospital administrators, one person from each of the medical centers, an editor of a newspaper and two ladies who were referred to as consumers. When our statistical consultants came in they told this committee that the statistical data being used were going to be inadequate. Specifically the committee was predicting they were going to get 60 percent response.

The question was, that, in a statistical design what do you do about the 40 percent nonresponses? The committee didn't really care and told the statisticians that, and the statisticians said "There is no use for us being here," and they left. This was very satisfactory to the Committee. Five hundred pages of information was collected from 150 hospitals. Still it is not clear what the data meant. I think there is even another aspect of this, probably just as difficult. It was not at all clear if the data really described what they thought they had. For example, take the area of lab techs or medical techs. When a hospital administrator answers the question of budgeted vacancies, what's he really talking about? When he answers the questions, this is the staff we need next year, what is he really talking about?

I would submit that probably a hospital administrator really doesn't know what the performance of these particular categories are. Yet he was the one who was answering the questionnaire. He knows generally what is done, but does he know the quality and the quantity of the services being done, and by whom? Are specific procedures done by an aide or are they done by the lab tech himself? Then, who should do specific procedures?

We really had a serious question as to design of the questionnaire. Yet it certainly was a very popular 500 page report. All the hospital personnel want it. So do the people in training programs. They want to know how many people need to be trained, but it is doubtful if this report can provide the answer.

We were surprised to find that in our whole State there were only 72 RN's needed. That was a fact from the report as supplied by hospital administrators.

The second situation I wish to mention pertains to a research firm which studied the data procedures within our State Health Department. They provided a full-time staff person and spent four months just looking at every source document and every procedure, including a computer, and tried to determine the system being used to process the information. As far as I know, they had one communication with the top management in the Health Department. They had several communications with intermediate management. To date, the final report has been finished for some time and the top management has not seen it. One of the chief executives said that it really didn't produce what they wanted anyway.

Thirdly, I want to mention a statewide family planning plan. Our staff went to a meeting at the regional office, along with other program directors in maternal and child health. Certain procedures and forms were discussed for planning purposes. On one form there was a column headed "Infant morbidity." The question came up several times—what is infant morbidity? It is strongly urged that basic consideration must be given to why that heading was used, under what circumstances, and how it could be interpreted. As a result of the meeting we had, the form was changed completely.

Recently four public health physicians conducted a 16-county health survey. They were approached by statisticians early in the game who said "We'd like to be involved in helping with designing of the form." The physicians didn't find this necessary and about six months after they had been collecting information, these team physicians wished they had considered the demographic data. As it is well known, there is no way to go back and reconstruct that once you have six months of data.

Let me try to summarize quickly what I am attempting to demonstrate:

It seems to me that there are several different categories of key requirements that must be considered on almost any kind of a data gathering activity.

First, as has been illustrated earlier today, you certainly have to involve top management. You've got to involve intermediate supervision, operating personnel, and then the data processing personnel. Also you must obtain statistical consultants.

Most of us overestimate our statistical knowledge. I think we need to keep in touch with the universities. Also we must consult behavioral scientists and others that are related to technical interpretation. Then there are census data specialists, professional personnel—whatever category you are dealing with, physicians, dentists, etc. Don't overlook planners and systems analysts either. I know land use planners are criticized more than we are but nevertheless, I think there is an important role for them in our system. Many times other agencies are doing much more with census data and other types of data than we are.

It seems to me that we are going to have to think in terms of a center that's not just a center with some specialists in it who know statistics, but a center that has authority, responsibility, fund support and management know-how. It is quite important to convince the agency head to be concerned and to urge him to support a structure and a policy procedure that will guarantee the results you need. We must sell this program and the total center concept because operating personnel have their own priorities and don't really understand what statistics can do for them. We can't wait for them to ask us.

Statisticians sometimes do not have vision or do not get involved with innovations. They say that it is up to operations. It seems to me that a statewide statistical center, either on the operating side or the statistical side, must, by policy, be involved with innovations and vision. Then whoever is responsible can be assured, through top management and policy, that you get the data that are needed. Thank you. (Applause)

DR. SANAZARO: There is a challenge to the group that's here to find out what data are for.

Our last panel member is a duo. Miss Jane Hazlewood is a biostatistician, who had experience in Idaho and Mississippi before working in Tennessee. She is a product of the University of North Carolina.

Mr. James Kellow, is the Senior Research Associate in the Bureau of Business and Economic Research at Memphis State University. His background is in economics but he has identified himself with the health field. He is the author of a number of critical analyses.

A BIBLIOGRAPHY OF STATISTICAL DATA ON HEALTH IN TENNESSEE

Miss E. Jane Hazlewood, *Biostatistician, Office of Comprehensive Health Planning, Tennessee Department of Public Health*

Mr. James H. Kellow, *Senior Research Associate, Bureau of Business and Economic Research, Memphis State University*

This is a dual presentation. I am going to read our paper; Miss Hazlewood will answer your questions.

About three years ago, the Office of Comprehensive Health Planning in the Tennessee Department of Public Health became concerned over the number of requests it was getting for statistical health information.

Unlike some comprehensive health planning agencies, one of the objectives of the Tennessee Office of Comprehensive Health Planning is to encourage the use of statistical health information by planners, researchers, and program administrators. Discussions with agencies throughout the State by members of the Comprehensive Health Planning staff, however, revealed that in many cases it was easier, albeit more costly, for an agency to develop health data on small areas themselves rather than to try to find the required data in official agencies.

Armed with these findings, the Office of Comprehensive Health Planning sponsored a series of conferences with the research staffs of the areawide health planning agencies and the regional medical programs to discuss the problem of health data availability. These conferences revealed that the problem was even more involved than was initially envisioned.

Much concern was expressed that even though the research staffs had some experience in the health field they did not believe that they were aware of many of the possible sources of data or even that they were aware of the data available from the standard sources such as the State Department of Public Health.

Further, in order to locate the existing data best suited for a specific purpose, the planning agencies were not only interested in where the data could be obtained, but in such things as the source of the data collected by an agency, how the data were stored, who was the person responsible for maintaining the data, and exactly what data were kept in a single file.

As a result of these and similar conferences with other groups, the Tennessee Office of Comprehensive Health Planning decided to try to offer some type of assistance to help alleviate these problems. The solution decided upon was a Bibliography of Available Health Data.

The Bibliography was to be designed as a tool to make it easier to locate and use the existing available statistical health data and was to include several different indexes as well as sufficient information to enable an individual to make an initial decision that the data he required were available.

Since the Office of Comprehensive Health Planning did not have the capability to prepare the Bibliography, it was decided to contract with the Bureau of Business and Economic Research at Memphis State University to accomplish the project.

The staff of the Office of Comprehensive Health Planning acted as a liaison with the concerned State agencies in the collection of the information and provided expertise in health statistics and the health field in general.

Thus it can be said that the success of the project was due to the utilization of expertise from two very diverse organizations.

After determining exactly what type of project we wanted to undertake and identifying an organization that we hoped could do the project, we faced three major decisions: What are health data? Which and how many agencies should be contacted? What information would planners and researchers require on each data file to make their initial determination of the file's usefulness for a specific project?

In regard to which agencies to contact, we decided that four metropolitan and six rural county health departments, plus the State Departments of Public Health and Mental Health would be contacted by a team which would conduct personal interviews with every person who maintained a data file in each of these organizations.

For the purposes of our study, we defined a data file as a collection of detailed information that is either arranged or classified in a particular order for preservation and/or reference.

In addition to these personal interviews, a mailed questionnaire would be developed and sent to approximately 1,200 other agencies, including Federal and State agencies, colleges and universities, local volunteer agencies, health associations, life insurance companies, and Tennessee industries having a relationship to health.

This dual procedure—that is, the personal interviews and the mail questionnaires—allowed us to obtain detailed information from the major health data collection agencies, as well as preliminary information from a lot of other agencies on the types and amounts of data they maintained.

In regard to our question on what information should be obtained for each identified data file a list of 11 items was decided upon.

The first item is the geographic coverage of the data file. We were interested not only in the largest geographical area but also in the smallest geographical area from one of the metro counties. This might be a census block or tract. The total county might be the largest geographical area.

The second item was the historical time period of data coverage.

Third, we wished to determine the restrictions on obtaining data from the file.

Fourth, the cost of obtaining data from the file.

Fifth, the source of the data.

Sixth, the interval for updating the data in the file.

Seventh, storage mode for data in the file.

Eighth, publications containing data in the file.

Ninth, changes anticipated in the data file within the next fiscal year including changes in the way the data were stored, the source—anything that would involve any one of the other items that we were investigating.

The tenth item was the person to contact concerning the data file, and lastly, the specific pieces of information that the data file contained.

Perhaps the most difficult question to be answered was how to define what are health data. A definition was needed that would ensure the inclusion of all types of health or health-related data needed by the agencies involved in health planning. The solution finally adopted was to define a data file and then to determine all the data files maintained by the agencies contacted.

Based on the information obtained from the agencies, we came up with six basic categories which we defined as encompassing health data.

Physical health facilities included data on hospitals, clinics, pharmacies, blood banks, and homes for the handicapped, by their location, by type, by their utilization, by size, by cost.

The second area was health services, which included data pertaining to the type of health service, whether it was treatment, laboratory, rehabilitation. It was either currently available or planned and included measurement of utilization of these services, cost of these services, and so forth.

The third area was health manpower. This included data pertaining to the number and types of doctors, nurses, para-medical or allied health personnel, the number of students enrolled in programs leading to a position in the health field, and so forth.

The next was health vital statistics, births, deaths, marriages, divorces.

Environmental data included air, water, noise pollution, recreation, housing conditions, inadequate nutrition, sewerage, environmental control or sanitation, health hazards, and so forth.

Then we came up with our catch-all, "other data" files. We included here the socioeconomic, demographic, and the health insurance data that we had picked up from the agencies.

With these basic decisions made the study was initiated. The personal interviews with 10 local public health agencies and the State Public Health and Mental Health Departments revealed a total of 414 separate files of statistical health data.

In addition, we received replies to 714 of our 1,200 mail questionnaires, about a 60 percent return. From these we have accounted for another 129 data files. The data on health services in the environmental categories account for approximately 70 percent of all the information we accounted for. It is perhaps an understatement that more data than were anticipated were found.

Even persons who have worked for considerable lengths of time in the health statistics field in Tennessee find it hard to believe that so much information is actually available for use.

However, since so little of the data is on data processing equipment—in Tennessee less than 10 percent—it is probable that much of the data may be of limited accessibility.

Was the result worth the effort? At this time the study is about four months old and it is, honestly, too early to measure the value of the effort. However, at this time the effort appears to be very definitely worthwhile.

The State of Tennessee Department of Public Health recently formed a task force to look into the feasibility of establishing a State Center for Health Statistics. While the final recommendations of the task force have not been made, an intermediate recommendation was to establish a data referral center in the Tennessee Department of Public Health to assist persons in locating and using the existing statistical data. This recommendation was recently approved by the Commissioner of Public Health in Tennessee.

The Bibliography that we just completed will provide the basis of the information furnished by the referral center and plans are currently underway for the continual updating and expansion of what we are calling now a basic Bibliography.

In reality, the Bibliography may have become the means for the State of Tennessee to begin moving gradually toward a State Center for Health Statistics.

For many persons in Tennessee the Bibliography focused on the amount of health information currently available and stimulated thought about how to provide the data more effectively and efficiently.

As far as Miss Hazlewood and I are concerned, this may itself have justified all the effort. Thank you.

DR. SANAZARO: We have heard quite a range of perspectives this afternoon, including specification of what not to do in order to succeed, and the discovery that there already are more data than we know what to do with. Mr. Kellow, I gather that your search for a taxonomy was entirely local, regional?

MR. KELLOW: Yes.

DR. SANAZARO: Was that because you felt no similar effort had been made in the United States to develop a taxonomy or classification of health data?

MR. KELLOW: We had a great deal of trouble in trying to do the study that we did, given that we had $16,000 and six months. When we started into it, we didn't exactly know how to narrow down the study.

We wanted to try to give a broad-brush treatment so that a lot of people could get use out of the Bibliography. We wanted to try to get as many people involved in the planning of the Bibliography as we could and one of the tools that we used to get this involvement was "Come help us to define health data."

Out of their definition, which ranged from one extreme of birth and death records to the other extreme of anything that you can possibly think of, including pot holes in Rhode Island, we decided that we would define a data file. We would define the type of agency that we wanted information on and whatever we got from them would be our "definition of health statistics."

DR. SANAZARO: Any comments on that? Ted?

MR. WOOLSEY: I think that you have to go through this kind of effort in identifying existing sources. Probably the reason one has to go through this is that everybody balks at the possibility of having to spend large sums of money to get systematic data that are designed to meet particular needs.

They always say, "Well, don't we have it already?" So you have to get this kind of inventory in order to demonstrate really that it isn't there already.

I am jumping ahead a little bit here, but I wonder whether you now have posed some real questions or some hypothetical questions that you might want to ask of these statistics, to see whether from this inventory you can get any answers.

Let's just invent one out of the blue sky here. I suppose a question that might come up in Tennessee would be the question: are there parts of the population of the State that are not adequately served by nursing home facilities of some sort? Or do they have to travel long distances, unreasonable distances, for this kind of care?

I am making a presumption that the existence of that care is a part of the health plan of the State and it is reasonable to require it.

If you look at this inventory to try to find out whether from it you can get an answer to that question, or to dozens of other questions that you might put to it, my guess is that you will find in many instances, with all the masses of files that you found available, that you cannot get answers to these questions. That's been the experience elsewhere, in any case.

This was the kind of thing that Dr. Wilson was pointing out in using the example that he did this morning in the field of hospital statistics on the utilization of hospitals and hospital discharges.

There is an enormous amount of effort going into collecting this kind of data. You can count hundreds of grant supported, contract supported efforts to collect statistical data. When you come to look at those efforts from the standpoint of what do we need, you ask do we have regular, recurring data that would produce trends and things of that sort to show what problems are arising so that we can design programs to meet the problems? When you start to examine the situation from the standpoint of the kinds of questions you need answered then you find that these various sources are mostly useless for filling the needs of a central planning agency.

That would be my expectation. I wonder, after this long preamble, whether you really have started to examine these many, many files to look at the real or even hypothetical questions that the planning groups might wish to pose and see whether they can get the answer there, or whether something new has to be designed to produce the answers.

MR. KELLOW: Let the other half of the duo handle that one.

MISS HAZLEWOOD: I think your question is very valid. I think there is not only the question of whether the data are available, but also whether they are available to the researcher, as he was saying, with less than 10 percent having any kind of mechanical means. Just getting to the file that claims to be statistical data is difficult.

MR. KELLOW: To approach your question from maybe a little different aspect, too, certainly it would be hoped that the program administrators in charge of collecting this wealth of information would review their needs from time to time.

We did not go into any more than just the establishment of the basic document. There are plans in several of the agencies right now to reevaluate what they are doing.

One of the things that we found, for example, is there is little standardization among local health departments in the forms they are using to collect the data. So you go to County X and you find exactly the information you want, but that's no guarantee that you can go to County Y and get anywhere close.

There are a lot of questions that you can ask and a lot of questions, hopefully, you can answer from the information that we got from the Bibliography.

DR. SANAZARO: Is there a question here?

DR. NEYMAN: Jerzy Neyman, Professor of Biostatistics, University of California. I wish to compliment you people who took the inventory of the data and also I am appreciative of the words we heard from Mr. Woolsey, but I would like to go just a little further. I must explain why.

I glanced at a study on health and pollutants and I saw tremendous differences in the same health characteristics in various parts of the country. I was forced to ask myself why should these differences be observed. Then the question occurred whether the agency which collects data in one part of the country does it on the same scale, with the same reliability, as an analogous agency in a different part of the country.

In other words, in addition to trying to make an inventory of the existing data, and even in addition to trying to find whether specific questions could be answered by the data available, I think it is important to have a glance at how reliable those data are, such as exist.

MR. KELLOW: I agree 100 percent and if we had funding we would undertake such a study.

DR. CANNON: I would like to add something to what he said or supplement it.

Is there anybody in this room who did a study on the relationship of cirrhosis of the liver to air pollution? Good, I can speak freely again. A fellow who taught me biostatistics said that if you carefully review the American Medical Journal you will find that most of the statistics in it are garbage.

There is only one journal in this country that is good—of course, I am prejudiced—and that's the New England Journal of Medicine.

But this fellow cited the incidence of cirrhosis of the liver in census tracts in a certain city in relation to air pollution in industry. The question I had (and I am not sure that any proven relationship, except this particular one, has been made) comes from an observation, only an observation, that the number of barrooms in highly industrial areas far exceeds the number of barrooms any place else. So I wonder if it was air pollution or the proximity of barrooms that made this difference.

DR. SANAZARO: I would like to get back to Mr. Taylor's provocative statement that at least in his part of the country the councils don't want to be bothered by information until they know what information they want, or what they need it for.

MR. TAYLOR: Actually in meetings with staff people from these agencies we have had them say to us, "Why don't you do the data work? Why don't you have your State agencies do the data work? We don't have the staff."

Keep in mind this is in a rural area of the country and they really do have small staffing grants compared with other parts, say in the metropolitan areas. What I was trying to get at, really, is that unless they can see why and how they could use those particular facts—for example, morbidity data—they don't want to be bothered with them. They've got issues that they want to deal with, such as construction of a health facility or maybe solid wastes landfill, or what have you. They don't want these data when they want to hear about solid waste disposal.

I guess I overstated when I said they don't want data in general, but our experience in the public forum has been that they don't want to see the facts first.

DR. SANAZARO: You are suggesting that so far as a large number of the decisionmakers in health planning are concerned, although we talk glibly about potential uses and value of data, there is in fact a tremendous job to be done not only in educating them as to their responsibilities in the various areas of decision making and planning, but then in relating those in turn to the types of data which realistically can be obtained.

This I thought was the strength of Dr. Millner's presentation. And it bears on what Ted Woolsey was saying. All of us have made the incredible observation that it is possible to go into a room full of data and not find what you want.

It's quite possible that unless the objectives are operationally specified for the data beforehand, it will be impossible ever to anticipate future needs. Data collected for a research project are collected in accord with that specific research project design, and therefore, can't be used to answer questions in another research design. The same may be turning out to be true in the health arena. We somehow have made the assumption that there is a general applicability of health data, but it just isn't so. That was the point that Dr. White made this morning.

Therefore, the necessity to be parsimony in specifying explicitly the essential core data, like the minimal data set in the hospital discharge abstract, is essential because it is intended to provide only the basic descriptive information. In individual areas, certain broader needs for information will call for more data items, but the local people will first have to state what they want to do with it.

Now, gentlemen, in your discussions you made it sound as though once you had data you pushed some magic buttons and all sorts of things happened. What did you do with the data?

DR. CANNON: Maybe we have some advantages in Rhode Island that other people don't have. In this one Department of Health there are no local health departments—just one department.

I have advisory committees, but I don't have to pay any attention to them if I don't want to. All authority and all responsibility rests on my back, including franchises. So any resources we have we can put where we want to put them.

We also have very close relationships, again because the State is small. We have all the advantages of smallness and all the disadvantages of smallness. If I were in Tennessee, I wouldn't get calls about the dog in Newport that is fouling a lawn, but I get those calls. That has its advantages, however. We can work, for example, with the local SRS (that is what it is now instead of welfare department) because we are on a first name basis. We can convince them that maybe they ought to throw some of their resources into the Neighborhood Health Centers and pay their share and then some maybe—besides their share in the infant-maternity care project and family planning.

If you've got a 70 percent Catholic State you've got a very extensive family planning program.

But when we have problems with our nurses, who are again primarily Catholic, we've got the Bishop's advisor. He is a moral theologian and he is the Bishop's advisor on spiritual affairs. He happens to be very liberal in his orientation and he gave extensive courses to the nurses and to some of the others so that they began to realize that it was not against the rules for them to participate, as spectators, at least, or providers—not necessarily as one of those who were the real participants—in family planning.

The other thing I want to mention is the orientation of any particular Governor or any particular budget officer—who is the second Governor, I think, in most States. His interests in programs and his belief in what you are trying to do—those are important.

I want data and I want a State Health Statistics Center sometime because that's your back-up tool when you need it. For example, there was a big article in a special supplement in the Sunday paper not long ago about how hepatitis was rampant in Rhode Island. It didn't say it quite that way. It said Rhode Island has highest incidence of hepatitis per capita in the country.

It was a good reporter, they are not too common in those areas. When he got down to cases he pointed out, and we are proud of this, that while we do have a high incidence of hepatitis, we have the best surveillance program of any place in the country. We use these statistics and figures for programs, too.

VD—we have a tremendously high rate. Fantastic. Horrible. But we also have some laws that everybody has to report VD, that anybody under 18 can be treated without parental consent. So our rate went up when those things went in. Also the visits to one clinic alone went up from 60 a month to 230 a month. So I don't know.

DR. SANAZARO: You are the one person who speaks about the uses of data from the management perspective. This is the only real world example we have had today. I think what we heard from SSA is not management so much as program surveillance.

Yes, Jim.

MR. WILLIAMS: Two questions.

The first has to do with the 70 percent of the data being related to matters of the environment, which only leaves thirty percent some way divided between mental health and personal health services, and so forth.

I would like to hear some comments on that.

And the second one is to ask you to look into your crystal ball for the future, both Tennessee and Kentucky. Does the fact that you have this Bibliography then bring pressures for you to have data tapes and provide print-outs of multiple types to all of the people who might want one across the State. And if so, what—well, really, what's in the future?

MR. KELLOW: Perhaps I didn't make myself clear, Mr. Williams. It was 70 percent, divided between health service data and environment. Both of those categories together are 70 percent of what we found.

MR. WILLIAMS: Would you allow 30 percent then for the mental?

MR. KELLOW: No, mental health services and public health services, and environmental data, comprise 70 percent of the data we found.

All the other categories comprise the other 30 percent.

As far as what it holds for the future in Tennessee right now, as I said, there is a task force. It is formed. We have not come out with a final report yet. The task force is trying to determine the needs, the function and what would be the best organization to have for that State center. It appears at this point that there is need within the Public Health Department itself, if no more than to increase the effectiveness and the efficiency of the Public Health Department's operation. It appears to us at this point that that alone is sufficient to at least take a baby step along the path of developing a State center in Tennessee.

Time and money haven't allowed us to look at the real need and the extent of it.

As far as providing print-outs, and so forth, both of the universities in Tennessee are census processors and we make this available already.

MR. TAYLOR: In our situation we are moving from reviewing comment into a role of authority.

We have handed our State council a list of approximately 200 program areas. They are going to pick and, in fact, have picked some areas already. For example, family planning is the first one they picked.

We took the role of developing a complete plan for each region in the State, collecting all the facts and data we could find and also insisting to agencies which are involved to produce the facts that they've got.

We laid out the plan—even how to phase it out in each region—which is almost 180 degrees with us because we used to sit back and wait for them to produce the facts and then review and criticize their facts.

There will still be some of that element. They have the problem of developing the program, but they have to show how it fits in the plan that's been developed.

It is the same way in other areas, for example, health facilities. Our State agency, mainly the State health department, the Hill-Burton agency, will now have the responsibility for developing all the facts for each region. Then if in another area related to emergency care, the State council decides that's a priority (others are ambulatory care and long term care) the State agency will have the responsibility of working with all the State agencies to develop each of those respective plans and how they interdigitate with each other.

In other words, it covers all the situations involved between State emergency care and facilities and even home care. How do these interdigitate in a State plan? The applicants have to demonstrate how they put their facts together and show how they fit into the plan that the State has.

Same way with the environment. They will develop a State plan for solid wastes, collect the facts, and then the local applicants have to demonstrate how they fit.

DR. SANAZARO: Does that do it?

MR. WILLIAMS: Yes.

DR. SANAZARO: Any other questions or comments? Then let me thank the panelists for their most constructive presentations and the audience for its ardent attention.

Concurrent Session "A" was thereupon concluded.

Concurrent Session "B"

Ambulatory Care Statistics

In 1969 there were an estimated 839.6 million visits to physician offices and possibly more than 200 million visits to various other outpatient services. The vast majority of contacts with the health system for most Americans is in either of these settings. Yet, very little data are available on a nationwide basis on the characteristics of the persons and the types of services they receive. Recently more attention has been given to this problem and this session discussed some of the problems and issues these early efforts have encountered.

Contents

CONCURRENT SESSION "B"

AMBULATORY CARE STATISTICS

PRESIDING

Mr. Siegfried A. Hoermann, *Director, Division of Health Resources Statistics, National Center for Health Statistics*

I would like to welcome you to the session on ambulatory health care statistics. As indicated in the morning's plenary session and as evidenced by the people here, there is an increasing interest in information systems on ambulatory medical care.

Increasing attention to this area came to a head at the Conference on Ambulatory Medical Care Records* that was held in Chicago, April 18 to 22, 1972 by a number of different interests representing persons involved in ambulatory care, either as users, producers, or in general those interested in the delivery of medical care. This conference in Chicago came up with some recommendations regarding a minimum basic data set and also ways of refining that minimum basic data set through an official subcommittee of the U.S. National Committee on Vital and Health Statistics.

Since we have a lot of ground to cover here, I will limit my remarks. I would like to indicate that the program has been modified from what is in your brochure. We will start with Gerry Sparer, who will give a picture of a microcosm of data systems for communities and neighborhoods. Then we will move on to the national scene as Jim Haug of the AMA gives a description of the data base which can be used for ambulatory care information systems, and then we will go into a series of talks regarding a national system. I will stop here and introduce our first speaker. That is Gerald Sparer, who has been Director of Program Planning and Evaluation of the Office of Health Affairs in the Office of Economic Opportunity for the last four years. Prior to that, he worked on the staff of the Assistant Secretary for Planning and Evaluation, Department of Health, Education, and Welfare.

He has been Comptroller of the Food and Drug Administration and has occupied executive and management positions in the Atomic Energy Commission and the Navy Department. He has more than a 20-year Federal career. Gerry will be talking on a data reporting system for community and neighborhood health centers. Gerry.

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*Ambulatory Medical Care Data—Report of the Conference on Ambulatory Medical Care Records, *Medical Care* Vol. 11, No. 2 1973.

A DATA REPORTING SYSTEM FOR COMMUNITY AND NEIGHBORHOOD HEALTH CENTERS

Mr. Gerald Sparer, Chief, *Division of Program Planning and Evaluation, Office of Health Affairs, Office of Equal Opportunity*

Some of those reporting systems have been reported already in the literature. I won't go over them again, but I might refer you to Dr. Nitzberg's APHA journal article[1] which describes the system in detail. The purpose of this paper is to summarize the experiences of the OEO-assisted comprehensive Health Services projects in the development and uses of management information systems for health program monitoring, planning, and analysis, and to propose again the uniform basic system for national reporting.

From the earliest funding of Comprehensive Health Services programs by OEO, in the years 1966 through 1968, there had been established a reporting requirement that was jointly developed by the staff of OEO and HEW during 1965. Mrs. Lee Bamberger Shorr, often referred to as the mother of the Neighborhood Health Center Programs, had made early contact with the staff of the Secretary's office in HEW, including at that time members of the Public Health Service, in an attempt to establish a consensus on objective data indicators that would be used as a basis for monitoring and analyzing the OEO Comprehensive Health Services Programs.

Simultaneous with this, OEO made an award to Dr. Cecil Sheps at the Mount Sinai School of Medicine for the evaluation of Neighborhood Health Centers. The contract resulted in one of the earliest conceptual pieces relating to this evaluation, with specific suggestions for data to be collected.

It was this work that led to the first versions of patient registration encounter forms, now somewhat modified but still remarkably like those originally proposed. Using the background of the Shepps-Madison Report and being familiar with issues at the national level, the combined OEO-HEW group worked toward the reporting requirements. Out of this emerge the now defunct CAP 57 Series, including data on basic demographic factors, diagnostic data, and broad expenditure data relating to funding programs.

These data requirements were dutifully promulgated by OEO and became the full reporting requirements that remained in effect from 1967 through 1971, when the new reporting requirement was approved. After this session you can look at the currently published reporting requirement here on the desk or request these from the OEO.

The OEO had high expectations that the periodic reports required from the CAP-57's would be appropriately filled out by the funded projects and submitted to that office for program monitoring and analysis and the accumulated data would be useful to performance.

It was accepted practice that funded projects could, within budget restraints, develop their own data systems that would be compatible with the national reporting requirements. Expectations were that local data systems would be developed that would meet local management needs for more intensive analysis for project performance, including staffing, manpower utilization and productivity, as well as patient waiting time, productivity, epidemiological studies using diagnostic conditions, and more intensive management controls including inventory scheduling, and so forth.

Unfortunately, these high expectations were realized in only the fewest of the projects. By January, 1968, less than half a dozen of the 33 funded projects were capable of adequately filling out the eight pages required. Several programs were making valiant efforts to comply with reporting requirements.

A number of programs took to developing their own versions of internal automated data collection mechanisms. Some of these succeeded in developing working systems that produced working systems for OEO, plus other data. But these were few and far between. OEO needed some feedback in terms of how projects were performing, since objective data were almost non-existent. We initiated the site appraisal project review by experts in various disciplines that would assess project operations.

These program reviews were scheduled at approximately three week intervals. One of the specialists on the team was a data system and research specialist. Six out of the first six visits to some of the earliest funded nationally prominent projects showed major problems in the capacity of local projects, with the assistance of local and in some cases national consulting firms, to develop operational data systems that would provide a useful base for national programming and for the more intensive local needs.

They just could not get the data out of the computers. No system being developed could be replicated in other centers.

Rather than continue to score failure in data systems capacity, OEO requested its data consultants to develop a basic system in cooperation with several centers. What emerged is a basic management data system known as the basic health care information system. The system collects the same simple data—family and individual patient characteristics, the nature of services provided, and the characteristics of the providers (that is, was it a nurse, doctor, or whatever?) When added to basic cost information which was developed by a separate cost finding system, these data elements provide fundamental management data needed to analyze programs, to set fee schedules, to establish capitation rates, and to compare projects to each other to determine major operational service or cost differences.

The basic system developed in the Neighborhood Health Centers more than three years ago has now been installed for operation in more than 35 OEO and HEW-funded systems. While the system has three basic data gathering forms—family registration, individual registration, and counter forms—actual installations in almost every case were tailored to each center's need and were designed to collect basic data needed for program analysis.

Few centers have limited themselves to the minimum data. The basic systems had considerable expansion potential.

Each of the requirements has resulted in the development of an additional standardized data module, complete with instruction forms, layouts, and most important, computer programs. Documented versions of these systems are currently being printed by our contractors and, consistent with OEO policy, are in the public domain, and may be requested from OEO, Office of Health Affairs.

Newly funded centers caught up in the powerful, creative, and innovative rhetoric of the Neighborhood Health Center movement sought to develop support systems that would fit the comprehensive mold. Aspirations were for data systems that not only provided basic utilization data but could also capture and rapidly retrieve patients' social and medical histories and records; maintain data and billing systems; provide for billing, physical accounting, and inventory controls; track and flag our laboratory positive findings; and provide a basis for epidemiological research.

These aspirations were often encouraged and confused by forces external to the centers. OEO maintained a fairly equivocal position relative to these data systems. Early fundings provided research staff for computers. Certainly enough computer time was available in all cases. At an early research and evaluation conference, OEO discussions with research staffs led to a remark by one of the more prominent researchers regarding standardized and centralized data systems, "you try to impose a minimum data system on us; we will scream like stuck pigs, but it is probably the best thing you can do."

OEO has not centralized processing, and as late as April, 1971, became unequivocal about data reporting requirements.

Another confusing factor was that the equipment salesmen saw the centers as economic opportunities. Several powerful marketing programs attacked the centers. Few centers had adequate capacity to assess these sales talks.

The computer mystique attracted numerous project directors to this solution to emerging management and patient handling problems. At least four optical scanning devices were ordered and installed in centers before it was realized that the system capacity was not adequate.

Several Neighborhood Health Centers could at the same time make effective use of one computer, but the operational center would need to develop the system capacity of a management consultant firm in order to support the other Neighborhood Health Centers, and this is quite unlikely.

The single forms and systems which were developed often served no single requirement well. Forms for data processing often found their way into medical records which soon bulged with single sheet accounting forms and separate x-ray forms. Billing most often is still manual, though many centers use the encounter form as the basis for billing.

Toward a Standardized reporting system.

Several months ago, an ad hoc meeting of Federal officials was held in Tucson, Arizona, to discuss data needs for the health services projects of the Department of Health, Education, and Welfare and the Office of Economic Opportunity.

In attendance were about 30 Department of Health, Education, and Welfare health service program officials, their contractors, and one Office of Economic Opportunity representative. The programs represented included both categorical and comprehensive health service projects, including Family Planning, Maternal and Child Health, Mental Health, and Comprehensive Health Services, HMO's and several others in the delivery cluster, and representatives from the Director's Office, HSMHA, the National Center for Health Services Research and Development, and the National Center for Health Statistics.

It was an impressive array of Federal officials and the topic was an important one. A sense of frustration and urgency prevailed. The conference was called in an attempt to address, at a high policy level, the issue of what data were needed at the national level to document the experiences of about $1 billion worth of Federal outlays for health services. Perhaps the outcome of those three intensive days will soon result in a more National approach to data reporting—greater uniformity and better interprogram coordination.

It is not the purpose of this paper to report on those proceedings. We will find out more about it, I imagine, in the months to come. There was, however, one event that merits thought. After presentations of a variety of HSMHA data and reporting efforts, a senior Federal official reflected on his needs for data and it went something like this—

"When I go before Congress, or even when I review program budget proposals, I would feel most comfortable if I can answer several basic questions:

(1) The number of projects;
(2) The number of clients served; and
(3) The expenditure rates."

"More often," he went on, "I would be happy in the knowledge that we knew the addresses of projects funded, the level of funding, and the name of the project director. If we also knew something of penetration, use rates, efficiency, quality, and services costs, it would be indeed a major achievement for program analysis."

Obviously I have taken a few, but not many, liberties with his pronouncements, but the data issue is clear—nowhere at the Federal level is there now, or soon likely to be, data which describe all Federally funded health services projects in terms of:

(1) Who is being served?
(2) Who is not being served?
(3) What services are provided, the volume, and/or rates?
(4) Who is providing the services?
(5) What is the quality of these services? and
(6) What do these services cost on a unit and/or per capita basis?

These relatively simplistic descriptive data on health care services require little more than a commitment to collect, plus some data handling capacity. Yet in the five to seven years since the escalation of Federal health services delivery projects has been apparent, these basic program descriptors are only now starting to emerge on a routine basis for many of the delivery cluster programs, and even these limited basic data are not yet being uniformly collected or reported.

The descriptive nature of these data elements should be emphasized. The uniform collection of descriptive data currently required by OEO Neighborhood Health Centers and recently submitted in identical form to the Office of Management and Budget for clearance on the 314(e) projects (and soon, I am told, by HMO's) would provide a fantastic improvement over what now exists and would be a suitable basis for the next level of program analysis capacity, that is, the capacity to compare different service units among each other on these important dimensions:

(1) Target population,
(2) Client characteristics, including program penetration,
(3) Service use pattern,
(4) Staff productivity,
(5) Quality of care, and
(6) Cost

Having been involved in the exciting, sometimes frustrating, and periodically political process of implementing reporting requirements for large numbers of Federally funded health services projects, I can only conclude that the recording, collection, and analysis of basic core descriptive data are necessary and imperative actions.

A minimum data set is possible and data uniformity and comparability overwhelm any argument for such unique program characteristics as would require different core data elements. Unique program objectives can be addressed by additional but not different data elements, and, more importantly, by special studies rather than by variation and proliferation of data reporting requirements.

What can be agreed upon as core data? The suggestion will be most simple; the technology, manuals, procedures, and computer programs now exist for the data proposed. Several major Federally funded health services projects—OEO, 314(e), and HMO's—do or are about to require reporting based on the basic core elements. They are as follows.

(1.) Target Population (or Population in Need)

Information should be collected on age, sex, family demography, ethnic origin, and geographic dispersion through the area. For those programs giving priority to low income individuals, income can be added. For those concentrating on establishing a prepayment program, source of financing can be added, e.g., Medicare, Medicaid, private insurance, etc. Current source of care can also be added where the program priority may suggest movement from a public to private source.

These data, equivalent to a market analysis, establish the "at risk" denominator for assessing program penetration. Census data can provide much of these data and, in intercensal years, modest health surveys can be employed to update them.

(2.) Client Characteristics

Client characteristics are identical to the kinds of data collected for the target population. These data serve as numerators for program penetration and as denominators for analysis of service use patterns. Clients characteristics and their service use patterns establish the bases for capitation rate setting.

The suggestion on these items is to collect and report data in interval categories similar to those used by the National Health Interview Survey. Projects interested in more detailed ages—e.g., infants or teenagers—can require additional breakdowns and then aggregate to the standard age breaks for reporting and comparison to other projects.

(3.) Service Use Patterns

This area has been the most controversial for interprogram agreement on core data elements. Again, the neighborhood health center reports and traditional medical services analyses are instructive. Counts of basic services rendered—laboratory, pharmacy, and x-ray—should be gathered. The number of face-to-face primary contacts with physicians, nurses, mid-level practitioners, and other key service personnel should be required.

Some description of the nature of the encounter would be useful such as:

(a) Illness encounter,
(b) Health maintenance encounter (preventive care), and
(c) Educational encounter.

Again, these core elements can be supplemented for special program interests by further subsets of data. Illness can be divided into

(a) Accident and injury,
(b) Acute illness, and
(c) Chronic illness for long-term care.

Health Maintenance encounter can be divided into

(a) Pre- and post-natal care,
(b) Initial assessment,
(c) Periodic checkups, and
(d) Immunization.

Similar modest subcategories can be developed for other basic services and for other support health services.

(4.) Staff Productivity

The nature of services aggregated by provider category can assist in describing the service style of projects:

(a) Clinical versus broader health services can be assessed by the proportion of social services or dental encounters to medical encounters;

(b) Use of paraprofessionals can be measured by the ratio of physician to nurse encounters;

(c) Encounters per provider category or per full time equivalents can give us the basic clues to staff productivity for projects.

When these data on staff productivity are collected nationally from many projects, differences among projects can be related to important evaluation variables such as quality and cost differences.

(5.) Quality Reporting

Some feedback on quality performance should be required. The Office of Economic Opportunity and the Department of Health, Education, and Welfare have been experimenting with an external audit technique. Plans are now being made to initiate a pilot internal audit with abstracts being forwarded to a central coding and scoring facility.

(6.) Cost Reporting

Unit and per capita costs of services are required data to help identify differential systems efficiencies and account for different operational modes. The data are used to address the very important public policy issue, are Federally assisted projects—after several years of gear-up experience and expenses—able to deliver unit service costs competitive with similar multispecialty private groups? Are the annual per capita costs for similar services competitive? Results from a six-center cost study show the answers to be affirmative for the studied centers.

The proposal is that a uniform-care-data reporting requirement should be rapidly agreed upon by Federal program officials. It can be done within only a few days if there is the will. Such agreement will preclude much ambiguity on the part of project officials, hasten the process of uniform data reporting, establish closer links between agency program and program evaluation staffs, and provide an unmatched data base upon which comparisons between experiences of similar programs can be analyzed, and more importantly, establish a basis for initiating special evaluative studies answering the more important questions: (1) Has the medical intervention made any difference? (2) What resources are needed to assure high quality services, at reasonable costs, to populations not having access to an "acceptable" source of care?

(7.) Perspective and Summary

Five years ago neither technology nor consensus existed upon which to build ambulatory data bases capable of replication in hundreds of service settings while providing uniform or at least comparable data. Now at least the technology exists. The Office of Economic Opportunity, 314(e), and, I suspect, HMO data bases are all but identical. Minor and easily resolvable reporting differences now exist, but the severe stylistic differences of several years ago are now minimized by a stronger awareness of the needs for uniform reporting.

Such reporting built on the systems' experiences of OEO and 314(e), and the reporting requirements of these and recently of Dr. Paul Densen's ad hoc committee on data for HMO's have the potential for ending the equivocal position of Federal programs reporting for health services projects.

I suggest rapid adaptation of these, permitting modest additions for "unique" program needs. Any continuation of the current efforts of other data stylists no longer seems worthy of serious attention.

For those interested in the data sets, they are all available from OEO Office of Health Affairs.

MR. HOERMANN: Thank you very much, Gerry. We will try to have about 10 minutes for any questions after each presentation. If you have questions please identify yourself and your agency for the reporter. Are there any questions of Mr. Sparer?

DR. HELLMAN: Louis Hellman from the Department of the Navy. I am interested in knowing what the definition of an outpatient encounter is. A patient goes to a hospital to three or four different departments and he is counted three times. A doctor makes a telephone call and gives the patient advice. Is that counted in outpatient visits?

MR. SPARER: For the most part, there are two counts. There is a counter count and a visit count. The data system can count the visits, the number of times the unique patient comes into the door on a particular day. It also will count the number of primary provider contacts he has. If he sees three primary providers, three physicians say, then it will count two separate encounters. We do not count telephone encounters. This is not really a workload counting system. We are not at this point accumulating telephone accounts.

DR. HELLMAN: How about immunizations?

MR. SPARER: It will count all services provided—immunizations, all lab procedures, and to the level of detail that you need locally.

MR. KRUEGER: Dean Krueger, NCHS. You have indicated that the OEO centers were unable to meet the Federal reporting requirements. Were they at least able to provide data for themselves that were useful? If they were able to do that, why couldn't they do the other?

MR. SPARER: Really in only a very, very few settings and after an almost embarrassing investment of dollars and staff time. It was a lot easier to design the collection instrument than it was to train people to use the collection instrument, design the necessary back-up definitions, and train the staff to use them. But even after that was all done either reasonably well or fairly poorly, when the data hit the computer there were months and months, in some cases 18 months, before it came back out. I don't know why. I have my suspicions why, but it was very, very frustrating as an early experience. Many of the research directors, and no disrespect is intended, came out of the field of sociology and probably asked the right questions, or reasonable questions at least, but it was also up to them to develop the data system. They had to develop the computer programs and so on. They wanted to show their operational staff that they knew that end of the business and they tried to develop it from ground zero, and that was not their field of expertise.

DR. SIEGEL: Dr. Earl Siegel, of Chapel Hill, North Carolina. Can you give us an example of how systems will feed back to bring about change in programming within the individual project administrations, how the data can come back to bring about program changes?

MR. SPARER: We are still getting the first full year of data selection from a fair number of centers, but already some feedback has occurred. We issue quarterly summaries of the data, we have rates of growth, and so on, and we do counts on relationships between medical provider and supporting staff in medicine and dentistry, extractions versus restorations and so on. As we look at the data from some 35 or so centers, including cost data, some are all over the spectrum. Our data contractors will call them and say, "You are out of line here, what is the problem?"

As to installing new data systems, I don't want to tell you that the quality of the data is all that happy yet. It is improving. Part of the improvement in the process is feeding the data back and saying, "you are out of line," and it may turn out that every time a nurse sees a patient, they enter it as a count and those should not be counted.

So we are still in the process of improving the quality of the data coming back. I think over time, what you see are data that are out of line. Then the issue is to try to understand why.

DR. SIEGEL: Some don't see the relevance of the data, how they are going to use the data to improve the quality of their programming, and it is going to be hard to maintain their motivation.

MR. SPARER: I think that is very important. I think over time, we will find out that they feel this is more and more important. Right now the cost data seem to be most important.

DR. WHITE: Kerr White, Johns Hopkins University. I would like to congratulate Gerry Sparer on a most constructive account of the difficulties of an experience in developing these centers and trying to evaluate the data base. I think this will be most useful to all of us. What I would like to ask you is whether the health statistics were of any help to you in this struggle and, if so, what we learned from the experience that would be helpful to educate health statisticians in the future? I did not get much input in the country on this.

MR. SPARER: I am sorry to say that we did not draw on or get enough input from the health statisticians. We did in the early days of all of our methods development, including quality systems, cost systems, and so on, maintain some close liaison with the National Center for Health Services, Research and Development and the National Center for Health Statistics.

I don't know why. I don't know where everybody was.

DR. WHITE: We could learn from this experience to help in training people to do this kind of work.

MR. SPARER: Right.

MR. HOERMANN: Thank you, Gerry.

Next Mr. James Haug, Research Associate, American Medical Association, will present information on the basic AMA data system and its usefulness in studying ambulatory medical care. Jim has been with the AMA for five years. His department is responsible for the distribution of the physicians' series and for the special statistics service of which the most recent publication is a volume entitled *Foreign Medical Graduates in the United States, 1970*. He has completed work for a Master's degree. Jim will discuss the data system in use at the AMA. Jim?

RESULTS OF A PHYSICIAN VALIDATION SURVEY

Mr. James Haug, *Director, Department of Survey Research, Center for Health Services Research and Development, American Medical Association*

The primary purpose of this presentation is to describe the AMA's physician data base and collection system and to discuss a recent study which tested the validity of that system. Before doing this, however, a brief overview of how our research facilities are organized at AMA would be helpful.

Data collection has been an AMA activity for many years. Practically since its inception in 1847, the AMA has kept records of its membership. As the demand for data on the physician population grew, the data collection activities were expanded to include non-members and diversified to include a broader information base on each physician. As this expansion took place over the years, procedures were added to the data collection process to meet specific information demands as they arose.

In 1958, the AMA initiated use of the computer to maintain physician data. At this time, a detailed record of each physician in the United States was established. In 1965, the AMA Department of Survey Research was established and assumed as its initial objective the evaluation, revision, and expansion of the AMA data base. It soon became clear that the data base, as it then existed, was extremely fragmented and not well documented and could not effectively support a meaningful research program. It was therefore concluded that substantial revisions were necessary in the type of data collected and in data collection procedures. A program was then initiated to design and implement the needed revisions.

In formulating the revisions, consideration was given to the various uses of data, comparability of other data bases, and research, business, and membership services. Particular emphasis was placed on the recommendations of the U.S. Committee on Vital and Health Statistics as reported in *Statistics on Medical Economics* in 1964 and the recommendations from the December 1963 meeting on health manpower statistics sponsored by the Federal Office of Emergency Planning.

By 1969, sufficient data had been collected to warrant establishment of a program to conduct analytical research. As the research team grew, the potential contributions of a major research program became increasingly evident to AMA management.

In September, 1970, the AMA Center for Health Services Research and Development was established as one of the eight major divisions in the AMA organizational structure. The research and development activities of the Center are organized to: (1) identify and support evaluation of experimental delivery systems; (2) identify cost effective models for the financing, organization, and delivery of health services; (3) provide AMA with research reports and data to assist in its decision-making; (4) facilitate participation by medical societies and health services research and development; and (5) provide an interface between AMA and the health services research community.

In order to implement the objectives of the Center, three research departments were established: the Department of Survey Research, the Department of Economic Research, and the Department of Systems Research. Because of the multidisciplinary method, team efforts by the staff are frequent.

The Department of Survey Research is currently responsible for the collection and dissemination of data to describe important characteristics and activities of the physician population.

The Department of Economic Research focuses on: (1) expanding and analyzing the AMA data base on the socioeconomic characteristics of physicians and (2) analyzing the economics of various forms of medical practice. This department also has the major responsibility for the Center's joint research project with the University of Southern California. The research program of the Department of Systems Research is the identification and evaluation of various innovative methods for delivering health care services.

The foundation for the AMA data system is the master file of physicians consisting of a historical file and current file. This composite data base contains information on 345,000 living physicians in the United States, including U.S. graduates as well as foreign graduates and members of the AMA and non-members.

Currently, the data system is known as Physicians' Record Information System, or "PRISY." A physician is first included in AMA records when he enters medical school or, in the case of a foreign medical graduate (FMG), when he first enters the United States. As the physician's career progresses, additional information is added to the file. Data are obtained from a variety of sources, such as specialty boards, State and county medical societies, Federal and State governments, hospitals, licensure agencies and, of course, the individual physician.

The following data are contained on the record maintained by the AMA for each physician in the United States: medical education number, which is a unique number, quite similar to the Social Security number, (it is an 11-digit number (for example, 038-06-48-0401) indicating the State or country (038) and the school (06) and the year (48) that he graduated from medical school with the remaining digits (0401) representing unique identifying codes). Sex, birth date, birth place, citizenship and visa data, board certification, licensure data, former name and addresses, place of medical training (past and present), government service (past and present) and various membership data in specialty societies and in the AMA.

These types of information are of a "historical" nature and are not subject to change. In addition, there is the "current" portion of each physician's record that identifies his present address, professional activity, specialty, and employment status. When the Department of Survey Research conducted its evaluation of the data system between 1966 and 1968, it concentrated on the current portion of the file because of the potential for inaccuracy and the critical nature of these functional characteristics. The result of the evaluation was the identification of deficiencies in the current portion of the file that were of sufficient concern to warrant major revisions in both the structure of the file and the data collections procedure.

This conclusion substantiated the weaknesses pointed out by the U.S. National Committee on Vital and Health Statistics in its 1964 report. Consequently, a four-year project was initiated to redesign the system and implement better data collection procedures. The project was referred to as the "Reclassification of Physicians." A complete documentation of the concepts and methodology involved in this project is contained in the Center publication, *Reclassification of Physicians, 1968.*[2]

Briefly, the purpose of this project was to increase the validity and reliability of physicians' records and to facilitate the classification of physician manpower into more functional categories. This was done by developing mutually exclusive categories to reflect the activity, specialty, and employment status of physicians. The average number of hours spent during a typical workweek was chosen as the criterion upon which to base classification.

To collect data on the new system, a new questionnaire was developed, referred to as the Record of Physicians' Professional Activities or PPA. The new questionnaire was adopted for the 1968 census and all subsequent years. Since 1968 was the first experience with the new questionnaire and the new classification system, a complete census was conducted again in 1969 to verify and update the 1968 data. In both 1968 and 1969, 90 percent of the total physician population responded to the questionnaire.

We do not feel that a complete census is necessary every year. In the interim years, the file is kept current through an updating system. Any indication from a physician, hospital, government agency, medical school, State or county medical society, or specialty board, or society as to a change of a physician's professional address or status triggers a questionnaire. As with the 1969 verification questionnaire, his current classification is printed on the questionnaire to change or verify.

A forerunner to the reclassification project was a formal change instituted in 1966 to describe physician manpower more accurately. The more functional activity classifications of "patient care" and "other professional activity" replaced the previously used private practice and not-in-private practice classifications. The rationale for adopting the new patient care classification was that it reflects what physicians do rather than the financial characteristics of their practice.

In 1971, Dr. Vernon Wilson, Administrator of the Health Services and Mental Health Administration, appointed the Committee to Evaluate the National Center for Health Statistics. As part of the evaluation, the committee, which is comprised of government and nongovernment technical consultants, is reviewing the health manpower statistics published by the National Center. Since the National Center uses the AMA master file as its data source, the committee recommended that the accuracy of these data be evaluated. Hence, the consulting firm of Moshman Associates, Inc. was requested by the committee to develop an independent evaluation of the accuracy of AMA's physician records. It was concluded that a field study of four counties would provide a reasonable approach to the problem.

Because of the importance of this study, the AMA extended its full cooperation to Moshman Associates and to the committee. During a series of visits to the AMA, Moshman Associates reviewed the physician master file and the methods for maintaining it and discussed procedures to be followed in the study. In February 1972, Moshman Associates agreed upon the methodology and logistics of the study and a contractual agreement between the committee and the AMA was discussed.

Criteria used in selecting the counties were geographical distribution, manageable size for the purpose of validation, and representativeness with respect to general medical care delivery characteristics. The four counties selected were New Castle, Delaware; Montgomery, Alabama; Boone, Missouri; and Washoe County, Nevada.

Representatives of Moshman Associates and the AMA visited each county. In each instance, the site visit commenced at the State medical society's executive offices. At the time we were surveying these four counties in March and April, both a national and local membership drive was in progress and to obtain as high a membership as possible, the State and county medical societies made every effort to maintain accurate records on every physician in the county. Therefore, the majority of physicians in each county were identified through State and medical society membership lists. Other methods used were personal interviews with local authorities, hospital and medical school lists, and listings in telephone directories. The presence of each physician was verified and it was also ascertained whether there were other physicians in the area not on the AMA list. The study was concerned solely with the physical location of the physicians, not their activity, specialty, or employment.

Before examining the results of the four counties, it should be pointed out that of the 345,000 physicians in the United States, a considerable number of these physicians are in activities and employment areas of high mobility, such as the 50,000 interns and residents, 30,000 federally employed physicians, and 20,000 inactive physicians. These physicians account for nearly 30 percent of the total U.S. physician population.

On March 15, 1972, representatives from Moshman Associates and the AMA Center for Health Services Research and Development visited New Castle county in Delaware, the first county in which AMA records were to be validated. Of the four counties surveyed, this county had the largest number of physicians and was characterized by a large public hospital. AMA records indicated that 652 physicians were located in New Castle county. We were able to identify 631 as being physically in that county or 96.8 percent. Further investigation showed that eighteen physicians had moved out of the county. Three physicians could not be validated locally.

On March 29th, Montgomery county, in Alabama, home of Maxwell Air Force Base was visited. There were 273 physicians on AMA records as being in that county. We were able to identify 271 for a 99.3 percent validation. Of the two remaining physicians, one had moved and one was unknown and could not be located.

On April 19th, the physicians in Boon county, Missouri were validated. This county is the home of the University of Missouri Medical School, with which the vast majority of the physicians in the county are associated. A total of 424 physicians were in that county and 403 or 95 percent were identified. The remaining 21 physicians had changed addresses and moved out of the county. These physicians had been with the medical school and the vast majority of them were interns and residents who had completed their training and had left and not informed us yet.

The fourth county, Washoe, Nevada, was visited on April 26th. This county was characterized largely by office based physicians. AMA records showed 247 physicians in Washoe county and we were able to identify 241 for 97.6 percent. Four had moved and the locations of two were unknown.

Initially, after the four counties had been visited a total of 35 physicians had not been identified. In an attempt to locate these physicians, a registered letter was sent to each of the 35 physicians who had not been validated locally. This letter asked for verification of their AMA professional mailing address. As a result of these letters, verification was obtained for 27 of the 35 physicians, of whom 22 were at the addresses appearing in the AMA files, one was deceased, and one had moved to a new address. The three other physicians were subsequently identified through a routine AMA record search. So of the 1,596 physicians that were on the four AMA lists, 1,546 were identified. Therefore, 96.9 percent of the physicians listed on AMA record were validated. Only 2.8 percent, or 44 physicians, were not in the particular county or adjacent counties, and it was not possible to identify the location of six, or 0.4 percent of the physicians.

Membership lists provided by State medical societies identified 971 of the physicians. The number of physicians identified by other sources were hospitals and/or medical schools, 411; telephone listings, 82; verbal verifications, 36; State records, 22; registered letters, 22; and two physicians were identified by routine AMA record searches.

In addition, 91 physician names not on the AMA lists were discovered by inquiries at medical schools and hospitals, telephone listings, and local medical society records. Subsequent checking by AMA identified 36 of these 91 physicians as being listed in the AMA file, but in adjacent counties, and 37 were listed in the AMA file in a different location entirely. Of the remaining 18 physicians, five were listed in the AMA file as "address unknown," one was listed as having left the country, three physicians with very common surnames were identified after more information was obtained, two were entered in the AMA file in the interim, four were in the process of being entered in the AMA file, and two were known but were not eligible for entry in AMA records because they did not meet the necessary criteria. Only one physician could not be identified through our record search and in fact we have no real indication that he is actually an M.D.

We therefore feel quite confident of the accuracy and comprehensiveness of the data bank we have developed at the AMA. There are very few questions we feel we cannot answer on demographic characteristics of the U.S. physician population. I think this can be pointed out by the reliance and confidence of other organizations, universities, and government agencies in our physician data bank. Within the Federal Government, we have been particularly involved as a source of physician data to the Office of Emergency Preparedness and to the National Center for Health Statistics.

Are there any questions?

DR. WHITE: I have a question. What is the actual accuracy, would you say, then, of the use of the tapes on any given day? Would you say 85 percent? That is what it sounds like. It's not really how many physicians you can go out and track down, but how accurate are the tapes?

MR. HAUG: As far as the physician's address goes, if you were conducting a survey and sending out a questionnaire you would be particularly interested in that being accurate. With this sample of four counties, which I feel was fairly representative of the United States, we are saying right now 97 percent of our addresses are accurate.

Updating the records is a continual process at the AMA. If any of you are ever in Chicago and would like to see the time, money, and effort that are put into our record system, I would suggest that you stop by and ask for me, or somebody, and we will give you a tour of the

Records Section. I think you would be impressed by and have confidence in our data collection procedures. This validation study for four counties was strictly concerned with addresses, not activity, specialty and employment. We do send out 2,000 questionnaires a week regarding physicians' activities, specialty, and employment. That amounts to over 100,000 a year. We do receive the status of the 50,000 interns and residents from approved hospital programs, data on the 30,000 Federal physicians are supplied by the Surgeon General, and 30,000 physicians are updated automatically on our files.

We are attempting right now to incorporate more safeguards and more updating procedures. We are looking at every segment of the AMA master file currently. There are about 20 subfiles that make up the AMA file. We are going to describe, analyze, evaluate and make recommendations on each one of these segments, and try to give you the best record system on physicians that is possible.

MR. TOMPKINS: I am from the Comprehensive Health Planning Council of Central Massachusetts. I have some questions about the accessibility of your data, and maybe I can address it by two particular consequentials. We represent essentially one county. Would it be possible for our agency to receive duplicates of your files for that county?

MR. HAUG: Yes, if you are with the CHP. I prefer you go through the State medical society in your State. Address the request to me. There is some information on the records that we consider confidential. Licensure revocation is one example. I think if you were a physician you would not want that information distributed. Also, membership data are confidential. But anything to do with the physician's professional career, we do make available on tape or a print-out, and at a county level there is no problem.

MR. TOMPKINS: What is the cost for that?

MR. HAUG: If you went through the State society and they recommended that your study was worthwhile and that you might possibly want to share the results with the State, then in a lot of instances it is free of charge. Usually, if there is a charge it is $150 or $200, but no more than that. If it comes through the State society, we do it as a service.

MR. TOMPKINS: Thank you.

MR. HOERMANN: Hopefully we will have time after the last presentation for further questions that were not answered at the time the statement was given. We will be hearing more about how AMA data are used on a national basis when Mr. DeLozier presents his paper.

Our next presentation will be by Dr. James Tenney, who is a double doctor, a doctor in medicine and a doctor of public health. Currently he is an Assistant Professor of Medical Care and Hospitals at the Johns Hopkins University School of Hygiene and Public Health. Previously, he was a research associate at the same place, and prior to that he served as a medical officer in the General Hospital Nuclear Research Laboratory and with two submarine squadrons of the U.S. Navy. I won't go over all his professional memberships or his publications in the interests of time. He will present a report on Developing Information for National Ambulatory Medical Care Statistics.

DEVELOPING INFORMATION FOR NATIONAL AMBULATORY MEDICAL CARE STATISTICS

Dr. James B. Tenney, *Assistant Professor, Department of Medical Care and Hospitals, School of Hygiene and Public Health, The Johns Hopkins University*

I don't know if I can stand up or talk straight after being called a "double doctor."

I would say at the start that I am one of those who attended a Conference on Ambulatory Medical Care Records in April at Chicago, sponsored by the National Center for Health Statistics and the National Center for Health Services Research and Development.[3] For that conference I prepared some thoughts on the subject of information for developing national ambulatory care statistics. I thought at length on the matter in my "double doctor" fashion then, but in the two months that intervened, I find a number of the things I concluded on that occasion have either changed or been modified in one way or another. So the thoughts I am going to present to you here today reflect the earlier paper, with developments that have come as a result of that conference, and as a result of other developments on the national scene in the interval.

"Political arithmetic" has progressed more than 300 years since Graunt and Petty pointed out the usefulness of regularly recording the vital events affecting public resources in terms of populations. In the interval, health concerns of nations have shifted from mortality and morbidity due to major communicable disease, toward measures of chronic illness prevalence and disability due to disease. Statistical theory and methods have been developed to deal with problems of current importance. Sampling and survey methods have been devised to make possible national estimates based on household interviews, population examinations, and institutional records.

National attention is now increasingly turned toward the provision and use of health services as a public resource, and the political arithmetic problem of the present decade may prove to be new national statistics to reflect the major component, ambulatory medical care.

It is the purpose of this presentation to suggest for consideration some general principles and practical issues concerning information requirements for developing new national statistics on ambulatory medical care. My observations are neither authoritative, exhaustive, or exclusively related to national statistics or ambulatory care. They are selected from reading, reflection, and research experience, to include relevant, prominent, or pervasive principles and issues for the subject. A number stem from work toward developing the National Ambulatory Medical Care Survey, experience that will be related in other presentations this afternoon.

Information and Data

Health services information must have a purpose to be worthy of the name. If it has a purpose then it will consist of messages with meaning or data gathered by intent, distinguishing it from random accumulations of random observations. In health service systems, particularly at the ambulatory care level, this purposive quality is more readily described than illustrated among the multiple complex channels of communications that serve the information function.

In principle we expect collected and recorded data to possess an apparent purpose, from the point where it is obtained through the stages of transmission and storage, to retrieval for final use, if it is to provide any information. In practice, substantial amounts of data are collected and recorded routinely for obsolete or obscure reasons, transmitted and stored mechanically, and seldom retrieved or used for any discernible purpose. The cost of the process, where studied in hospitals, has been estimated at about a quarter of total operating costs.[4] The three broad purposes of information in health services systems—for direct patient care, for system administration and management, and for research and education—are identified with difficulty and not optimally served by data collected in this style.

Arguments that such routine data may prove useful to someone, for something, sometime later on are seldom persuasive to professionals afflicted with forms to complete. Consequently they tend to become less than careful about the quality of the data collection procedures they carry out when required to do so. While situations do exist where information collected for one purpose, such as financial accounting, serves another purpose, such as measuring the prevalence of treated morbidity, they are scarce—and the data are commonly unsatisfactory for their secondary function.

Thus potential health services information does not exist for lack of any specified purpose, volumes of accumulated observations are stored without analysis, and quantitative information concerning ambulatory care is widely considered either unavailable or unsatisfactory.

National Health Statistics

National statistics present characteristics, utility, and significance peculiar to political arithmetic at their level of reference. Gathered from numberless sources and referable to a wide variety of subjects, they tend to be general instead of specific, to summarize events instead of recounting them, and to record a more or less distant past instead of the present.

Data on selected subjects are collected on a continuing basis and published at regular intervals, permitting secular comparisons, and a number of national indices have been standardized, permitting international comparisons. Their principal purpose is to provide a general information service.

To an understandably extensive degree the collection, tabulation, and promulgation of national statistics are a responsibility of the Federal Government in this country, which somehow lends an aura of authority and validity to published information that may not always be warranted by the sources and methods employed to obtain the basic data. However, as with primary data from the decennial census, for example, the essentially informational role, national record character, and Federal authorization under law places even secondary source public statistics in a position of respect beyond that of special purpose program reports, or ad hoc study results from private agencies of the same scope. This characteristic imposes requirements for avoiding sensitive subjects, and attending to the quality of their products for the several public statistical agencies involved.

The usefulness of national statistics gathered and promulgated even for non-specific information service purposes is unquestionably great but difficult to measure. It is probably greatest for establishing national goals and objectives. Decisions affecting public and private policy at all levels within and outside the health services system may be informed by this resource, and are presumably better for diminished uncertainty. Questions to be answered by research and education may be posed more precisely by this means, and presumably new information may be generated as a result. However, the general nature and information service purpose of national statistics limit their use for resolving very specific local or regional problems and questions.

The principal significance of national statistics stems from the subjects they address, which may be more or less relevant to issues of actual national concern. Certainly statistics addressing the issues involving national health insurance expectations, health maintenance organization needs, health care costs, and the quality or availability of services used, appear significant now. Their potential could prove even more significant for medical education, health services organization, professional practice, and evaluation purposes.

Ambulatory Medical Care Information

Ambulatory medical care consists of the personal health services provided by physicians or surrogates for people under their own cognizance and not currently admitted to hospitals or related facilities. It is the most common means of contact between the majority of Americans and the health services systems which serve them, and occupies the majority of the Nation's physicians during a prominent proportion of their professional working hours.

Distinguished from institutional medical care provided for admitted patients, and from ambulatory care rendered without the medical profession's intervention, ambulatory care is a recognizably different entity of the health services system. Effective differences from care at other levels are noted in the doctor-patient relationships, the predominance of primary care, and the diagnostic-therapeutic process which prevail at this level of the health services system. Doctors tend to be less imperious and patients more self-reliant than in hospital settings, resulting in a more mutual-participant type of relationship. Patient problems, symptom-complexes, early undifferentiated mobidity, social pathology, chronic illness management, and preventive care account extensively for the services rendered, suggesting the predominant role of primary care in ambulatory health care services. The diagnostic process is a largely probabilistic one, not deterministic as medical students are often taught, and therapy is frequently a form of the clinical trial instead of a specific pharmaceutical application.

Evidence from several sources now indicates the prevalence and volume that ambulatory care services have occupied in recent years. Results from the 1969 Household Interview Survey recently reported by the National Center for Health Statistics revealed that nearly seven of every 10 persons in the United States consulted a physician one or more times on an ambulatory basis including telephone calls, totalling nearly 840 million visits for an average of 4.3 per person during that year. Information from the same agency's Master Facility Census reflected less than one hospital outpatient visit per capita in the period, leaving 3.4 office-based physician visits to make up the total, if results are comparable. (The ratio of approximately four physician's office to one hospital outpatient visit is similar to that derived by others for the same period using American Hospital Association Statistics).[5] By contrast, there were 9.5 deaths per 100,000 and 154 general hospital discharges per 1,000 population in 1969. It is certainly not difficult to tell that a substantial proportion of medical care is provided at the ambulatory level, but national statistical information is not available to quantify or describe the circumstances further.

Experience with ambulatory service data collection has been gathered from studies of individual and multiple medical practices in several countries, most notably in the United Kingdom. In the United States investigations have been limited in the main to relatively select populations. The work by Peterson et al in 1953-54 remains exemplary, as does Standish et al's Washington Sickness Survey in 1953.[6,7] Weissman at Kaiser, Densen et al at HIP and more recently Avnet at GHI have studied insurance plan populations, depending on secondary source insurance billing forms for data collection.[8,9,10] Other studies on an ad hoc or regional basis have been reported. Lea Associate's National Disease and Therapeutic Index, designed for pharmaceutical marketing purposes and collected from a quota sample panel of physicians, probably represents the closest approximation to a continuing national survey of ambulatory services that currently exists in this country.[11]

This and other research has resulted in substantial experience over time but not sustained in collection of information representing ambulatory services used by entire general populations or rendered by all physicians in ambulatory practice.

Data Collection Principles

The quantity of information about ambulatory medical care services necessary and feasible for developing national statistics can't be specified with precision in the abstract. The amount should at least satisfy the information purposes it is designed to serve, yet not exceed the maximum dictated by prevailing validity, accuracy, reliability, and budget requirements. Hence quantity of data is predicated first on the purpose for information, then on the practical possibility for data collection to meet apparent requirements at any particular time.

At the very minimum is the amount currently provided, consisting of estimated annual numbers and rates of persons visiting physicians according to standard population characteristics, based on health interview survey replies. It indicates the volume of population participation and services used in broad nonmedical terms, and permits surveillance from year to year. Less than this quantity would not have served Federal statistical purposes in recent years and it now appears inadequate for current public concerns.

A modestly increased amount of data collection would permit comparable measures of utilization to be coupled with medical practices characteristics such as physician specialty, patient's medically determined diagnosis, and doctor's disposition advice. This prospect is actively under development for the National Medical Care Survey, based on data collected at their source by office-based physicians in ambulatory practice.

A real major increment of information would result if data from existing household interviews and potential medical practice sources were linked, together with individual patient data, from health records, hospital discharges, and vital statistics. Such a major increment would provide longitudinal information about an inclusive range of health services provision and use, for advanced organization and financing decisions as well as for evaluation and quality assessment at the national level.

Perhaps pursuing such a major additional amount of information is beyond the realm of possibility or even desirability for national statistics at present, but it is a potentially feasible development that warrants continuing examination and debate.

The following general principles concerning the choice and collection of data for developing national statistical information on ambulatory care services are advanced, recognizing that any of them may not prevail under particular circumstances. Among the more persistent precepts, assuming information has a purpose and data should serve it, are these:

Selected data should refer to defined populations. This requires a method of defining populations and sub-groups, which may be provided by geographic boundaries and census definitions and enumeration of national and regional levels, but involve some type of enrollment or registration procedures at institutional or local levels. The national population is the fundamental denominator for national ambulatory service statistics.

Data should relate to ambulatory service events, identifying individual patients, problems, providers, and units of service rendered. The visit is probably the most useful event unit for statistical representation of ambulatory service use. Its patient and problem components can be combined into morbidity units such as cases or episodes of illness, and its provider and unit-of-service components can be combined to form resource units, such as time spent or costs incurred.

Selected data should be relevant or useful, as perceived by providers and recorders at its source, not only for information purposes but also for benefits they would realize as a result. This selection principle can require practical compromises which are important to preserve data quality, collection acceptability, and response levels. The best situation is one where information purposes and perceived potential benefits appear the same; it may be difficult to achieve for national statistics derived from data provided by ambulatory care physicians. Flexibility and prompt information feedback could be a helpful adjunct.

Selected and collected data should be reliable, valid, and accurate. However, these are relative qualities, subject to judgment on the basis of standards for data used to develop comparable national statistics. Discharge abstracts for hospital use information or communicable disease reports for morbidity incidence information are examples to consider by way of comparison.

Collected data should be as simple as is possible, consistent with their purpose. Complexity and detail are detrimental to acceptability and successful collection.

Data collection, itself, should alter or interfere to the least possible extent with the actual provision of ambulatory medical care services. Techniques that incorporate data collection with routine recordkeeping procedures are more likely to succeed than those which add to them. An example is the use of data collection forms, integrated with parts of patient records, which can be completed simultaneously but subsequently detached leaving the original record intact. Another example is the secondary use of forms completed for other purposes, such as insurance billing, as data sources to the degree that required information can be obtained in this way. However, it just does not appear feasible to use practice observers or record abstractors for collecting data to develop national statistics.

At the April meeting I referred to, a minimum set of basic data was identified. While this achievement was disparaged in part by one of the speakers in our panel today, in my experience I think the effort of trying to identify the elements that constitute what is generally considered always necessary, if not always sufficient, was a very profitable result of the conference. I would like to share now with you an account of the result of thinking that transpired there.

Basically, ambulatory care data were conceived of as being of two sorts in relationship to any particular service event. The first sort is a basic set of registration data. It would need to be reported one time only for any individual, perhaps, and updated as changes might occur in the status of that particular individual. This would include personal identification, residence, date of birth, sex, marital status, and race. These six elements would be collected with regard to each individual using service.

Then on the occasion of any particular use of service, encounter data would be collected, and the minimum set includes the following items: identification of the facility, the provider, the person receiving service, the source of payment, the date, the patient's purpose, reason, symptom, or complaint—these are hard to distinguish between—the physician's diagnosis or problem designation, the diagnostic, therapeutic, or management procedures that transpired, and finally, disposition of the patient.

I would suggest again, that while these are not sufficient to the needs of many situations in which ambulatory care data are needed, they constitute a necessary part of a record or description.

Concerning methods for data collection, the best ones again can't be told in the abstract and certainly not without careful trial, development, experimentation, comparison, and evaluation. Universal and simultaneous adoption of any one proposal, however sound, could be a strategic mistake in view of the number and variety of forms, settings, people, and places involved in the provision of ambulatory services.

A promising approach would aim ultimately to achieve universal coverage by planned increments, beginning on a small but enlarging national scale, evaluating sampling before censal methods, much as the National Center for Health Statistics has undertaken to do in developing the National Ambulatory Medical Care Survey. There the decision was taken to collect data from office-based physicians at the start, employing a survey form to be completed at each visit, supplemented by interview data for each practice, and other source data for each physician. The approach defers obtaining data from outpatient clinics, emergency rooms, nursing homes, school or industrial centers, free clinics, storefronts, and other places at the beginning. More adequate procedures and methods need to be devised to identify, classify, and characterize these relatively less prominent but increasingly important places where ambulatory care services are provided.

Another concern for data collection and classification methods arises over whether and to what extent it should be aggregated or transmitted at local, State, or Federal levels. Since national statistics tend to be rather general for broad application, comparison, and policy decision purposes and operating agency statistics tend to be more detailed and descriptive to assist program decisions, one school would suggest that only summary statistical data need be transmitted onward to the next higher level. Alternatively, the aims of uniformity, quality control, and flexible analysis to answer a variety of questions leads to placing all amalgamation and coding at central sites if not at a single national one. The World Health Organization Expert Committee on Health Statistics would require the latter approach in developing statistical systems for health planning.[12]

Data collected and classified at their source tend to be more reliable for information purposes then data recorded or transferred by an intermediary, because opportunity for coding and transcription errors is reduced. However, in some situations a trained recorder makes fewer mistakes. In ambulatory medical practice a nurse or office assistant may well prove more effective at data collection for developing statistics than her physician principal, and certainly could assist him in the task.

Information Development

Several major problems for developing national statistics on ambulatory medical care services remain to be confronted. Perhaps the principal one is to recognize the general information service purpose of existing national statistics and reconcile it with the specific information purpose to be served in the interests of a wide variety of prospective users.

A related problem stems from the professionals at the source of data concerning the provision of ambulatory services. In addition to a certain paranoia toward focusing further attention on their practice activities, physicians maintain a sound skepticism and scientific "show-me" attitude toward the usefulness of introducing yet another data collection burden and statistical information series without demonstrated benefits. Realizing these benefits requires the development of statistical information, and vice versa. Perhaps potential possibilities would be more persuasive if benefits for medical education and practical planning applications were pointed out and data collection burdens reduced.

The need to establish, agree on, promulgate, and use defined and standard terms for the events, entities, and units of ambulatory care is an evident problem for consideration in developing national statistics. Without uniform definitions and terminology, communication is impeded, comparability of data is prevented, and national statistics may become nearly meaningless. Acceptable and authoritative definitions, adopted after study and advocated by the U.S. National Committee on Vital and Health Statistics, would be a major step toward resolving the problem of ambiguity.

The compound difficulty of developing simple classification schemes for patient problems, for diagnostic labels, and for services received to apply to national ambulatory care statistics may also require attention by a group of national experts. Patient demand and primary ambulatory care are both essentially problem oriented, but no systematic coding scheme embodying the concept has been adopted widely to date. Despite the demonstrated inadequacy of the ISCD Code to describe disease conditions at the level of their diagnosis and treatment in general practice, modifications to accommodate varying degrees of specificity and uncertainty have not been officially advanced. Surgical procedures, but not the spectrum of services commonly encompassed within the span of ambulatory office and clinic visits, have been specified and classified in some detail. Although considerable work has been done already in these areas, testing, comparisons, and general acceptance remain to be accomplished.

Summary and Conclusion

In conclusion, I have suggested several general characteristics, principles, and problems concerning developing information for national ambulatory care statistics. Information was generally characterized to consist of data with a purpose. National statistics basically provide a general information service and ambulatory care constitutes a major health service system component without satisfactory national statistical representation.

The amount of information to collect should be sufficient for its purpose without failing practical standards. It should be selected and collected to refer to defined populations and ambulatory visits, be simple and unobtrusive, yet obviously useful and of satisfactory quality. At the least, data elements should characterize the visit or event of ambulatory service.

Data collection methods should be tested carefully and they should include collection at source. Major problems for developing national ambulatory statistics are seen in conflicting purposes, unpersuaded participants, undefined terminology, and undeveloped concepts for classification and coding of problems, diagnostic conditions, and professional services. Although political arithmetic has progressed, it has farther to go to encompass ambulatory health services statistics. Assistance from a group designated by the U.S. National Committee on Vital and Health Statistics might advance the progress.

Thank you.

MR. HOERMANN: We have two more papers to go. We don't have time for a break, but perhaps you would like to take a seventh inning stretch. I would like to thank Jim for a most interesting paper.

Our next presentation is by Dr. John Williamson. John currently is in two roles here. He is Professor of International Health at Johns Hopkins University School of Hygiene and Public Health and he is also Professor of Medical Care and Hospitals at the same institution. Previously, he was an Associate Professor of International Health at Johns Hopkins and before that he was employed as an Associate Professor, Assistant Professor, and Research Associate in several different institutions. John also has a large number of memberships and honors and publications which I won't take the time to enumerate at this time. John will present a report on the Results and Implications of a field trial and Ambulatory Care Study. I am somewhat intrigued by the black box John has brought for his presentation which is labelled "Fantasy Film." Maybe we are taking some flights of fancy away from the data we have been talking about.

RESULTS AND IMPLICATIONS OF A FIELD TRIAL OF AMBULATORY CARE SURVEY

Dr. John W. Williamson, *Professor, Department of Medical Care and Hospitals, School of Hygiene and Public Health, The Johns Hopkins University*

One of the most important questions we can ask of any health care system is, "Who needs to learn what to improve the health status of a population receiving care?" The survey called the National Ambulatory Medical Care Survey (NAMCS) provides, or will provide data that might help answer this question in a more definitive way than in the past.

The purpose of this paper is to share with you some of the results of a pilot phase of this study and indicate the "who" and the "what" of the "who needs to learn what?" question. For many reasons the numbers are "off the record," as they are rather tentative.

The first reason we do not wish to have the numbers from our first pilot study on the record is that the sampling only covered about 72 percent of the physicians in the country. Secondly, we had only 74 percent response rate on this first time around, which we felt to be inadequate. And thirdly, though we did have a 74 percent response, completion rate was only 55 percent, and so it is difficult to generalize from the data.

Therefore, weighting factors were never developed from these data. So numbers you have seen represent the raw data sampled from 72 percent of the physicians, representing mainly physicians in large urban centers.

Let's look at some of the health professionals that might benefit from results of the NAMCS study. First, those educators. Focus will be on faculty of undergraduate and postgraduate physicians and health educators. Next, data will be available that would help health care providers, especially physicians and administrators. Finally, this survey will be of value to health service researchers, including planners and special interest groups.

Regarding the value of the study to medical education, we have a breakdown of the types of complaints that impelled a group of patients to visit their physicians. This information would permit development of curriculum units based on the frequency with which a certain type of problem faced physicians in practice—rather than the present criterion of interest to the faculty in a research, academically oriented center. Knowing the frequency of complaints, we could identify those entities which had the greatest prognostic interest. From these two lists, priorities could be established as to those areas where patients might have the most to gain by having students learn.

In the miscellaneous category the breakdown indicates that most patients who come in for a routine check-up are healthy or asymptomatic, and this has significance for management of the well patient. The possibility of studying people who have health problems for which they do not have complaints would be an important concern.

Another group that could benefit from these data would be physicians interested in continuing education. We want to find out where they could spend their time where it would give the most benefit to their patients. The same type of breakdown of the data from their ambulatory practice would tell us where they are having the largest number of complaints. Then relating the complaints to the diagnoses within the complaint units, we might identify the more serious problems that would be well for them to study in more detail.

Looking specifically at the diagnoses, we can identify in a complaint group, for example, a sample of 504 ambulatory patients complaining of emotional problems. According to their age distribution, as many young patients as old sought medical help for this particular complaint. Females predominated.

What type of physician might expect to find these patients with emotional complaints coming to his office? The study shows that nonpsychiatrists see over half, with general practitioners predominating. Most patients will be seen in the office, house calls being very low in this category.

Organic disease was diagnosed in the largest percentage of these patients. If these diagnoses can be considered valid, they suggest that physicians will have to look for organic causes in a large proportion of patients who present with emotional complaints.

Many of the patients complaining of emotional problems were considered basically healthy. More were considered not serious or slightly serious in prognosis. Going down each of these complaint categories and doing an analysis of the sort we have just done for emotional problems could identify categories where emphasis should be placed.

Moving on to providers of care and what they might gain from NAMCS data, take the physician who wants to consider where he might use a physician's assistant to help him manage his practice more efficiently. He could develop this type of problem list with the distribution of the kind of complaints that the patients are bringing to him. Let's take a look at those patients in this survey that came in complaining of cough. First of all, well over half are in the age zero to 18. The male and female distributions are about equal here. What physicians will handle the patients coming in with coughs? The G.P. handles the largest number. Location, again: most are in the office, but a large proportion of them are by telephone.

What are the diagnoses that will be made? This will be an important clue as to what level of sophistication of diagnostic judgment may be necessary to avoid missing the more serious diagnoses. Most diagnoses associated with cough are eventually found due to innocuous causes with an extremely small percentage being neoplastic. A large proportion of the patients were considered essentially healthy. As for the work-up that physicians carry out with patients complaining of cough, for the most part history and physical examinations were limited and diagnostic tests were not done. However, most of the patients got at least one prescription and well over half were asked to come back for a follow-up check, by telephone or a return appointment.

With this information we can say, at least with patients who come in complaining of cough—the single most prevalent complaint related to cardio-respiratory disease—that a physician's assistant might well handle these patients. Such patients require a relatively simple work-up and the treatment seems to be uniformly drugs. The study of other major complaints and diagnostic categories of NAMCS data might lead to various improvements in costs and effectiveness.

Now I will let your mind really boggle at the potential for the researchers and the epidemiologists, the persons who like to describe and correlate. Taking the data of these complaints for all the various types of specialties, relating the complaints to diagnoses within specialties, and trying to describe these by patient characteristics, would enable the epidemiologist or health services researcher to have a field day with correlations and cross correlations of this information to test various hypotheses. The possibilities are very large.

The final category I would like to talk about would be the health care administrator's point of view, where he wants to take a look at the broad category of care within his clinic or hospital to see how he might improve management through greater efficiency. To do this we will take a look at the overall data that we have from the total number of visits to ambulatory care physicians across the country gathered in this phase one. As to the physicians contacted, the G.P. is at the top handling the largest group of visits. Location of contact reveals that the office and telephone are the predominant areas where these problems are managed.

Duration of contact: this would have some interesting information for the visitor, that approximately half of the visits took less than 5 to 10 minutes.

Looking at whether these visits represented new patients and new problems in most of these contacts the patient had been seen by the physician previously. Less than one in four were seen for a new problem. Noting the health status of these patients we see that most are regarded as essentially healthy. The prognosis indicates that nearly three out of four will be considered *not* serious or slightly serious.

What type of therapy will be provided these patients overall? Drug therapy will predominate. Disposition? Again we have an interesting phenomenon that most are going to be either referred or asked to come back, with a small percent being referred to a hospital.

I think that this last set of data would be most interesting to the administrator, as he notes the large number of people who come in with either no complaint or some innocuous complaint, the large volume that are going to be considered not serious or essentially healthy by the physician, and where most probably will be given some kind of prescription and asked to return. This is the impression one gets in looking at the pilot data of this first national survey of ambulatory medical care in the United States. When weighted data are tabulated from the next survey—which achieved 80 to 90 percent response as opposed to 74 percent—it is possible some of these proportions will change, however.

This kind of information would also be helpful for planning and determining need for facilities in the future. NAMCS will be periodic, so trends can be plotted over time from data from sequential surveys. From the clinic point of view, if such data were gathered from all physicians in an individual clinic, the data could be used at a clinic level for local planning.

As we look at the results of NAMCS, we can see there are many possibilities. Our imagination could take us in different directions for helping educators plan, helping health care providers plan for the kind of care to be provided patients, and administrative needs, and helping health services researchers and epidemiologists use these data for testing hypotheses that they might have.

Through this, I think we do have a needed resource, and will have a more valuable resource as this survey goes on and data accumulate to help us answer the question, "Who needs to learn what to improve the health status of our population?"

MR. HOERMANN: Thank you, John, for a most interesting presentation. I should like to reemphasize that the results of this survey came from the first phase of a feasibility survey on ambulatory medical care. Since that first phase, we have had a second phase where the response rate was considerably improved, enough so that we felt that we could go into a national survey. We do not have the results of phase two yet, but hopefully we will get those shortly and they will be published. We expect, however, that the relationships shown from the phase one part of the feasibility study hopefully will be similar when we get the results from phase two. Are there any questions?

DR. SIEGEL: The most interesting piece of data to me would be the source of payment for the visit and the analyses that would derive from that. That would be of considerable interest to all. Is that piece a datum on the form?

DR. WILLIAMSON: No, it is not.

DR. SIEGEL: Why not?

DR. WILLIAMSON: The major reason is that this first study was a feasibility study and we had to weigh in the balance many types of data that might have been on the first encounter form. We thought the kinds of information that we wanted to test, to see if physicians would cooperate in providing such information, might be more successful if we stayed with less controversial data than if the physician had to put down cost or financial data, which might cause some rebellion and might lower our response rates.

DR. SIEGEL: Would it be possible to follow patients longitudinally?

DR. WILLIAMSON: I would doubt that. This is a cross sectional study, looking strictly at the visit at that time. The physician provides the data over a 48 hour period. If he were to cooperate in an ongoing survey where we would take a look, say, four times a year or every three months, and the same patients should happen to show up, it would just be sheer coincidence. There is no plan to be able to do that.

DR. SIEGEL: Is there any test for the validity or reliability of the data that are being collected?

DR. WILLIAMSON: This is one of the dragons next in line to be slain if we prove this survey to be practical. It is one of the high priority questions that we intend to study.

MR. WILSON: John Wilson, State Registrar, Montana. I have often felt that ambulatory patients are older people and a percent of them had psychosomatic related illnesses. Yet you show that a large percent of your patients had organic diseases, but many were healthy or slightly ill. It seems to me there is a contradiction here between what I have always read and felt and understood and what you show.

DR. WILLIAMSON: These figures are for patients coming in complaining of emotional problems. A certain percent will have a diagnosis related to some organic disease.

MR. WILSON: Is that a symptom, you feel, or a cause?

DR. WILLIAMSON: It depends what we are going to infer that the physician puts in his diagnosis. We have to say it looks like there are a large number of these patients that have an organic etiology.

DR. WHITE: I would like to comment on this question. This is the sort of information we can get from a study of this kind. We can find out what the patient calls it, what the patient complains of, how seriously ill the physician thinks the patient is, and what the physician names it in terms of a diagnosis. Precisely this kind of question needs to be examined with this kind of information. I think there are vague speculations about it and I hope that this will be a start to getting better information.

DR. WILLIAMSON: For example, one of the major subcategories was epilepsy. That accounted for the largest number of patients with an emotional complaint who had an organic component.

DR. SIEGEL: My experience with physicians is that if you get a diabetic, they might say he is very healthy, you know, he did not have much of anything. So my question is, have you inquired as to the prospective lifetime of a person with chronic disease that is under control so that he does not have any symptom? Would that be considered healthy?

DR. WILLIAMSON: That was one of the controversial points that we had, to decide whether the "seriousness" item was sufficiently reliable to be worth keeping in. This is still being debated.

DR. SIEGEL: Because 90 percent of the diabetics have the disease under control they would be rated healthy?

DR. WILLIAMSON: Yes, as far as rating the patients' impairment at the time they visited the physician. If they were on insulin, their condition would be rated "serious" on a "seriousness scale" which includes prognosis as opposed to a health impairment scale which doesn't.

MR. HOERMANN: Any other questions?

MR. WILSON: Bob Wilson from a county health planning association. Had you given any thought to finding out what the patient needs to know to improve health services?

DR. WILLIAMSON: We wanted to get the patient to indicate what he thought his prognosis was—how serious he thought his illness was—and compare this to what the physician thought, but what happened was that we got the physician's idea of what the patient thought. We felt that was not sufficiently valid.

But this type of information could come from this survey and I would find this most important, especially in those areas where the patient felt his condition was innocuous, like hypertension, say, without symptoms, and the physician thought it was very serious. That would give us priorities for patient education. This is an area encompassing crucial data that are needed. In the above example of hypertension, a patient does not think that hypertension is a serious disease, this may be the reason he does not take his medication. It may be the reason he does not fill his prescriptions, the consequence of which may be a premature stroke. So I think this kind of information would give us a very exciting base for developing priorities for patient education.

MR. WILSON: Conversely, if the patient is over-utilizing the system with a minor illness, then this has an effect on the delivery of health care.

DR. WILLIAMSON: Yes, if he thinks it is serious and the physician says it is innocuous, we ought to know about that. I think that is an important area also.

MR. HOERMANN: I would like to point out that the feasibility study went on for five years. We solved many problems, we feel, and every time we solved one problem, two more seemed to come up. There are a large number of problems in this type of survey. We have not solved all of them by any means. A survey as it becomes initiated will have a research function attached to it, and we hope that in coming years we can continue to solve some of these problems with an ambulatory care survey.

Our next speaker is Mr. Jim DeLozier, who is currently the Chief of Ambulatory Medical Care Survey Branch. He has been with NCHS as a commissioned officer for the last nine years and during that time has been active in a number of surveys involving mainly institutional surveys and the NCHS facility. Jim came to the Center directly from the University of Pittsburgh School of Public Health where he earned his M.A. degree in biostatistics. He has also done additional graduate work at the University of North Carolina. Jim will describe for us the Nationwide Ambulatory Care Survey at NCHS.

Jim.

A NATIONWIDE AMBULATORY CARE SURVEY

Mr. James E. DeLozier, *Health Services Officer, Division of Health Resources Statistics, National Center for Health Statistics*

I seem to end up in the position where most of the things I intended to say have already been said. I would like to cover briefly the five year feasibility study that we have undertaken. Suffice it to say that we recognize the need for information on ambulatory care, as we did five years ago, and since that time we have been conducting a number of field tests to develop procedures and questionnaires, etc.

The feasibility study for the National Ambulatory Medical Care Survey (NAMCS) essentially was completed early this year. During the five year life of that study the planning group encountered numerous problems and tested many concepts, approaches, and procedures before arriving at the system which we now intend to implement. The planning group for that study, incidentally, if you have not guessed, included Drs. Williamson and Tenney on the panel, a few of us at the National Center, and Dr. Kerr White, who is also from Johns Hopkins, and the prime contractor was Lea Inc. Lea is a private marketing outfit that conducts the National Diseases Therapeutic Index.

I can't cover all the problems we faced in the five year period at this point, but I would like to describe some of the major conceptual and operational problems and their solutions.

Clearly, the first major consideration in developing the NAMCS was the identification and definition of the universe to be studied. Should the unit of measurement be the ambulatory patient; the physician or his practice; the physician-patient encounter; or sites, such as outpatient clinics, emergency rooms or physician's offices? Ultimately it was decided that the elementary unit of measurement would be a visit or encounter.

It was decided because of operational and definitional problems that the NAMCS, for the present, would only include encounters in the private offices of "office-based" direct patient care physicians. Other segments of the ambulatory care system—constituting about 15 percent of ambulatory care visits—were, for the present, excluded from the survey because of the rather difficult problems of definition and data collection they present. It is expected that these parts of the ambulatory care system will be added to the survey in the future so that the NAMCS will reflect all aspects of the ambulatory care system.

The physician universe for the study was defined as all non-Federal physicians listed by the American Medical Association and American Osteopathic Association physician master files for the coterminous United States who were classified as being in office-based practice and engaged in direct patient care. Excluded were hospital based physicians; specialists in anesthesiology, pathology, and radiology; and physicians who were primarily concerned with research, education, and administration.

A second major issue involved identifying and evaluating alternate sources of data to be used. Investigations by Lea, Inc., the prime contractor for the feasibility study, showed that in 1967 only six of seven physicians maintained medical records and that these varied considerably in their accessibility and completeness. In addition the majority of physicians would not accept the type of disruption of their office procedures which a transcription from their records would require. Nor were they willing to supply copies of their office records even with patient identification removed. So the use of records as the source of data was rejected.

It was also felt that direct observation of a physician's office traffic by an enumerator would have an adverse effect on patients and would be unacceptable to most physicians. Consequently the most promising source of data appeared to be directly through a current sampling scheme where information would be recorded on a specially designed encounter form during or shortly after the physician-patient contact.

The system to be developed would have to maximize the data collected, minimize the reporting burden on the physician, and minimize the logistical problems and costs of data collection.

A number of alternate forms and enumeration procedures were tested against these criteria in three separate field tests of national samples ranging from 700 to 900 physicians. The results of these tests indicated that one of the proposed forms was probably too long and represented a reporting burden on the physician; another, while apparently more popular with physicians, was too short to provide enough basic ambulatory care data; a third form tested was of optimal length for both data requirements and reporting time and, therefore, has been accepted for the survey.

The field tests also indicated that a two day reporting period, four times during a year, appeared to be acceptable to the responding physicians. This schedule, however, presented serious logistical problems, was difficult to administer, had unduly complicated estimation procedures and was costly to operate. Therefore, a single seven day reporting period was adopted as the basic enumeration period for the survey.

Another area of major concern to the study planning group was that of adequate quality control. Quality control is needed to ensure that all patients during the reporting period were accounted for, that the reporting period was in fact the one assigned by the enumerator, and that the information provided on the encounter form was correct and complete. In attempting to solve these problems many alternatives were proposed and several promising ones tested.

One technique tested included an encounter form with an accompanying patient log to be completed by the physician or his assistant. The log contained the patient's name, age, sex, and time of visits for all visits and was attached to the patient encounter form. A perforation between the patient names and the patient data permitted removal of the names by the physician for confidentiality reasons after the forms were completed. The log approach proved fairly successful and will be used in the national survey. This approach will have to be supplemented by other, yet to be developed, quality control procedures.

In this type of self enumeration survey where the respondent himself completes the data document, it is always difficult to ensure that definitions will be applied accurately and uniformly throughout the survey. This is particularly critical for the NAMCS in the nebulous area of what constitutes a patient visit or contact, not to mention all the ambiguities associated with definitions of principal diagnosis or patient complaint. The hazards of data quality are certainly less for such items as age, sex, marital status, diagnostic tests, and case disposition. Errors in classifying patient visits or contacts, however, will result in under or over counts of the basic units of the study.

Techniques for monitoring or measuring the correct application of definitions in the NAMCS are considerably limited by the nature of the survey. The enumerator cannot put the physician through a rigorous training course on survey definitions without increasing the refusal rate. A brief and effective presentation of the definitions by the enumerator and written materials are certainly necessary, but the quality of the survey is dependent in the last analysis on how accurately the physician interprets the definitions and completes the forms.

The planning group of the NAMCS feasibility study recognized from the outset that an adequate response rate would be the major problem in developing a national ambulatory medical care data system. This expectation was confirmed in the three field tests conducted during the feasibility study. Intensive consideration was given to the various alternatives for increasing response including paying the physician, donating to his choice of charitable organization or medical school, paying his office help, feedback to the physician of statistical data on his peers, and various public relations programs.

Evidence from the evaluation questionnaire used in the field trials as well as from other surveys such as the Hospital Discharge Survey indicate that failure to pay the respondent is not the principal deterrent to participation in this survey, and that to provide any meaningful remuneration for participating in the NAMCS would probably make the survey financially impossible for the NCHS.

An evaluation of field experience clearly indicated that the single most important factor which could guarantee a successful national ambulatory care data system is a favorable attitude toward the survey by the physician universe at large and the sample physicians in particular. The approach which this suggested and which proved very successful (though still requiring some improvements) in the second and third trials involves intensified public relations and field control efforts. This required an informational program designed to acquaint doctors with the purposes, uses, content, and mechanics of the proposed data program. Materials for professional medical and general type journals and for news releases must be prepared and published. The active endorsement of influential professional associations and medical societies must be obtained. This involves the development of a complex system of explanatory letters from the NCHS and one or more of these associations to each sample physician.

The data output program of the NAMCS should also contribute materially to the visibility and acceptability of the program, especially if the reports are timely and circulated to key points and if it is recognized that the ambulatory care data are used only as statistics and as such may contribute substantially to the improvement of medical practice without injury to individual physicians.

Equally important is the use of highly skilled field personnel and the development and rigid applications of an intricate field control and respondent follow-up system.

After intensive development and testing of alternative concepts, methods, and procedures during the five year period of the feasibility study, the proposed National Ambulatory Medical Care Survey (NAMCS) was evolved.

The system will be initiated on a continuing basis beginning in calendar year 1973 and thus join the other surveys of the National Health Survey System. The data from the survey will be processed on a continuing basis to produce rapidly available summary tabulations, a series of annual NCHS type statistical reports, data for special studies, and a body of unpublished data which will be available on request.

Although some additional planning and details have to be developed and finalized before then, it is now anticipated that a national sample of physicians engaged in direct patient care will be asked to complete encounter forms for a small number of ambulatory patients seen during a one week period. Physicians with small practices will report on all visits during the reporting period and physicians with larger practices will sample visits with a sample interval related to the size of their practice. Most physicians will report on less than 10 patients each day.

The data for the National Ambulatory Medical Care Survey will come from three sources, namely, the encounter form, an enlistment questionnaire, and the American Medical Association and the American Osteopathic Association listings. The encounter form will provide episode data on the age, sex, race, marital status, principal complaint, and diagnosis of the patient; diagnostic procedures; duration of the visit; treatment; and case disposition.

The enlistment form is designed to confirm and update certain background information about the sample physician and to obtain additional information about the volume and nature of his practice and office procedures.

In initiating the above plan in calendar year 1973, the NCHS will concentrate its resources on achieving a high response rate and obtaining high quality data. This will necessitate a modest start of about 1,600 physicians the first year. In later years, as the survey gains greater visibility and acceptance by the medical world, and the NCHS gains greater experience in this type of data collection effort, the sample size will be increased and other modifications may be introduced.

In the future it may be possible to add ad hoc supplementary items to the encounter form and to conduct special studies as follow-ups to the basic survey.

Longitudinal studies to measure the course of specific diseases identified by the NAMCS may also be possible. In addition it may be possible to extend the NAMCS type survey to the health care provided by other types of health practitioners such as dentists, podiatrists, and optometrists.

The National Ambulatory Medical Care Survey as currently constituted, of course, will not provide all needed ambulatory care data. For example, the NAMCS results cannot, because of sample size constraints, the general nature of the encounter form, and other limitations of the survey design, be used for managing individual practices or to provide data for local area planning.

Nevertheless, the NAMCS with its range of data on the demographic and medical characteristics of the users of ambulatory care should provide important baseline and trend data for developing basic insights and research on the utilization, organization, and delivery of an important segment of the country's ambulatory medical care system.

MR. HOERMANN: Are there any questions of Jim?

FROM THE FLOOR: I would like to ask about the patient-physician encounter. Do you plan that this will be done with physicians for a given time period? This obviously places the emphasis on the provider of the health services, whereas many people are interested in the patient and how he gets the care, and so forth.

MR. DELOZIER: I am not sure I can answer your question. The study as designed cannot follow patients. That is correct. I am not sure I know how to select a sample of physicians which would allow you to follow patients over time. I think that what you are asking about is probably the kind of information that is collected in the survey of households or of individuals. I think in that instance you could get people in a sample and follow them from place to place and from health care site to health care site, but I don't know how to do that at this point, anyway, by sampling physicians first.

I am not saying that what you say is not needed. I am only saying that what we are doing is something different from that and maybe both things are what we should be doing.

MR. HOERMANN: Some of this is being done by the Health Interview Survey of the National Center For Health Statistics.

FROM THE FLOOR: I can't see how we use the data for planning purposes if you don't use the whole population.

MR. DELOZIER: You are probably right. The reason we have taken the approach we have is that the collection of data from, for example, Neighborhood Health Centers and HMO's and outpatient services in hospitals and so forth presents a different type of operation. Our objective at this point is to get the largest and most difficult piece of the ambulatory care system which is the private practice physician. The other pieces we want to add at a future time, but I think that would be a different kind of survey.

I think, then, you are surveying the "institution." Here we are surveying the physician. I think we could to it in such a way as to put data from the two sources together.

DR. WILLIAMSON: We can use the methods and if an administrator wanted to use this form, and have the physician use it in his hospital, until he got a significant number, then he could use that for planning purposes. So I think this potential is something we could look forward to.

DR. HELLMAN: Louis Hellman, Department of the Navy. How about physicians who treat their patients in hospitals? Will this survey include some of those?

MR. DELOZIER: The survey will include all physicians listed by AMA and AOA as in office-based patient care practice. In addition to defining a physician universe, we define a "location universe." If a physician goes to a location which is out of scope, then the patients he sees there are also out of scope for the survey. Patients seen in presently out of scope locations, such as hospital outpatient departments, will be added to the survey in the future.

MR. HOERMANN: I think you have to keep in mind the survey is an evolutionary type thing. We will be adding these things as we conquer the first step here.

MR. BALL: Charles Ball, University of Cincinnati. You mentioned the AMA and AOA. I was wondering if you are including or excluding members of the National Medical Association?

MR. DELOZIER: They are included, but they are part of the AMA's national physician file. I am told that by Jim Haug.

MR. HAUG: That is correct. We do not identify race.

FROM THE FLOOR: I am from Boston, and my question relates to this as well. I visited a

Neighborhood Health Center recently that is community controlled. They don't put race or marital status on any of their forms. I noticed that apparently it was not used in this last study that Jim discussed. On the other hand, apparently it is going to be used in the Federal-State-local. Is it wise for one and not the other to report this, and is it needed?

MR. DELOZIER: I am not sure why it is not collected by some people. We did collect it in our surveys, in our field tests. We have collected it and, so far as I know, we intend to keep on collecting it. There has been some question about dropping marital status because of the size of the form, but, so far as I know, race will be one of the questions.

MR. HOERMANN: Are there other questions?

DR. TENNEY: I would like to add one or two notes to that particular answer. I think the minimum basic data set has been advocated by the Conference on Ambulatory Care Records and it does include both of the elements that you have called to question.

Perhaps the terminology is not proper, but there is certainly good reason why this really represents fairly essential data in terms of planning or patient care or administration or management. I would think that when the Federal, State, and local system adopts that minimum basic data set that they would try to encourage the neighborhood center or other centers to include it with information that they collect. Not that they should not collect other information or perhaps arrive at a happier terminology to explain it, but they should recognize that these elements do make a difference in patient care, administration, and management.

MR. HOERMANN: I had to cut the question period for Dr. Tenney's paper short. Are there any additional questions that anyone would like to ask him? Are there questions of any of the other participants? I have some announcements. First of all, I would like to remind you of the displays that are in the Birdcage Walk from several agencies describing their activities.

I would like to thank the audience very much for their participation and especially would like to thank Jim Haug and all the panelists for their participation this afternoon.

At 4:20 p.m. the session on Ambulatory Care Statistics was concluded.

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Concurrent Session "C"

Statistics on Unmet Needs for Mental Health Care

Considerable demographic, health, and social data are available about populations on a small geographic basis, such as a mental health center catchment area. The question is "How can the statistician and program planner make effective use of these data to determine the unmet needs for mental health care among the population being served?"

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CONCURRENT SESSION "C"

STATISTICS ON UNMET NEEDS FOR MENTAL HEALTH CARE

PRESIDING

Mr. Irving D. Goldberg, *Chief, Evaluation Studies Section, Biometry Branch, National Institute of Mental Health*

I think I'll call the session to order. If you're worried about the difference between the picture in the program and the face you see up here, don't fear. Actually, it didn't change that much. It's just that unfortunately, at the last minute, Dr. Sheehan couldn't be here, so I have the privilege and pleasure of chairing the session for you.

For those of you who take notes, my name is Irv Goldberg and I'm with the Biometry Branch at the National Institute of Mental Health. I didn't have enough time, really, to prepare any extensive remarks. However, I do have a few points to make and I'll try to keep these short and to the point, as difficult as that is for me to do.

The subject of the session today is statistics on unmet needs for mental health care. And if I can just read from the program, specifically, "Considerable demographic, health, and social data are available about populations on a small geographic basis, such as a mental health center catchment area." The question is, "How can the statistician and program planner make effective use of these data to determine the unmet needs for mental health care among the population being served?"

Now, with that, I just want to take a moment to put today's session in some sort of framework for you. If you look through the program, you notice that on Wednesday afternoon there's a session on the definition and measurement of mental health. That session takes on an epidemiological approach in its orientation and emphasis, and it is distinct, therefore, from the utilization of available data which is the subject of today's session. This session and that on Wednesday are companion sessions. I think you will find that they complement each other. I'm sure you will find they provide an interesting package; I might say, a bundle of useful information.

Of course, this session and the one on Wednesday are directly related to the subject of the whole conference. For example, the session tomorrow on census data uses and also the one tomorrow on the cooperative Federal, State, and local health and mental health statistics systems are pertinent to what we're going to discuss here today. The significance of this subject was emphasized in the plenary session this morning. Dr. Wilson, for example, emphasized that the data needs at the local level are not being met. Mr. Woolsey drew attention to the need to know how data are being used and could be used and Dr. White commented on the organization of health resources.

All of these kinds of things tie together, and I think those few comments, perhaps, will put this session in some sort of perspective. About this session today, we have three speakers whom I will introduce at the time their papers are presented, and who will be followed by a discussant. After the first two speakers present their papers, we will have a brief stretch break. The third speaker and discussant will follow and we will have the panel speakers respond as necessary. Then we will open the meeting to the floor for any comments or questions you wish to add. So if you have any questions or comments you wish to make, I would appreciate it if you would hold them until the end of the session and we will hear them at that time.

The first speaker on the program is Dr. Leona Bachrach. Dr. Bachrach has a Ph.D. in sociology, with a specialty in demography, was the recipient of many honors and awards and has had broad experience as a sociologist, statistician, and researcher. At present she is the Program Evaluator of the Montgomery County Health Department in Maryland. She will speak to us today on the "Uses and Limitations of Existing Data Sources in the Assessment of Unmet Mental Health Needs: Patient Records and Service Statistics." Dr. Bachrach.

USES AND LIMITATIONS OF EXISTING DATA SOURCES IN THE ASSESSMENT OF UNMET MENTAL HEALTH NEEDS: PATIENT RECORDS AND SERVICE STATISTICS

Dr. Leona Bachrach, *Program Evaluator, Montgomery County Health Department, Rockville, Maryland*

Thank you. Good afternoon. I am going to speak to you today about the use of one specific class of data in the assessment of unmet mental health needs—data that derive from institutional records. I include in my definition of institutions both in and outpatient facilities. In choosing to address myself exclusively to this data source, I am concentrating on only one of a number of existing data sources that can be used in assessing mental health needs. But I feel that the institutional record deserves special consideration because of its unique role in influencing mental health policy. The institutional record—either in the form of hospital or clinic service statistics, or in the form of patient charts—is the most frequently used starting point for statistical analyses of mental health problems in specific communities. Whether it is used by itself, or whether it is used in conjunction with other data sources (to provide rates, comparisons, and the like), the institutional record is certainly a force in determining mental health policy and its implementation in many communities.

Before proceeding with the discussion proper, it would be well to say a few words about the scope of my talk. The title uses two terms which need defining. First, what is meant by "unmet mental health needs"? And, second, what specific existing data sources are under consideration? The first question being the more difficult, I shall dispose of it as quickly as possible. There are many aspects to defining the concept of unmet mental health needs. Among them are diagnostic, semantic, philosophical, demographic, and socioeconomic considerations. The meaning of each term in the concept—"unmet," "mental health," and "needs"—can be argued endlessly. I do not propose to open myself to such discussion in the short time allotted to me. Instead, I shall "weasel out" of the situation by saying that I think it is generally agreed that there are such things as unmet mental health needs, however defined; that there is some common core of understanding among persons who use these words; and that, therefore, it is not altogether unreasonable to use the concept without a precise definition. However, for those among us who feel a need for greater precision than this, let me say simply that, for purposes of the present discussion, my concern is with such mental health needs as are reflected in institutional records. I acknowledge readily that these records exclude patients who are being served by private practitioners, as well as persons who are not undergoing any kind of treatment. Nevertheless, the sub-population of patients enrolled in mental health facilities certainly represents a real and tangible aspect of a community's mental health needs, worthy of separate investigation.

With respect to the second question "What specific data sources are under consideration?" the statistics that derive from institutional records can be broken down into two groups—routinely recorded statistics and special statistics which I shall describe as "routinely unrecorded." Routinely recorded statistics are part of the bookkeeping system in use in an institution, and they are automatically kept up-to-date. "Routinely unrecorded" statistics are also already present in the records—or would be relatively easy to make part of the official records by modifying an old form or introducing a new form. The essential difference between routinely recorded and unrecorded statistics is not in the type or variety of data, but, rather, in the bookkeeping aspect: the one is regularly kept up-to-date, while the other is equally readily available but simply not recorded, sometimes because the potential value of tabulating such statistics has been overlooked. Examples of routinely unrecorded statistics might come from such sources as telephone call logs or clinic appointment calenders. These two data sources could go a long way in the search for answers to such questions as:

What kinds of persons contact community mental health centers, and for what reasons do they call? How much telephone crisis intervention service is provided? What actions are taken in response to different kinds of calls? Under what conditions do persons who are requested to call back at a later time fail to do so? Are there diagnostic differences among patients who fail to keep clinic appointments? Is the no-show rate higher with certain types of professional personnel than with others? Is distance from the clinic a factor in no-shows, or is the notion that this is so, a survival from the past? Are there seasonal factors associated with failure to attend clinic?

It should be obvious that the list of data-yielding questions from these two sources alone—the telephone and the calendar—is a long and respectable one. But these data remain unavailable, so long as the necessary statistics fall into the "routinely unrecorded" category.

There are both advantages and limitations in the use of hospital and clinic records, and I want to address myself to the advantages first. In assessing mental health needs in a given community, it is not really reasonable to ask the question of whether such records should be used. They *must* be used, unless assessment is to be made on purely theoretical grounds; for they usually represent the only available source of numbers. Moreover, these statistics are here to stay; they are essential in order to keep the mental health care delivery system going—in order to "keep the shop open," as it were. Theoretical statisticians may prefer more erudite data than those which are to be found in institutional records. But the fact remains that these are the records that we have and the ones with which to reckon. Therefore, it behooves us not to minimize their advantages, just as it is necessary that we not underestimate their limitations.

My contention is that it is possible to convert what might appear to be humdrum statistics—recorded primarily for administrative use and without benefit of sophisticated research design—into meaningful data sources. What is required is a little imagination and a lot of housecleaning. With all their shortcomings, hospital and clinic records are excellent sources of information regarding phenomena which are of legitimate concern in assessing a community's unmet mental health needs. In short, statistics from hospital and clinic records provide us with incomparable data on the volume and scope of mental health services being provided, and utilized, in a community. They not only tell us how much overall business is being conducted; but they tell us the varying amounts of different kinds of services that are being utilized.

Where there are specialized mental health services offered, we can learn how much of the total volume of health care is devoted to patients with these special needs—for example, alcoholic and drug dependent patients. In a community with more than one mental health facility, it is possible to get a measure of volume and scope in different neighborhoods. We can learn something about recidivism, which is, of course, one starting point for assessing the quality of care that is being given. We can sometimes compare our own volume with statistics on patients from our community who are treated in other communities; and this may suggest to us the degree to which our own community is lacking in facilities, and, perhaps, the kinds of facilities we lack.

By exploring hospital and clinic records, we can learn something about which of the various services we offer are in greatest demand and which are under utilized or moribund. With this kind of information available, we can plan for innovations, expansions, and cuts. Moreover, we can associate the utilization of services with such variables as demographic characteristics of patients, diagnosis, and previous psychiatric care. By comparing the demographic characteristics of the patient population and the general population resident in the community, we can learn something about where our target groups are.

But, to express the situation in terms of one of today's sayings, "I have some good news and some bad news." I've told you some of the good news. I can hardly suggest that I've told you *all* of it, since I've simply chosen arbitrarily—and in accord with my own biases—to emphasize certain positive aspects of the use of institutional records. Now the bad news: "What is wrong with the data derived from this source?" Surely, they have limitations. I shall devote the remainder of this discussion to exploring these limitations by talking to you about some of the problems I have encountered in two years of working in a county health department. And I strongly suspect that the problems I have encountered are not at all unique to Montgomery County.

Basically, there are really only two kinds of data which are available from institutional records—those which are obtained with relative ease and those which are very elusive. What is obtained with relative ease, like demographic characteristics of patients, numbers of therapy sessions, clinic attendance records, and the like seems to be forthcoming with relatively little difficulty, no matter how crude a data collection instrument is used. On the contrary, the other data, some of which are really critical requirements for the proper assessment of unmet mental health needs, remain difficult to obtain, no matter how the data collection instrument is modified, and no matter how many new instruments are tried. There are many varieties of these hard-to-get data. For example: in enumerating clinical services provided, it is much easier to count hour long individual therapy sessions—which have a common numerical denominator—than it is to add up the crisis intervention telephone calls to which a drug counsellor might attend in the course of an hour. Should these calls be counted by number, by time allotted, or both? Again, how should one count the alcoholism counsellor's personal transportation of a patient to a detoxification center? Is a trip that takes 15 minutes to be enumerated the same way as one that takes an hour? Is the one-hour trip equal to one hour of group counselling? And what of the hour or two of coaxing and arranging that might precede the trip? Often, services such as these go routinely unrecorded, because no one has thought out the problem of how to count them. Obviously, a report of clinic services which fails to include these is a biased report.

Another kind of problem in data collection involves privileged information and is very evident today in drug abuse clinics. Not only is there an ethical question concerning the use of patient records about which many clinicians have strong feelings. But clinicians and administrators sometimes feel that the credibility of their whole operation is threatened by the release of information, to the extent that their patients may not return unless absolute secrecy is maintained.

The simple fact is that some data are not easily obtainable, and these are frequently the very data that we need most for mental health planning. Let me attempt to illustrate this by talking to you about a problem to which I have recently been devoting some time. The Montgomery County Health Department has been attempting to keep track of patients released from the State mental hospital that serves the community, Springfield State Hospital. The aim of the Health Department is to keep tabs on these patients in order to ensure their receiving prompt and adequate aftercare once they have been returned to the community. To this end, Hospital personnel are supposed to forward to the Health Department a referral form for each patient prior to his release from the Hospital. The form contains space for information on the patient's diagnosis, medication, post-release living arrangements, and post-release treatment plans. This kind of follow-up of inpatients represents a small but very critical aspect of the assessment of mental health needs in the community.

In analyzing the records of released patients for the last half of 1971, I found that referral forms were forwarded for about two-thirds of them. Three questions come immediately to mind, and, in attempting to answer them, one is brought face-to-face with some of the difficulties that confound the use of institutional data sources. First, who are the remaining one-third of the patients—the ones for whom referral forms are not forwarded? Second, what is the quality of the information provided on the forms that are returned? And, third, are the forms forwarded in sufficient time for adequate and systematic aftercare plans to be effected for released patients?

I found that, of 422 County patients released from Springfield during the last six months of

1971, the score on forwarded referral forms was best for those who were released to residences within the County. Forms were returned for nearly three-quarters of these patients. For some reason, however, forms were returned for only five of 14 patients who were released to foster homes. These patients represent one of several groups who require close follow-up in the community. Yet, no one whom I have asked about this has suggested an answer as to why this failure occurs. Perhaps it has something to do with the fact that paroled persons are still technically on the Hospital's rolls, so that it is not considered necessary to supply the community mental health center with too many details.

I found that about nine percent of the released patients either have no fixed address or have listed no address on Hospital records. It is ironic that referral forms were forwarded for 17 of the 22 patients with no fixed address; these are people who cannot be reached whether a referral form is supplied or not.

The score on return of referral forms by unit within the Hospital was best for patients released from the men's Alcoholic Rehabilitation Unit (ARU) wards. About one-third of all released patients during the study period came from these wards, and referral forms were forwarded for 85 percent of them. However, there is a strong core of patients within this group who do not and will not enroll in outpatient facilities. Any statement of their aftercare plans must be taken with a grain of salt, which limits the value of their referral forms considerably.

Of the patients released from other wards—that is, excluding the ARU—referral forms were forwarded for only 59 percent.

This leads to the question of the quality or usefulness of information on the referral forms. Is the information accurate and complete enough to enable Health Department personnel to plan for aftercare? The answer to this question varies by type of patient released and by destination of patient upon release. For example, it is not uncommon for some recidivist alcoholic patients to report that they are "going to Florida" upon release. Needless to say, such information is of little value, when the patient is returned to the detoxification unit at the Hospital within a month of his release.

In examining the forms for adequacy of the data recorded, I became aware of a group of patients who pose a special problem. These are the patients who are sent to the Hospital by court order and who are released directly to the County sheriff when they leave the Hospital. There were 11 such patients during the study period, and referral forms were sent to the Health Department for all of them. But this 100 percent score is very deceptive. In no case could post-release living arrangements or treatment plans be entered on the forms, because the ultimate destination of these patients depends on the court's disposition of their cases. In terms of systematizing appropriate aftercare plans for these patients, the referral forms are of extremely limited value.

I have not yet had an opportunity to investigate the final question, i.e., whether the forms are forwarded to the Health Department in enough time to expedite the patient's transition from in to outpatient care. However, I gather from the number of complaints I hear among the staff that the forms sometimes come in on the late side. Sometimes, a patient runs out of medication before a clinic appointment has been arranged for him. Whether the delay occurs at the Hospital end or at the County end I cannot say. But I do know that each month some patients from Springfield simply get "lost" in the community and that some of this loss might have been avoided if referral forms had reached the clinics in time.

Clearly, there are problems in the use of institutional records for assessing unmet mental health needs. For some of the problems, there does not seem to be a ready answer. I cannot, for example, think how to keep tabs on a patient who has no fixed address or on one who leaves treatment against medical advice and refuses to leave a forwarding address. But it seems to me that some of the other difficulties in the use of data from institutional sources can be solved—not overnight, but with considerable effort. Much of our data deficit comes from failure to motivate and involve persons who are charged with keeping records. Form completion is often regarded by clinicians and clerks alike as a headache and an unnecessary bureaucratic requirement. One can begin to understand this attitude when one realizes the tendency of forms to proliferate. It appears that when data are required for a specific purpose, new forms are frequently introduced to this end, with no effort made to discard old forms. It is also often true that no examination has been made of old forms to see if the data are already being recorded, or if the old forms can be easily modified to include the new data. The effect of this is completely predictable: resistance to all form completion is increased among those who must do the busy work. It is quite clear that if the information required is of the difficult-to-obtain variety, the mere introduction of a new form does not make the task any easier and often makes it more difficult.

I have become increasingly aware of certain difficulties in the recording of clinic service statistics. Although patient interviews tend to be counted with reasonable accuracy, there are many services which somehow fail to get counted the same way by different people. There is an impatience and lack of sympathy with record-keeping that exacerbates the problem. Clinic secretaries are not trained statistical clerks, and this means that they cannot be expected to know the importance of accurate record-keeping, unless it is explained to them. They absorb and reflect the very evident impatience with numbers that clinicians have not been unknown to show.

What can be done to correct the situation in a given clinic or hospital? I think that careful planning is required to correct the situation, as there has been no evidence that it is about to correct itself. I would suggest that the following measures be taken in order to improve the quality of patient records and service statistics as data sources for assessing mental health needs. Some of these measures may sound ridiculously simple and elementary; but experience teaches that mere simplicity has not stopped them from being overlooked.

(1) A systematic review of all existing forms and records should be made. Any forms or portions of forms that have been superseded should be discarded. Remaining forms should be examined to see that duplication is eliminated wherever possible. Items which do not have a useful data yield should be removed. Implementing this measure would have the dual advantages of raising morale and decreasing busy-work.

(2) New data instruments should be introduced (or, preferably, old instruments refined) to yield data that are felt to be important but are not being routinely recorded. Examples might be a telephone call logging system, or written logs of counsellors' activities.

(3) Persons charged with completing forms should be given training sessions. These sessions should include a general orientation to the uses of the data being collected and specific instructions as to how to complete all forms in use. Most important of all, persons with this charge should be instructed in how to recognize when they themselves do not know how to complete an item on the form, and whom to call for help. Too frequently, these persons are left to their own resources and have only one another to ask.

(4) Persons charged with completing forms should be given clear and precise definitions of the terms used on the forms. It is not unusual for two persons working side-by-side to differ completely in their understanding of such words as "counselling," "group (vs. individual) therapy," "evaluation," "consultation," and the like—and not even to be aware of their differences.

(5) Persons charged with completing forms should be given an opportunity to see how the information they supply is being used to assess and improve mental health services. All too often, they see absolutely no relationship between their own efforts and the forming and implementation of policy. It is altogether possible that State Hospital personnel who complete referral forms have never understood what happens to these forms once they reach the County. Failing this understanding, it is not surprising that the return is higher for discharged patients than it is for patients who remain technically in the custody of the Hospital—i.e., those on convalescent leave or foster care parole. Why bother with all that detail on a patient who is still on the Hospital rolls, anyway?

In summing up, I should like to say that there are two points of view from which it is feasible to use patient records and service statistics in assessing unmet mental health needs. There is, first, the pragmatic aspect: the data are there and ready to be used, and are often the only data available. Anyone responsible for data collection in a functioning institution has had the experience of having to answer the questions of "how much" and "what kinds" on a moment's notice. These data sources represent his basic working tools.

Secondly, independent of the pragmatic aspect, patient records and service statistics, if used with imagination and care, can yield data that are exciting and instructive, and not just merely pragmatic. Such data may have considerable influence in the real world of health planning.

Like all other data sources, there are both advantages and limitations in the use of these bookeeping systems. Although there are some limitations which appear to be effectively insuperable at this time, many of the limitations *can* be overcome. An essential element in making the most of these data sources is investing persons responsible for recording the data with an element of interest and involvement. These persons should be shown explicitly what part their own work plays in planning for the mental health needs of the community.

Thank you.

MR. GOLDBERG: Thank you very much, Leona, for a very interesting presentation.

The next speaker on the program is Dr. Allan Jones. Dr. Jones has a Ph.D. in social personality psychology. He is presently Associate Research Scientist at the Institute of Behavioral Research, Texas Christian University. He has been actively engaged in research activities relating to social and mental health problems. Two of his recent reports have dealt with social indices relating to utilization of mental health facilities. His associate, Robert D. Demaree, has co-authored the paper he is presenting today. The title of that paper is "Social Indicators and the Use of Public Mental Health Facilities: A Social and Demographic Analysis of Mental Health Problems in Tarrant County, Texas." Dr. Jones.

SOCIAL INDICATORS AND THE USE OF PUBLIC MENTAL HEALTH FACILITIES: A SOCIAL AND DEMOGRAPHIC ANALYSIS OF MENTAL HEALTH PROBLEMS IN TARRANT COUNTY, TEXAS

Dr. Allan P. Jones, *Associate Research Scientist, Institute of Behavioral Research, Texas Christian University*

A primary theme of the present session concerns ways in which the statistician or other program planner might make use of demographic, health, and social data in determining mental health needs. In recent years behavioral scientists and mental health personnel have used such demographic and social data to describe the community and its environment. Their concern has been with the effects of that environment upon the lives and mental health of members of the community. Generally such attention has been focused upon the community defined within a narrow geographic scope—the county, the city, or even the catchment area. Any city or other sizeable population area, however, is composed of a number of relatively heterogeneous parts which are in a constant state of change due to construction, population migration, alterations in economic and employment patterns, or other mutations. Changes in one part may drastically affect the environment of the entire community. On the other hand, effects may be restricted to a rather narrowly defined neighborhood. In any case, the neighborhood or social area appears to be a more basic unit of analysis than the community at large.

Considerable research evidence exists that mental, physical, and social problems occur more frequently in some neighborhoods than in others (Burgess, 1925;[1] Earickson,[2] 1970; Lagner *et al.*,[3] 1970; Martin *et al.*,[4] 1968; Matza,[5] 1964; Pyle, 1971;[6] Pyle and Lashof, 1969;[7] Ryan, 1969[8]). For example, Dunham (1965),[9] found that the highest rates of schizophrenia in Chicago occurred in the rooming house and foreign-born neighborhoods near the center of the city. Bloom (1968)[10] has reported similar findings for Pueblo, Colorado. Jaco (1960)[11] studied all cases of psychosis which occurred in the State of Texas during 1951 and 1952 and found that both incidence rates and types of psychosis were distributed along demographic lines. He found, for example, that organic disorders were related to age and maleness. He also found that psychosis incidence rates were higher for urban than for rural populations. Jaco and other authors have reported relationships between psychosis rates and marital status. Divorced persons, single persons, and persons living alone had the highest rates. Robinson (1969)[12] discovered a relationship between various demographic variables and general satisfaction with life. He also pointed out the striking similarity between the demographic variables related to lower satisfaction with life and those related to suicide.

The literature clearly presents a relationship between certain demographic variables and ability to function. However, a need exists for instruments or indicators capable of pinpointing the exact neighborhoods which possess characteristics related to decreased functioning. Such instruments must also be able to sense changes in these neighborhoods over time.

The use of demographic and geographic characteristics to identify social areas or neighborhoods is not new. Shevky and Bell (1955),[13] Bell (1955),[14] Tryon (1955),[15] Schmid and Tagashira (1964),[16] and others have constructed indicators reflecting family life, socioeconomic status, and ethnicity. It has been pointed out (Murdie, 1969)[17] that virtually all urban analysis studies using census tracts reflect these three basic indices. Additional factors vary somewhat from study to study according to the geographic area and the particular variables under consideration. The three basic indices show considerable stability across time and place. Simple observation, however, indicates that certain neighborhoods of a city are likely to undergo extensive change over a period of a few years. It is of interest that few studies—(e.g., Murdie, 1969; Jonassen, 1961[18])—have looked at change, and then generally in terms of population migration.

However, in order to construct indices capable of defining neighborhoods in terms of the social environment, some attention must be focused on the meaning of that construct. Viewed broadly, social environment applies to any facet of the environment which influences, either positively or negatively, the individual's functioning or style of life. These influences consist not only of the objective aspects of the environment but also of the individual's subjective evaluation of that environment. In addition, the environment must be considered on both the community and individual levels.

Community is another term which requires specification. It has been suggested by numerous authors that the community must be viewed as an interlocking system (Doxiadis, 1969;[19] Newbrough, 1972;[20] Spilhaus, 1969[21]). It has been further stated that individuals form communities as a means of meeting certain needs—protection and security, economic and personal growth, as well as many others. The community as a system possesses certain characteristics such as structure, resources, and morale—three suggested by Newbrough (1972) in a recent paper.

Although the term community is frequently applied to large civil units such as State, county, or metropolitan area, this application has limited value in the present context. It may be true that the individual interacts with the larger unit (e.g., the city or county) in some instances. The majority of the time, however, the individual's community refers more aptly to his neighborhood. It is this neighborhood which is of major importance in any study involving demands on mental health facilities. Not only do services vary from area to area, but the neighborhood serves as a significant reference point for the individual in evaluating services and demands.

Each neighborhood or social area can be characterized in terms of the actual physical environment within it—waterways, geographic location, freeways, housing, and so forth. Each area also provides a number of facilities and services—schools, churches, shopping centers and transportation, to mention a few. At the same time, each neighborhood places a number of demands upon its inhabitants—for example, civic responsibility, zoning codes, taxes. There are parallels on the individual level. The individual has a physical environment which surrounds him. Although there is a high degree of similarity in the environment for all persons residing in a given neighborhood, the environments for individuals may vary considerably. Similarly, different individuals have varying needs, resources and varying access to neighborhood facilities and services.

The objective aspects of the environment which influence the individual's functioning are numerous and varied. They may be physical in nature—for example, existence of low-lying and swampy areas, the number and types of churches, stores, schools, and other public facilities, distance from such facilities, condition of houses, and the like. However, presence of and distance from are but two indications of resource availability. Lack of cleanliness and attractiveness, high prices, or poor selection may render a store unavailable even though it is located in close physical proximity. A public transportation system is an additional and important factor in availability. One must also consider noise and visual pollution. For example, the presence of grass and trees makes an area a different place to live than does the presence of asphalt and neon signs. Other objective measures may be more behavioral in nature, such as use of parks, types of recreational activities, neighborhood interaction, and so forth. Also important at this point are additional factors which influence one's quality of life such as family relationships, socioeconomic status, ethnic characteristics of the area, and changes in the area. As was stated earlier, these objective aspects can be depicted on both the social area level and on the level of a particular individual.

The objective aspects are reflected and mediated on the subjective level. Each individual reacts to his perceived environment and to the factors he perceives as affecting his life relative to his own set of expectations, beliefs, values, and attitudes. In addition to individual perceptions, one finds a collective or neighborhood perception. The membership of the social area serves as a legitimizing agent, against which the individual is able to test his perceptions. It also serves to point out other legitimate areas of demand and alter expectations. Lastly, the neighborhood serves as a reward structure for individual actions relative to community facilities and services.

Social environment can be seen as a construct tapped in the types of group and individual, and the objective and subjective factors mentioned previously. Areas (e.g., census tracts) can be scored and then typed or grouped on the basis of similarities and differences on these and other dimensions. Differences in type of social area can be expected to be reflected in differences in the extent of impairment and the types of impairment. For example, schizophrenia, organic psychosis, or mental retardation are likely to be encountered in specific areas of the city.

Ability to function, however, can also be seen as exercising an influence on the social environment. Adequately functioning individuals help to improve the environment, both actively and as role models. A smoothly functioning neighborhood is better able to provide for the needs of its members. High rates of mental, physical and social disorder alter both the resources and the needs of an area. Treatment or other service facilities may be seen as a type of intervening variable. However, the use and effectiveness of such services depend upon the extent to which members of a community see them as worthwhile or valuable. Any study of mental health related to community environment must look at all of these factors.

Although the previous discussion has considered both individual and neighborhood factors, the community mental health planner is more likely to be concerned with the neighborhood and with illness rates relative to neighborhood environment. Therefore, the remaining sections of the paper will be directed toward such neighborhood analyses.

The construction of accurate indicators of the social environment promises a number of returns in assessment and understanding of mental health care needs, since these indicators provide a basis upon which a larger community (e.g., a county) may be divided into meaningful, homogeneous neighborhoods. The promise of this approach is demonstrated in a limited scope pilot study recently completed by the authors of this paper.

In September of 1971, a preliminary study was conducted in the Tarrant County, Texas area by the Institute of Behavioral Research with the joint sponsorship of the Tarrant County Hospital District and the Tarrant County Mental Health and Mental Retardation Center (Jones and Demaree, 1972;[22] Demaree and Jones 1972[23]). A major aim of this study was the construction of indicators which were able to identify psychosocial areas and were sensitive to change.

Data on 46 demographic variables based upon the 1960 and 1970 censuses were gathered for 159 of 161 census tracts. Two tracts were excluded due to very small populations or missing data. Seven factors with sum of squared loadings greater than 1.00 were extracted by means of a least squares factor analysis and varimax rotation (Tryon & Bailey, 1970[24]). These factors were (1) Disrupted Families with a high loading by separated females, female head of household, aid for dependent children, separated males, and a high negative loading by husband-wife families; (2) Young Families defined by persons 1-18, persons per household, married females, and a negative loading by population 65 and over, males 65 and over, widowed persons, and change in number of persons 65 and over; (3) Suburban Growth defined by changes between 1960 and 1970 in house value, in population size, in number of housing units, and in percentage of occupied units; (4) Socioeconomic Status defined by amount of education, income, house rent paid, and house value; (5) Residence Patterns with loadings by owner occupied housing, occupancy rate, number of rooms per house, and married males, with negative loadings by multi unit dwellings, divorced males, dwelling units lacking plumbing, and Aid for the Partially and Totally

Disabled; (6) Black Change consisting of changes in Black population and Black owned homes; and (7) Black Ethnicity defined by Black population and Black owned housing units. All data except the SES, persons per household, and house value variables were expressed as rates.

A simple sum method was used to calculate index scores for each of the 159 census tracts. A clustering technique developed by Tryon and Bailey was used to group tracts with similar scores. Eleven different types were formed. When plotted onto a map of the county, the types clustered into meaningful social areas. In addition, the typing indicated which tracts were undergoing transitions, especially ethnic transformations. Information was also gained about the direction in which such change might be expected to proceed. In one predominantly Negro tract, for example, a school and park constructed in a dilapidated housing area caused displacement of nearly fifty percent of the total tract population. Such displacement was reflected in a drastic change in another tract immediately to the south and to a lesser, but still readily discernible, degree of change in a third tract.

By means of multiple regression analyses, factor scores and 0-types were then related to rates of patients served by the Tarrant County Mental Health and Mental Retardation Center, and to rates of mental retardation established by a county wide survey. When the seven index scores plus an eighth measure of Spanish surname were used as predictors, a multiple R of .619 was obtained for the MHMR patient rates, and a multiple R of .691 was obtained for the mental retardation rates.

However, one further item of information concerning the BCTRY Object-typing technique is of importance. The seven factors resulting from the factor analysis and varimax rotation were based upon intercorrelations among all 46 variables and were orthogonal. Index scores, however, were computed by simply summing across the variables with the highest loading on each factor. Although the resulting cluster scores were no longer independent, the conceptual meaning of the scores was retained.

Further analyses were conducted regarding the extent to which simple 0-type membership rather than index scores predicted mental illness and mental retardation rates. Multiple correlation coefficients based upon 0-type membership were .584 for the MHMR patients (compared to .619 when index scores were used) and .717 for the MR survey data (compared to .691 for index scores).

Although the pilot study did result in the development of a typology with ability to predict rates of certain mental health problems, certain points must be discussed. In the first place, the preliminary effort used predominantly census type data and contained only a few of the types of variables mentioned in the earlier theoretical discussion. For this reason, the pilot study must be viewed as a test of a research method. Refinement and inclusion of additional data are expected to result in more comprehensive indices and more discriminating typologies. There are certain methodological concerns which must also be addressed.

In spite of the fact that the mathematical model associated with traditional methods of factor analysis may be at variance with certain aspects of social area analysis, factor analytic techniques may serve to introduce some order among the many quantitative and descriptive measures. Factor analysis may serve, as it did in the preliminary study, as a means of identifying measures which act together in distinguishing among census tracts, thus reducing a relatively large number of assorted measures to a few composite scores. Use of these scores permits systematic examination of similarities and differences among tracts, thereby leading to the identification of types or groups of tracts. The resulting classification and the predictions which can be made from type membership are of primary interest. The fact that the typology was created in part by factor analytic methods is largely irrelevant.

Many methods are available for the identification of clusters (or types) of census tracts based on demographic, socioeconomic and other descriptive measures. If well defined clusters exist, any one of these methods will disclose them.

However, as in the case of the present data, social area studies have repeatedly shown a certain nesting of measures. Epitomized in the so called "poverty syndrome," the nesting of measures reflects a host of linkages and hidden dependencies. While confoundings of the preceding sort virutally preclude certain kinds of interpretations of the data, there is no indication that the inseparability of sources of variance reflects the way things actually are in community settings.

The difficulty can be clearly seen in the relationships between the ethnic, socioeconomic status, and family life variables. Since some ethnic minorities tend to be of lower socioeconomic status and to be higher in disruption of family life, the inclusion of all these measures leads to considerable difficulty in the interpretation of correlational or regression analyses. If such data are omitted in the construction of typologies, however, considerable predictive power is lost. In a typology, allowance must be made for tracts consisting of middle class ethnic families even though their counterpart might be far more numerous in some populations.

The conscientious investigator is also apt to be perturbed by the unsuitability of many of the census tract measures for the kinds of analyses he may wish to undertake. In the preliminary study, highly skewed or asymmetric distributions were revealed for many of the measures. For example, percent of black population yielded a distinct bimodal distribution in which 108 of the 159 tracts had 1 percent or fewer blacks, compared to 10 tracts with a population over 90 percent black.

From a statistical point of view, one effect of markedly skewed distributions is that constraints or limits may be imposed on the values which can be taken by certain statistics, such as product-moment coefficients of correlation. The result is that artifacts are introduced which may obscure some relationships of primary interest. The preceding is but one example of the problems encountered in obtaining a refined and clearly interpretable quantitative social area picture.

Several alternatives, other than abandonment of the analyses, are possible. In the preliminary study, the alternative was adopted of proceeding with analyses in full recognition of respects in which the data were not completely suited to the models employed, but with the exploratory rather than confirmatory purposes in mind.

Another alternative is to choose non-metric scaling and clustering techniques which retain only the ordinal properties of the measures on census tracts. In such an approach, the similarities among tracts would not be anchored to the euclidean distances based on the quantitative indices. Although this would be advantageous in view of the admixture of population, housing, and socioeconomic measures, many of which are highly skewed in distribution, there is no reason to think that the use of such a model would appreciably alter the resulting typologies.

To summarize, the conceptual model and analytic techniques presented in this paper appear to provide a basis both for the creation of a typology of census tracts and for the grouping of tracts into meaningful neighborhoods. More importantly the typologies thus created appear to be related to differences in rates of mental illness and mental retardation, thereby providing important predictive clues regarding the distribution of these problems. Although the study reported here looked only at summary and census type data, this paper has suggested a number of additional measures and methodological concerns useful in developing future typologies. Future research should also direct itself to a study of changes over time as one means of obtaining the type of cause and effect data so necessary to prevention of mental illness.

MR. GOLDBERG: Thank you very much for a very interesting example of how a variety of variables may be employed in small area analysis. I imagine we will have a number of questions after the break. We will take about a five minute break and then we will continue with the presentations. (Recess.) I will introduce our next speaker who is Mrs. Maxine Stern. She has been engaged in research and evaluation activities and is a Research Associate of the North Carolina Department of Mental Health. She is presently involved in research relating to demographic and social data relevant to mental health planning. She is also a Ph.D. candidate in the Department of Sociology at the University of North Carolina.

Mrs. Stern is going to talk to us on the "Possibilities and Problems in the Use of Aggregate Social Characteristics Data for Planning and Evaluation of Community Mental Health Programs." Mrs. Stern.

POSSIBILITIES AND PROBLEMS IN THE USE OF AGGREGATE SOCIAL CHARACTERISTIC DATA FOR PLANNING AND EVALUATION OF COMMUNITY MENTAL HEALTH PROGRAMS*

Mrs. Maxine Springer Stern, *Research Associate, University of North Carolina*

The question "How does one make use of available demographic and social characteristics data to determine needs for mental health care" assumes a psychosocial perspective. It posits a link between one's social situation and his psychological needs, implying that although one's social situation may not necessarily cause his psychological state, there is often a strong association between the two. In addition, it suggests that knowledge of group characteristics and environment, not necessarily the social or psychological characteristics of the individuals in the group, can assist us in planning the kinds of mental health services that a particular area might need. The idea of using aggregate data that are already available is especially attractive because we can economically acquire the information from the Census Bureau or from the files of data gathering agencies in our States.

One of the two main points, I would like to cover, deals with this tie between the social and the psychological. It seems that the way in which one defines the needs of an area and consequently the data that are relevant for planning are dependent on a theory of mental disorder which includes (1) a definition of mental illness, (2) an explanation of the causes of mental illness and the milieu in which illness is commonly found, (3) an explanation of the relationship among social role, environment, and illness, and (4) ideas about appropriate treatment therapies. The other point I want to make has to do with the differences between the activities of planning and evaluation and the implications for the types of data that are appropriate to each. Planners are interested in the probabilities of people needing and using services. Consequently aggregate data are appropriate. In the evaluation of a program, we are concerned with changes in the people involved in the program. Therefore, data on individuals, rather than groups, are more appropriate.

Definition of Mental Illness

The ways one defines mental illness and the model one chooses to identify the causes of mental illness imply the use of certain social characteristic indicators.

All mental health centers' programs are designed either explicitly or implicitly according to a definition of mental illness, that is, what symptoms are relevant for treatment. Some believe that a fairly small target population, only those with intrapsychic disturbances qualify for mental health treatment. Others want to include those who have trouble adjusting to new situations or who have problematic interpersonal relationships. Still there is another group who want to bring about a maximization of human effectiveness, confidence and self-respect in the population at large.[25]

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There is no agreement as to what exactly constitutes illness or health. The many aspects of every definition make it particularly difficult to measure mental illness and changes in mental illness over time. Changes in mental illness can be measured by a person's perceptions of changes in the way he feels or in the way he behaves, or by another's perceptions of how he feels or behaves. One's psychological state can fluctuate somewhat, so that the time of measurement is extremely important. If we want to measure the progress of therapy, it is not clear whether we should measure changes at intervals during therapy, at the end of therapy, a month or a year after completion.

It has been found that correlations between a person's perceptions of his own improvements and other's perceptions of his improvements are very low; so are correlations between changes at different points in time. This doesn't necessarily mean that our measures are poor; it might simply mean that we are measuring different aspects of mental illness, which change over time.[26]

Theories About the Causes of Mental Illness

If we can determine the causes of mental illness, we can better understand where the greatest risks of mental illness would be. Several theories have offered explanations of the causes of mental illness. Since we have not found the methods with which to get good estimates of the incidence and prevalence of mental illness,[27] it is impossible to collect data necessary to test alternative explanations. Yet, in spite of the lack of evidence, we have to make some decisions about the risks of mental illness, so that we can plan programs and allocate our resources. I would like to review some of the theories briefly.

(1) The development theory is built on the assumption that mental illness is the result of some specific deprivation or interference during childhood. Problems are thought to arise out of family interactions; therefore, data, such as rates of divorce or the number of children living in one-parent families might be appropriate. One problem which will come up again and again is that of getting data appropriate to theories which posit that the causes of mental illness are to be found in childhood. Contemporary data give us an idea of the environments and characteristics of children in the catchment area, yet not of the childhood of the adults in the area. Even data over time will only be relevant for the childhoods of the adults who grew up in the area. And since in many places, particularly urban centers, many of the adults are in-migrants, we will be at a loss for information relevant to periods important in their development.

(2) For those who see the general environment affecting one's psychological status, the social disorganization or the stress models might be appropriate. The social disorganization model states that the conditions of family instability, unbalanced sex ratios, poverty, substandard housing, ethnic and racial conflict, and geographical mobility will give rise to unhealthy and unstable personalities, unable to cope with the problems of adjustment and likely to feed into the ranks of drug addicts, criminals, prostitutes and the mentally ill. The need for information on the childhood of adults is again a problem. In addition, it is unclear whether the theory implies that addicts and criminals are in fact mentally ill and therefore, whether for example, rates of addiction could help us to predict differences in rates of mental illness from area to area.

Some aspects of a disorganized environment may cause poor development, but others may have no effect on the development of a child. For example, substandard housing might be undesirable in itself, but have no effect on psychological development, if the nuclear or extended family provided stable role models and emotional security. This theory and several others, which link mental illness with things more common among poorer people, are often accused of having a middle-class bias.[28] The assumptions that substandard housing or juvenile delinquency are necessarily connected with or cause mental illness are often made by professionals who cannot see characteristics of a lower class lifestyle as anything but virulent.

(3) The stress model assumes that everyone given enough stress will become mentally ill, or at least will have problems of coping and adjustment. Those things which cause stress range from a rapidly changing environment to status mobility and unemployment. One of the most obvious problems with this model is to

connect the causes of stress with stress itself, which is not measured or even precisely defined. We cannot assume that all situations that are unpleasant produce stress. Faced with similar situations, one person might feel stress while another, either because of differences in values or differences in ability to cope, may not. It seems likely, however, that those things that commonly cause stress to people in particular roles, such as husband, wife, teacher, breadwinner, elderly person, may be identified in a gross way. A cause of stress among breadwinners might be a high unemployment rate, while a high divorce rate might indicate stress for the children in the community.

One theory investigating stress, derived from the personal environment as opposed to the general environment, explains that although there is a small "hard-core" group of mentally ill in the population, the majority of those exhibiting symptomatology are only experiencing a temporary situation brought about by an upsetting event to which they are still adjusting. Although at any point in time there may be a constant proportion of a population exhibiting symptoms of mental illness, the makeup of this group shifts depending on the events that happen to particular people at a particular point in time. The events necessitate a temporary adjustment period which is usually accompanied by some symptomatology. It may be that the risk of mental illness is increased as the number of adjustments one has to make in his personal environment increase.

This theory is now being tested in a longitudinal study of the relationship between psychological symptoms and life events.[29] If the theory turns out to be accurate, community mental health centers may want to direct programs toward these people who need help in coping with the realities of many difficult situations. It is possible to estimate the number of people in the population who experience certain types of these life events, such as: entering a new school, graduating from school, moving to a new location, unemployment, changes in income over the years, or being a victim of a crime. From aggregate data, however, we cannot get an estimate of how the events are clustered in the population—whether some people experience many events, others few, or whether the events are more evenly distributed. Of course, we have to remember that there are potentially upsetting life events which we cannot possibly get aggregate information on, such as learning problems of school children, changes in the relationships within the family, troubles on one's job. However, if we want to design programs aimed at problem areas, the events that we can get measures on, might be a place to start.

It is important to look at the relationship between the personal environment and the general environment. In a stable or a changing environment, personal life events always occur. Children begin their schooling, young adults acquire jobs, people get married, women give birth, and disease strikes. Stability of environment gives no clue to incidence of some types of life events, particularly the events tied to the biosocial aspects of the life-cycle.

Most people are prepared to adjust to changes in the life cycle, although it is particularly difficult to adjust to many changes over a short period of time. A changing environment, however, brings other types of adjustment problems. When the general environment is continually changing, people are faced with situations for which they could not be prepared. In modern urban society, it is almost impossible for one's anticipatory socialization to be fully adequate. In addition to the different types of environment or statuses, "the degree to which populations are exposed to situations for which they are unprepared by previous experience," will they be at risk not only of mental illness, but of any particular disease?[30] Much evidence points to this direction particularly for cardiovascular diseases, cancer and stroke. The data regarding mental illness is not satisfactory due to problems in case finding. But the theory seems sensible enough to be taken seriously.

Services Mental Health Centers Should Provide

I would like to turn briefly from the discussion of the causes of mental illness, to the types of services that clinics alternatively might want to emphasize, because our goals for the clinics also determine the kinds of data we will want to have.

A center might want its work to consist primarily of"talk" therapy, on an individual or group oriented basis. Several types of aggregate information—such as racial composition of the community, school dropout rates, crime rates, occupational structure of the area, might give the therapist insight into the type of environment within which the patient must function.

Another clinic might want to have a series of community oriented programs in which helping is a two step process—the center staff acting as a consultant, for example, to school guidance counselors, parole officers, or the staff of a drug center. These people who are given the consultations are then supposedly in a better position to do their counseling jobs and/or in a preventive sense decrease the potential need for direct services by the mental health center.

Some clinics feel it is appropriate to act as liaison between a particular group in the community and other community agencies. For example, a major goal in the care of the aged might be to assist patients in getting the services they need from sources in the community. Some feel that to act as a liaison between the individual, who cannot maneuver within an alien bureaucracy, and the community agencies, may be as important as any therapy he can get. Geriatric problems blur the usual distinctions between the work of the physician, nurse and social worker. With sufficient attention to problems in the environment and with community support, which can be done by social workers or their aides, the proportion of the elderly able to live semi-independent lives in the community may be increased substantially.

Some perceive psychological well being of an individual as a reflection of the social well being of the society. Treating the symptoms of an ill society—such as psychological problems—is not sensible without treating their causes, because as long as the social structure remains relatively stable, the same types of problems will be produced. Planning here must include structural reforms of society, at a level higher and more comprehensive than the mental health center.

What I have tried to do in these past few minutes is to point out that we have many alternative choices—in terms of the type of disability we want to treat, our beliefs about the causes of illness, and the services we want to provide. These all help define and set the boundaries on our interpretation of the needs of the population.

The Catchment Area Population

Now we shall turn to the type of data needed to characterize the people who live in the catchment area—what are their demographic characteristics, their values and lifestyles, how physically and economically well off are they?

The first and most basic kinds of data that a mental health planner must have is about the numbers and distribution of the catchment area population. He wants to know how many people there are—what the age, race, and sex breakdowns are. This will tell him what groups he must plan programs for and what groups he does not have to consider. For example, if there are virtually no elderly people, he knows at least one group he doesn't have to concern himself with; or if there is a large nonwhite group, one which should be involved centrally in any plans.

Catchment areas in urban places can often be smaller than a single county, whereas in rural areas they can include several counties. County, township, and census tract data can be vital in giving us a picture of the homogeneity of the catchment area. If the area is rather homogeneous, one program, or uniform programs can be planned for the entire area. However, if one section of the catchment area is very different from another area, separate plans may have to be designed.

Considering two or more consecutive censuses, such as 1960 and 1970, we can get an accurate idea of the geographical mobility—the in- and out-migration of certain age, race and sex groups. This can give us clues to the types of problems various groups in the population might have. For example, if a large proportion of the young men, 19 to 39, have left the area, we might suspect that they were leaving for economic reasons, in order to find jobs. This might suggest to us that the elderly people who have remained don't get companionship and psychological support from their children. We might get some corroboration of this notion by consulting the census data to see if a large proportion of the elderly live alone. However, we must remember that by using the aggregate census data we cannot test the hypothesis that those elderly living alone do not, in fact, have children in the area who are able to give them support. We could say, with some assurance, however, that if one part of the catchment area had a stable working age population and a very small proportion of the working people and large numbers of the elderly living alone, the needs of the elderly would differ greatly. In the latter situation, the elderly must rely more on each other or on community groups or agencies.

The mobility data may also give us an indication of how our population may continue to change after the year of the census, in this case, 1970. Since a national census is done only every ten years, and since many areas are changing rapidly, population projections can be extremely important for planning between censuses.

The Census Bureau also gives us information about the proportion of the population which live in urban and rural places, each type of environment suggesting different life styles and problems in the planning of and participation in mental health programs. Urban places are often characterized by change, often instability, nontraditional lifestyles, expectation of achievement and mobility, all of which suggest needs for aid in adjustment. Fortunately for urban people, there are usually better medical facilities and social services, as well as large numbers of medical and paramedical personnel in these settings. The more traditional yet often insular rural lifestyle can make hostility to programs of any kind the greatest obstacle to program success. The shortage of health professionals is an additional handicap in planning a variety of programs. Even if a rural center has enough money earmarked for the hiring of a professional staff, the position alone is often not enough incentive to lure qualified people away from an urban or university center.

There are several types of information that can give us ideas about the physical and economic well being of persons in the catchment area. However, it's not clear how we can infer psychological well being from the physical and economic. Income and occupational distribution can give us ideas about the economic well being; housing standards tell us about the variety of physical conditions that exist. We are usually too sophisticated to think that the child from a well to do family is immune to psychological problems. However, we are much more likely to make the leap from substandard housing and low income to a high risk of mental illness.

However, neither set of data tell us anything about the relevant expectations and satisfactions of the people in these situations. Particularly in rural areas and places that have not experienced much change in the past few decades, these particular indicators may have no mental health relevance. Certainly, living in the same "substandard" home as one's parents, earning a small income which is about as large as the incomes of one's friends and the members of one's extended family, means something different from living in substandard housing and having a small income because one lost the skilled job for which he was trained.

One way to try to differentiate between the two situations is to study unemployment data, occupational distribution in the population, and income over time. Educational achievement data tell us how well equipped or skilled the various age groups are to make their ways in the world. These data, coupled with unemployment rates and information about the types of jobs available in the immediate area, give some indication of how well the people's skills and the employment opportunities mesh.

The Department of Education in each State probably supplies information on how much is spent on schools, how many students complete high school, and go on to some type of higher education. This type of information, particularly the way people plan their lives and spend their time and money, is crucial for understanding the lifestyles and values of the people who live in the catchment area.

To understand predominant local values is extremely important when looking for a vehicle by which to transmit a successful mental health program. However, inferring values from the kinds of aggregate social characteristic data that are available is a questionable enterprise. I have some suggestions, but I'm quite sure that some of you might want to argue that these are inappropriate for the kinds of inferences I would like to make.

The proportion of adults registered to vote and the local rate of taxation might suggest something about the sense of community involvement and personal efficacy. Voter registration at least in southern States, is available by race. The existence of and the use of public libraries, reflects one aspect of leisure time activities. In some communities, libraries can be central to the lifestyles of at least certain age groups; in others it can be irrelevant. If we have figures on the proportions of the school budgets supported by local taxes, we gain further insight into the values of the people in the area.

Each of these value indicators is notably related to education and income. That is, if a county spends very little on education, it's probably related to the fact that the adults have little education and also have low incomes. If a county spends a great deal on education, the adults probably have substantial incomes, though they may not have much education themselves.

No one piece of information is sufficient for planning. We need many types of information complementing each other. For example, if two areas were urban, there would be no reason to assume that similar types of problems are present in their populations. One might be urban and rich, with full employment, high income, good schools, and good health care. Another area with approximately the same amount of urbanity, can be faced with large scale unemployment, poor schools and poor health care.

Inferring the Needs from the Data

We cannot assume that knowing who is in the catchment area—what the age structure is, what kinds of jobs the people have, how much education they have had, how stable the lifestyle appears—that somehow magically their needs will become apparent. In some areas pointing to some unmet needs is easy. In a negative sense, if some group in the population are seriously underrepresented and get little or no treatment, we can assume that their needs are unmet.

However, specifying in a positive manner exactly what needs exist—how many people need what type of therapy or program—is an entirely different enterprise. As we have explained before, theoretical assumptions help us to define needs; but in addition, many other considerations such as the demands of the local people, available manpower, facilities, and of course, budget set limits on our ideals. Given all this, we still cannot assume a direct relationship between social characteristics and needs of the present and future, without taking into account the types of mental health work that have been done in the area in the past.

Meeting some of the needs of the present doesn't necessarily affect the needs at a future time. If there are particular problems with teenagers in a catchment area, giving help to 18 year olds in 1960 will not necessarily lessen the needs for help for teenagers in 1970. If aspects of the social environment are, in part, causes of teenagers' problems, "curing" some teenagers may not have an affect, at least in the short run, on other teenagers. Therefore, although a program may be a success, in the sense of helping 100 teenagers, it may have no affect on the size of the need for help for teenagers five years later. The point I want to emphasize is that any program, no matter how successful, may not affect the needs of the target population, at least in the short run.

However, the teenagers helped in 1960 who were 28 years old in 1970 may have developed certain skills with which to adjust to adulthood. If the children and teenagers of one generation have had successful therapy, can we presume that they will have a healthy adulthood and/or will bring up healthier children? These are optimistic thoughts, and to my knowledge the people who do research on the effects of therapy have not provided answers yet.

If successful therapy means that an individual does not need further mental health services and that his children may not need mental health services, we are implying that the relationship between social characteristics and needs will vary over time. While if our programs do not affect the future of a patient or his children, the relationship between social characteristics and mental illness as they exist today will continue to be relevant for future planning. There should be long-term evaluation of mental health programs concerned with questions of this kind. It seems that some short-run goals are simply concerned with keeping people out of the hospital, or keeping problems from getting worse. Surely, if the therapies are successful in the short-run we should be happy. But if the patient doesn't make lasting changes in his personality and/or behavior, changes which will affect the probabilities of teaching his child how to interact in a healthy fashion, perhaps we have to consider seriously developing new techniques.

Evaluation

This brings us to the topic of evaluation, which has many different aspects: effectiveness, which is a measure of how well the goals of the program have been accomplished; adequacy, a measure of how well the program meets community needs; and efficiency, which has to do with cost-benefit analysis.[31] I will not discuss efficiency here.

Evaluation of the adequacy of a program is very similar to planning. If the goals set up at the beginning of the program period are explicitly tied to the projected needs of the community, we can infer how satisfactorily the program has met the community's needs by estimating how well the program has met its goals, as long as the population's characteristics remain the same. The population, which we use to assess the needs, and the relevant data are the same as those needed for planning.

Some people have hoped that all program success could be evaluated by looking at the collective effect it would have on the population concerned. The big payoff here would be the use of already available data, which would take very few man-hours and would be very inexpensive. However, the aspect of evaluation called efficiency, has to be done by charting changes in the people who have been the subject of program activities. The task of evaluating how well a program has met its goals, for example, in changing the amount of alienation in the teenage population can be done only by evaluating those teenagers touched by the program. And using aggregate level indicators doesn't come close to tapping what it is we want to change in the minds and behaviors of people.

Let us look at a simplified example in which we try to measure changes produced by a mental health program, as reflected by an aggregate indicator. I think the problems will become obvious. In a particular catchment area, many of the teenagers lived in one parent families, dropped out of high school and were faced with unemployment. If we believed that inadequate role models, insufficient preparation for available jobs, and the frustration of unemployment would increase the risk of mental illness, and this in turn would lead to juvenile delinquency, could we simply look at the delinquency figures at two or more points in time to evaluate the changes brought about by the therapeutic program, aimed at solving psychological problems?

We could have measurements at two points in time on the percent of one parent families, percent high school dropouts, percent unemployed, and delinquency rates. Our program is designed to affect the intervening variable, mental illness, which remains unmeasured. Therefore, teenage delinquency rates at two points in time are used as an indicator of the degree of illness in the teenage population. If we think that mental illness is also reflected in other aggregate variables, we would have to incorporate these into our model. The problem frequently is getting good measures of many of the variables thought to be related to mental health. If there are a number that we cannot get good measures on, we've got to ask whether the absence of this information may cause us to make incorrect inferences about the success or failure of a program.

What types of assumptions do we have to make about this simple model in order to accept delinquency rates as an indicator of the degrees of mental illness in the teenage population?

(1) The first and most basic assumption is that only mental illness affects the rate of delinquency or that if other things affect the delinquency rate, these are constant over the time period of the program. Only under these circumstances would we be sure that the variations in the delinquency rate are proportionate to the effects of the program. Given these assumptions, we would always infer that declines in the delinquency rate are caused by a decrease in mental illness, which in turn is caused by our program. However, if delinquency rates remain constant or increase over time, would we also conclude that our program was a failure? Given the complexity of our society, perhaps our assumption isn't too sensible, since it is likely that other things such as an increase in drug addiction, have affected the delinquency rate. In such a case, it could be true that our program improved many people's mental health; yet, in spite of the progress, delinquency rates continued to rise. On the other hand, if there were a decrease in the drug addiction rates and consequently delinquency rates declined, we might falsely infer that our program was making more progress than really was the case.

(2) We also have to assume that mental illness only affects delinquency rates. Conceivably, the program could have had no success, that is, had not changed the amount of mental illness in the teenage population, yet delinquency rates could have decreased because mental illness was expressed in another way, for example, in an increase in the amount of drug use. If we had measured only the delinquency rates, we would be deceived, thinking our program had been more successful than it really had been. Or if at the beginning of our program period, both drug use and delinquency rates had been virtually halted by shutting off all supplies, perhaps the delinquency rates would rise, with no concomitant rise in actual amount of illness, just a rise in the amount of mentally ill activity channelled into criminal activity.

A critic could dismiss this discussion by saying that delinquency rates are a poor indicator of the level of mental illness. I'm not sure that we could find any single indicator or even a group of indicators that are both satisfactory theoretically and can be measured easily and accurately. Another analytic problem to be taken into account is a change in the rates of those things which cause mental illness, and therefore delinquency. If the causes vary it might be difficult to estimate how much of the change in mental health is the result of the program and how much the result, for example, of the change in the unemployment rate.

The last point I want to make is the distinction between the group of people who are directly affected by the program and the group of people who are used as the population base for computing rates.

If your program runs for several years, the teenagers at the beginning of the period will not be an identical group to those at the end. In addition to those who have reached twenty and beyond and those who have graduated from childhood to adolescence, in- and out-migration may create a problem of defining a population group over a period of time.

This brings us to the point of asking what group we want to evaluate, to judge the degree of success or failure of a particular program. We have seen that it is often difficult to have changes in psychological states of the people involved in a program reflected accurately in one, or even in a multitude of individual psychological measures. To have these reflected in general population measures seems in some ways naive. The general point is relevant for any kind of evaluation but is complicated by the complexity of our object, mental illness.

I hope that I have argued clearly enough that the mental health needs of a community are determined in part by what kinds of problems the center is set up to treat, how it wants to treat them, and how the risk of illness is estimated; in part by the limitations of personnel, facilities and budgets; and in addition by the amount and effectiveness of the treatment given in the past. Social characteristic data are relevant to center planning in a number of important ways. Evaluating the success of a program is a different type of enterprise, one which calls for data on the individuals directly touched by the treatment.

MR. GOLDBERG: Thank you very much, Mrs. Stern. You have surely covered a great many of the pertinent issues involved in the collection and in the analysis and interpretation of data for evaluation.

The next speaker is our discussant who needs little introduction, I'm sure, to most of the attendees of the past National Conferences on Mental Health Statistics. Dr. Paul Binner, who has a Ph.D. in psychology, has been engaged in activities ranging widely from clinical psychology to various aspects of program evaluation and research, research on mental health systems and so on. Dr. Binner, who is Chief of the Research Department of the Fort Logan Mental Health Center in Denver, Colorado, has been a very active person in areas pertinent to the subject of today's meeting. Dr. Binner will discuss the three papers presented today, following which we will have the panel comment, if necessary, on his remarks and then, as I said earlier, we will open the discussion to the floor. Dr. Binner.

DISCUSSANT

Paul R. Binner, Ph.D., *Chief, Research Department, Fort Logan Mental Health Center, Denver, Colorado*

You have now heard three very complex papers and I think you've had a lot of information input at this point. My inclination as a discussant is not to add to this information and overload what you're probably feeling right now but to try to see what I can do to simplify and focus what you have heard and try and draw this together a little bit.

As a way of focusing, I thought I'd go back to the question that brought us here. That is, "How can the statistician and program planner make effective use of these demographic, health, and social data to determine the unmet needs for mental health care among the population being served?"

The first two presenters have essentially said to us, "Look at the demand patterns for mental health services as they relate to these demographic, health, and social characteristics." Dr. Jones has shown us from his study of Tarrant County, Texas, that it is quite possible to find rather substantial correlations between types of census tracts and these demand levels for service. This can be very useful information for the program planner.

For example, we knew from our own studies of the Denver metropolitan area that different parts of the city show very different levels of demand for mental health services. Therefore, when planning the deployment of teams to serve these areas, the size of each teams' catchment area was determined primarily by the level of demand we expected, rather than the size of the base population. If we had planned on the basis of an overall city rate, we would have created very different workloads for the various teams.

A program planner approaching a geographic area not well served by mental health facilities could estimate the unmet needs by comparing the existing level of demand with the estimated level of demand based on the known population characteristics. Dr. Bachrach suggested this approach and I think it was implicit in Dr. Jones' paper.

Dr. Bachrach's paper pointed out that much of the information needed to determine patient population and demand characteristics already exists in the patient records of service institutions. Anyone familiar with these kinds of records could only agree with her that the problems she uncovered are not unique to Montgomery County, Maryland.

Her recommendations for improving the situation are good ones. In answer to her puzzlement as to why such simple and obvious recommendations are not routinely instituted, I would caution her not to underestimate the expense of following them. This is not a case of getting things in order once so they will be done right.

The review of items collected, updating of form design, training of coders, and data providers in definitions, and motivating of data providers through feedback on their usefulness are repetitive, never ending tasks. The reasons for this are staff turnover and the imperfection of people's memories. Even when it is acknowledged that these tasks need to be done, we often do not have the resources to do them. This is not to deny that some systems fall into decay because of neglect, ignorance, or the lack of use of the data.

So far, so good, but isn't there more to the question of estimating unmet needs than generalizing from known demand patterns? Part of the need for mental health services expresses itself as a visible demand for services.

It is ordinarily assumed, however, that another part of the need does not. This contention is supported by a variety of studies that have shown a substantial part of the population is disturbed enough to need mental health services but is neither seeking nor receiving them. The temptation is to apply the same logic for estimating need as was done from known demand patterns. To the extent that the target population resembles a surveyed population, a level of unmet need above the known demand level could be estimated.

However, Mrs. Stern's paper reviewed for us how very complex it is to infer need from the known social and psychological characteristics of a population. She argued in a very convincing fashion that the level of need found would depend on such factors as the definition of mental illness used, the guiding theory of how mental illness is caused, and the prevailing ideas about appropriate treatment therapies.

By the time she finished pointing out all the potential difficulties of definitions, measurement, and casual inference, I began to wonder who would have the courage to try this approach to the problem. However, I think her intent was not to discourage people from trying, but to remind them what a slippery road it is.

If done correctly, these estimates can be an important and constructive tool for the program planner. However, we must also consider how they might be a potential source of serious difficulties.

They can be a constructive tool if they allow the planner to propose a level of service better than previously provided on the basis of a rational, empirically based argument. Used in this way, these estimates of unmet need can be the basis of progress and improvement for the mental health system, whereas, estimates of unmet needs based only on demand level do not have this potential to the same degree.

They can be a source of serious difficulties in at least two ways. First, they may encourage the planner to think in terms of an infinite expansion of the mental health system. Second, they may encourage the planner to identify needs with the current technology for meeting them. Mrs. Stern's paper touched on both these problems and I would just like to amplify them briefly.

Estimates of unmet needs based on population characteristics may easily escalate to include more and more of the total population. Depending on the definition of mental illness used, an increasingly greater proportion of the population may be seen as "in need of mental health services." If prevention of mental illness is a goal, the entire population served, may be seen as in need.

Estimates such as these, unless tempered by an acute awareness of the level of resources available, may lead the program planner into extravagantly unrealistic estimates of program needs. The funding source may be inclined to discount the entire estimate if such projections are made. They recognize that the unchecked growth of any program, however worthy, is a cancer that will destroy the system it is supposed to serve.

When the planner identifies his estimate of need with the existing technology he may fall into a different trap. In planning programs it is commonly estimated that a community will need so many inpatient beds or so many psychiatrists or social workers. While it is true that estimates of needs must be translated into resource requirements for program planning, it is important to remember that the measurement of need begins with the number of people estimated to have a given level or kind of impairment.

The distinction is an important one, because the identification of need with the technology for meeting that need can easily blind us to the alternatives. For instance, some 12 years ago, there was general agreement that Fort Logan Mental Health Center could not meet the State hospital needs of the one million people in the Denver metropolitan area with about 300 beds.

The conventional method estimated the "need" was for around 3,000 beds. Our experience has been that we have not needed more than the 300 beds. Today, I think we have learned enough to question whether there is a need for any "hospital" beds at all.

This is not to suggest that mental illness has disappeared from the Denver scene. More people are seeking services than ever before. It is to suggest that the mental health needs of the community might be served just as well or even better by methods that do not include reliance on "hospital" beds.

A similar situation exists with the comprehensive center movement. Ten years ago it was a decided advance to imagine mental health services within easy reach of all members of the community instead of isolated from population centers. While in the 1930's a measure of the successful society was a chicken in every pot, in the 1960s it became a comprehensive center for every 200,000 people.

Today I think we should be asking ourselves if all the so-called essential services are really so essential. Perhaps we should be strengthening the existing social support systems through liberal use of consultation and education, with most direct services dealing with the patient's personal support system rather than his assumed illness. However, I am getting a bit beyond the intended topic. The point is that we should not confuse the measurement of needs with the ways of meeting them.

In summary, we can say that unmet needs can be estimated from existing patterns of demand or from the characteristics of the population to be served. How well these estimates serve the planner will depend on the adequacy of the prediction model, the quality of the data base, the assumptions made about the link between social characteristics and psychological needs and the way the concept of need is conceptualized.

It is not an easy task, but it is one that must be mastered in order to do the job.

MR. GOLDBERG: Thank you very much, Paul. Do any of the speakers want to comment before we open the discussion to the audience?

DR BACHRACH: Let me give it a try.

I couldn't agree more that the suggestions I made should not be tried once and then simply forgotten. They must be kept up. As to the expense involved, I think that if one has a given sum of money, in the long run it's much cheaper to make changes than to keep building on an ineffectual data base.

MR. GOLDBERG: Anybody else? Then we'll let you—the registrants—have your say.

PANEL DISCUSSION: REGISTRANT QUESTIONS

Chairman and Speakers

MR. GOLDBERG: Before you raise any question or any comment, would you please introduce yourself. We have two microphones, one near the front and one near the rear, and we will have one of the monitors bring a mike over to you.

Anybody have a comment? You mean we've answered everything?

MRS. SLOTKIN: I'm Elizabeth Slotkin, Dept. of Mental Hygiene, Chicago. I'd like to raise a question and comment. Several years ago we computed rates of hospital usage, admission rates, in relation to population by planning area. We found that if you drew a circle of about a 100-mile radius around every hospital, within that area you had much higher rates of admissions than you did if you went a little farther from the hospital.

Does this mean there are few mentally ill beyond that limit? The hospitals were open to all those people, but they were just less accessible. How do you correct for accessibility of care in dealing with the kind of data we've been talking about?

DR. BINNER: It depends on whether you mean how do we correct statistics –

MRS. SLOTKIN: How do you take this into account?

DR. BINNER: Okay. We found this kind of thing with one of our programs. We have been lucky enough to serve a very compact geographical area, probably a circle of 20 miles, and yet, even within that kind of a compact area, we found one part of town, one part of our catchment area, which seemed to have lower utilization rates than we were expecting and the other parts were generating.

The answer was really quite simple. Public transportation in the Denver area is poor, so people couldn't get to us from there because they had to transfer. If you were well enough to get from Adams County on the bus, you didn't need much health service. And, so, if the mountain couldn't come to Mohammed, Mohammed went to the mountain. We moved the program out to Adams County and utilization rates picked up nicely.

MRS. SLOTKIN: Your implicit assumption, of course, is given two areas with equal demographic characteristics, the usage of mental health facilities ought to be similar.

DR. BINNER: If that's the assumption you're trying to make, I think you have to be careful. I think the papers point out how complicated the question of what constitutes equal areas is.

MRS. SLOTKIN: That's right.

MR. GOLDBERG: Lisel, did you have a comment?

Introduce yourself, please.

DR. OSSORIO: Elizabeth Ossorio, NIMH, Reg. VII, Kansas City. I thought the papers were very interesting and pointed out the complexities, but based on my own personal experience in the four-State region I'd like to ask the panel a couple of questions about whether we don't really have some pretty straightforward starting places for estimating need.

I'm going to simplify this, but, in general, in our region in the four States you would find that the distribution of age groups in the population, as against the distribution of age groups in treatment, is something like this: you'd have eight percent below the age of six and you'd have maybe one half of one percent in the treatment load. You'd have the age group under 19 representing about 38 percent and you'd have 30 percent in the treatment case load under 19. You'd have those over 65 constituting somewhere between 15 and 20 percent of the population and the treatment case load three to six percent. Given all the complexities that you folks have talked about, aren't those fairly clear indications of unmet needs?

Now as to the second thing, if you have no mental health service in an area, aside from training mental health consultants and what-have-you, can't you stack the need for resources up against at least rough indicators? It appears from the literature of the last 10 years that at any given time where you do have beds, one half of one percent of the population is in these beds.

Those are my two questions.

MR. GOLDBERG: Comment?

MRS. STERN: I can just comment briefly. I don't know much about children, particularly, so I think I'd feel better commenting on the elderly. I think across the nation the elderly are underrepresented in community treatment facilities and I think probably they might need more care even than their adequate representation in the population.

And definitely, in a negative sense, it's easy if in your catchment area certain groups don't get any treatment or get very little treatment. I think you can assume that there's a need, but it's not so easy to say how much of a need there is. But in your case the elderly certainly are underrepresented.

I'm really not qualified to talk about the children. I think that might be a special problem. Anybody else willing to comment on the children?

DR. BACHRACH: I think that age distribution is certainly a starting point in estimating what needs are. Montgomery County has four catchment areas. Theoretically, the same kinds of things are available in all these catchment areas, but we have found that people of different ages will go out of their catchment areas to county facilities in another catchment area. Something about one of the hospitals appeals to kids. Something about one of the other hospitals attracts alcoholics, no matter where they live in the county. This is happening.

DR. JONES: I'd like to make one additional comment on that. If we are talking about mental illness or needs or whatever, it seems to me we have to be somewhat more specific than we have been. Going back to the data I reported of Jaco's, he found for example the organic psychosis related to age and sex and to simply take percentage points and say this indicates unmet needs, I think, is perhaps treading on some thin ice. We have to talk in the sense of how many of these people are really part of the population in a specific area and subject to specific strains, perhaps leading to a type of disease, relative to how many you would expect in the total population.

DR. OSSORIO: Clearly the analysis of the panel members is much more sophisticated than what I was projecting, but what I asked the panel to address themselves to was, given a lack of resources, would you say you could go wrong with starting at the level I'm outlining?

DR. BINNER: I don't think so. (Laughter.) I think what you're saying is a variation of a generalized known demand level.

DR. HEINE: Richard Heine, Department of Mental Health, Kentucky. In keeping with the conference theme as I see it, I was interested in some comments that were made about mental health planning.

One comment was that in mental health planning you have to be careful to temper the planning with available resources. I wonder if a wiser scheme might not be to make the planning more comprehensive than it is. What kind of success do we have in using, for example, all this demography and so on not to indicate mental health care but to indicate need for care in general—the human resources kind of thing I know a number of States are starting to get?

I know they're starting to get human resources planning and I hope they're starting to get human resources and health service delivery systems. I'm just very much concerned with the use of data for specific mental health planning. I think that the 36 percent variance that one of the studies got, the multiple correlation of .69, is probably what one could expect to try to achieve with respect to any specific plan for any specific services, whether they be mental health services or health care services or just about anything I could think of.

It seems to me that's about all the distance we can get. I'd be interested in knowing if any people in the audience, participants, would like to comment on that as well.

DR. BINNER: I made a remark about keeping in mind the available resources because I've been struck with the way a concept like unmet needs is an intoxicating, seductive concept to the ambitious planner.

And, while I know I am not against the intoxication and seduction, I think you'll find that when you're dealing with funding sources, there's a certain credibility gap that develops if you come out with really the kinds of grand plans that are possible, which seems like an open ended invitation to say do we ever need mental health services.

DR. BACHRACH: Aren't there also styles and fads? Certain years certain things will pass and other years they won't.

DR. RAY: I'd like to comment. I'm Tom Ray, Dept. of Health and Rehabilitative Services, Tallahassee, Florida. We are in what's called an umbrella agency in Florida, which is a new kind of thing where we have corrections, welfare, youth services, and vocational rehabilitation. Retardation and mental health are separate but still are under the same umbrella.

Recently, we've made a charge on the Federal Treasury in the area of Social Security monies. We're financing all of these kinds of programs where they can be construed to qualify. The planning is not responsive to needs out there in the community, but it is responsive to Federal program categories, where, I think a clear distinction needs to be made in your set of values and, Paul, shame on you (Laughter) for saying, in effect, one should be responsive to the program categories more than the needs out there in the community. Because I think that's what I heard you say. (Laughter.) You said pay attention to the available funds and I interpret that to mean that sort of thing. I think we do have some interesting choices to make or maybe we don't have any choices to make, but we may have some feelings about the choices that are made.

DR. BINNER: Telling people to be realistic about money brings forth all kinds of passions. (Laughter.) Tom, I think what I was saying was not to look at the categorical programs in terms of all they're worth or something like that. I would never say that publicly. I was saying, simply, pay attention to the magnitude of what you're talking about. Is it realistic to talk about $100 million of mental health needs and services and that kind of thing? This is magnitude.

DR. WIGNALL: I'm Clifton Wignall, St. Luke's Hospital Medical Center, Phoenix, Arizona. We've been talking about unmet needs as sort of the underside of the iceberg of treated cases—untreated cases of mental disorder. There is an incidence and prevalence of those cases in the community. I think the easy way or the inexpensive way to get at that is to try to use other people's statistics and other people's investigations. But whatever happened to straight epidemiologic survey field work? Go out and find how many people are mentally ill in an area. Put it in a survey. If you can get enough money, do a great big Sterling County Study. Then you will be free from these little chains of inference from one kind of data to another kind of conclusion.

MR. GOLDBERG: Anybody want to comment?

DR. BINNER: I certainly agree. That's one of the kinds of studies I was talking about, studies that show a good deal of untreated illness.

DR. HEDLUND: Jim Hedlund from the Institute of Psychiatry, St. Louis, Missouri, Medical School. I just wanted to add a comment that because we all agree that those survey studies are appropriate and useful doesn't mean that they are the only ones or that an aggregate of different kinds of studies won't shed different kinds of light on that same amorphous problem.

The one thing that I think of in particular about the limitation of the surveys has to do with what the panel has already presented in its definition: What the hell is mental illness in a survey?

MR. MIX: Peter Mix, Statistics, Canada. I'd like to know to what extent Federal statistics are used in community mental health programs.

MR. GOLDBERG. Wow, that's a big one. (Laughter.) Well, it doesn't really deal with me because I'm at the Federal level and he wants to know how they're used at the local level. (Laughter.) With the limitation on travel funds, we don't get around that much any more. Is there anyone in the audience or on the panel who wants to comment on that? That's quite a big issue. How are the Federal statistics used at the local level? Is that it?

MR. MIX: That's right. I have the impression from what the panel is saying that perhaps Federal statistics cover relatively too broad an area and should be applicable to a narrow catalyst area. I'm not sure either just what kind of mental health statistics are produced on the

Federal level or by the States, but I know some of the panelists do work at the community level so, perhaps, they do use Federal statistics and I'd like to know the way they do use them.

MR. GOLDBERG: If I may, I'd like to open this question up to anybody in the audience.

DR. YOUNG: I'm Harl Young, Acting Director of the Division of Mental Health for the State of Colorado and my response to the question is that they're used very little. The reason they are used in such a small way at the local level, in my experience, is primarily because they're so damned late. We usually get them some two to three years after they have been dated and, therefore, we have little use for them.

MR. GOLDBERG: They're too late.

DR. OSSORIO: In my experience, not only are the Federal statistics not used but when the local folks write their applications they write down all the demographic data available from the census and the Bureau of Vital Statistics in their State, and while they're writing them down they've got their minds tightly focused on something else entirely. Never under any circumstances would they want to think about them. The same is true of the data they report to the Federal Government and the mental health services inventory. For the most part, these folks do not look at the data they produce daily, monthly, yearly, themselves. It's partly this experience that I touched on earlier—the little steps go to the big question.

MR. MESHAK: My name is Len Meshak from North Carolina, Department of Mental Health. The Center would like to know about the several elements of service that it does offer the community and why it is having such difficulty getting the enrollees into the State program. What is the bulk of distribution for patient admissions in mental health services and how does that compare with what its own experience is then?

I think they made some grandiose plans for use of day care programs in the mental health center. I think the national statistics reassured them that, at least on a nationwide basis, the day care programs were not that popular. It was accounting for only 10, 20, 30 percent—that many persons being served.

The second thing the hospital librarian and statistician is interested in is the readmission rates—something we almost have to go back two or three years to discover. The rising rate, the number of readmissions to State mental hospitals, is a source of growing concern.

Some of these data can be used only as benchmark data. How do you compare? What should it be? The only thing we can depend on right now are the experiences of other State mental hospitals.

The third area is a growing concern to our own State mental health administrators that the State mental hospitals are being depended upon so heavily for readmission into these programs. It indicates that nationwide large numbers were seen in the State hospitals. It's reassuring, in a sense to share these concerns relative to your own States. I think the point is yes, the data are late. It's the best we have available. It takes a little bit of imagination to see how, in fact, it fits and how it offers that kind of benchmark service.

DR. ALBERS: My name is Robert Albers and I'm Director of Research of the Inner City Community Mental Health Center in Philadelphia. I would like to temper some of the comments that I think are going to be made here towards the use of Federal statistics. The major problems in using the Federal statistics that are available are two in nature. One is that the local people don't know what Federal statistics are available in many cases. I will give some examples of that later. Secondly, the people qualified to use the Federal statistics in a sophisticated manner, and to interpret them, typically will not be available at that level. If some use can be made, no one is there to do it at the local level.

Those are the two major problems.

Now, let's take the case where someone who has the ability to use these statistics is present at the local level. Then the question arises, can such a person fulfill a function in usage if the Federal statistics are available? One of his major problems is to find out what they are and to receive them. Let's say he overcomes that.

Then I think there are some possible uses that can be made. In what you would call advanced local facilities they could do typology work with respect to census data in predicting demand levels or accounting for various demand levels very simply. They could do this on a cruder local level if they wish.

There are survey data available in—I think it's the health data reserve. We have attempted to make use of these and have not found a way to make use of them yet on a local level. At this point it's just useless, but that is not to say that a use might not be found for it.

The Biometry Branch of the National Institute of Mental Health puts out reports that everybody is familiar with and everybody typically throws away and it's hard to figure a use for these. However, we use some of the comparisons that were put out from year to year in order to standardize some of our classification systems on forms. That's a use that we make. Now, I don't think that everybody could, but there are some possible uses that could be made. But there are a lot of problems associated with it.

Thank you.

DR. RODGERS: Charles Rodgers, Director, Dept. of Psychological Services, State Hospital, Evanston, Wyoming. I just wanted to comment. One of the difficulties in citing a given example in use of the Federal statistics is, I think, the problem of diversity, for example, in setting up the comprehensive mental health service. The State of Wyoming is the ninth largest State and we've got a total of 300,000 people in the whole State and so when we get a catchment area up to 250,000 people, that's it.

We've got one mental health center which is located in a county and, including that county, it covers one border of this whole State, over mountain passes in the winter and everything else. You know, you can't abide by the Federal regulations in this instance. At least with these noncomprehensive mental health centers, we can't meet their requirements and we have a time meeting that many people in one unit without taking in the whole State.

MS. MAY: I'm Marjorie May, Dept. of Mental Health, Indiana. One thing I think the people from Canada might find useful, if they do not have a similar thing, is what we call the mental health facilities inventory. Whether or not it's useful right away for the area you're interested in or for somewhat later on is up to you. You have to check several bases but they give you the option of having the inventory sent directly to the facility. This is one choice I have seen frequently—with an option of having it returned to your office. Now this gives you the opportunity to look over and evaluate the data from the reporting facilities to the extent you know them and then it also gives you the opportunity to question things. If you think something is wrong, you can get an interpretation.

You can duplicate the inventory and have it on hand. We keep a file of all of these inventories of various kinds of the hospitals and clinics and centers and private hospitals and units in general hospitals and so on. It serves throughout the period, until the next one is received, as our source of reference for these kinds of administrative data. It tells us how many we have, what their budgets are, something about the staffing.

It gives you a good place to start from and a base to ask intelligent questions and we have found these useful.

MR. STERNBERG: Alan Sternberg, Director, Regional Mental Health Program, Idaho.

I finally figured out why I have the privilege of being here. That is as State Director of Mental Health, I was a psychologist who had a statistics course about eight years ago. (Laughter.) So I have had some difficulty in wading through the statistics that have been generated by the panelists, but the concepts I find useful.

I'd like to switch tracks for a few seconds. It was once upon a time that I played ball in Paul Binner's 300-bed ballpark in 1966 to '68. Paul said something to the effect that they find they do not really need those 300 beds. At the time I was there, we were putting them in the hallways and I believe had we had 3,000 beds, we probably would have gotten to the point of filling them.

I think this goes back to the fact, on a very simplistic level, which may lead to all kinds of argument, but having been in Idaho as long as I have, I have to think on that level. We've got twice the population of Wyoming and perhaps we're a bit more sophisticated. (Laughter.) But, at any rate, going back to the basic psych course, I remember something to the effect that people tend to meet one's expectancies. If there are 300 beds there will be 300 patients to fill those beds, and if there are 3,000 beds there will likely be 3,000 people to fill those.

For instance, in building maximum security units in the State hospitals in Idaho, the concern is that we feel if we build five cells, they will be full. If we build 10 there are liable to be 10 people in those cells.

My question that I'm leading up to in kind of a different tangent—and this is one thing of concern to me as a Director about to go into a comprehensive program for a catchment area of 85,000 people in a rural area—I wonder how many times or what the incidence is where we unintentionally precipitate needs by establishing mental health programs.

I'm not talking about the kind of game that's played with statistics showing that mental health problems seem to grow or are in proportion to the growth of the mental health center in the area: therefore, the center is causing mental illness. I don't mean that kind of a situation. I wonder if there have been any studies or, if not, is there need for a study to determine what kind of needs do we precipitate. A final and a kind of addendum to that question is how many times do we unintentionally, in what we call information and education or consultation and education, weaken people's existing coping mechanisms by the kind of information that we put through the mass media, for instance.

I'll give you an example. In the Spokane area, which has a fairly good mental health center right across the State line from us, if you have some emotional difficulties and don't feel you can cope, call the mental health center. How many times, even though we are not a random sample in here, Paul, have any one of us reached a point momentarily where we have been up against something where we felt that we have not been able to cope?

FROM THE FLOOR: Why not then call a mental health center?

MR. STERNBERG: Because how much more do we precipitate this kind of calling rather than reinforcing the ability of people to be able to handle these kind of difficulties themselves without having professional counselling on the spot all the time.

I'm curious as to whether there are any studies as to the extent that we may be precipitating more clientele and more traffic which keep us, perhaps, from getting to the more serious kinds of mental difficulties.

MR. GOLDBERG: Does anybody want to respond to that in any way?

MRS. SLOTKIN: I'd like to raise another issue, if I may.

DR. BINNER: Can I get back to that remark —

MR. GOLDBERG: Yes, sure.

DR. BINNER: — about the business of putting beds in the aisles. I'd like to comment on that. That's true; there were times when space was very tight. Most of our teams have 14 beds at their disposal and when 15 or 16 started coming in, we were getting kind of tight in finding where to put them. But I think of your comment, "if you can build a cell, you'll have people in it," and beds the same way. If we have beds, we'll put people in them.

I'm not saying it's easy and I'm not saying that mental illness has disappeared and that there aren't people in need of help. All I am saying is that it appears to me at this point that there's a good chance that most, if not almost everyone, of those people could be helped just as well or better without the so-called hospital bed.

They may have to get away from where they are and go and live somewhere else, but maybe the hospital bed is not the best answer.

DR. BACHRACH: I think we run into definition problems. We talk about the need for beds, but we don't talk about what kinds of beds, and there are many different kinds of beds. Do you want short-term beds or long-term beds? How much do you want to pay for them? These are reality factors that come up, and, usually, when the question "How many beds do we need here and now?" is asked, people don't bother with such distinctions.

I don't know of any studies that cover the question that these gentlemen have asked.

MRS. SLOTKIN: Dr. Jones referred to a study which I suppose has become classic, a study done by Dr. Carson down in Chicago, of where they related various diagnostic groups of mentally ill to the demographic data for the community areas there.

But this is a study which I don't think we can ever repeat or get anything worthwhile on for the following reasons. At the time that study was made, most mental health care was inpatient care. Today we have opened a great many clinics or mental health centers, or whatever you want to call them, providing ambulatory care. This is not only in the Department because we've also financed a great many more in terms of dollars through the voluntary section and we have given grants and aid to voluntary clinics and mental health centers.

There is a tremendous amount of duplication of people in the various bits of data that we get. Those within the Department we can control by a case number that remains with that person whether he's in the hospital or in the day care center or whether he's in the State-operated clinic, but once that person transfers to a voluntary clinic, he's counted a second time or a third or a fourth or a fifth time in the same period.

I am wondering to what extent the same situation prevails elsewhere. It looks as if mental illness is mounting tremendously if you add all these figures together and I doubt very much whether it's mounting as much as the figures would indicate. This complicates your trying to assess what the demand is and what all the needs are.

For example, a person is transferred out of the hospital for aftercare to a voluntary clinic, but once he gets to the voluntary clinic we can't track him because the case number is no longer our case number. There's been an attempt to get Social Security identification, but I very much doubt if we'll get that. There's too much resistance on the part of local clinics to using it, because it is a positive identification of the patient.

DR. JONES: I wonder if I could respond to your question in one sense, maybe raising another one of the difficulties that we face from a research standpoint.

Anonymity is perhaps the most vocal concern of a number of people involved. From the standpoint of a researcher, you're dealing with statistics. In order to really understand the data you're dealing with, there has to be a point where you have some type of tie to the individual.

If we use census tract information, for example, we need to retain the addresses because, as most of you are familiar, between 1960 and 1970 census tract boundaries were changed. In order to have real comparison data you have to go back and recompute what the new tract is, what the conversion table is.

I think this is going to be a problem for us for a long period of time, as to when you lose the individual identity of that patient. I would imagine that anytime you keep patients records, you compromise this anonymity and you do invade privacy to that extent.

Again, from a research standpoint, I would like to be able to retain that individual record up to a point where I can afford to lose whoever that might be. I think that we have to be able to lose it at some point but I don't really know where that is, predicted from analysis or from any other standpoints.

MR. GOLDBERG: There's the use of register systems which, while not necessarily desirable for every place in the country, can provide indices when they are available in two or three places around the country. A few such registers do exist such as the Statewide registers in Maryland and Hawaii and the one in Monroe County, New York. These kinds of linked records for those communities can provide indices which can be applied to other local areas where one might wish to unduplicate record counts, that is to separate the individual from the event.

I had a request earlier in the session for copies of the papers presented today. I understand that these will be included in the proceedings of the conference. However, if people do wish to receive a copy in advance of that, which I imagine will be a little while yet, they can write to the person who presented the paper. Names and addresses are in the program, I believe, and the speakers indicated they'd be glad to make copies of their papers available.

I would like to make one comment about the question raised earlier concerning the use of Federal statistics at the local level. One has to look at the extent to which data are usable at the local level from two perspectives—one from the Federal level and the other from the local level.

At the Federal end the accumulation of data cannot be in great depth and cannot be in great detail. From that point of view, it's going to have a more limited utility for small geographic areas, the catchment areas, and so forth. There one requires data, as was discussed today, in much more depth than one can collect and distribute on a national plane.

Nevertheless, there are data from a broad perspective that can have, as was mentioned by one or two of the individuals, some utility at the local level. But the in-depth kind of data can be reached at the local level by using some of the local data resources and information of the kind that was discussed today.

Anybody else want to add a comment? I didn't want to cut you short by my comment. So please feel free. Introduce yourself, please.

MR. WITKIN: I'm Mike Witkin from the Biometry Branch at NIMH and I would like to ask the gentleman from Canada how Federal statistics are used on the local level in Canada. Maybe we can learn something from that, if he has some unique distribution.

MR. MIX: It's difficult to use our mental health statistics in Canada at the local level but probably a little easier than in the United States because we collect individual patient records from all the institutions across Canada, whereas I understand the United States compiles tables from each of the States to create your report.

So we can do it through other complex cross-classifications. Normally on the local level we do have a geographical classification which classifies villages, towns, cities, any incorporated municipalities, townships, and counties so that we can go down to that level, but not down to the level of catchment areas.

We certainly do have a lot of requests related to region of residence on the utilization of facilities, for example, certain facilities, individual facilities, in certain counties, townships, and so on, and this is the level at which we can work.

MR. GOLDBERG: Thank you.

DR. BACHRACH: May I say a word about the use of Federal statistics? I think that perhaps we use them locally a lot more than we realize. We use them for planning, for descriptive purposes, to get to know what's happening, and for ideas. But I think that the things that stick out in our minds when we're planning on the local level are not those things that can be found in the Federal statistics. We have to do the digging ourselves beyond a certain point. We can't get along without the Federal statistics, but they can't do all the work we need to do, and we must supplement them with our own statistics.

DR. HEINE: Don't you think it's more appropriate to use catchment area analyses to assess total human resources and needs, as opposed to specific needs, and linking of resources of the community in the total human services system than to do it specifically in mental health?

I want to try for an answer.

MR. GOLDBERG: You're asking for a linking of the mental health data system with the total health system?

DR. HEINE: Yes, it seems more appropriate to use catchment area analyses to assess total human needs, because if you're going to assess mental health needs you're necessarily going to get some small percent contributed to by the demographic data and so on.

DR. JONES: I would say that, yes, you would find neighborhoods which are high in a number of problems. In fact, when we used typology prediction we did get high correlations for such things as gonorrhea and syphilis. The difference is that the same variables are not predicted for all of those problems. Different types have different problems.

The second thing is—and to respond to the catchment area idea, at least from the level at which we did our study—the catchment area was too heterogeneous. It encompassed too many types of tracts to be useful for prediction. It was still too large a geographic area. That's why I argued in the paper for the concept of neighborhood—and, neighborhood defined empirically, neighborhood defined on the basis of similarities, not just on one or two indices, but on all indices.

DR. RAY: Thomas Ray from Florida. This is really a very subtle kind of issue but I think several of our panelists talked about this in some detail. That is you do not realize there is a need until it is measured. Where do you get measures? The real place at which an incident occurs is at the point of delivery of some service.

This is largely what we get, except in some census areas or special surveys where certain particulars are gone after, but the usual statistics you have exist in public records as an item of delinquency which may be defined in this magnitude more according to the vigilance of law enforcement than the differential in the performance of an act.

As to mental health problems, if you could go into a community and take a photograph of its characteristics in a standard sort of way so that you could reveal the existence of certain problems, that would seem to be an ideal, except that you have to define into the survey the things you want to elicit so it's circular in some sense.

Yet, I still maintain that to be responsive to program categories that are given by a bureaucratic structure is really not the right way to determine needs, but we should look as closely as we can at the human scene and remove from our minds, as much as we can, the structuring of the problems that come through governmental organization.

It isn't always easy. We sometimes just think in those terms, but I think in determination of needs, it's important to know that these issues are there.

MR. GOLDBERG: We have reached just about 4:30, but I'll entertain one more comment or question if there is any. I didn't think we were going to do that well after that slow start but it was just tremendous.

Very good.

Then let me thank panelists and our discussants and all of you.

Thereupon, at 4:30 pm., the meeting was concluded.

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Concurrent Session "D"

Automation in Vital Statistics Data Programs

Is the computer feasible for use in the searching and certification of vital records? This session is designed to provide the latest information and thinking by those who are seeking to overcome the problem of increasing demands for copies of records with fewer resources.

It is evident in many areas that manual methods for the retrieval of vital records are inadequate to meet the demands. Furthermore, storage of such documents over many years is becoming a burden.

If we are to have a cooperative vital record and statistical system in this country, we need standardization of definitions, codes, and quality controls.

Much of the vital statistics data in this country is processed three times; we need a system which will avoid this duplication.

The purpose of this session is to outline such a system and seek a solution to our duplication of efforts.

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Automated Standardized System for Indexing and Statistical Tabulations (ASSIST)

Reactors to Panel:

Panel Discussion: Registrant Questions

7th

CONCURRENT SESSION "D"

7th

2#

10th 11½

AUTOMATION IN VITAL STATISTICS DATA PROGRAMS

1½ #

14th 1½ #

PRESIDING

#

16th

Dr. Carl L. Erhardt, *Chairman, Technical Panel of Consultants on New Techniques for Vital Statistics Registration and Data Collection*

As you see from the program, there are two matters up for discussion this afternoon. The first one is whether the computer has a future in the vital record searching and certification program.

We have a panel now with four speakers. One of our initial panel members, Mr. Hiller, apparently hasn't been able to make it. However, he may come in during the course of the session. If so, we would be delighted. We will give each panel member about 10 minutes apiece so that we will have plenty of opportunity for discussion from the floor. The speakers have not indicated any special desire as to who should start so we might as well proceed according to the order in which they are presented in the program.

The first speaker, Jim Palmersheim, will address himself to the potential of the computer in the vital record searching and certification program. In other words, can this operation be done. For that brief presentation we have Dr. James J. Palmersheim from the North Carolina State Board of Health.

POTENTIALS FOR AUTOMATION IN VITAL STATISTICS DATA PROGRAMS

Dr. James J. Palmersheim, *Chief, Public Health Statistics Section, North Carolina State Board of Health*

Recent Developments in Automation

"Does the computer have a future in the vital record searching and certification program?" Compared to the topics of others on the panel, the question of potential may be the easiest to answer.

Automation does not necessarily involve the computer. One can easily allude to some recent developments as proof that we can take advantage of automation, both with, and without the computer.

Vital Records

Crandall (1972a)[1,2] has recently described a microfilm retrieval system which has greatly automated the process of obtaining certified copies of vital records in the District of Columbia. John is here and may provide amplification during the discussion period. This system does not take advantage of the computer and has shortcomings as far as statistical output is concerned, but is certainly an excellent example of automation in vital record data processing.

Another example belongs to Mr. Glenn Fox, Director of the Vital Records Service in Georgia. He has been instrumental in developing a pin-feed birth certificate form. His system takes advantage of the computer through two data entry developments, viz., mark reading and character recognition. The data are transferred to computer-readable form by an optical scanning feature.

I have brought along a sample of this intriguing document should you care to look at it later. Perhaps Glenn may provide us with details during the discussion period. His computer based automated system facilitates both the birth certification program and the production of natality statistics.

Vital Statistics

There are other applications of the computer which have been with us for some time in the area of vital statistics. One was recently described (San Mateo County Department of Public Health and Welfare, 1970)[3] at the annual meeting of the American Public Health Association in Houston. The system, DIALG, is an on-line, interactive general purpose computer retrieval package. Its application, for analysis of death certificate data, is not helping so much in the matters of registration and certification as it is in the statistical analysis of the data files after having been entered into the computer.

North Carolina has taken advantage of the computer in the production of the annual reports of vital statistics (Public Health Statistics Section, 1972).[4] Copies of our 1971 report are available to you on the table in the back of the room. This report is about as automated as we can get in the present batch processing, semiautomatic system which we operate. The bottleneck is in the manual processes associated with the text writing, photoreduction, printing, collation, and binding of the publication. We also maintain a manual system of source data entry and coding, converting to unit records by keypunch. These features make the computer an uninteresting point in the whole process.

The Potential: Real-Time Vital Statistics System

What I would like to suggest—and I do not think it is a unique suggestion, even though it may sound bizarre to some—would be a paperless vital records system. One of its most important features would be that the system of local registrars, as we know it today, would no longer be necessary (see Aase, 1972).[5]

Overview of the System

Let me describe the system briefly with the aid of this diagram (figure 1) and using the birth registration system as an example. Some 98 to 99 percent of births occur in hospitals these days.

At the local level, one installs remote display units (or CRT's) in the hospitals. Many hospitals already have them for other purposes. A printer may be added. The registrar, or person acting as such in the hospital, enters the data—that formerly was written or typed onto a birth certificate form—directly into the display unit using a keyboard resembling a typewriter. The data are displayed as they are entered. Errors may be sensed and corrected by backspacing and rekeying.

The control unit at local level provides immediate telecommunication with the State level control unit, computer, and storage media. Hence, real-time interaction between the State and local registrars is established. Data may be edited, queried, and corrected item by item as they are entered and checked logically prior to registration confirmation. The birth may be registered and stored in permanent form in the time it might take to type out a current U.S. Standard Certificate of Birth.

Certified copies may be issued immediately using the printer at local level. One need not wait until the end of the month to compile natality statistics. One need not be concerned with mailing, with paper, or with the doctor signing the birth certificate.

Vital Record Authentication

From this suggestion, I suppose there are some questions about the authenticity of the record. For example, the signature is one thing that we don't know how to transmit too well. While not claiming that the hardware companies won't come out with something that can transmit the signature, I feel that as a matter of feasibility there are other more suitable options.

One currently available option is the key. Those authorized to register births throughout the State are issued keys to activate the remote display unit for birth registration. One may compound the difficulty of unauthorized birth registration or other entry to the system by developing randomly varied passwords and entry procedures that are uniquely known to only two parties.

Another idea is a gadget which detects and transmits the fingerprint of the CRT operator. The pattern is compared with authenticated prints on file at State level. This unique identifier is probably more valid than the signature.

Problem Parameters

The major problem of authenticity, in conceptualizing a paperless system, can be very reasonably resolved with the present state-of-the-art in my opinion.

The greatest stumbling block would seem to be the cost of storing the cumulative total of vital records information on random access storage media at State level. For example, a popular storage control unit may rent for about $24,000 per year. A disk storage unit housing two disk packs may rent for about $13,000 per year. The required equipment components are expensive.

In North Carolina there are over eight million vital records accumulated in the vaults. As you all know, one can't get away from accessing all eight million of them, even though there are peaks and valleys in the distribution of time frames searched at any given point. For example, we may later this summer be processing certified copies of birth certificates for the peak year of birth corresponding to children who will apply for school in September. Yet one cannot escape the inevitable request for any record in the complete file.

As an example of an approach to the upper bound on required disk space, consider North Carolina, with a present population of five

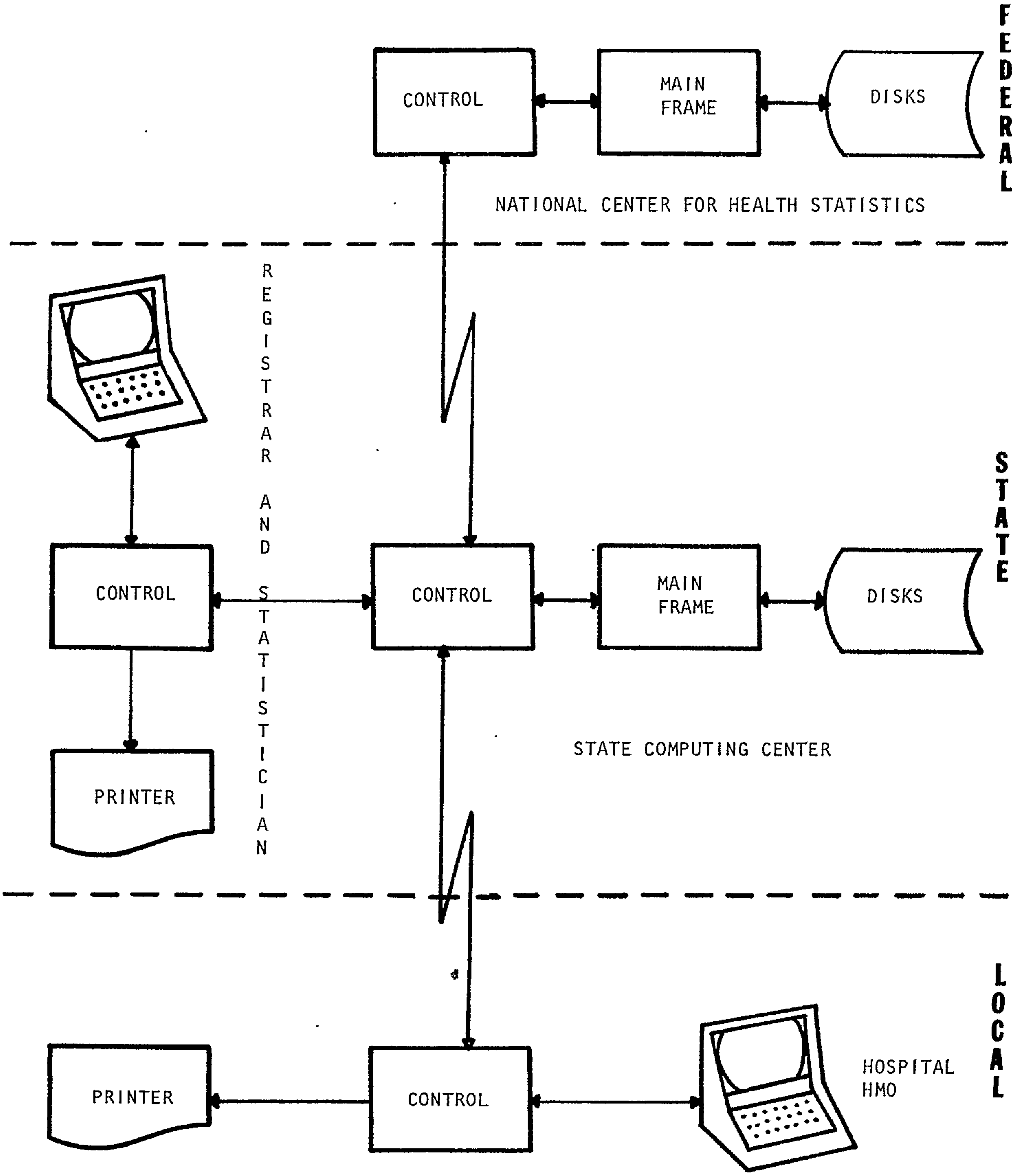

FEDERAL
CONTROL
MAIN FRAME
DISKS
NATIONAL CENTER FOR HEALTH STATISTICS
REGISTRAR AND STATISTICIAN
STATE
CONTROL
CONTROL
MAIN FRAME
DISKS
PRINTER
STATE COMPUTING CENTER
LOCAL
PRINTER
CONTROL
HOSPITAL
HMO

Figure 1.

million people, having a cumulative vital records volume of eight million. The number of disk packs needed depends on the disk capacity and the length of the stored record. Suppose that one wants to capture everything from eight million birth certificates. For the present North Carolina birth certificate, 360 information characters per record would accomplish this total retrieval. This character count provides for economies of coding, allocation of space for future amendments, and ample space for alphabetic information. Forty characters, for example, were allocated for each of the names of child, father, mother, informant, and attendant. Using the maximum possible blocking factor, 29 disk packs of the type housed in the storage units mentioned earlier would be required.

Immediately one begins to think only of storing on-line the current births, say, and storing off-line the remainder of that eight million record history.

Suppose one is interested only in certification. In North Carolina, about 160 information characters will suffice for that purpose. The information retrieved for certified copies of the birth certificate are: the child's name, sex, date and county of birth; the name, age, and State of birth of the mother and father; and the filing date. By identical methods of calculation as before, one needs thirteen disk packs to store the eight million records for certification purposes only.

We need a great deal more time to get involved in the practical parameters of the proposed system. Although it may sound bizarre to talk of a paperless system, the point is clear that it can be reasonably done today with the current state-of-the-art. What cannot be done today, I think, is for a State to do it by itself.

We, for example, in North Carolina could not do it alone and that is where I want to allude to the Cooperative Federal-State-local Health Statistics System. We need the leadership and financial support of the National Center for Health Statistics as outlined in FSL. Even beyond that, we are probably going to be forced into some hospital based total information systems concept on the basis of cost alone.

Let me explain why. In the birth registration system, the hospital registrar may need a remote display unit, a printer, and an associated control unit as basic equipment requirements. This set may cost the registrar $4,000 per year in rental. Depending on the load of the system, the equipment may be time/cost shared with other hospital units at a resultant fraction of the cost of sole ownership and usage. Those who process insurance claims are examples of future partners in the system.

The birth registration system is easier to describe than the death registration system. In the latter, the physician, funeral director, coroner, medical examiner, and next of kin are involved in a more complex process. We may reach the point where the same remote display units as depicted in figure 1 will have reached the very offices of the funeral director and physician. At costs possibly less than $4,000 per year for equipment, and with the kinds of things physicians are doing as to Medicare and Medicaid, I think there are future benefits to be realized from sharing this hardware system among programs such as vital statistics, Medicare, and Medicaid.

The advantages of this privilege might include instantaneous reports of any kind. We should not have to endure a four-year bottle neck in vital statistics publications, nor indeed, should we have to wait six months for that matter (Wray, 1972).[6]

Savings in supplies and materials may be eaten up by increases in equipment costs. Personnel costs may remain fairly constant albeit with different kinds of people.

Implementation Steps

What would be needed to implement such a system? First of all, let me hasten to describe such a system development as a research venture with the creation of pilot systems as the first priority. There are too many problems to be worked out in order to make such a system operational at this time. Such pilot systems should appear during the '70s. The following steps may guarantee that result.

NCHS Leadership

NCHS has, through recent FSL activities, taken the lead in modernizing the vital statistics system, e.g., in attempting to eliminate the double and possibly triple processing of vital records. I would suggest that NCHS go a step further than they have in the past in the area of systems development, particularly in the development of generalized packaged computer programs.

The kinds of developments needed for a major overhaul of the vital statistics system would possibly be too expensive for an individual State. NCHS is in the appropriate position to coordinate a cost-sharing nationwide system and programming development.

Model Statute

Research allowance clauses may possibly be required in order to perform even pilot studies of new systems. North Carolina added such a clause in 1971; it by no means grants blanket clearance to alter the existing system. Such matters as the time period for filing, signatures, burial transit permits, indeed, the basic structure of the system may be subjects for experiment. There is no need to assume that the funeral director shall necessarily be responsible for filing the death certificate, nor that a physician need to sign for the cause of death in the system described.

Current Cost Studies

NCHS will later in the week describe some of their efforts to obtain baseline cost data about the vital statistics system.

Development of Options or Alternative Solutions

Related directly to the cost studies should be the systematic development of optional subsystems, representing alternative solutions to the various problems of automation in vital records processing. In the equipment field, one need only peruse Datamation or Computerworld to begin to understand the problem of system selection. The independent companies are causing this to happen through the proliferation of smaller systems. One has to be quite an expert to compare the various products. NCHS would do well to have their computer systems analysts develop options and compare them with current operating costs.

Demonstrations

When a correct option is selected, say on the basis of minimum cost for some fixed operating standard, then that option should be demonstrated in a real setting. Erhardt (1972)[7] discusses the establishment of Demonstration Areas in this regard. Final evaluation of the system occurs here.

Nationwide Implementation

In much the same way as NCHS handles the U.S. Standard Certificates, alternative packaged systems are offered to the States.

DR. ERHARDT: Thank you, Jim. A number of the things that Dr. Palmersheim mentioned have been attempted or are underway in the National Center, I know. Perhaps during the discussion period, Mr. Israel, Mr. Templeton, or Mr. Evans will talk a little bit about some of these things if they are not going to be on the program later in the week, because they have been discussed with the Technical Consultants' Panel on New Techniques. These things may not be generally known and you may want to say something about them at that time.

There has also been an attempt to work out a process for searching, for example, which for one reason or another didn't quite work out. Maybe more work is being done on that and I think we will be hearing about it. But I do want to solicit comments from the people at NCHS in response to some of Jim's suggestions. Let us then go on.

The next speaker will be Mr. Vito Logrillo, Director of Health Statistics, New York Department of Health, who has been asked to tell something about how an automated system would relate to the current system and what his statement might be of cost differences, if any, and how this system might relate to the total system for statistics and registration.

HOW DOES THIS SYSTEM RELATE TO THE SYSTEM CURRENTLY BEING USED? ARE COST DIFFERENCES LARGE OR SMALL? HOW DOES THIS SYSTEM RELATE TO THE TOTAL SYSTEM FOR STATISTICS AND REGISTRATION?

Mr. Vito Logrillo, *Director of Health Statistics, New York State Department of Health*

I think I have lost the advantage by not going first here, since my presentation is geared toward the practicalities of costs and technology in developing an index searching system.

What Jim has gone through and the figures I am now going to quote should provide plenty of food for thought and a lot of questions later on, I'm sure, in terms of rationalizing these differences.

I think the questions being discussed here today, and related developments, are ones which perhaps have overly lagged in time. Similar questions were raised with regard to vital statistics processing several years ago.

In separating the vital statistics registration system into two components, statistics and registration, it is apparent that the statistics component has had a significantly greater development in applications for computer processing.

In many instances today, and Jim's annual report on display will attest to this fact, the computer is being used in the preparation of periodic vital statistics reports and summaries in health related research studies, in record linkage problems, and in vital and health statistics processing generally.

On the other hand, whether in fact or fiction, the "quill pen and green eyeshade" image of vital records registration services persists in many areas.

Microfilm information systems, manual or automatic, have represented the primary and major efforts to update and upgrade this image. Systems such as MIRACODE as used here in Washington and the MOSLER system in New York City are examples of automated systems in use in searching and certification. Though these are not computer-based systems, each has had a significant impact over previous manual procedures.

The input and output of the registration system, very simply stated, include receipt and processing of certificates, the subsequent compilation and distribution of vital statistics, and provision of registration services—the latter, primarily record search and copying.

Each registration area, however, has a unique operating system for providing these services. Generally, these systems are separate: one for vital and health statistics and one for registration.

The applicability of computerization to either of these operations is necessarily a function of many different factors. Considerations as to record and request volumes, current staffing levels, existing record storage and processing procedures, computer availability and, of course, available funds all bear on the final system design.

However, the technical and fiscal implications for the feasibility of a computer system are not overly restrictive in an existing EDP environment.

To place this in perspective, I would like to briefly describe the situation in upstate New York and the considerations used in developing a computer system for searching and certification. Fundamental to this development was the concept of one system for registration and statistics to the degree feasible.

In the vital statistics operation of upstate New York most activities are computerized; in registration, activities are essentially manual.

Microfilm and microfiche are used for preparing record copies and represent an alternative method to a computer system for searching. However, in our situation, the primary source of delay in processing requests was in the search operation; that is, finding the certificate number. Given this identifier, record retrieval from film or fiche was not a significant problem.

As background for this development in terms of our current operation, the unit responsible for searching consists of nine people. Over 100,000 searches are made annually, or approximately 400 to 500 per day. Nearly all of these requests are received by mail.

Indexes used for the searching of certificate numbers are bound printed volumes with a maximum of 70 different volumes referenced per day per searcher. In addition, short form certifications of birth and death are prepared on approximately 25 percent of these requests. Our current turnaround time averages two to three weeks with increases to four to five weeks during peak periods.

A major factor in considering a computer system for this phase of record processing was the fact that our vital records files were available on magnetic tape for records back to 1955. Since this period represented nearly all of our current searching activities in relation to death processing and approximately 55 percent for birth processing, a computer application seemed feasible.

A second consideration for developing a computer system was the planned change in disk storage equipment at our EDP installation. The change from permanent type disk to disk pack capability carried with it a significant reduction in data storage cost. This will be discussed later in my presentation. The capability of effecting changes to our indexes quickly and easily, as well as flexibility in index preparation and speed of computer searching were also factors considered.

The cost of any computerized system will, of course, vary with the type of computer and related equipment available to implement the system, that is, equipment available on site. Our application has been developed on the Department's Burroughs 3500 computer, which has extensive telecommunication and disk storage capabilities. The figures which follow relating to data storage costs are based on annual rental cost for disk packs related to this computer system but are generally representative of similar equipment.

The costs associated with implementation fall into two categories: one-time costs for telecommunications and continuing rental costs for disk storage; all computer programming was performed by Department staff.

For the telecommunications equipment, if purchased, costs in this application are approximately $15,000 and include three CRT display units, two data sets, a controller, and one printer.

With this equipment, identifying information such as name and date of event is entered at the terminal, transmitted and searched on computer and displayed. Our development to date has produced a response time of less than 10 seconds, with the certificate number as well as other identifying information displayed. If a certification is required—this is a short form certification, you understand—it can be printed immediately following visual verification.

For disk storage, rental costs per disk pack with 121 million characters of storage is $8,400 annually. For our application, with 200,000 index entries of 40 characters each per index year, 15 years of indexes can be stored on one pack, or approximately 3 million index records. The annual cost per unit record stored, that is, one index entry, is 3/10ths of a cent.

The total cost for 65 years of index records accumulated and maintained on file would be approximately $33,600 annually, representing nearly one half billion characters, or 13 million index records.

These figures exclude the annual rental cost of the disk drive control for the disk packs since this would be available at the installation. If this cost were included, however, the annual unit record storage cost with 65 years of data would increase from 3/10ths of a cent to 5/10ths of a cent per index record. These costs are *not* in addition to existing costs of the operation. Initially, the search unit staff would be reduced by three people at an estimated saving of $24,000. This is a $6,000 salary per person and 33 percent for fringe benefits, which are quite liberal in New York State, by the way. Thus, the entire initial cost of $23,400 for 15 years of storage ($8,400) and telecommunications equipment ($15,000) is offset by staff reassignment.

As future years are incorporated into the system, up to 65 years, annual costs would increase $8,400 per 15 years of indexes added to the system, with an anticipated reduction of two additional staff at $16,000. This would represent a net annual increased cost, at that future time, of approximately $9,000 for the computer system. This, however, buys a significant reduction in total request processing time now—that is, we anticipate our turnaround time to go from the current two to three weeks to two to three days.

In these figures I have assumed costs for personnel and character storage as constant over time. If past developments in these two areas are any indication, however, one can expect significant declines in disk character storage costs and increases in personnel salaries. An article in the May 1972 issue of *Datamation* touches on the expected trend in disk character storage costs and projects significant declines. The upward trend in salaries, especially in Government, is well documented.

As a specific example, from 1967 to 1972, clerical salaries in New York State government increased nearly 60 percent, from $3,800 to $6,000 per year. In this same period, disk storage requirements and costs on the Department's computer will have increased from $5,400 per year for 2 million characters of storage to $8,400 per year per disk pack containing 121 million characters—a 55 percent increase in cost, for a 60-fold increase in character storage.

In terms of our current application, the cost of storing 15 years of indexes back in 1967 would have been 10 cents per index record or approximately $324,000. This is compared to the current cost of approximately $33,000 for the disk drive control and one disk pack. At the current character per cost ratio this represents a 10-fold decrease in storage cost in just five years.

If this trend were projected 15 years hence, assuming a 50 percent increase in personnel salaries over this time with *no* increase in staff, and a 10-fold decrease in character storage cost, the current *manual* system would cost approximately $108,000 in personnel salaries and benefits alone. The computer system, including a staff of five people would cost $63,000 or approximately 40 percent less. Certainly there is some speculation in these figures as related to future developments. However, given past technological developments in disk storage and the trends in personnel salaries, I don't feel this speculation is unrealistic.

The computer most definitely has a role to play in registration and I think that now is the time to plan for it. The future should provide for a broad expansion of this role at what would appear to be a practical cost.

Thank you.

DR. ERHARDT: Thank you, Vito. I think we had better have the total presentation from the panel and then we can talk from the floor for general discussion and comment.

The next speaker is Mr. Robert L. Liljegren from the Records and Statistics Section of the Colorado State Department of Health. Mr. Liljegren was asked to talk to the point of problems that might be encountered, problems one can anticipate, and this kind of thing.

Bob, it's all yours.

WHAT ARE THE CONSIDERATIONS AND PROBLEMS OF SUCH A SYSTEM? IF IT IS ATTEMPTED, WHAT CAN WE EXPECT TO ENCOUNTER?

Mr. Robert L. Liljegren, *Principal Statistician, Records and Statistics Section, Colorado State Department of Health*

Thank you, Carl. I'm going to take somewhat of a negative viewpoint here because that is in a sense what I have been asked to do. We are addressing the topic, "Does the Computer have a Future in the Vital Record Searching and Certification Program?"

I think we can start off by saying that from a technical standpoint the answer to this question is, "Definitely yes." The computer is technically capable of the job of storing, searching, and certifying vital records. It is probably faster than any other method available at the present time or in the foreseeable future, and it would allow a maximum number of searching and certification processes in a minimum amount of time and with a minimum number of personnel.

However, I feel it would be incongruous for us to consider the computer in vital records only in technical terms. If we could, we probably would have rather little to discuss and I am certain we would have very little to argue about. In fact, we might be faced with the problem of being frustrated by no frustration, which is something we are kind of used to.

From a more pragmatic standpoint, then, I think that this subject is definitely open to debate, especially if we talk in terms of the computer being used for the *total* vital record searching and certification process. As Vito has discussed, they are using the computer in New York as a means of determining where the record is located, i.e., to take the place of the indexing function that many of us now have in the form of hard copy books and so forth. I would like to look at computerization from the standpoint of going all the way and using the computer not only for that, but also for actually providing a certified copy of the record for whatever legal use may be made of it.

Looking at it in this fashion, then, there are a number of problems that we need to focus our attention on, and one of these problems is the matter of record conversion. Most, if not all, of the procedures that are presently being used in vital records certification involve photographic processes; we are taking pictures of records either to store them originally on microfilm or to make a copy of the record at the time such is requested. If we think in terms of utilizing the computer, we are not talking about photographic processes. We are talking about converting information from literal form to digital form, and to convert existing records in this way would require extensive resources.

To my knowledge, there is no means of employing a machine to convert literal information to digital form, not the literal information that is contained on birth and death records currently on file. Because of this, we are left with the rather conventional methods of key punch, key tape, etc., i.e., keying operations to convert data. It is possible, of course, to use optical character recognition equipment, and some States are giving some very serious thought to this and are going in this direction. However, OCR procedures require using a special type font which the computer is able to read, and this changes the whole complexion of the original recording of the event.

Fortunately, it appears that there's some new technology coming out in this area. It looks as though we may be at somewhat of a threshold where in the very near future there is going to be the capability of reading at least typewritten material without the requirement and limitations of special type fonts. Laser technology is coming and some other advances like this.

Another problem we need to seriously consider is completeness and accuracy. As far as completeness is concerned, translating information from literal form to digital form involves such things as signatures and other items that we necessarily have to maintain in literal form. These cannot be converted to digital form and retain the literal quality that we need, therefore, they cannot be stored in a digital computer.

As far as accuracy is concerned, I feel there is a rather large human element involved. This may sound somewhat strange because many people feel that computerization dehumanizes procedures. But when we think of it in terms of converting information, and the converting of this information involves traditional keying operations, we are talking about a person viewing a document, interpreting the information on it, and keying that information into a computer, and this is a pretty sizeable human element.

In regard to this, we need to realize that in vital record searching and certification, we are talking about a legal function; we are not talking about a statistical function. I have often told people that one of the advantages of being a statistician is that you never have to be exactly right; you just have to be close most of the time. This is the philosophy of probability and statistics. But I do not feel that this is the philosophy that we dare let ourselves take on in considering the computer in vital record searching and certification. Close just doesn't count in what we are talking about right now.

Another problem that most of us, if not all of us, are going to have to face is legislative limitations. I don't know what the laws of the various States are; I haven't read them. But from what I have heard, it would appear that most States would have to redraft their laws in order to allow the computer to produce certified copies of records. We would no longer be dealing with the generally considered prima facie facts of birth and death as they are originally recorded on a certificate because we would be converting that document to a digital form and would be coming off the computer with a copy of that digitized record, not a copy of the original record.

Another problem that we have to face, and it is perhaps the biggest problem or barrier, is cost. Vito has discussed this from the standpoint of indexing. Cost for a system that would actually certify a record by computer would cost much more than this, but I won't go into that very much. There are too many variables to consider which would be rather unique to each situation.

One of the advantages, and I might as well throw in one point at least for the computer concept since I am intentionally throwing out all negative points—one real advantage of computerization would be in the area of corrections and alterations. I do not think that there is any available means of storing and retrieving information that has the latitude, speed, and flexibility for making alterations and corrections as does the computer. If you had a completely computerized vital records system with direct inquiry, etc., you could make alterations and corrections very quickly and without delay. In conjunction with this we might want to give consideration to another ability of the computer, namely, to edit data. I assume that most of you are familiar with the edit capabilities of the computer, that to a certain extent it can determine whether or not something is right or wrong, or inconsistent and so forth, within a record. In a direct inquiry type of searching and certification system, such edit procedures could be done at the time a new record was added or an existing record was altered on the computer, and this would be a real asset.

Another thing that we need to give consideration to is the type of inquiry procedures and the turnaround that would be involved. As far as utilizing computers is concerned, speed costs money, and as inquiry speed increases, the cost increases tremendously. For much of the searching and certification work done by a vital records office, batch processing would accommodate the need, and this is relatively inexpensive. But if we are going to effectively accommodate the waiting customer, for example, we cannot be talking about a batch processing type of system. We need to be talking about a direct inquiry system, and these kinds of systems are very expensive.

Also, regarding inquiry procedures and turnaround, we should give consideration to the fact that a vital records system of the type we are talking about would probably exist in a time-share environment. It would be sharing a computer with other systems and perhaps other agencies. In a time-share environment there is the matter of priorities, a matter of who gets on the computer and who waits and how long the wait is. With the advent and trend toward centralized EDP, these are matters that are being decided by other people to a great extent. With the use of the computer, the State Registrar is not totally on top of his registration function as much as he has been in the past.

Just a few more things that one ought to keep in mind and give some thought to regarding the computer; for one thing, the compatibility with an existing system should be considered. Probably you will not be considering computerization as the total system for vital record searching and certification, especially from a cost standpoint. It is likely that you will be considering another system as well and having these two systems existing simultaneously, with the computer absorbing the major workload of searching and certification and some other system covering less active portions of the total file of vital records.

Another thing to consider is confidentiality. With computerization, confidential data would exist on tape or some other media and probably stored some place outside your office and outside your direct control to a certain extent. This matter could be debated, since computer storage media can be read only by a computer, and a knowledge of codes used and format would be necessary to make use of the data. One could argue that such information would be less accessible than readable paper documents currently filed in vital records offices.

Finally, because of the fact that we are living in an age of constant technological improvements, we need to recognize that this is not a subject which we can talk about today only in terms of today. Tomorrow will surely bring some very eye opening improvements, and the possibilities for future developments and future conversions are matters which we must give some thought to as we effect changes in our vital records systems today.

DR. ERHARDT: Thank you, Bob. There are advantages of coming first, also advantages of coming at the end of a panel discussion. I am sure some of your comments, Leo, have been stolen already, but you may want to expand on them.

We were asked to talk about the legal implications and the acceptability of a computer procedure, whether the copies would be acceptable to the public, and to worry a little about the legal aspects concerning signatures. I had asked Bob Hiller, if we had any extra time, to talk about this question of need of a maintenance backup system if the computer system did break down. Since Bob Hiller is not here to discuss that aspect, maybe Leo can.

HOW ABOUT LEGAL IMPLICATIONS AND ACCEPTABILITY OF THE PRODUCT? WILL CERTIFIED COPIES BE ACCEPTABLE TO THE PUBLIC? WHAT ABOUT LEGAL ASPECTS REGARDING SIGNATURES?

Mr. Leo A. Ozier, Chief, *Office of Vital Records, Illinois Department of Public Health*

You are quite right about coming on last. Everybody stole my thunder. If Vito thinks I stole his, he ought to help me. As he talked, there was one thing that came to my mind about an unfortunate situation in Illinois—not at the State level, however. The City of Chicago had its birth records on computer tape with a security file. They put some special things in their tapes—special programs that they had—and for some unknown reason not only did their working tapes for 1969 births get erased, but so did their security tapes. Now, they find it necessary to replace them by keypunching the documents all over again. So, there are some hazards about computer systems that indicate safeguards would certainly have to be established.

I think I could say this in one sentence about the legality. Unless the statutes of a State are to the contrary, a computer generated certification or certified copy would be legal.

There are certain other computer generated documents accepted in court and I would see no reason why such a generated copy of a birth certificate, death certificate, or divorce record would not be. I cannot, at this point, go along with Jim's idea of a paperless system, though sometimes when I see all the paper I have to deal with, I wish it was so. I think it may come about some time long after I don't have to worry about it, but in the meantime, I would suspect that we will have to go along with both tapes and paper.

In Illinois, as you have heard before, we are developing a total health information system: along with all of the other things, they also from time to time take a look at what can be done with the vital records program. I have too little time to keep up with it all at this time, but they tell me, as of now, it is feasible to computerize the vital records system. They are basing that theory on the use of multifont electronic retina computing reader. I have pictures here of the existing 1968 revisions of certificates to which they add a couple or three little coding boxes, and they say they can catch every item on the documents. They are suggesting, for example, that county clerks' files be eliminated, local registrars' files be eliminated, and that the computer center in Springfield be keyed to a telecommunications system and telecopiers. If a customer calls on a local custodian and wants to acquire a birth certificate, the custodian can get it from Springfield by phone. This is feasible, but again costly. So I don't know. I am sure you, like I, have been hearing that it is around the corner or down the street or on the drawing board for so long that you really wonder, "Do we mean it?" I don't know if we are yet able to say we mean it, but I do know that we are closer to being able to say, "We mean it."

I also know that in every State, the searching process is a serious problem regardless of the system that is being used. We improved ours by going to microfiche index. It still isn't as fast as we would like. If one were able to key in a name, a date, a few other bits of information, especially on the requests that come in by mail—dump them into the computer center in the evening about five o'clock, go home and forget it, and find the computer generated copies waiting the next morning ready to mail out, we would have a great system. The problem is priority in the computer center, which in Illinois is centralized in the Governor's Office.

So, Carl, there isn't too much that I can say that they have not said and I think there are a lot of people out there waiting to say something or ask something. So maybe we could better spend the rest of the time by listening to them.

DR. ERHARDT: A number of issues have come up.

First, there seems to be a general consensus that this kind of a process is feasible, is possible. The illustration exists in upstate New York. I know that California has experimented in the past with it—more of a kind of batch processing, in trying to get death records for persons who are being followed up in epidemiologic studies so that we know these things can be done. There have been some questions raised. One of them which seems to come up again and again is the signature problem.

My own feeling on that is that it is a very minor and inconsequential thing. I think it may turn up in the discussion later this week with representatives of some of the agencies that use copies—such as the Passport Office—that the value of the record does not really depend upon the signature of the physician on the document. He may think it is important. The family would like to see the signature after they have paid the money for the delivery. But this isn't really what makes the document a good, valid record. It is the fact that the document was filed at the time of birth. It doesn't make any difference whether it was signed by the taxicab man or the ferry boat captain on Staten Island or whether it is a nurse in the hospital. It doesn't make any difference what the signature is. The real significance is the document was filed at the time close to birth, and 30 or 40 years later you have a record made of the event at the time and it doesn't make any difference who signed it.

So I think we can get lost on a problem that is really very minor. At least this is my opinion of the matter.

There are other problems, for example, problems of conversion. You can, of course, if you want to go into a computer system,—as Vito has described in upstate New York—take the more recent occurrences and work backwards. The cost of putting this information in, of course, is something to be considered. At the present time, the problem is getting the money to do this. Some of the NCHS people might want to talk about what they are doing along these lines.

John Crandall's system in D.C. has been mentioned. The New York City system has been mentioned. I don't know, Vito, whether you get your information from the *New York Times*, but the *New York Times* always carries releases from the Health Services Administration which talk about the computer doing the searching.

MR. LOGRILLO: Yes. Completely erroneous.

DR. ERHARDT: Completely erroneous. But it is picked up that way. Paul might want to talk to that point. Glen Fox and his operations down South are extremely interesting.

DR. ERHARDT: There are a number of people in the audience we would like to hear from. We would like to hear any one of you talk about what you are doing, or ask any questions you want of any member of the panel. Please, if you do, get up and let us know your name because the stenotypist will have to have that in order to identify who is speaking. The floor is now open for discussion.

MR. BURDO: Harold Burdo, Acting Chief, Vital Records Management, State Department of Health, Connecticut. I think my question will be directed to Mr. Liljegren and Mr. Logrillo.

You mentioned, Bob, the editing process and the corrections to the system that they have in upstate New York. I suspect we will hear more about it when we get to the Federal use of certificates. One of the problems I face is that the Feds are always asking for a substantiation of a correction, and I am not quite clear if, when you talk about an editing process in this disk system, whether you are going to ask for another system to establish why the correction was made.

DR. ERHARDT: You mean when a certified copy is produced which indicates this is a corrected document, you get an inquiry as to the basis for making the change?

MR. BURDO: That's right. You know, was it arbitrary or afterward, or what else?

DR. ERHARDT: Yes.

MR. BURDO: I'm not quite clear how you are going to edit this.

MR. LILJEGREN: I'm talking in terms of utilizing rather classic procedures at the time changes are made for the file.

MR. BURDO: So you still don't document the paper copy? You are correcting the original and then editing the drum later on so it is not really a paperless system?

MR. LILJEGREN: No, I'm not talking about a paperless system.

MR. BURDO: Sounds like somebody's going to have to store a lot of paper instead of a lot of drums.

MR. LOGRILLO: Let me talk in terms of indexing. If a change is made as a result of an adoption or filiation, when the adoption or filiation order comes in, this would be given to the individual at the CRT terminal. Using the adoption order as an example, the original name, date of birth, and other identifiers will be entered at the terminal and a search made by the computer. The certificate number, the place of birth, the county, the name of the mother, etc., are displayed, visual identification made, and the operator would immediately effect the change in that original record by entering a code "one," for example, which would indicate that this record had been changed as a result of an adoption. That would be entered into the original index record or disk via the CRT. This is what we are doing now. This code is entered into that index record and the original record remains on the disk file. The new name and other information would also be entered on the disk file as a new index record through the CRT.

Now, subsequently, if someone comes in and asks for the original record for example, the operator doesn't know it was a changed record at this point. She would enter the name, date, and county if known, but not necessary. The record would come back displayed on the terminal, and she would, at that point, see the identifying code "one" and know this was an adoption and would not issue a certification. Since this original record is available only by court order, it would be referred to the supervisor of the unit. A letter would go from the unit indicating "We can't accommodate this request without a court order," or something to that effect. In our processing of adoption and filiation cases we have to, number one, search an index to get the certificate number so we can have the certificate changed. Then we would abstract on a code sheet the information that this was an adoption, plus make a new certificate, get it key recorded, and using a matching program, change our computer record. The CRT provides immediate access. If a request comes in, the operator looks at it, physically calls up the index record, makes the change, indicates that it was changed, enters the new record, and she's done with it at that point. This is how we would handle that.

MR. BURDO: I understand that, but what happens when you change the name from George to John? You are not going through the legal procedure?

MR. LOGRILLO: We would never change the name from George to John until we had a legal document coming to the department saying that this George Jones is now John Jones. Given that, this would be given code number "two." They would enter that into the system. Because of a court order which is on file, it is not thrown out; it is on file. The record on the system is immediately changed. If a request comes in the very next day, the operator would issue the new record by touching a "print" button. This would activate a print program at the computer and a formatted certification would be displayed and printed. Since a code "two" was in the record, a message would also be printed on the certification indicating the record was changed by court order.

DR. ERHARDT: I think the problem, as I see it, Vito, is that you have, say, the name of the father changed from Charles to John Charles because he used only his middle name. When after correction you issued a certified copy of the record, would the current record show the information and show the change? This, I think, is the issue that comes up with, say, the Passport Office. It wants to know that there is something different there and may want to know on what basis was the change made

Now, if you have this information on file and you make the change immediately and promptly, does that mean the original information is erased by this process and you no longer can recover that? You could have a code to indicate it is a corrected record, but could you produce what was originally there? This, I think, is the question.

MR. LOGRILLO: You never lose what was originally there. What you do is to identify, again as in the adoption case, what had happened by using a code. This is actually a key to the operator or computer that there is some special handling involved here. That's really the point.

In terms of making a certified copy, which we are not doing at the moment by the way, we can issue a short-form certification—that is, simply printing the name, date of event, place of event and the file number and date. This is used for school enrollment, etc., and it is not a full-blown certified copy.

In this case, Carl, the code will simply indicate a change had been effected and a message would print out on that certification. If a code "one" comes out and a certification is made, the print routine would pick out code "one" and type on the certification, "Change was made according to Public Health 12421" etc., saying that this was a court order of change of name. That's all that happens.

DR. BALE: Dr. G. S. Bale, Director, Records and Statistics Division, Iowa State Health Department. We have two problems. One is that we have a system where we can get information for statistical purposes and another system where we can get some rapid retrieval for searching and retrieval of birth certificate records. We do not have a computer in the State health department.

Now, the question is: given the cost of acquiring a computer, is it justifiable to go into one system or to go to several small systems where we will have both the documents in the old control so we can produce them and, at the same time another system where we can get information for the statistical system? Any comment on this?

Have you talked about having several systems rather than one system, is my question.

DR. ERHARDT: Are you suggesting, Doctor, that it might be feasible or more simple, operationally, to utilize a centralized system for producing your statistical data but because of demands for certified copies, you have a smaller system in-house that would produce that? Is that what you are driving at?

DR. BALE: Yes.

DR. ERHARDT: Anyone want to tackle that question?

MR. LOGRILLO: I will make a brief comment. I doubt seriously the justification for a separate computer system for registration, vital statistics, or certifications. I don't know. We share our computer with the New York State Environmental Conservation Department, where we have automatic data monitors spread all over the State. These feed into the computer every 15 minutes. I believe right now there are probably 20, a minimum of 20, teletype terminals hooked into this system. For indexing, we plan to be on-line, and to start at eight o'clock in the morning. The mail would have to be sorted then and we can start getting back our certificate numbers and, of course, make our copies from the microfiche records. We have our computer in the health department and we do get a priority on that, but I don't think a total computer system, just for that operation, is justifiable. We are able to operate in a mixed computer environment.

DR. ERHARDT: Any dissent, Jim?

DR. PALMERSHEIM: No dissent, but it seems the system you are using is one that allows you neither dead space or correspondence space, but if it were, I think you would have the problem of upgrading of the system. What kind of a computer is it?

MR. KING: William G. King, Supervisor, Public Health Statistics Section, Oklahoma. We have several systems. For example, the State of Oklahoma is trying to operate where it can use both alphabetical and numerical, but the caution is that we do not have a computer to go to any system, and how can we convince this State so that they can get a computer to go into the system?

DR. ERHARDT: That is, I think, a question of convincing the legislature of the problem.

MR. HALL: I am Brice Hall, State Registrar and Director of Vital Records, Tennessee. We are in the process of going to the microfilm system. That is one reason why I would like to hear all the pros and cons. We have been studying it thoroughly. We will start right away, but it does not entail the statistical data.

This will involve questions only about certified copies and the big problem has been from Eastman Kodak. What are we going to do about updating the certificates—the teens, the twenties, and thirties? We will have thousands and thousands of Baby Girl Smiths and Baby Girl Jones and somebody will say, "Go ahead and send a facsimile print out there," but of course we can't take the money—the law will not let us send it out.

What do you do in New York and North Carolina? How do you update that certificate? What do you do to let them know that it is in error, that you cannot issue? Then how do you update it on your film?

DR. ERHARDT: Is John Crandall, Chief of Vital Records, D.C. Department of Human Resources here?

MR. CRANDALL: Yes. John Crandall is here.

DR. ERHARDT: I assume Mr. Hall is talking about a system similar to yours, and perhaps you can answer the question about those corrections that get into the system and how you get a copy.

MR. HALL: While he is covering those things, we do require affidavits and proofs and we hope that no one ever sends us to court on it because they can get a court order and say anything they want to.

MR. CRANDALL: We have the same kind of courts and the same kinds of proofs coming into our system that you have in yours. Hopefully, our whole records seem not to be as bad as the ones that were filed in the last five or six years.

When we get a correction, let us say, to an 1899 birth record—let's make it 1900 since 1899 is not on coded film. When we get a correction on a 1900 birth record, we accept it as you would any correction coming into your office. We look it up on the coded film that we have now. In a matter of seconds, we should have the record there in front of us. If we are going to correct the record, we scratch the record that is on film now. We put one long scratch through the date of birth so that it cannot be satisfactorily reproduced. Anybody that sees it should see the scratch. After the copy is printed, the scratch looks even larger so that it should not get out of the office. If we hand it to someone, they are surely going to see that scratch.

In the case of adoptions and legitimations, we put three large scratches on the film so that it is completely defaced as far as the date of birth is concerned. We then make a summary of the correction and we attach this to the front of the birth certificate.

Now, I left out a step, because before we scratch the record, we make a copy of the record. Then we scratch it. On the copy that has come out, we make a correction at the bottom. We remicrofilm it and we splice this in a general cassette that, in that era, covers a 10-year period. This allows us to make 2,000 corrections before we go to a second set.

So five days later, we get another request for this very same 1900 birth certificate. We inset the case of film and in the average of five seconds we have the record in front of us. You can see it is scratched. We can return it to the case it is in, in five seconds, and put it back in the file that is to the operator's immediate right.

She then reaches in the bottom drawer, pulls out the period covered in 1900 and 1909, and inserts this in the machine without changing her keyboard at all. She pushes her search button and in less than nine seconds sees the records. She goes to the display record; it is displayed on the view screen. She pushes the display print button and out comes the corrected document. This takes care of everything with exception of the subpoena.

With subpoena documents, we give them nothing less than the original record. We get the records from Suitland, Maryland, where everything is stored. This takes three days. Otherwise, we are on completely automated microfilm for all births from 1900 through 1971 and all deaths from 1966 through 1972, the current months.

We do not have any marriages or divorces recorded in our vital records setup in the District

DR. ERHARDT: Thank you, John. Another question?

MR. BURDO: Yes. May I ask John a question, please. John, when you splice that do you have an archival roll or do you do it through a working roll?

MR. CRANDALL: We reproduce the working roll for corrections on an every three or four year basis, and then we file it as archival. We do not scratch our archival and we do not update our archival as we do our working film.

MR. ROOKE-MATTHEWS: Frank Rooke-Matthews, Head of Marriage and Registration Division, London, England. Gentlemen, could I follow up on that last answer? Does that mean that if the working film is destroyed, the archive film is uncorrected and displays the original corrected information?

MR. CRANDALL: That means exactly that. If the working film is destroyed—now, we are talking of a cassette of films that has the births for January 1900—then we have to go to a roll of film that covers our January 1900 births and reproduce that. Then we have to take our corrected roll of film from 1900 through 1910 and duplicate every correction that was made to a January 1900 document and go through the new roll and rescratch the records.

DR. ERHARDT: Thank you very much, John.

Marshall, do you or Bob, or Marvin have anything to say about what NCHS is doing in these areas, or do you want to leave that for some other time?

MR. ISRAEL: I think the people from the Data Preparation Branch or Division of Data Processing would have more to say on it than I would.

MR. TEMPLETON: I think I share some of Bob Liljegren's views with respect to putting the searching and the whole file maintenance process on the computer system, because I believe as he does that it is technically possible today. I don't think there is any question about what can be done.

The question that has always been in my mind: is it really practical? Maybe other States have large back files of birth and death records, and if they were to develop such a system, it means that they have to go back and create input to that entire system which may be accounting for hundreds and thousands of records. I am not so sure that the cost of doing that is really justified. If you could, realistically, compute some sort of a record reference rate, if you knew you were going to go to every record in the entire file, then you have to justify the cost of creating each one.

I am not certain we know enough about how frequently we reference these records and it might appear that it would average out maybe three cents a record. But if you consider the records that actually get referenced in the system it might be $3 a record. I don't know.

I feel that there are a lot of unknowns in this. I think it needs further study. I don't mean in any way to cast any reflection on Vito's system because I think he is using it a little differently. I do have some reservations about how practical it is.

DR. ERHARDT: Thanks.

MR. LOGRILLO: Could I just make one comment. I would guess that if we were to cost this thing out in terms of the number of records that are actually referenced in a system, the cost would not be 3/10ths of a cent. However, this is unrealistic. I think what you have to look at is that any one of those records is at risk of being called upon at any moment with equal probability. You can't be selective. You have to put them all in and the costs are really not that high as I've discovered. Maybe there are differences in cost, but these costs aren't really that excessive.

MR. TEMPLETON: I might follow up my original comment by saying this: if we can come upon a new system for getting the entire birth record into some sort of a computer system so that the initial input can serve all purposes, if we attain that sort of a system, then we cannot afford to eliminate using the computer to search and issue certified copies. I don't know if we will get to that stage.

DR. ERHARDT: We did a study at one time of the demand for records over the years. I can't recall the figures precisely, but I think the results were published in the *Registrar and Statistician*. As I recall, it was something in the nature of—starting with the records of 1910 over 40 or 50 years—a total reference of, say, three or four in a hundred or something of that magnitude. It becomes a very small number.

But of the more recent records, within a few years after the records were filed, at least 50 or 60 percent of the records already had copies required. So utilization for this kind of purpose has been increasingly found: the reference to files will be much greater in the future than it has in the past. Or if it stays at the same rate, a great many records will be used.

So the cost that you are concerned about is closer to three cents than the $3.

We have another panel presentation coming up.

Automated Standardized System for Indexing and Statistical Tabulations (ASSIST)

DR. ERHARDT: We will call the second half of this session to order for discussion of the automated standardized system for indexing and the statistical tabulations (ASSIST).

The speakers from the National Center are Mr. Israel, Mr. Templeton, and Mr. Evans. They have been allocated about 15 minutes apiece to make their presentations and then we will ask the reactors, or the members of the panel, to give their reactions to what has been said. They have been allocated about 5 minutes apiece, after which we will open the floor for discussion.

I think it probably is better to hold your questions until that time, please. Make notes of them as you go along so that we can have some discussion afterward.

Mr. Israel, who is the Director of the Division of Vital Statistics of the National Center for Health Statistics will lead off the discussion.

Bob.

COOPERATIVE DEVELOPMENT OF AUTOMATED STANDARDS FOR DATA PROCESSING, TABULATION, AND ANALYSIS

Mr. Robert A. Israel, *Director, Division of Vital Statistics, National Center for Health Statistics*

Thanks, Carl. This afternoon I have what I consider to be a fairly easy assignment. I am supposed to introduce the general topic and let the details come from my fellow speakers. In making an introduction, I can be quite general, rather nonspecific, and maybe noncontroversial. I am not sure that I will be able to do all those things.

DR. ERHARDT: It could be, especially if you don't say anything.

MR. ISRAEL: Nonetheless, let me start by pointing out there is a preamble to this session in your program book on page 15 under the heading "Automation in Vital Statistics Data Programs." That tells a little bit about what this program is supposed to cover.

I'd like to start by reading the two sentences or paragraphs that I felt most pertinent to this particular part of this discussion. The first of these says:

"If we are to have a cooperative vital record and statistical system in this country, we need standardization of definitions, codes, and quality controls."

There are some other things that I think we need if we are to have a truly cooperative record and statistical system in this country. Certainly not the least is standardization of some of our procedures. I am sure many of you have heard me point out in the past that if ever there was a beginning of a cooperative system between the Federal Government and State Governments, it exists in the vital statistics and vital records area.

It has existed, and I expect it to continue to exist.

"Cooperative system." Those words mean a lot of things to a lot of people, and perhaps they mean something else to me than they do to you. But I always have a vision, when I talk about "cooperative health statistics system," of partners that are sharing the workload and working together in trying to accomplish some kind of a similar end.

Now that doesn't mean, of course, that the partners always get along with each other. There are all sorts of funny jokes which I won't go into, only because I can't remember them, about partners in business and how they are slowly starving to death, for example, because neither one will go out to lunch and leave the other one watching the store.

We do have our differences of opinion between the various levels of government, local level, State level, Federal level, and so forth, with the county level certainly involved rather heavily in some of our programs.

This doesn't mean that we can't look towards improving and strengthening the cooperative system that we already have. We have a good building block to work with and I think this gives us a real leg up on the problem.

The other paragraph in the preamble says:

"Much of the vital statistics data in this country is processed three times: we need a system which will avoid this duplication."

Let us consider for a minute this question of processing three times. It isn't always processed three times; sometimes only twice, and in a few cases, maybe once. But most often there is duplication of effort. There has been duplication of effort over the years.

We might ask ourselves, "Why has there been a development of duplication of effort in a system which I have already called a 'cooperative system' "?

I think that some of the answers are obvious and some not so obvious.

Surely, duplication crept into the system because there was a feeling that enough standardization didn't exist. There was not enough trust or reliance on the part of one partner for the other, or perhaps there were other problems. Problems of time certainly are extremely important ones and surely the problems of lack of availability of timely data at one level had serious implications at other levels.

Nevertheless, I feel that we have to look not to the past and say these are the reasons for duplication but, rather, to the future and say how much of this duplication can we remove and how much of it, if any, should we leave in the system?

Because I believe, too, that there may be instances where some duplication is of value, although I would certainly subscribe to the position that such duplication would surely have to be strongly justified.

What then can we do about the elimination of duplication of effort? And what can we do to strengthen our already existing cooperative system?

I am a firm believer in having, in a cooperative system, those parts of the jobs done by those partners equipped to do the job. I can think of pieces in the vital statistics system where the job can be done much better at the local level than at the Federal level. I can think of many instances of this sort, and I wish you would have these in the back of your mind as the presentations are made this afternoon.

The most notable of these, to my way of thinking, is the question of geographical coding. I think it is almost foolish for a central or a Federal operation to try and decide whether a particular address as given on a birth certificate lies, let us say, within the confines of the District of Columbia or whether it is in Montgomery County, Maryland, especially when the post office address doesn't give you much of a clue.

This is an example of where a local effort is more equipped to handle one piece of the job. There may or may not be activities which you feel might best be done on a central basis.

There have been proposals made, for example, for some of the detailed medical coding to be done on a more highly centralized basis. These are debatable points. I don't wish to take a particular position on them, but bear them in mind as we proceed through the presentation this afternoon.

Let us turn now to the specific title of our presentation. We are talking about something called project ASSIST, an acronym which stands for Automated Standardized System for Indexing and Statistical Tabulations.

What do those words really mean besides the fact they are an interesting acronym?

Let us look at some of the words or phrases that appear in this acronym "ASSIST."

"Automated." The title of the session this afternoon indicates the overall interest in this whole subject. We are talking about automation in the vital statistics data programs. Because of the record volumes that exist at the national level and certainly at the State and local levels, we have to be looking toward some sort of automation, be it computer or microfilm automation or other technological automation. We certainly cannot continue to handle a paper system; Jim Palmersheim has suggested, a paperless system. We just can't deal with it in the same way as we have been dealing with it in the past. It breaks down from its own sheer volume and weight, and I have already mentioned questions of time and timeliness.

Surely at each of the levels of government where we are interested in vital statistics data, we can, given sufficient time, plod our way through the production of annual data. But is there sufficient time? Are we reacting to the needs of our users?

I think most of us here would agree that we need to look toward automation of some sort.

The next two letters in the acronym stand for "Standardized System." We have been making a lot of progress over the years in the area of standardized systems. I might go back to the early part of the century when, in fact, the Division of Vital Statistics—then located in the Census Bureau—began to work closely with the various State governments that are responsible for the registration of births and deaths. I might point out that we have a history of nearly 70 years of trying to introduce more and more standardization into the system. Had we not had that continuing effort which goes on even today, there would be no national vital statistics. There could be no national vital statistics because we would have a conglomeration of dissimilar pieces of data.

The production of standard certificates of birth, death, marriage, and divorce (even though there is not complete adoption of these as introduced, enough standardization exists so that we can combine our data and look at a national picture), the issuance of model regulations, and model handbooks explaining what is needed and what is meant by the various items on the standard certificates—these have all been efforts in the past to introduce standardization, not for standardization's sake, but for the sake of producing a uniform model statistics system in this country.

The next letter in the acronym: "Indexing." The key to the registration aspects of the vital statistics system really is a question of indexing, for without access to the records as legal documents, they have no worth at all for that point of view or for that use.

"Statistical Tabulations," the last two letters in the acronym, are also keys. They are keys to the statistical aspects of the system which we are utilizing at every level, at almost every turn. Vital Statistics are basic building blocks to the whole health statistics system, and without some kind of standardization in the way we do our tabulations, the way we look at our data, the way we classify our data, we would have a very chaotic situation indeed.

So let me say that project ASSIST, which I have not attempted to describe because I leave that to my colleagues, is a flexible—and I think that is a very important word—a flexible, computer oriented approach to strengthening a Federal-State cooperative effort in the vital statistics area. The effort has been in existence for many years and touches at the heart of the program of the Division of Vital Statistics in the National Center for Health Statistics. It simultaneously illustrates aspects of the Federal-State-local cooperative system about which you have heard something already and about which you will continue to hear more during the course of this week.

I feel that if there will be a cooperative Federal-State level health statistics system, its beginning has to be and has been the vital statistics system.

DR. ERHARDT: Thank you, Bob. We now have a general background statement. The flesh on the bones will be added by Mr. Templeton and Mr. Evans. The next speaker will be Mr. Marvin C. Templeton, Assistant to the Associate Director of the National Center for Health Statistics, who will carry on the discussion.

CURRENT STATUS OF PLANS, PROCEDURES, AND ACTIVITIES DIRECTED TOWARD COOPERATIVE VITAL STATISTICS DATA PREPARATION SYSTEMS

Mr. Marvin C. Templeton, *Assistant to the Associate Director, National Center for Health Statistics*

Mr. Israel made references to efforts in reducing duplication in the whole area of vital records and vital statistics processing. I do not think that this is anything new. If I recall, back in the early 1950s—and I am sure that most of you in the audience were around at that time—we undertook plans to reduce and minimize duplication of effort.

However, because of the level of technology at that point and a lot of other circumstances, that effort failed. It really didn't fail totally. It just didn't work too well during the 1950s, and so we decided in 1960 to abandon it.

During the 1960s, all we did was talk a lot about plans and ideas for eliminating this duplication of effort on the part of the Federal Government, the States and the cities and counties.

About three years ago everyone in the Center and many, many of the State people began to indicate that some new efforts should be made to eliminate some of the duplication, particularly in light of the fact that we had new technology available, including computers and all sorts of other hardware.

So we decided to do something about it. We initiated what we called then a limited feasibility study to determine in five States whether or not there was some possibility, by looking at their procedures, talking with them, and that sort of thing.

It soon became very apparent that the need for a feasibility study just didn't exist, because when we talked to State people, they all indicated that if procedures were not similar enough, they were perfectly willing to sit down and do whatever was necessary to make them compatible with those of the Federal Government and the Federal Government's needs.

So with those developments we abandoned the feasibility study.

One of the States indicated a real interest in pursuing an arrangement whereby it would furnish us vital statistics data on magnetic tape. During the past two years NCHS has entered into contractual arrangements with two agencies to provide vital statistics data to NCHS in machine readable form. The registration areas currently providing data are Florida and the New England Regional Center for Health and Demographic Statistics.

The New England Regional Center receives machine readable data filed from the States of Maine, Vermont, New Hampshire, and Rhode Island, performs all of the activities related to the contract, and forwards the consolidated data file to the NCHS.

Experience to date with those contracts reflects a level of success that supports this procedure as a workable and practical approach to reducing duplication of effort in producing the input files for tabulation of State and national vital statistics.

I think that the experience with these two contracts has shown, without any question, that this is a practical approach.

The most recent assessment of the agreement between the NCHS and the State-prepared data reflects levels of disagreement well under 1 percent. Oftentimes these disagreements—and I call them "disagreements" and do not consider them errors because often it is merely a difference in opinion as to how a classification rule shall be applied to a particular item. Such disagreement is solely due to judgment as to how to handle the "oddball" entries. Some are due to simple human error that is always present in this type of coding and keying operation.

Excessive error in a single item has occurred. Such error has been due to a systematic problem in interpretation and application of rules, et cetera. These have been simple to resolve and have resulted in the "sharpening up" of the rules and procedures through mutual clarification as to how they should be applied in handling unusual data entries.

Certain circumstances at the outset of development of these cooperative efforts certainly enhanced the chances of early success. For instance, the State of Florida, at the time it indicated interest in pursuing such an arrangement, was in the process of redefining and establishing new data input specifications and format into its own computer system to meet its own needs. This presented a very timely opportunity to build in the necessary changes to accommodate NCHS needs.

In New England the group of participating States had already developed standards for coding and keying data, including input record formats. Since one of their initial objectives was to attain a reasonable level of comparability with NCHS data, further adjustments to meet NCHS specifications were minimal. I think this speaks for a point that Mr. Israel made: that the business of standardizing codes and procedures and methods is really vital to the whole system if we are going to automate it to any extent whatsoever.

In reviewing the present procedures of other States and our experience with the first two contracts, indications are that there already exists a very high level of compatibility between NCHS and State specifications. Natality data present a greater problem to dovetailing the two procedures; however, it can be done.

Marriage and divorce record procedures and format vary considerably from State to State and, as a result, we have given them lower priority in the development of cooperative procedures. That is not to say that we are unwilling to work out cooperative arrangements on marriage and divorce records, but we think that as we progress with the mortality and natality data systems, we will develop a methodology applicable to the marriage and divorce data as well as with other types of health records.

Perhaps the most important single step that could be taken that would simplify the entire process is the development of standardized coding and keying procedures, including rules for handling the exceptional cases. NCHS is in the process of drafting a model procedure with the hopes that with participation from State vital statistics offices, such a document will become a reality and will become an accepted standard similar to the "Model Vital Statistics Act."

Progress to date in establishing cooperative activities has been slow because:

(1) We had to carry out some experimentation in order to develop the methodology.

(2) At the time we were working with the State of Florida and the New England States, we had very limited funds that particular fiscal year which restricted the number of contracts. We had to postpone new contracts until such time that additional funds would become available.

(3) A basis for developing a contractual arrangement with the States had to be studied and worked out that would provide a basis for NCHS to support its equitable share of the costs. A lot of effort went into this process, since all the rules and regulations governing the contracting process had to be considered.

I might say something about the future plans for expanding this sort of cooperative effort. NCHS plans to expand the number of cooperative data processing agreements with States. In fact, we are contemplating as many as eight new contracts in fiscal 1973 with continued expansion thereafter in fiscal 1974 as additional funding will support. The number of States that we will establish agreements with in 1973 is going to depend largely on the funds that we get. Also, many times we need a year or more lead time in negotiating with a State, unless it happens to be right at the moment in the process of revising its procedures. That's the case where we are able to build in the NCHS needs very easily. Otherwise, we need to start about a year and a half in advance of the data year.

Some of the very basic procedural steps are:

(1) We will contact the States for an expression of interest. Are they interested in participating in such a plan?

(2) If so, we will request copies of the States procedures from which we will prepare a summary of the differences and define specific items that need to be adjusted.

(3) We plan on calling a joint NCHS-State meeting to discuss these problems and also possible solutions, as well as the implications of entering into a contract.

(4) Once step 3 is completed, we will have NCHS data preparation technicians visit each State office, where we are trying to develop a plan, to work out the detailed procedures on mutually satisfactory bases.

(5) At that stage, we will be ready to negotiate a contract. I mentioned establishing the procedures on a mutually satisfactory basis jointly with the State. This assures the Federal Government and also the States flexibility in that provisions are made to meet any new State needs without upsetting the whole plan. By the same token, we feel that this sort of a plan will provide the Federal Government with a level of flexibility so that we do not get in the position that we were in in the early 1950s when our efforts to develop cooperative arrangements collapsed. It was for that reason that they collapsed.

We have some additional objectives. One I mentioned is to establish a model data preparation manual that will be developed jointly by the NCHS and the States and another is to establish standardized edit specifications. This is a need that has been identified during our negotiations with the States. These will be computerized edit routine or specifications for computer editing. Many of the States feel that this is something that should be established and we are planning on its development as another element of standardization.

NCHS's objectives are to develop a cooperative system in a way that will permit adequate flexibility at both levels whereby needs can be met through adjustment and yet retain the full potential of the system. A very important point and an important problem that we face is the establishment of a contracting mechanism that will afford opportunity for the funds to be utilized by the State vital statistics programs in carrying out certain activities that will have a direct bearing on the timeliness, quality, and completeness of the data produced.

As in the past with our data procurement program, the funds supporting the microfilm contracts, in most instances have gone into general revenue funds of the States. The States vital statistics offices have performed the services and have not realized any financial benefit. We hope this is a pitfall we will be able to avoid.

DR. ERHARDT: Thank you, Marvin. I think it is safe to conclude from what Marvin said that we are talking about something this afternoon that is on the way. It has really been in operation; already a couple of years of plans are laid down to extend this program. I recall the earlier system that Marvin refers to. It caused a lot of complications within the local office, and I presume as many complications in the Federal office. I am hopeful by having all these agreements made in advance that the new system will eliminate a lot of complications that arose with the earlier ones.

The next speaker to expand on these remarks is Mr. Marshall C. Evans, Assistant to the Director, Office of State Services.

OBJECTIVES AND OPERATING OVERVIEW OF AUTOMATED STANDARDIZED SYSTEM FOR INDEXING AND STATISTICAL TABULATIONS (ASSIST)

Mr. Marshall C. Evans, *Assistant to the Director, Office of State Services, National Center for Health Statistics*

My remarks to you today are directed to the Project ASSIST, what it is intended to do, where it stands, and the various applications to which the system will be put.

I am going to use some slides that have been prepared for us by Brad Johnson of the NCHS staff.

The work ASSIST, as Bob Israel mentioned earlier, is an acronym for "Automated Standardized System for Indexing and Statistical Tabulations."

This system is being designed to achieve three major objectives. The first of these objectives is to automate, to the highest practical level, the various aspects of the national vital statistics system, with the idea that automation will minimize human handling—coding, keying, manual corrections, verifications and the various other steps in data preparation. The system is intended to simplify and improve quality control procedures through automation.

A major feature of this system provides for coding of statistical data on vital data records, excluding the medical data for the time being, through computer applications rather than traditional manual coding. The system will bring into play currently available hardware, optional use of optical character recognition methodology which minimizes human handling and will provide a mechanism for independent verification procedures through computer applications. Independent verification has the advantage of improving the level of accuracy in statistical data and providing a mechanism for more accurate measurement of error.

A second major objective of the system is to develop standardized definitions, terminology, degree of data detail, for statistics applications at various levels of government. We heard a great deal about that in sessions this morning. My talk about standardization and establishing definitions will attempt to describe a tangible way of achieving these goals.

The third objective is to provide a single system of data handling that meets the needs of Federal, State, and local vital statistics programs. ASSIST is intended to provide a single system which will meet the data statistical needs of all three levels of government through one effort of input and data processing, thus minimizing the long standing duplication of effort in vital statistics data preparation and processing.

To summarize, then, the objectives are these: to further automate data processing related to vital statistics; to provide a standardized approach, definitions, items, classification details, and the like; and to provide a single system which will meet the needs of three different statistical systems—local, State, and Federal.

Now, a few general remarks about the ASSIST system. It is being developed initially for birth certificates. The goal is to code all of the information on the birth record, with the exception of the medical data such as congenital birth defects, or complications of pregnancy, and to provide data on tape for indexes and mailing lists. Once we have developed the system around birth records, we expect to adapt it so that it will be applicable to death, marriage and divorce records.

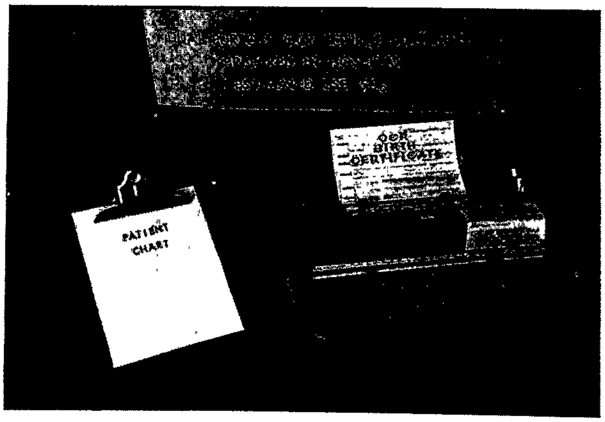
This is a flexible system with several application options. It can be used entirely at the State level and in all of its features. In this instance NCHS can obtain information needed for national data as a byproduct of a State's effort.

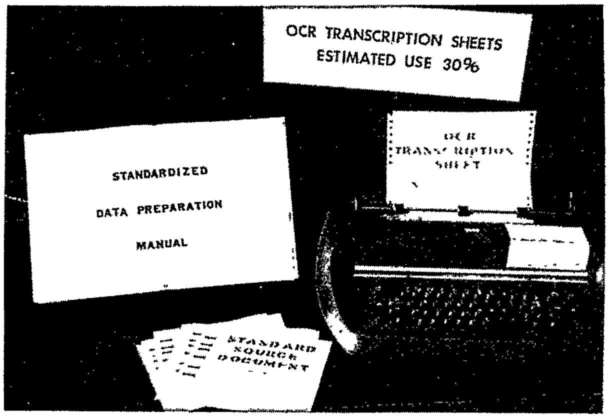
Then there are all kinds of combinations for resources sharing between NCHS and the various States. Application and Implementation of this system, after it is fully developed, will be governed by arrangements with each individual State rather than a single fixed system applicable to all States.

There will be a variation in approaches, to data reduction hardware, for instance, which will permit flexibility rather than one and only one way of handling the implementation of the system.

I would like to discuss very briefly an overview of the system, how it works, and what it will do.

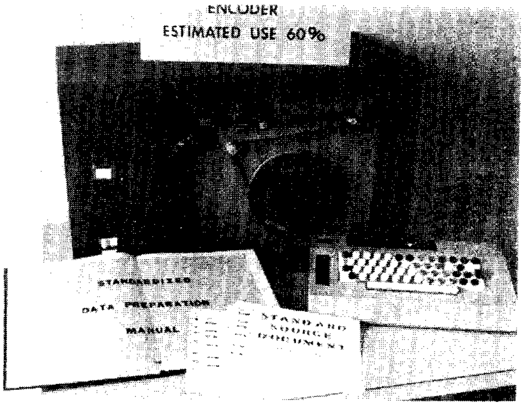
Slides 1 through 4 illustrate the four basic methods of data reduction to tape that will be built into the system.





The first of these is through the use of a dual purpose form in a hospital for recording births. We are all familiar with the birth certificates. NCHS is currently in the process of developing a two-purpose form: that is, for birth registration and for optical character recognition, handling of the birth data. The form will permit the transfer of information from the birth registration document to magnetic tape through the optical character recognition process. That is, no human transcription or keying of data to cards or tape is involved.

We recognize that this is perhaps an ideal approach, because it permits transfer from the initial preparation of a birth record to full information on magnetic tape from which computers will code for statistical purposes, but the level at which this approach is used will be governed by the extent to which States make agreements with hospitals for its use. Information will also be put on tape for indexing, mailing lists and the like. This maximizes automation, but it probably will take a long time to



implement this approach on any extensive basis. Even then this approach will be practical only in large volume hospitals.

Another advantage of this approach is that it minimizes the problems and cost of quality control. This would, by and large, limit quality control to the adequacy and completeness of information that is entered on the initial birth certificate. Again, though this is the more ideal, we don't expect it to be the most used avenue of data reduction.

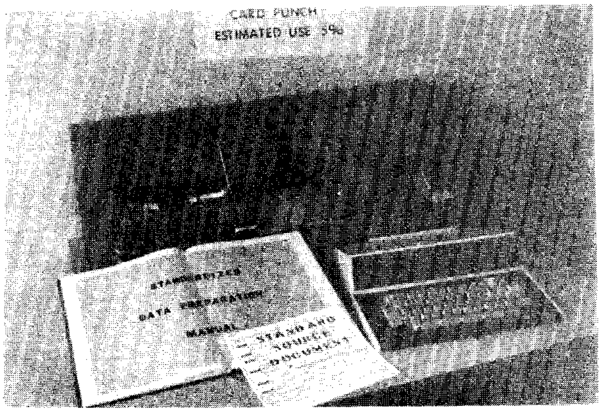
The second approach to data reduction will be the preparation of an OCR document in full text or in modified full text from the conventional single paper birth certificate. We estimate that this will probably be one of the two most used data reduction methods. It has the advantage of preparing a single computer input document which would serve both for State, local, and national statistics, and statistical indexing and mailing lists.

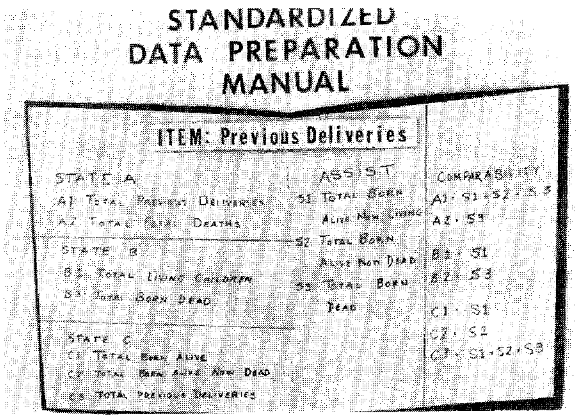
A third approach to data reduction will use the same procedure as the OCR approach in Slide 2 with preparation of a document at the State level, through the use of key to tape hardware. Here too, full text or modified full text will be keyed to tape. We expect this to be a popular method in the system.

In connection with the manner that information will be recorded on tape, it can be entered in full detail, that is, the full words or in a modified full text. For example, the system will accept either the State name, Virginia, or the standard post office abbreviation for Virginia.

In the research aspects of the development of this system, automated geographic coding efforts are now underway to determine whether there are standardized abbreviations that can be used that are unique for counties and cities. If there are unique county/city abbreviations they will be used to the extent that it is economically possible.

A fourth method of data reduction that is being built into the system is the generation of punched cards in the traditional sense. We are providing this mechanism, although we expect it will not be used extensively because of the





STANDARDIZED
DATA PREPARATION
MANUAL

ITEM: Previous Deliveries

STATE A	ASSIST	COMPARABILITY
A1 Total Previous Deliveries	S1 Total Born Alive Now Living	A1 = S1 + S2 + S3
A2 Total Fetal Deaths		A2 = S3
STATE B	S2 Total Born Alive Now Dead	
B1 Total Living Children		B1 = S1
B2 Total Born Dead	S3 Total Born Dead	B2 = S3
STATE C		C1 = S1
C1 Total Born Alive		C2 = S2
C2 Total Born Alive Now Dead		C3 = S1 + S2 + S3
C3 Total Previous Deliveries		

problems of limited data capacity of the punchcard. Both in use of OCR and in key to tape, we have the advantage of not being limited to the length of a full text record on tape or a statistical record that is generated from full text.

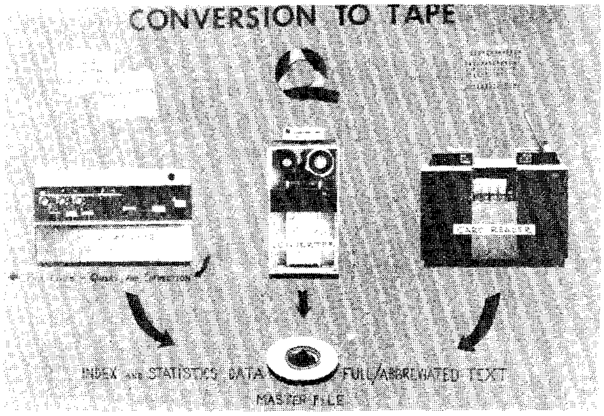
Another part, and a very critical part of this system has been mentioned by Mr. Templeton—that is the matter of developing a standardized data preparation manual.

As an example of its use you find now that some States are entering into their data processing system the total previous deliveries and fetal deaths. From those data, they derive the number of live births. Other States are coding and actually entering into their record the total living children, total born alive and now dead, the total born dead, and they sum them in order to get the total number of births.

Under the ASSIST system, we will propose a standardized coding structure which would permit the States to derive data they are interested in deriving in the desired detail, or States can adopt the detail presented in the basic system.

Let us review what we are talking about now, which is the generation of data in three different forms: an OCR document, a minitape generated by an encoder and a punched card. From any of these approaches, keeping in mind that an OCR document might be prepared in the hospital or State vital statistics office, the system will then convert and get a common magnetic tape in full text or abbreviated full text from which computer application will be carried out to meet statistical, indexing and mailing list needs.

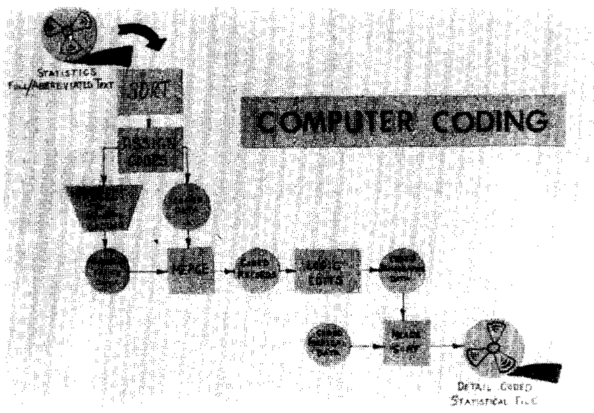
From the single master file tape with the full text data, the system will perform certain edits and reject certain items for additional information and corrections. The updated record will then be merged into a single tape that will be further edited and then this master tape with full data will be extended into three types of tapes: one for generating indexes for State uses; another to expand the abbreviated or full text tape for mailing address lists which might be for immunization programs and the like; and the third is to generate a tape for statistical purposes.

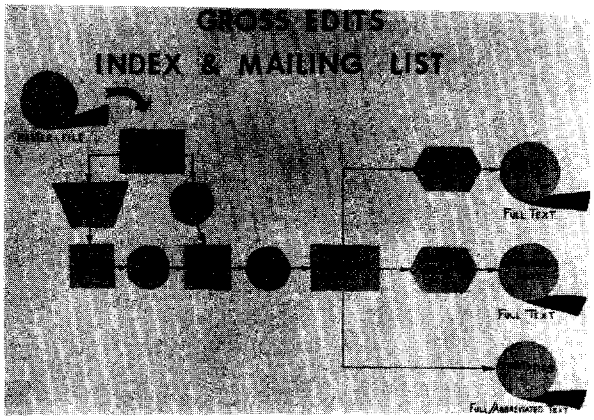


The tape for statistical purposes is where the coding through computer applications comes into play. The idea is to mechanically assign codes for geographic places of residence and occurrence, and for all of the other variables from the full text updated tape.

Then there will be a series of edits and logic checks. This is also a stage at which further coding will be done such as the generation of race of the child code from the race of father, mother, and the like.

After the statistical items are computer coded, then the medical data system and demographic data detail in the coded statistical tape are merged. To give you one example of coding with the computer, one of the projects which is currently under development in our Research Branch is a computer system for coding geographic places of occurrence and residence. This is being based on the 1970 census. It is going to give three levels of details.





The first and initial level is to code geographic information to the level of detail of all incorporated places, and all unincorporated places of 1,000-plus population based on the 1970 census. From that detail then, the system will consolidate to (1) geographic detailed places of 10,000-plus population which is consistent with the needs of NCHS; (2) consolidation of 2,500-plus population places which is consistent with most of the States.

A State program, then, will have three choices—(1) all incorporated places and all unincorporated places of 1,000-plus population from which the State can consolidate in whatever detail is desired; (2) 2,500-plus population or (3) 10,000-plus population centers.

The system also will have provision for updating and deletions, and will attempt to be responsive to the various kinds of needs that are traditional in updating the kinds of systems that are now in existence.

Let us look briefly at the output potentials. We will have, from one single output effort from any of the four data reduction approaches that were described, the ability to code with the computer and provide various levels of detail. The system will also have a full text tape from which indexes and mailing lists can be developed.

What are some of the advantages of the system, you ask? There is a great deal of money being spent in the vital statistics system now at the various levels of government in getting information on tape or in any other processing form. This system will reduce the duplication of effort that currently takes place by providing desired data for various applications from a single computer input and coding operation. It will simplify quality control by minimizing the human handling of data. It represents a tangible implementation of the goals of the Cooperative Federal-State-local Health Statistics System. This system will reduce the number of places that preparation and processing is carried out for vital statistics and provide the potential for a wider variety of data. It certainly will reduce the manpower resource needs in NCHS and at whatever organizational level data reduction and coding takes place. A great deal of manpower goes into the manual operations that are currently used in producing vital statistics of the United States.

It also has the advantage that by using one system we can get around the problems of using samples of records in the National Center. For example, we use 50 percent of the birth records and a varying sample size by State for marriage and divorce records.

Another advantage is that through one standardized, mechanized system, more compatible, comparable statistics, will be achieved by States, by local areas, and by NCHS.

Where does this all stand at the present time? As I mentioned earlier, the Research Branch of our Division of Data Processing is currently developing the computer programs for coding the geographic places through computer applications. That project is progressing and it should not be too much longer before we have those computer programs.

This is probably the most difficult computer program that will be developed in connection with vital statistics, except for medical data which are excluded from the system.

NCHS has a contract with the SDA Corporation here in the Washington area for developing the OCR forms and procedures. This is the prototype form which will serve both as a registration document and as an OCR data reduction document with related OCR software programs, and procedures. That entire package is to be completed some time in this calendar year.

In the Division of Vital Statistics and in the data processing support organizations for that division, work is underway to develop the first draft of a standardized data preparation manual. We consider this upcoming manual to be a "conversation draft" which will serve as a basis for us to begin working on a very active basis with State representatives to bring this manual into a State that is responsive to and satisfactory for various users of vital and health statistics and for potential users of the ASSIST system.

There has been consideration given to this system by one of the technical consultant panels of this Conference, the one on New Techniques for Vital Statistics Registration and Data Collection. The panel has considered this matter in several sessions.

We think that this system has great potential within the framework of the Federal-State-local Health Statistics System. We do not say that we will have it perfected within the next few months, but we think that within a matter of a year or two, we will actually have the system pretty well perfected for birth records and ready to be tested in an operating situation in one of the registration areas.

REACTORS TO PANEL:

DR. ERHARDT: Thank you, Marshall. I think it is obvious from what we have heard from the three speakers from the National Center that great strides have been made in trying to automate these procedures. I think it is important to recognize, as Marshall has pointed out, that in setting up this ASSIST program, the Center is trying to take into consideration the possibilities that exist in various registration areas where some can go in one direction and some can go in a different direction and still wind up with the same product. This is important to all of us.

Mrs. Colby has experience already with a contract to work in this cooperative arrangement. Some of her experiences have been summarized in the documents which have been prepared for the technical consultant panel and have been published. You probably have a copy along with the materials you received here.

Marian, you might want to summarize and add other comments if you care to make any at this time.

Mrs. Marian M. Colby, *Director, New England Office of Statistics, New England Center for Continuing Education*

May I start by commenting on the title of my office as listed in the program. We were known as The New England Regional Center for Health and Demographic Statistics, but as you can see, there is no convenient acronym for this name. This name was about driving people wild when they were referring to us, let alone writing our address. I think the final blow came when just recently, on two different occasions persons asked me if we had anything to do with politics. (Demographic—Democratic!!)

For this reason, we have changed our name from New England Regional Center for Health and Demographic Statistics, and we are now known as NEOSTAT, which means the New England Office of Statistics. We have since incorporated under that name.

We've had some very interesting experiences in working on this cooperative system. I would like right here and now to underline very strongly something Dr. Kerr White said this morning, that to enter into these cooperative systems, you must be willing to give in and give up, and this is very true, indeed. Both sides must be willing to give in and give up.

We have been working, as has already been mentioned, with four of the six New England States in this cooperative system.

We have been receiving punched cards of births and deaths for 1971 from the States. Edit programs have been developed and the cards are edited. Error listings are returned to the States and corrected cards are resubmitted. The corrected cards go through a Phase 2 program, and the State tapes are reformed for NCHS.

In light of what Marshall has described this morning, I think we in New England are anxious to take a next step in this cooperative system, and that is to work out a system whereby we, in the New England Center, can receive from the States machine-readable data, rather than punched cards.

Punched cards are somewhat of a nuisance in handling and mailing, so it has been proposed that we get together real soon with the National Center to discuss this matter of our receiving tapes from the four States.

I don't think I want to take any longer. In the working papers of the TCP on New Techniques for Vital Statistics Registration and Data Collection.[8] I have described in considerable detail what we have been doing in New England, some of the problems we have had, some of the things we have recommended to the National Center in regard to their requirements, and some of which we don't particularly agree with. There are some coding instructions for residual categories that we feel are much too detailed, and we believe NCHS agrees with us.

It has been an interesting year for us—some headaches and a few grey hairs, but I believe that the quality of both State data and NCHS data has been improved due to this coordinated and cooperative program. If there are any questions I shall be happy to answer them.

DR. ERHARDT: Thank you, Marian. I think one remark that Marian made is extremely important. That is when you are doing this cooperative system, each member of the partnership has to look at what he is doing to see whether it is necessary and justified in his own mind so that he can put up—

MRS. COLBY: And can justify it to others.

DR. ERHARDT:—and if he can justify it to the other side. This requires a critical look at the program on both sides of the partnership. I think it is extremely important to look at ourselves once in a while.

We now have some comments from John Sullivan who is the Chief of the Section of Vital Statistics, Nevada Division of Health.

Mr. John J. Sullivan, *Chief, Section of Vital Statistics, Nevada Division of Health*

I would like to talk to you on a relative viewpoint of costs. I represent a small State with a small tight budget.

It seems to me this type of system, in cooperation and in related mechanical devices, would not only provide data but we could do it at much reduced cost.

I wanted to ask one of the speakers what is the arrangement with the hospital with a large number of births?

MR. EVANS: The only OCR equipment that we have under this system is a typewriter with a special font. As to a large number of births, I can't answer, except in the State situation where it would need to be explored in terms of which would be more advantageous if we are going to use the OCR—whether we took the dual purpose form prepared in the hospital or prepared the conventional birth record in the hospital and then prepared the OCR form for State statistical copies. I don't know whether there is an actual answer for the cross-over point.

MR. TEMPLETON: I think the cross-over point is if the hospital has enough births to create a records problem in the hospital, then it would be a significant number.

MR. SULLIVAN: I would agree with Mr. Israel about centralization on some items and decentralization. I believe we in the field can do much better coding. I do feel this, too, because the coding requires a technical knowledge which I really don't have; it should be centralized.

DR. ERHARDT: My impression is that some of this kind of thing can be built into the system eventually, depending on the time dimensions and other factors. If the State is not ready to code the medical entities, then the ACME system can be put into operation for the National Center for Health Statistics to produce codes for the State. In other words, this can be done by computer in a national center and then returned to the State. This does involve a change of operational mechanism within the State. Your ACME system, of course, is—what? Automated Coding of Medical Entities, is that right? Another acronym worked up through the number of years.

Next, we have comments and reactions from Miss Jo Ann Wray from the California State Department of Health.

Miss Jo Ann Wray, *Senior Public Health Statistician, Bureau of Adult Health and Chronic Diseases, California State Department of Health*

I would just make comments on two points that occurred to me as we talked. First of all I feel hopeful and very optimistic about what I heard described today, and I hope it can work.

Bob, I think, stressed the State, Federal, local partnership idea. Yet in listening to the details of how the changes would be made, I didn't hear anything that really told me how the local people would make input of their needs and wishes about local health department uses of vital statistics data. I think they should have an opportunity for input, and I assume it is implied. But it wasn't really made clear how this would be done.

The other thing that I have a question about in my mind is the matter of timeliness. We hear a lot of lip service about timeliness. But how much faster would we really have data in? It could take a long time, it seems to me, to get everything in from all places in order to produce national statistics.

Hopefully, if the tapes are prepared in the States or in local areas, then they can be immediately utilized there. This raises a question: If everybody is going to do his own, will it really be a centralized operation? These are some things that we need to think about.

DR. ERHARDT: We have two questions here. A question of getting input from local areas and a question of how much improvement in timeliness there can be. Can we defer these questions until we hear from the other two panel members?

Mrs. Margaret F. Shackelford, to my left shares my retired status and is listed as consultant. I don't know whether she consults John or whether she is my consultant, or I am her consultant. At any rate, we have a good time of it.

Margaret, tell us about it.

Mrs. Margaret F. Shackelford, *Consultant, Holly Springs, Mississippi*

This panel reactor has little to add to what the first three reactors have said, except I do have one particular point that I would like to make.

Most of the discussion about automation has concerned input and systems, and little has been said about outputs that would be similar to the traditional kinds of outputs that we all have been having from whatever systems we have been using in the past. These are all necessary and important, the input and processing.

What I think is worthwhile to make a point about, if I can, is that computerization and automation in its fullest sense should provide the capability and flexibility to give the traditional kinds of outputs and also to respond to the *ad hoc* needs of consumers.

Our traditional pattern has been to publish statistics bulletins and the consumers made use of that or else they did without or used some other kinds of analysis of data. With the development of computerization, in the way that it could be developed fully, there should be the means for getting from the computer special tabulations. At least these would be summaries, if you will, which will fulfill the special needs of consumers. An example of this would be three-year averages or five-year averages with which we are familiar.

If someone wants a description of a health situation in a county or a collection of counties, then this person would have to refer to the separate vital statistics annual bulletins for the separate years and develop his own averages, or he would ask somebody in the statistics office to make such a special analysis for him. This is a simple example of something which could be provided for, in generalized programs, to obtain output from computer records in addition to the annual individual summaries that are made.

Another example would be to accumulate statistical data in aggregates of census tracts or in aggregates of counties which would satisfy the regional needs that exist within States. If you think of an aggregate of census tracts as being a region within a city or region within a standard metropolitan statistical area, these are needed to accommodate the health planning activities and, in some cases, the regional medical program needs also.

In all of the discussions that we have had so far, of the geographic code, for example, there was no mention made of census tract identification, though the Census Bureau apparently built this capability into its process for the 1970 census. I think that there is ample evidence that our traditional publications do not satisfy the needs of consumers. An example is the fact that Dr. Donald Bogue, who is the Director of the Community and Family Center, University of Chicago, is trying to assemble a bank, if you will, of vital statistics data which presumably he would be able to summarize in various ways and which would supply the needs of himself and maybe other demographic researchers.

So, please, let us not lose sight of the fact that there are consumers who have needs that are not being met by the traditional outputs from vital statistics and that we must find the means to satisfy these needs or maybe there will be some other way developed which will not include us.

DR. ERHARDT: Thank you, Margaret.

Mrs. Peterson, what do you have to offer, and what reactions do you have to these proposals?

Mrs. Peterson is chief of Data Processing, Oregon State Board of Health.

Mrs. Virginia Peterson, *Chief, Data Processing, Oregon State Board of Health*

Two years ago, Montana, Idaho, Washington and Oregon conducted periodic meetings with the intention of collecting regional data relating to vital statistics. Considerable time was spent standardizing the tab card to meet the needs of the four States. Progress was being made toward a workable system when it was decided to include other operating divisions of the four States who could benefit by standardization of statistics. With the increase in personnel, no decisions could be reached and the plans for standardized output were shelved.

MR. TEMPLETON: I was making notes here of the points that Mrs. Shackleford was referring to and one question she addressed was standardized output and more of it.

I think one of the reasons that we haven't gotten out of our computer resources all that we believe we could get is simply that we have not developed the software. Another problem that is associated with any success in that area is the business of standardization. I think there is a lot of software available around the country and other countries, but one of the problems in utilizing it is that we have to make so many modifications. This limits the exchange of software between the States and that sort of thing.

I think we could advance standardization to enhance the chances of increasing output in terms of the *ad hoc* kinds of needs that Margaret referred to, as well as producing data on a regional basis where we don't have to observe State boundaries. This has been a problem in the past. We haven't been able to assemble regional data because they are not comparable. I think standardization has got to come if we are ever going to make much progress.

MRS. PETERSON: I think the States would welcome any assistance offered. I don't think they can make all the decisions on their own.

MR. TEMPLETON: Well, I think what is needed, Virginia, is the kind of thing that developed in New England.—Maybe it was Mrs. Colby's persuasion that brought it about there; I don't know. Anyway they got together on numerous occasions and really started asking one another, "Why must you be different? So through all these deliberations, they finally agreed that there wasn't a real basis for all of them to be different and, somehow, they came up with a rather rigid and fixed set of standards.

I think that standardization can be accomplished without coercion. I think we can all sit down and talk about what our needs are, look at the things we have done in past practice and justify them, and we will have standardization before we know it.

DR. ERHARDT: I think what you were saying, Marv, is if we can make the input standard, or nearly comparable and consistent in form, that the programs then can be developed which will produce not alone a traditional set of output tables but also kinds of *ad hoc* program approaches. Programs developed by the Center's Division of Data Processing could then be utilized by the States if they have consistent equipment.

Does anyone want to talk about the question of input from local areas, which was the question Jo Ann raised? The other question was: How is this going to improve timeliness?

MR. TEMPLETON: In the framework of the ASSIST system, as we see it, is a way for all levels of government to feed off of one input system.

We don't know where that initial input system ought to be. Maybe it ought to be in a large city and the large city feeds the State office and the State office in turn feeds NCHS.—

DR. ERHARDT: Or aggregates from several areas. Fill the rest in and get the aggregate thing to NCHS.

MR. TEMPLETON: I think another point referred to earlier is that we ought to split up the work in terms of agencies taking on those things that they are best equipped to do. I say in a county/State health department situation there are certain things the local office can do better then the State office. There are also things that a local health department or small city health department cannot do. Therefore, it would seem to me to be incumbent on the State to fill that void in the total system. There may be some things that the National Center for Health Statistics can perform better. If that is the case, then let NCHS do it.

MR. ISRAEL: I have raised this issue in my opening remarks. Perhaps one local government expertise can best do the job there than at a different level. I didn't want to expand fully on that because I wanted to see if it was either covered elsewhere in the presentations or if it was a question. I think it is important for everyone to realize that the last thing on earth the Federal Government wants to do is get in between the State and its data. If it is felt, as Jack indicates, that maybe medical coding would be best done at some highly centralized level, I would think that is an approach that needs to be entertained and explored. There are ways of getting into this.

One will have to be very careful that the State then does not become completely dependent upon the Federal Government. To the extent that the Federal Government did not uphold its end of the bargain, the State would have no data. Of course, the shoe fits on the other foot as well. So we have to look into this whole question in connection with local participation. The whole question of timeliness is so interwoven in all these talks of activities.

As we get into this system, as we experiment with it and as we build it, we have to look very carefully at this question of timeliness. Perhaps time limits. I might say in passing, Margaret, that regarding Dr. Bogue and his inquiry, it is primarily a timeliness question. He has approached the States and asked for separate reporting because he is dissatisfied with, and rightfully so, the timeliness of NCHS's national natality data.

My own personal feeling about this, of course, is that I am involved with it; I work in NCHS and I have some pride in my place of employment. My reaction was that I understand what Dr. Bogue's problem is. I don't think he has gone about it in the right way. There is another way of solving this problem and we are well on our way to solving it. I think it is important to bear in mind that the proposed approach was mainly a timeliness question.

I'd like to throw in one other point, if I could. On several occasions this afternoon, others have said that this program looks towards inputs, starting with the birth record, but excepting the medical data on birth records. One might presume, after that, one would go to the death records, presumably excepting the medical data there. While I think that is the most practical approach for the time being, there are developments in the medical coding of data that are close enough to being practical that we needn't put the medical data question out of mind.

I thought earlier I saw Dan McGann sitting in the back of the room. I think he is gone now. I was going to ask him if he could tell us a little bit about some of the things that the Center's Division of Data Processing was doing in addition to geographic codes. They are all working on various aspects of medical coding. I frankly don't know exactly where they stand, but they have been making some headway. At any rate, I just want to say that medical coding is not completely out of the question. It is simply, maybe, a little bit further on down the road than the rest.

DR. ERHARDT: Walt, do you want to comment?

MR. SIMMONS: Walt Simmons, *Assistant Director for Research and Scientific Development, NCHS.* I just want to say that Dan McGann will talk on that same topic tomorrow afternoon.

DR. ERHARDT: Mr. Crandall.

MR. CRANDALL: I heard many new and interesting ideas during the course of this discussion. I particularly like Marvin's statement about dividing up the work. Even better, I like the wording of Jim Palmersheim's statement about avoiding the work all together. (Laughter.)

Two years ago when I was looking for an excuse to get out of the office, because there was too much work there, Mohawk Data Systems invited us over to see some of the things that they were doing with MT/ST. In the course of this or subsequent to it, we went out to Cafritz Memorial Hospital, here in the District, and saw their MT/ST operation. It was quite apparent to me that with the MT/ST setup the girl that types up the birth certificate could, at the same time, create magnetic tapes that would give the entire information on the birth certificate—legal and statistical information. So that from this point on, no statistical paper need ever be handled.

The only paper that would be handled would be the legal birth certificate. Everything else would be on magnetic tape, from the hospital on up. There would be no duplication of records at the local, the State, or the Federal level, but that we could put it right through on tape all the way. No necessity for key punching of cards.

Actually, the correction problem would be handled almost the same way that it is handled with the system we use currently, only a little bit faster.

I am sure that this was considered in the ASSIST idea. I wondered exactly what were the drawbacks to it and why it wasn't stressed a little more. Instead of feeding that additional piece of paper through, why couldn't we get right to the magnetic tape and do away with all that we could?

DR. ERHARDT: One of the problems has already been mentioned in connection with the size of the hospital, say, in a delivery service that will warrant having this kind of system. A question is whether the local areas are willing to say, "Look, we will buy this equipment and put it in your hospital, if you can use it," which is a big issue. Do you have any other comment, Marvin?

MR. TEMPLETON: I think when we were really trying to define the ASSIST system, we established certain limitations. One was that we wanted to pursue something that we had hopes of developing and testing within a relatively short time. We thought of all sorts of fancy ideas and notions on the side, but we avoided them because we felt that this would be a hindrance to establishing the basic system.

However, as we see it, if we could develop the ASSIST system, testing and implementing it would establish a foundation for plugging in some of these other ideas. Much of the work that will have to go into developing the kind of system you are mentioning, Jack Crandall and Jim Palmersheim, will have to go into the ASSIST system.

MR. CRANDALL: That's very true. Thank you.

DR. ERHARDT: I think we have time for one more comment. Mr. Huxtable has been trying to be heard.

MR. HUXTABLE: Deane Huxtable, *State Registrar, Virginia.* I understand this whole thing is predicated on the cooperative system and this gives rise to a whole gaggle of questions. I think Margaret's remark about census tract data, for example, kind of precludes automative coding which was discussed. That's only a small detail.

The big issue is this. Some six years ago there was passed the partnership in health legislation which affected a lot of different areas. Down through the years the partnership in health administration package has been this way: 94 percent State, and approximately 6 percent Federal, as far as the input of the dollars was concerned. Some partnership!

Now, in the cooperative Federal—State-local system, we have been told that in the research phase the vital statistics system was the low man on the totem pole. I am not going to take anything from hospitalization or from long-term care, but what happens from this point on? For example, we understand that in Fiscal 1973, there is going to be something like a million dollars for implementation. You heard Dr. Wilson say this morning there's no blue sky limit for comprehensive health service statistics for Fiscal 1974, and we don't know how many million dollars are going to be in there. The question is: How is the allocation of these funds going to be made to do these things that you were talking about, particularly in the State and local offices?

DR. ERHARDT: Bob.

MR. ISRAEL: I can't answer it, and Hux knows I can't answer it, but I will say something about it.

First of all, the statement that vital statistics was low man on the totem pole in the research and development effort is essentially true. But it is essentially true because the feeling was that we needed less research and development and more implementation. Some of the other health statistics systems needed a heck of a lot of research and development and they weren't ready to do as much implementation.

Now, you can believe that or not, as you wish, but I think that that is essentially correct. We do know a lot of the things that need to be done in the vital statistics system. We know how to do them. It is a question of getting our hands on that stuff that lets us do it, and I don't know exactly how the money will be allocated between the various programs.

I can assure you that it is a matter of considerable attention within NCHS. If, in fact, we do have implementation money for the coming fiscal year and for the years after that, I am almost certain that the vital statistics system in the beginning is going to get a major hunk of it. Beyond that, I am really not in a position to comment.

You might ask that question of the staff of NCHS at the session tomorrow afternoon. I think that is a session devoted to questions from the audience to the staff at NCHS, and I think that is a reasonable question to ask. I am not in a position to answer.

DR. ERHARDT: There's another point that came up: this question of getting census tract information. Now, I know that the Census Bureau has worked on this kind of thing.

I know that New York City has been working with the City Planning Commission on experimentation in trying to get this kind of thing done locally—in assigning the street address for events by computer, not only to census tract, but to health areas, health districts, school districts, all the districts that exist in the city.

If you are going to do this by computer, you should just enter all these events at the same time. They can all be on the tape. This experimentation is going on because the Board of Education asks the City Health Department for information on births by school district. You might make it convenient for them.

We traditionally manually coded the health area but they had to make adjustments to get what they wanted. If we do this by machine, by computer, we could give them a tabulation just the way they specified.

The trouble is that many of these agencies that use districts keep on changing them all the time for their own convenience. This gets to be a horror to keep up with. Even a computer system, if you have to update it every three minutes because they change their minds about a district line, can drive you completely mad, too.

I would think if this kind of thing could be done, it could be done at the local area and put on the record. The proper designation, whether tract or whatever other local area you wanted to designate, could be included in the tape as you went along. There is no reason why it cannot be done.

MR. TEMPLETON: We really didn't ignore this system. However, if we can automate the system to the extent that we can get the detailed addresses into the machinery at a reasonable cost, then there isn't any reason why we can't use any software package that has been developed any place.

DR. ERHARDT: I think we have exceeded our time. Others will have more questions, but I'd like to declare this session adjourned.

Whereupon, at 12:00 o'clock p.m., the session was adjourned.

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SECOND PLENARY SESSION
Tuesday, June 13

Population Trends Having Implications for Health

Contents

SECOND PLENARY SESSION

CALL TO ORDER

Mr. Robert A. Israel, *Director, Division of Vital Statistics, National Center for Health Statistics*

If you will all be seated, please, we would like to begin this morning's session, the second plenary session. The session is entitled, "Population Trends Having Implications for Health."

I can't think of a more appropriate and better person to chair such a session than Dr. Conrad Taeuber.

Dr. Taeuber, born in South Dakota, attended the University of Minnesota for his degree work, including his doctorate.

He has been in the past, from 1935 to 1946, with the U. S. Department of Agriculture. From 1946 to 1951, he was Chief of the Statistics Branch of the Food and Agriculture Organization, charged with the worldwide development of agriculture statistics. Since April, 1951, he has been with the Bureau of the Census, where he is now Associate Director.

Dr. Taeuber has made many, many contributions to the field of demography, and I am sure that we are going to have a very interesting session this morning. Dr. Taeuber.

SECOND PLENARY SESSION

PRESIDING

Dr. Conrad Taeuber, *Associate Director for Demographic Fields*, Bureau of the Census

The presentation this morning revolves around some recent activities in Washington and around the country.

The first two papers deal with some results from the 1970 census. There are results, even though some of you may have felt that they have been unduly delayed. The third deals with another major effort, the President's Commission on Population Growth and the American Future.

The first paper is by Donald E. Starsinic, who is listed in your program as Chief, State and Local Estimates Branch, Bureau of the Census. What that means is that while you are out about the country increasing or decreasing the rate of population growth, Don is sitting back in the office, trying to put it all together and, among other things, give you the annual population estimates, against which you then compute some annual rates.

Don is going to talk about geographic and age differentials in population growth from 1960 to 1970. Don.

GEOGRAPHIC AND AGE DIFFERENTIALS IN POPULATION GROWTH, 1960-70

Mr. Donald E. Starsinic, *Chief, State and Local Estimates Branch, Population Division, Bureau of the Census*

What were some of the significant trends in our population growth and redistribution in the 1960's? First, although our population grew by 24 million, the *rate* of growth we experienced was the slowest in our history next to the depression years, far below the 1950's, despite the fact that about a million more people immigrated to this country in the last decade than in the 1950's.

The reason for the decline in the rate of growth is all too apparent—an almost unbroken drop in the birth rate throughout the decade, bringing us almost to the level of the lowest rates of the depression. At a time when the number of women of child-bearing age is growing rapidly, not only the birth rate but the number of births is actually declining.

The peaks and troughs of our birth rates over the last 40 years are all too apparent when you review the age distributions in the last two censuses shown in Table 1. You can see a sharp reduction in the number of persons in their 30's as the depression babies age into this class. The wave of post-World War II babies has tremendously swollen the young adult and teenage groups since 1960, and the number of children under five has declined by three million.

Table 1. POPULATION BY AGE, 1970 AND 1960
(In thousands)

Age Group	1970	1960	Change	Percent Change
All ages . .	203,212	179,323	23,889	13.3
Under 5	17,154	20,321	-3,167	-15.6
5-9	19,956	18,692	1,264	6.8
10-19	39,860	29,993	9,867	32.9
20-29	29,848	21,670	8,178	37.7
30-39	22,537	24,430	-1,893	-7.7
40-49	24,097	22,480	1,617	7.2
50-64	29,694	25,178	4,516	17.9
65 and over . . .	20,066	16,560	3,506	21.2

Source: *1970 Census of Population, General Population Characteristics*, Final Report PC(1)-B1, United States Summary, Table 53.

The economic stagnation that occurred in the late 1960's and that we may now just be shaking off could not have been worse-timed in relation to the changing age composition. The reduction in job opportunities occurred just at the time that the largest college graduating classes in our history began to pour out into the job market. The complete leveling off of elementary school enrollment with the prospect of declines rather than increases in enrollment in the immediate future has wiped out opportunities for careers in teaching which only a few years ago seemed unlimited. Our colleges did not appear to appreciate the implications of the changes in birth patterns and limit their education enrollment accordingly.

Table 2 illustrates another phenomenon of the 1960's, the tremendous increase of the Negro population and the decline of the white population in our large northern and western cities. In 1920 the largest portion of the black population was located in the rural south. Now a majority of blacks live in the central cities of metropolitan areas.

Table 3 shows an increased concentration of the population in metropolitan areas in 1970. However, the momentum to metropolitan areas was not nearly so pronounced during the 1960's. In the 1950's, metropolitan areas grew five times as fast as nonmetropolitan areas. In the 1960's,

Table 2. CITIES WITH A NEGRO POPULATION OF 50,000 OR MORE BY RANK: 1970, 1960, AND 1950

(Rank according to 1970 Negro population)

Rank	Selected Cities	1970		1960		1950	
		Negro population	Percent of total population	Negro population	Percent of total population	Negro population	Percent of total population
	Total in the United States . .	22,578,273	11.1	18,871,831	10.5	15,042,286	10.0
	Total in selected cities	10,360,922	27.6	7,746,882	21.1	5,098,227	14.8
	Percent of total	45.9	. . .	41.0	. . .	33.9	. . .
1	New York City, N.Y.	1,666,636	21.2	1,087,931	14.0	749,080	9.5
2	Chicago, Ill.	1,102,620	32.7	812,637	22.9	492,635	13.6
3	Detroit, Mich.	660,428	43.7	482,223	28.9	298,875	16.2
4	Philadelphia, Pa.	653,791	33.6	529,240	26.4	375,570	18.2
5	Washington, D.C.	537,712	71.1	411,737	53.9	280,440	35.0
6	Los Angeles, Calif.	503,606	17.9	334,916	13.5	170,880	8.7
7	Baltimore, Md.	420,210	46.4	325,589	34.7	223,820	23.7
8	Houston, Tex.	316,551	25.7	215,037	22.9	124,760	20.9
9	Cleveland, Ohio	287,841	38.3	250,818	28.6	147,585	16.2
10	New Orleans, La.	267,308	45.0	233,514	37.2	181,120	31.9
11	Atlanta, Ga.	255,051	51.3	186,464	38.3	121,155	36.6
12	St. Louis, Mo.	254,191	40.9	214,377	28.6	153,465	18.0
13	Memphis, Tenn.	242,513	38.9	184,320	37.0	146,830	37.2
14	Dallas, Tex.	210,238	24.9	129,242	19.0	57,825	13.1
15	Newark, N.J.	207,458	54.2	138,035	34.1	74,775	17.1
16	Indianapolis, Ind.	134,320	18.0	98,049	20.6	64,020	15.0
17	Birmingham, Ala.	126,388	42.0	135,113	39.6	130,055	40.0
18	Cincinnati, Ohio	125,070	27.6	108,754	21.6	77,945	15.5
19	Oakland, Calif.	124,710	34.5	83,618	22.8	47,610	12.4
20	Jacksonville, Fla.	118,158	22.3	[1]105,655	23.2	[1]81,648	26.9
21	Kansas City, Mo.	112,005	22.1	83,146	17.5	55,655	12.2
22	Milwaukee, Wis.	105,088	14.7	62,458	8.4	21,910	3.4
23	Pittsburgh, Pa.	104,904	20.2	100,692	16.7	82,255	12.2
24	Richmond, Va.	104,766	42.0	91,972	41.8	73,030	31.7
25	Boston, Mass.	104,707	16.3	63,165	9.1	39,755	5.0
26	Columbus, Ohio	99,627	18.5	77,140	16.4	44,655	12.4
27	San Francisco, Calif.	96,078	13.4	74,383	10.0	43,460	5.6
28	Buffalo, N.Y.	94,329	20.4	70,904	13.3	36,760	6.4
29	Gary, Ind.	92,695	52.8	69,123	38.8	39,220	29.3
30	Nashville-Davidson, Tenn.	87,851	19.6	[1]76,437	19.1	[1]64,381	20.0
31	Norfolk, Va.	87,261	28.3	78,806	25.8	63,105	29.4
32	Louisville, Ky.	86,040	23.8	70,075	17.9	57,435	15.6
33	Fort Worth, Tex.	78,324	19.9	56,440	15.8	35,905	12.9
34	Miami, Fla.	76,156	22.7	65,213	22.4	40,035	16.1
35	Dayton, Ohio	74,284	30.5	57,288	21.8	34,245	14.1
36	Charlotte, N.C.	72,972	30.3	56,248	27.9	37,555	28.1
37	Mobile, Ala.	67,356	35.4	65,619	32.4	45,705	35.4
38	Shreveport, La.	62,152	34.1	56,607	34.4	41,920	33.1
39	Jackson, Miss.	61,063	39.7	51,556	35.7	40,168	40.9
40	Compton, Calif.	55,781	71.0	28,265	39.4	2,180	4.5
41	Tampa, Fla.	54,720	19.7	46,244	16.8	27,255	21.9
42	Jersey City, N.J.	54,595	21.0	36,692	13.3	20,785	6.9
43	Flint, Mich.	54,237	28.1	34,521	17.5	14,085	8.7
44	Savannah, Ga.	53,111	44.9	53,035	35.5	48,230	40.4
45	San Diego, Calif.	52,961	7.6	34,435	6.0	14,700	4.4
46	Toledo, Ohio	52,915	13.8	40,015	12.6	24,360	8.0
47	Oklahoma City, Okla.	50,103	13.7	37,529	11.6	20,890	8.6
48	San Antonio, Tex.	50,041	7.6	41,605	7.1	28,495	7.0

. . . Not applicable. [1] Revised in accordance with 1970 boundaries.

Source: *1970 Census of Population*, Supplementary Report PC(S1)-2, "Negro Population in Selected Places and Selected Counties," Table 1.

Table 3. POPULATION AND PERCENT CHANGE BY RESIDENCE, 1950 TO 1970

(Population in thousands)

Item	Population			Percent Change	
	1950	1960	1970	1950-60	1960-70
Total .	151,326	179,323	203,184	18.5	13.3
SMSA's (243) . .	94,579	119,595	139,387	26.4	16.5
Central cities.	53,817	59,964	63,816	11.4	6.4
Outside central cities .	40,762	59,631	75,570	46.3	26.7
Nonmetropolitan areas	56,747	59,728	63,798	5.3	6.8

Source: *Statistical Abstract of the United States, 1971*, Table 14.

however, metropolitan growth was only two and a half times as fast.

Counties outside the large metropolitan areas were much more able to hold their own in the 1960's than had been true for the last several decades. Roughly 58 percent of all counties gained population in the 1960's compared with 51 percent in the 1950's. In general, counties losing population in the 1950's had smaller percent losses or actual gains in the 1960's, while gaining counties generally grew less rapidly in the 1960's.

Table 4 shows that patterns of interregional migration changed appreciably in the 1960's.

Probably the most striking was a net in-migration of almost two million whites to the south, which resulted in that region's experiencing net in-migration for probably the first time in the 20th century. Offsetting the white gains, about 1.4 million Negroes migrated from the south during the decade, mostly to the large cities of the north and west. The flow of blacks out of the south has remained at about the same heavy level since 1940. Migration into the west, and especially California, was still the predominant movement, although migration levels were much reduced over the 1950's. The Great Lakes States were hit hard economically during the 1960's and showed net out-migration for the first time in several decades.

Table 4. INTERREGIONAL NET MIGRATION, BY RACE, 1940 TO 1970

(In thousands)

Decade and race	Northeast	North Central	South	West
1960 to 1970				
White	−520	−1,272	+1,806	+2,269
Negro	+612	+382	−1,380	+301
1950 to 1960				
White	−211	−690	+57	+3,512
Negro	+496	+541	−1,473	+293
1940 to 1950				
White	−173	−948	−538	+3,181
Negro	+463	+618	−1,599	+339

Source: *Current Population Reports*, Series P-25, No. 460, "Preliminary Intercensal Estimates of States and Components of Population Change, 1960 to 1970," June 7, 1971, Table 7.

One of the more important demographic occurrences in recent years, the growth of the older population, is shown in Table 5. There were slightly more than 20 million people 65 years of age and older counted in the 1970 census. After young adults and teenagers this was the fastest-growing age group, with three and a half million persons added during the 1960's, resulting in a constituency of senior citizens far larger than our country had ever before known.

During the last half century, while our population overall doubled from 100 to 200 million, the older population quadrupled, from a modest five million, or five percent of the total in 1920, to the current 20 million, now 10 percent of the total.

Table 5. POPULATION 65 AND OVER, 1920 TO 1970

(Numbers in thousands)

Item	1970	1960	1950	1940	1930	1920
Population 65 and over . . .	20,066	16,560	12,295	9,036	6,644	4,940
Percent of total population . .	9.9	9.2	8.1	6.8	5.4	4.7
Change since last census . .	3,506	4,265	3,298	2,352	1,705	N.A.
Percent change .	21.2	34.7	36.1	36.0	34.5	N.A.
Males	8,416	7,503	5,813	4,418	3,333	2,488
Females	11,650	9,056	6,482	4,619	3,311	2,452
White	18,330	15,304	11,381	8,385	6,244	4,586
Negro and other races . .	1,735	1,256	914	651	400	354

Source: *1970 Census of Population, General Population Characteristics*, Final Report PC(1)-B1, United States Summary, Table 53.

Perhaps the most striking aspect in the growth of the older population in recent decades has been the increased survival of women compared with men. As recently as 1940 the number of women in this age group barely exceeded men. The gap widened to more than a million and a half by 1960. By 1970 there was an excess of some 3.2 million women in ages 65 and over.

Whites dominate the older population. Other races constitute only nine percent of the population 65 and over, as compared with 13 percent of the total population.

The location of senior citizens is not too different from that of the population as a whole. Table 6 shows that roughly two-thirds of the older population lived in metropolitan areas in 1970, with nearly seven million in the central cities and six million in the suburbs. Another seven million lived outside metropolitan areas.

The northern States have a somewhat larger proportion of older persons than the national average, with the highest shares found west of the Mississippi and in New England. The south and the west fall below the average. New York, with two million, leads all States in population 65 and over, with California not far behind. Florida is by all odds the State that first comes to mind when thinking about the location of senior citizens. A substantial share of the heavy population growth that State has experienced since 1930 is accounted for by in-migration of the elderly, which has resulted in the State's having by far the highest percentage of older population, 50 percent above the national average. For the nonmetropolitan population, however, Florida still leads all States, but it does not have this predominance.

Close after Florida, the next 11 ranking States in percent of elderly in non-metropolitan areas form an unbroken bloc extending down the midsection of the United States, from Wisconsin and Minnesota on the north to Oklahoma, Arkansas, and Texas on the south.

The 1970 census map shown in Figure 1 indicates the distribution by county of the percent 65 and over in the population. The black shadings indicate 20 percent or more and the dark gray 15 percent or more. Overall there are a little more than 600 counties in these two shades, having at least a 50 percent larger proportion of older population than the national average. Over 500 of them are in the huge central area that constitutes the agricultural breadbasket of our country. Almost none of these counties are metropolitan. These are the areas which by-and-large have been losing population for many decades and which had reached their population peak several decades ago. Included are much of our major corn, wheat, and cotton producing areas, which have been drastically affected by farm consolidation over the last several decades, with the moving out of large segments of the young population to job opportunities elsewhere.

Looking at the scattering of black and dark gray throughout the rest of the map, it is apparent that they commonly pinpoint counties of a resort-retirement nature. The most obvious concentration of this type of development is peninsular Florida.

These dark areas encompass nearly every one of the 124 counties where there was natural decrease during the decade. Since the greater incidence of deaths than births is highly indicative of an old age structure, this is not surprising. About 110 of these are located in the middle west, and most of them, in addition to experiencing more deaths than births, also lost population through migration. The scattered resort-type counties with natural decrease invariably had net in-migration, however.

What can we learn about the migration patterns of the older population during the 1960's? According to the Current Population Survey, on the average about 500,000 older persons migrated across county lines every year of the decade. Data from the 1970 census that will shed some light on migration patterns during the 1960's will soon become available. In the meantime we have estimated county net migration patterns for the 1960's by applying census survival rates to the population 55 and over in 1960 to derive a 1970 expected population 65 and over. The difference between the expected population and the actual census count in 1970 is an estimate of the net migration for this period. Although this gives no indication of the flow of migrants, it does indicate the net effect of the movement.

The regional pattern of net migration indicated on Table 7 confirms what we intuitively expect from our individual observations. The north lost well over half a million net migration of older people, roughly 5 percent of its 11

Table 6. METROPOLITAN AND NONMETROPOLITAN RESIDENCE OF THE POPULATION 65 YEARS OLD AND OVER: 1970

Regions Divisions States	Total population				Population 65 years old and over				Percent 65 years old and over			
		Metropolitan				Metropolitan				Metropolitan		
	Total	Inside central cities	Outside central cities	Nonmetropolitan	Total	Inside central cities	Outside central cities	Nonmetropolitan	Total	Inside central cities	Outside central cities	Nonmetropolitan
United States . .	203,211,926	63,796,943	75,621,868	63,793,115	20,065,502	6,840,324	6,023,730	7,201,448	9.9	10.7	8.0	11.3
REGIONS												
Northeast	49,040,703	17,256,146	21,932,182	9,852,375	5,199,384	2,107,727	2,028,579	1,063,078	10.6	12.2	9.2	10.8
North Central	56,571,663	17,068,167	20,590,106	18,913,390	5,727,424	1,855,315	1,494,313	2,377,796	10.1	10.9	7.3	12.6
South	62,795,367	17,917,474	17,281,878	27,596,015	6,042,633	1,685,859	1,311,892	3,044,882	9.6	9.4	7.6	11.0
West	34,804,193	11,555,156	15,817,702	431,335	3,096,061	1,191,423	1,188,946	715,692	8.9	10.3	7.5	9.6
NORTHEAST												
New England	11,841,663	3,405,970	5,134,284	3,301,409	1,269,517	419,128	493,997	356,392	10.7	12.3	9.6	10.8
Middle Atlantic	37,199,040	13,850,176	16,797,898	6,550,966	3,929,867	1,688,599	1,534,582	706,686	10.6	12.2	9.1	10.8
NORTH CENTRAL												
East North Central	40,252,476	13,108,140	16,630,161	10,514,175	3,810,977	1,377,517	1,219,082	1,214,378	9.5	10.5	7.3	11.5
West North Central	16,319,187	3,960,027	3,959,945	8,399,215	1,916,447	477,798	275,231	1,163,418	11.7	12.1	7.0	13.9
SOUTH												
South Atlantic	30,671,337	7,256,186	10,435,694	12,979,457	2,936,717	763,981	826,195	1,346,541	9.6	10.5	7.9	10.4
East South Central	12,803,470	3,027,589	2,372,713	7,403,168	1,269,634	288,279	189,126	792,229	9.9	9.5	8.0	10.7
West South Central	19,320,560	7,633,699	4,473,471	7,213,390	1,836,282	633,599	296,571	906,112	9.5	8.3	6.6	12.6
WEST												
Mountain	8,281,562	2,554,972	2,159,176	3,567,414	695,221	238,753	130,510	325,958	8.4	9.3	6.0	9.1
Pacific	26,522,631	9,000,184	13,658,526	3,863,921	2,400,840	952,670	1,058,436	389,734	9.1	10.6	7.7	10.1
NEW ENGLAND												
Maine	992,048	129,266	84,833	777,949	114,592	17,818	8,239	88,535	11.6	13.8	9.7	11.4
New Hampshire	737,681	143,574	58,119	535,988	78,412	15,865	3,948	58,599	10.6	11.1	6.8	10.9
Vermont	444,330	-	-	444,330	47,488	-	-	47,488	10.7	-	-	10.7
Massachusetts	5,689,170	1,726,298	3,091,617	871,255	636,185	223,998	313,479	98,708	11.2	13.0	10.1	11.3
Rhode Island	946,725	339,891	461,854	144,980	103,932	45,047	46,930	11,955	11.0	13.3	10.2	8.2
Connecticut	3,031,709	1,066,941	1,437,861	526,907	288,908	116,400	121,401	51,107	9.5	10.9	8.4	9.7

Source: *1970 Census of Population*, Supplementary Report PC(S1)-16, "Metropolitan and Nonmetropolitan Residence of the Population 65 Years Old and Over: 1970."

Table 6. METROPOLITAN AND NONMETROPOLITAN RESIDENCE OF THE POPULATION 65 YEARS OLD AND OVER: 1970 (Continued)

Regions Divisions States	Total population				Population 65 years old and over				Percent 65 years old and over			
	Total	Metropolitan		Nonmetropolitan	Total	Metropolitan		Nonmetropolitan	Total	Metropolitan		Non-metro-politan
		Inside central cities	Outside central cities			Inside central cities	Outside central cities			Inside central cities	Outside central cities	
MIDDLE ATLANTIC												
New York	18,236,907	9,311,018	6,460,174	2,465,775	1,960,752	1,140,583	543,057	277,112	10.8	12.2	8.4	11.2
New Jersey	7,168,164	1,166,781	4,344,549	1,656,834	696,989	125,853	415,684	155,452	9.7	10.8	9.6	9.4
Pennsylvania	11,793,909	3,372,377	5,993,175	2,428,357	1,272,126	422,163	575,841	274,122	10.8	12.5	9.6	11.3
EAST NORTH CENTRAL												
Ohio	10,652,017	3,429,005	4,843,507	2,379,505	997,694	370,428	369,542	257,724	9.4	10.8	7.6	10.8
Indiana	5,193,669	1,789,622	1,423,976	1,980,071	493,809	169,342	112,612	211,855	9.5	9.5	7.9	10.7
Illinois	11,113,976	4,075,563	4,827,502	2,210,911	1,093,654	431,403	367,843	294,408	9.8	10.6	7.6	13.3
Michigan	8,875,083	2,468,063	4,338,088	2,068,932	752,955	266,473	271,821	214,661	8.5	10.8	6.3	10.4
Wisconsin	4,417,731	1,345,887	1,197,088	1,874,756	472,865	139,871	97,264	235,730	10.7	10.4	8.1	12.6
WEST NORTH CENTRAL												
Minnesota	3,804,971	928,411	1,236,618	1,639,942	408,919	127,128	68,426	213,365	10.7	13.7	5.5	13.0
Iowa	2,824,376	631,666	373,903	1,818,807	350,293	69,439	29,609	251,245	12.4	11.0	7.9	13.8
Missouri	4,676,501	1,375,686	1,621,385	1,679,430	560,656	180,042	124,819	255,795	12.0	13.1	7.7	15.2
North Dakota	617,761	53,365	20,288	544,108	66,368	5,094	2,146	59,128	10.7	9.5	10.6	10.9
South Dakota	665,507	72,488	22,721	570,298	80,484	7,437	2,119	70,928	12.1	10.3	9.3	12.4
Nebraska	1,483,493	496,846	137,414	849,233	183,526	50,105	6,640	126,781	12.4	10.1	4.8	14.9
Kansas	2,246,578	401,565	547,616	1,297,397	266,201	38,553	41,472	186,176	11.8	9.6	7.6	14.3
SOUTH ATLANTIC												
Delaware	548,104	80,386	305,470	162,248	43,833	11,265	17,705	14,863	8.0	14.0	5.8	9.2
Maryland	3,922,399	905,759	2,401,578	615,062	299,682	95,662	141,410	62,610	7.6	10.6	5.9	10.2
District of Columbia	756,510	756,510	-	-	70,803	70,803	-	-	9.4	9.4	-	-
Virginia	4,648,494	1,124,889	1,721,145	1,802,460	366,021	95,299	88,025	182,697	7.9	8.5	5.1	10.1
West Virginia	1,744,237	221,139	324,104	1,198,994	194,474	28,929	28,231	137,314	11.1	13.1	8.7	11.5
North Carolina	5,082,059	955,746	940,677	3,185,636	414,120	79,968	59,110	275,042	8.1	8.4	6.3	8.6
South Carolina	2,590,516	241,695	775,559	1,573,262	190,960	20,808	44,171	125,981	7.4	8.6	5.7	8.0
Georgia	4,589,575	1,024,400	1,255,830	2,309,345	367,458	89,874	61,150	216,434	8.0	8.8	4.9	9.4
Florida	6,789,443	1,945,662	2,711,331	2,132,450	989,366	271,373	386,393	331,600	14.6	13.9	14.3	15.6

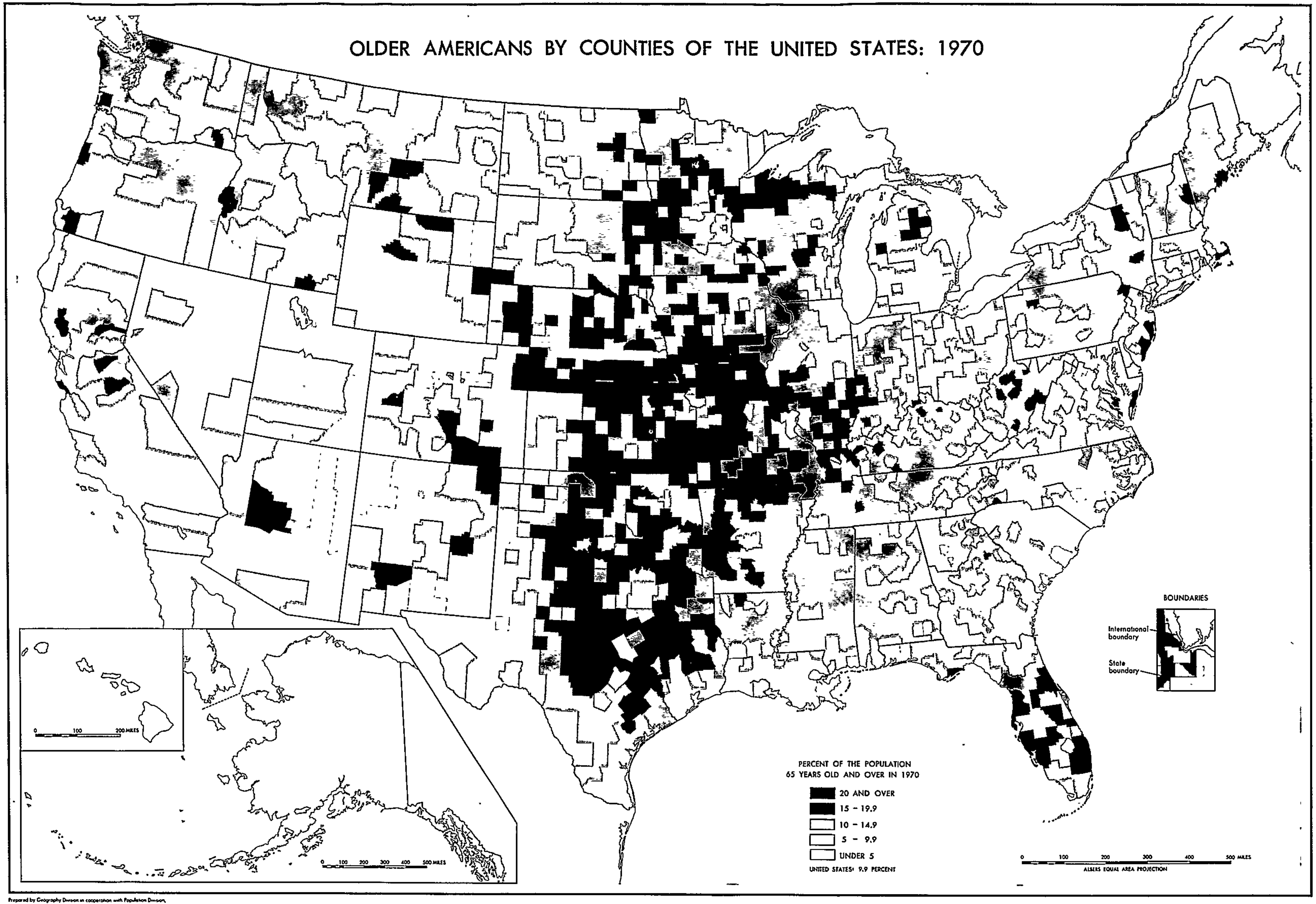
Table 6. METROPOLITAN AND NONMETROPOLITAN RESIDENCE OF THE POPULATION 65 YEARS OLD AND OVER: 1970 (Continued)

Regions Divisions States	Total population				Population 65 years old and over				Percent 65 years old and over			
	Total	Metropolitan		Nonmetropolitan	Total	Metropolitan		Nonmetropolitan	Total	Metropolitan		Non-metropolitan
		Inside central cities	Outside central cities			Inside central cities	Outside central cities			Inside central cities	Outside central cities	
EAST SOUTH CENTRAL												
Kentucky	3,218,706	549,183	738,841	1,930,682	337,428	62,253	56,151	219,024	10.5	11.3	7.6	11.3
Tennessee	3,923,687	1,353,336	564,359	2,005,992	383,925	125,472	43,486	214,967	9.8	9.3	7.7	10.7
Alabama	3,444,165	881,825	919,270	1,643,070	325,961	81,689	78,680	165,592	9.5	9.3	8.6	10.1
Mississippi	2,216,912	243,245	150,243	1,823,424	222,320	18,865	10,809	192,646	10.0	7.8	7.2	10.6
WEST SOUTH CENTRAL												
Arkansas	1,923,295	334,396	260,634	1,328,265	237,760	36,494	22,223	179,043	12.4	10.9	8.5	13.5
Louisiana	3,641,306	1,142,809	853,388	1,645,109	306,707	109,651	48,203	148,853	8.4	9.6	5.6	9.0
Oklahoma	2,559,229	761,540	519,945	1,277,744	299,756	68,881	42,861	188,014	11.7	9.0	8.2	14.7
Texas	11,196,730	5,394,954	2,839,504	2,962,272	992,059	418,573	183,284	390,202	8.9	7.8	6.5	13.2
MOUNTAIN												
Montana	694,409	121,672	47,499	525,238	68,736	10,505	3,032	55,199	9.9	8.6	6.4	10.5
Idaho	712,567	74,990	37,240	600,337	67,776	7,489	2,731	57,556	9.5	10.0	7.3	9.6
Wyoming	332,416	-	-	332,416	30,204	-	-	30,204	9.1	-	-	9.1
Colorado	2,207,259	747,191	834,548	625,520	187,891	78,653	41,427	67,811	8.5	10.5	5.0	10.8
New Mexico	1,016,000	243,751	72,023	700,226	70,611	15,678	3,670	51,263	6.9	6.4	5.1	7.3
Arizona	1,770,900	844,495	474,694	451,711	161,474	77,811	48,275	35,388	9.1	9.2	10.2	7.8
Utah	1,059,273	324,223	497,466	237,584	77,561	34,519	21,917	21,125	7.3	10.6	4.4	8.9
Nevada	488,738	198,650	195,706	94,382	30,968	14,098	9,458	7,412	6.3	7.1	4.8	7.9
PACIFIC												
Washington	3,409,169	909,550	1,339,287	1,160,332	322,061	118,622	80,237	123,202	9.4	13.0	6.0	10.6
Oregon	2,091,385	527,261	753,430	810,694	226,799	72,340	65,907	88,552	10.8	13.7	8.7	10.9
California	19,953,134	7,238,502	11,261,504	1,453,128	1,800,977	739,447	903,168	158,362	9.0	10.2	8.0	10.9
Alaska	300,382	-	-	300,382	6,887	-	-	6,887	2.3	-		2.3
Hawaii	768,561	324,871	304,305	139,385	44,116	22,261	9,124	12,731	5.7	6.9	3.0	9.1

UNITED STATES
DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS

OLDER AMERICANS BY COUNTIES OF THE UNITED STATES: 1970



Prepared by Geography Division in cooperation with Population Division,
Bureau of the Census, U.S. Department of Commerce
Data from Census of Population: 1970

Table 7. NET MIGRATION 65 AND OVER, BY RACE, SEX, AND METROPOLITAN STATUS FOR REGIONS AND DIVISIONS: 1960 TO 1970

(in thousands)

Region, Division, and State	Total	Race		Sex		Residence	
		White	Negro and other races	Male	Female	Metropolitan[1]	Nonmetropolitan
UNITED STATES, TOTAL ..	123.6	107.2	16.4	49.4	74.3	–172.5	296.1
Regions							
Northeastern States	–333.6	–343.6	10.0	–158.7	–174.9	–349.8	16.2
North Central States	–219.9	–226.5	6.6	–107.7	–112.2	–261.9	42.0
The South	444.2	476.1	–31.9	221.7	222.5	242.5	201.7
The West	233.0	201.2	31.8	94.0	138.9	196.7	36.3
Northeast							
New England	–29.6	–33.6	4.0	–17.6	–12.0	–40.7	11.1
Middle Atlantic	–304.0	–309.9	5.9	–141.1	–162.9	–309.1	5.1
North Central							
East North Central	–229.1	–234.4	5.2	–117.2	–112.0	–232.6	3.5
West North Central	9.2	7.9	1.4	9.5	–.3	–29.3	38.5
South							
South Atlantic	347.1	367.6	–20.4	170.1	177.1	214.1	133.0
East South Central	14.6	28.9	–14.4	12.8	1.8	1.6	13.0
West South Central	82.5	79.6	2.9	38.8	43.7	26.7	55.8
West							
Mountain	66.7	64.5	2.2	34.2	32.5	57.8	8.9
Pacific	166.2	136.7	29.6	59.8	106.4	138.9	27.3

[1] Population in SMSA's and Standard Consolidated Areas. In New England nearest county or metropolitan State Economic Area equivalent to the SMSA was used.

Source: Bureau of the Census.

million population in this age group in 1970, while the south gained almost 450,000 and the west gained over 200,000, about 8 percent each. Of the States that gained through this interchange, Florida unsurprisingly is the leader by an impressive margin both numerically and proportionally, dwarfing all other States in the impact of retirement-age migration on its population and economy. More than one-third of the one million older population living in Florida in 1970 were net in-migrants during the 1960's. California attracted nearly 150,000, and Texas and Arizona about 50,000 apiece.

The major losers in this exchange of older population were New York, with more than 200,000 net out-migration, Illinois and Pennsylvania in the vicinity of 100,000, and Ohio and Michigan in the 50,000 range. The District of Columbia had a net out-migration equal to one-third of its 1970 population 65 and over.

Very clearly this is a movement out of the metropolitan areas of the north, generally directed to southern and western metropolitan areas. Northern metropolitan areas lost more than 600,000 net migrants.

The migration pattern for Negroes and other races, as you would expect, is quite different from whites, with a 30,000 out-migration from the south offset by a comparable in-migration to the west (concentrated in California) and a small in-movement to the north. Every southern State had net out-migration of Negroes and other races 65 and over except Oklahoma and Texas.

A tally of counties by the direction of their net migration indicates that a surprisingly large number experienced net in-migration of the population 65 and over. Nearly 1,900 or 60 percent of all counties showed some migration gains, compared with less than 1,000 with migration gains for the total population. There is a heavy concentration of counties gaining older migrants in the same States that have a large number of counties with very old populations—the dark areas on our map. The number of migrants involved isn't large, but the pattern is so pervasive throughout the middle west that it can't be ignored. Should this be inferred as return migration of retirees who had left this farm country years before? A similar but somewhat less overwhelming pattern is found in the south.

A comparatively few counties accounted for the great majority of the net migration of old people during the 1960's. Figure 2 shows net migration of the older population. All counties with an estimated 1,000 or more net in- or out-migration during the 1960's are shown. Migration gains are shown by line patterns, with the counties having the largest migration outlined in heavy black line and the migration value shown within the outline. Migration losses are shown by dot patterns, with the largest losses in black and their migration values shown beside them.

The map is an amalgam of two types of migrations, on one level from central city to suburbs, and on a second and more significant level reflecting long distance moves. Most of the counties containing the largest cities have out-migration, which is offset to some extent by movement into adjacent counties. Of the 104 counties with net out-migration of 1,000 or more, 90 percent are metropolitan. On the other hand, in the 129 receiving counties only two-thirds were metropolitan. Some 47 nonmetropolitan counties were able to attract large numbers of in-migrants.

With a few scattered exceptions, the counties showing net out-migration are confined to the northeast quadrant of the country. Except for suburban metropolitan counties, the in-migrating areas are laid out in a sweeping arc extending along the southern and western extremities of the United States.

Peninsular Florida had by far the greatest attracting power, with 355,000 net in-migrants in the counties shown. Miami Beach, Fort Lauderdale, and West Palm Beach have been the focal points for a booming resort and retirement development that has been going on for many decades. Miami Beach is unique among all large cities in the United States in having one-half its population 65 and over.

The west coast of Florida, a recently developing retirement area, actually outstripped the southeast coast in attracting older in-migrants during the 1960's, with a net gain of 154,000. Largely empty areas south of Sarasota and north of St. Petersburg have been filling in with resort and retirement communities. Pasco County, immediately north of the St. Petersburg-Clearwater area, which started the decade with 37,000 people, more than doubled its population by 1970 on the basis of a natural decrease of 1,300 and a net in-migration of 40,000. Of that 40,000, more than 17,000 were 65 and over. This nine-county west coast complex had a huge population increase during the decade coupled with a natural decrease. Six of these counties are among the seven counties with the highest proportion of their population 65 and over in 1970.

The remainder of the Florida peninsula received more than 50,000 net in-migration of older persons during the 1960's.

Southern California was the largest attractor of older migrants outside Florida, with a net gain of almost 100,000, despite a loss of 23,000 from Los Angeles County.

The only other complexes attracting as many as 25,000 older in-migrants were western Arizona-southern Nevada with 50,000, the California central coast with 27,000, and the southern New Jersey coast with 25,000, mainly to Ocean County. Lists of the counties with 1,000 or more in- and out-migration appear in Tables 8 and 9. Counties with the highest rates of in-migration are shown in Table 10.

Two-thirds of the 33 metropolitan areas of a million or more lost older population through out-migration, including the dozen largest. Almost the entire net migration loss of older population incurred by the north during the 1960's was concentrated in the large metropolitan areas shown in Table 11. The New York-Northeastern New Jersey area accounted for 206,000, with New York City alone losing 170,000. The Chicago-northwestern Indiana area lost 100,000, and losses of 20,000 to 40,000 were incurred by the Detroit, Philadelphia, Boston, Pittsburgh, and Cleveland areas.

Counties With 1,000 or More Estimated Net In-migration or Net Out-migration of Population 65 Years Old and Over, 1960 to 1970

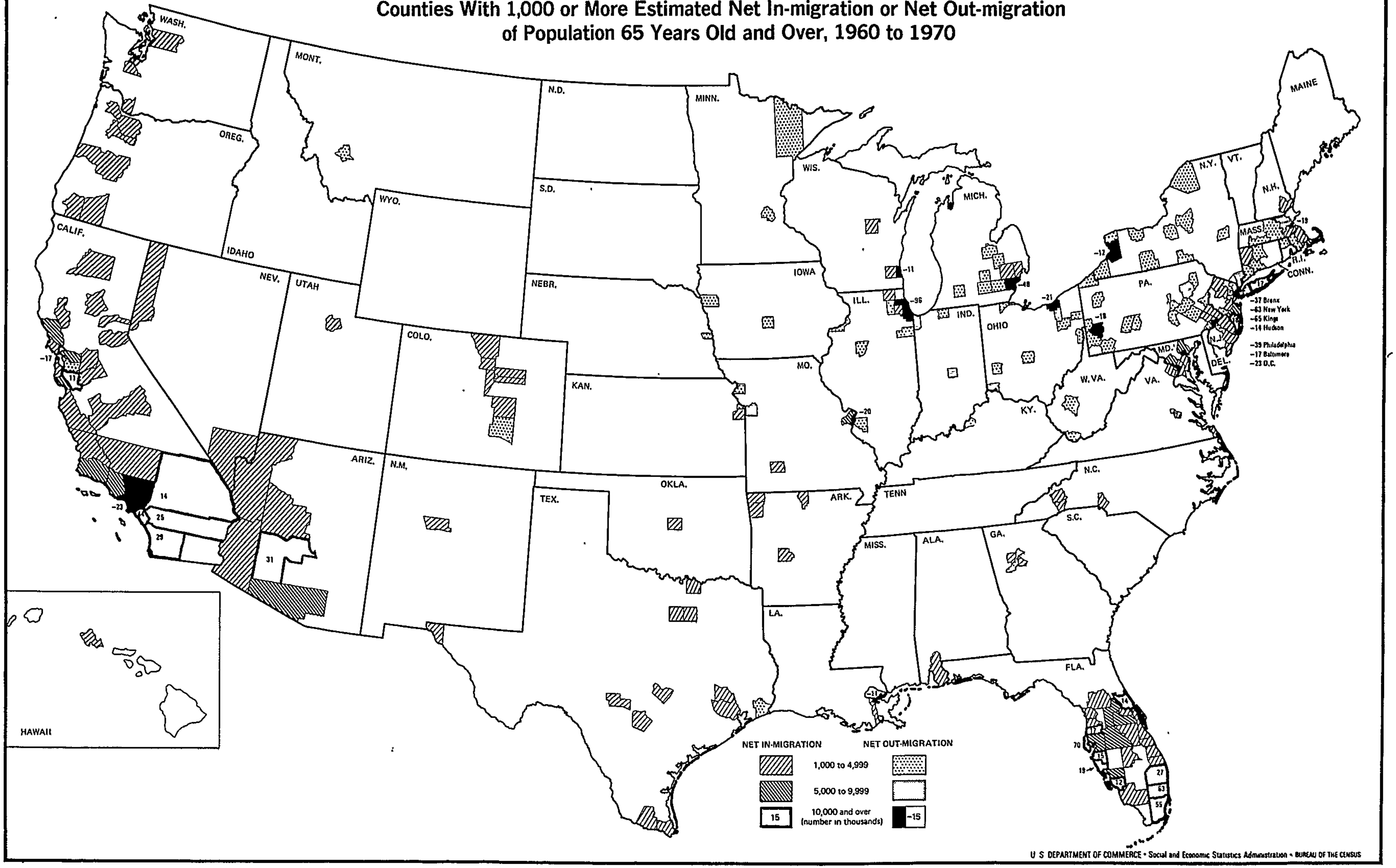


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Table 8. COUNTIES WITH 1,000 OR MORE NET IN-MIGRATION OF POPULATION 65 AND OVER, 1960 TO 1970

(In thousands. Asterisk indicates metropolitan county.)

State and County	Net in-migration
Alabama	
*Baldwin	1.3
Arizona	
*Maricopa	30.9
Mojave	1.7
*Pima	10.0
Yavapai	2.0
Yuma	1.3
Arkansas	
Baxter	1.6
Benton	1.4
Garland	2.0
Washington	1.0
California	
Butte	3.1
*Contra Costa	7.1
El Dorado	1.1
*Fresno	2.7
*Kern	1.3
Lake	1.7
*Marin	2.1
*Monterey	2.8
Nevada	1.1
*Orange	43.5
*Riverside	24.8
*San Bernardino	14.1
*San Diego	28.8
*San Joaquin	1.7
San Luis Obispo	2.9
*San Mateo	1.8
*Santa Barbara	6.4
*Santa Clara	11.4
Santa Cruz	5.7
Shasta	1.2
*Sonoma	6.5
*Stanislaus	1.5
*Ventura	6.8
Colorado	
*Adams	1.5
*Arapahoe	1.4
*Boulder	1.9
*El Paso	1.6
*Jefferson	2.6
Larimer	2.1
Connecticut	
Litchfield	1.3
Florida	
Brevard	4.5
*Broward	63.1
Charlotte	6.7
Citrus	3.3
Collier	3.5
*Dade	55.2
Hernando	1.8
Highlands	2.9
*Hillsboro	5.7
Indian River	2.4
Lake	5.7
Lee	11.5
Manatee	15.1
Marion	2.8
Martin	3.1
*Orange	6.5
Osceola	2.0
*Palm Beach	27.5
Pasco	17.1
*Pinellas	69.8
Polk	6.9
St. Lucie	2.5
Sarasota	19.5
*Seminole	2.4
Volusia	13.9
Georgia	
*Cobb	1.6
*De Kalb	2.5
Hawaii	
*Honolulu	1.7
Illinois	
*Du Page	1.6
*McHenry	1.1
Kansas	
*Johnson	1.6
Louisiana	
*Jefferson	2.9
Maryland	
*Anne Arudel	1.3
*Baltimore	6.5
*Montgomery	7.5
*Prince Georges	4.0
Massachusetts	
Barnstable	6.9
*Norfolk	1.2
*Plymouth	2.1
Michigan	
*Macomb	3.9
*Oakland	3.9
Missouri	
*Greene	1.3
*St. Louis	5.4
Nevada	
*Clark	4.0
*Washoe	1.9
New Hampshire	
Rockingham	1.4
New Jersey	
*Atlantic	3.1
*Burlington	2.1
Cape May	3.5
*Middlesex	1.4
Monmouth	5.6
*Morris	1.2
Ocean	18.5
Sussex	1.4
New Mexico	
*Bernalillo	2.2
New York	
*Rockland	1.8
*Suffolk	17.4
North Carolina	
*Buncombe	1.5
Henderson	1.2
*Mecklenburg	1.3
Oklahoma	
*Oklahoma	1.5
Oregon	
*Clackamas	2.2
Jackson	2.0
Josephine	1.5
*Lane	2.1
*Marion	3.2
*Washington	2.5
Pennsylvania	
*Bucks	2.3
*Montgomery	2.3
Texas	
*Bexar	2.4
*Cameron	1.4
*Dallas	3.0
*El Paso	1.5
*Grayson	1.0
*Harris	2.7
*Hidalgo	1.3
Kerr	1.3
*Montgomery	1.0
*Tarrant	3.3
*Travis	1.2
Utah	
*Salt Lake	1.8
Virginia	
*Fairfax	3.2
*Henrico	1.7
*Virginia Beach	1.6
Washington	
*Clark	1.0
*Snohomish	2.2
Thurston	1.3
Wisconsin	
*Waukesha	1.2
Waupaca	1.1

Source: Bureau of the Census.

Table 9. COUNTIES WITH 1,000 OR MORE NET OUT-MIGRATION OF POPULATION 65 AND OVER, 1960 TO 1970

(In thousands. Asterisk indicates metropolitan county.)

State and County	Net out-migration
California	
*Alameda	–2.5
*Los Angeles	–23.1
*San Francisco	–17.2
Colorado	
*Denver	–2.4
*Pueblo	–1.2
Connecticut	
*Fairfield	–1.1
*Hartford	–1.2
*New Haven	–1.9
District of Columbia	
*Washington city	–22.8
Georgia	
*Fulton	–4.8
Illinois	
*Cook	–95.7
*Kane	–1.7
Kankakee	–1.8
*Peoria	–1.8
*Rock Island	–1.4
*St. Clair	–1.4
Indiana	
*Lake	–5.9
*Marion	–7.6
*St. Joseph	–1.5
Iowa	
*Polk	–2.3
*Woodbury	–1.1
Kansas	
*Wyandotte	–1.7
Kentucky	
*Jefferson	–1.9
Louisiana	
*Orleans	–10.6
Maryland	
*Baltimore city	–16.7
Massachusetts	
*Bristol	–1.6
*Hampden	–2.2
*Middlesex	–8.4
*Suffolk	–19.3
*Worcester	–2.8
Michigan	
*Genesee	–3.8
*Ingham	–2.2
*Jackson	–1.0
*Kalamazoo	–1.4
*Saginaw	–1.2
*Washtenaw	–1.0
*Wayne	–48.3
Minnesota	
*Hennepin	–4.3
*St. Louis	–1.6
Missouri	
*Buchanan	–1.2
*Jackson	–6.3
*St. Louis city	–19.8
Montana	
Silver Bow	–1.1
Nebraska	
*Douglas	–1.3
New Jersey	
*Bergen	–2.1
*Camden	–2.1
*Essex	–23.8
*Hudson	–14.1
*Mercer	–1.3
*Passaic	–2.5
*Union	–3.4
New York	
*Albany	–3.0
*Bronx	–37.4
*Broome	–2.1
Chautauqua	–1.1
*Erie	–11.6
*Kings	–65.0
*Monroe	–4.0
*Nassau	–1.8
*New York	–63.3
*Niagara	–2.0
*Oneida	–1.7
*Onondago	–3.2
*Queens	–6.0
St. Lawrence	–1.0
Steuben	–1.1
*Westchester	–8.1
Ohio	
*Cuyahoga	–20.9
*Franklin	–2.5
*Hamilton	–7.5
*Jefferson	–1.1
*Lucas	–4.5
*Mahoning	–2.3
*Montgomery	–2.7
*Stark	–1.5
*Summit	–5.4
Pennsylvania	
*Allegheny	–17.8
*Beaver	–1.3
*Berks	–1.7
*Blair	–1.5
*Cambria	–2.2
*Dauphin	–1.9
*Delaware	–1.1
*Erie	–2.4
Fayette	–1.8
*Lackawanna	–2.1
*Luzerne	–5.5
*Northampton	–1.3
Northumberland	–1.4
*Philadelphia	–38.8
Schuylkill	–3.4
Venango	–1.1
*Washington	–2.1
Rhode Island	
*Providence	–4.2
Texas	
*Jefferson	–1.4
Virginia	
*Arlington	–1.2
*Norfolk city	–3.0
*Richmond city[1]	–2.6
West Virginia	
*Kanawha	–2.0
McDowell	–1.7
Wisconsin	
*Milwaukee	–11.2

[1] Including Chesterfield.

Source: Bureau of the Census.

Table 10. COUNTIES WITH HIGH RATES OF NET IN-MIGRATION OF THE POPULATION 65 AND OVER, 1960 TO 1970

(Rates are migrants as percentage of 1960 population 55 and over)

Rank	County and State	Rate	Rank	County and State	Rate
1.	Pasco, Fla.	143.7	20.	Okeechobee, Fla.	43.2
2.	Charlotte, Fla.	142.4	21.	Riverside, Calif.	41.9
3.	Collier, Fla.	122.4	22.	Burnet, Tex.	38.4
4.	Citrus, Fla.	119.7	23.	Indian River, Fla.	38.0
5.	Mohave, Ariz.	107.9	24.	Lake, Fla.	37.0
6.	Lee, Fla.	87.2	25.	Lake, Calif.	36.1
7.	Broward, Fla.	83.3	26.	Volusia, Fla.	34.4
8.	Sarasota, Fla.	79.0	27.	Oscoda, Mich.	34.2
9.	Ocean, N.J.	78.3	28.	Brevard, Fla.	34.1
10.	Hernando, Fla.	67.1	29.	Maricopa, Ariz.	32.7
11.	Martin, Fla.	66.2	30.	Clare, Mich.	32.0
12.	Manatee, Fla.	62.0	31.	Taney, Mo.	31.9
13.	Highlands, Fla.	52.3	32.	Aransas, Tex.	31.4
14.	Palm Beach, Fla.	51.4	33.	Island, Wash.	31.3
15.	Baxter, Ark.	51.3	34.	St. Lucie, Fla.	31.2
16.	Orange, Calif.	49.2	35.	Hartley, Tex.	31.1
17.	Pinellas, Fla.	48.1	36.	Clay, Fla.	30.8
18.	Llano, Tex.	47.3	37.	Osceola, Fla.	30.7
19.	Barnstable, Mass.	44.4	38.	Roscommon, Mich.	30.1

Source: Bureau of the Census.

This migration from metropolitan areas to the south and west was essentially a white movement. There were very few black net-in-migrants into gaining areas. By contrast most metropolitan areas with large net out-movement overall had in-migration of older Negroes.

This brief excursion into changing age and locational patterns in the United States barely scratches the surface of what research might be done in this area to understand how our population moves and why it moves as it does.

Thank you.

DR. TAEUBER: Thank you, Don.

Our next presentation is by Paul Glick. Your program says he is Assistant Chief of the Population Division. Let me amplify that a bit. That is his title, that is his function, but I imagine many of you know him much better as a person who, for a good many years now, has been developing the statistical information concerning families, family structure, family formation, the role of families in our society. He is going to go into that role again later in the day, in another session.

This morning he is going to demonstrate that there is much more to being Assistant Chief of

Table 11. METROPOLITAN AREAS WITH 5,000 OR MORE NET IN- OR OUT-MIGRATION OF POPULATION 65 AND OVER, 1960 TO 1970

(In thousands)

SMSA's with net in-migration					SMSA's with net out-migration				
Rank	Area	Total	White	Other	Rank	Area	Total	White	Other
1.	Tampa-St. Petersburg, Fla.	75.5	74.6	0.1	1.	New York, N.Y.[1]	-162.4	-167.0	4.7
2.	Fort Lauderdale-Hollywood, Fla.	63.1	62.5	0.6	2.	Chicago, Ill.[2]	-96.4	-94.2	-2.2
3.	Miami, Fla.	55.2	53.9	1.3	3.	Detroit, Mich.	-40.5	-43.3	2.8
4.	Anaheim-Santa Ana-Garden Grove, Calif.	43.5	42.3	1.2	4.	Philadelphia, Pa.-N.J.	-34.9	-34.0	-0.9
5.	San Bernardino-Riverside-Ontario, Calif.	38.9	37.4	1.6	5.	Boston, Mass.[3]	-27.2	-28.5	1.4
6.	Phoenix, Ariz.	30.9	30.4	0.5	6.	Newark, N.J.[1]	-26.0	-26.1	0.1
7.	San Diego, Calif.	28.8	27.6	1.2	7.	Los Angeles-Long Beach, Calif.	-23.1	-35.1	12.0
8.	West Palm Beach, Fla.	27.5	27.6	-0.1	8.	Pittsburgh, Pa.	-22.1	-21.4	-0.6
9.	San Jose, Calif.	11.4	10.6	0.8	9.	Cleveland, O.	-20.3	-20.7	0.4
10.	Tucson, Ariz.	10.0	9.8	0.2	10.	St. Louis, Mo.-Ill.	-14.3	-15.1	0.9
11.	Orlando, Fla.	8.9	8.7	0.2	11.	Jersey City, N.J.[1]	-14.1	-14.2	0.1
12.	Oxnard-Ventura, Calif.	6.8	6.7	0.1	12.	Buffalo, N.Y.	-13.7	-13.9	0.2
13.	Santa Rosa, Calif.	6.5	6.4	0.1	13.	Milwaukee, Wis.	-9.3	-10.2	0.9
14.	Santa Barbara, Calif.	6.4	6.1	0.2	14.	Washington, D.C.-Md.-Va.	-8.8	-7.9	-0.9
15.	Portland, Ore.	5.3	4.8	0.5	15.	San Francisco-Oakland, Calif.	-8.8	-15.8	7.0
					16.	Cincinnati, O.	-8.4	-8.1	-0.3
					17.	Baltimore, Md.	-7.9	-7.3	-0.6
					18.	New Orleans, La.	-6.3	-4.5	-1.9
					19.	Gary-Hammond-East Chicago, Ind.[2]	-5.9	-6.0	0.1
					20.	Indianapolis, Ind.	-5.8	-5.8	(Z)
					21.	Kansas City, Mo.-Kan.	-5.6	-6.0	0.4
					22.	Akron, O.	-5.5	-5.6	0.1
					23.	Wilkes-Barre-Hazleton, Pa.	-5.5	-5.5	0.1
					24.	Toledo, O.	-5.2	-5.5	0.3

[Z] In-migration of less than 50.

[1] Values for New York-Northeastern New Jersey Standard Consolidated Area are -205.6, -211.2, and +5.7.

[2] Values for Chicago-Northwestern Indiana Standard Consolidated Area are -102.3, -100.2, and -2.1.

[3] Massachusetts Metropolitan State Economic Area C, nearest equivalent to Boston SMSA.

Source: Bureau of the Census.

the Population Division than just concentrating on family statistics or educational statistics or ethnic origin statistics, and he is going to give a general review of some of the changes and the social and economic characteristics of the population, again based largely on the 1970 census.

CHANGES IN THE SOCIAL AND ECONOMIC CHARACTERISTICS OF THE POPULATION

Dr. Paul C. Glick, *Assistant Chief for Demographic and Social Statistics Programs, Population Division, Bureau of the Census*

In the 1960's, many of the changes in the social and economic life of the American people can be traced in no small part to the vastly expanded number of births of the late 1940's. Persons born in those post-World War II years were maturing into young adults during the last decade. Among the more significant developments associated with this maturing of the expanded number of young adults was the two-thirds increase in college enrollment since 1960.

Yet, while this development took place in the 1960's, the birth rate was plummeting to a near-record low level. This demographic fact was, in turn, associated with a gradual releasing of time that women had been devoting to child care, so that more of them were entering and remaining in the labor market. Thus, of the 13 million persons added to the labor force in the 1960's, a disproportionately large number—8 million—were women.

But employment did not grow evenly among all of the industrial sectors of the economy. For example, the number of persons engaged in agriculture, forestry, and fisheries actually declined substantially, from 4.3 million in 1960 to only 2.7 million in 1970. Moreover, the number employed as domestics (private household workers) also went down sharply, from 1.7 million in 1960 to 1.1 million in 1970.

Nor was the increase in family income equally great among white and Negro families. After allowance has been made for the changing value of the dollar, Negro families enjoyed a 58 percent increase in their median income during the 1960's as compared with 31 percent for white families. Still substantial differences remain at the end of the decade.

These introductory observations cover a few of the highlights about recent changes in some of the main social and economic variables covered in the 1970 census, namely, education, employment, occupation, and income. These areas of activity encompass the background which adults acquire before their entry into the labor market, the fields of endeavor where they apply their occupational skills, and the economic reward they receive for their efforts. In the balance of this paper, the findings in these areas will be developed further and some of the implications of the findings will be discussed in relation to changes in migration, marriage and divorce, fertility, living arrangements, and housing.

Education.—During the 1960's, for the first time, the point was reached where a majority of the adults (25 years old and over) had graduated from high school. The proportion of adult whites who had reached this point was 43 percent in 1960 and 59 percent in 1971. The comparable gain for Negroes was from 20 percent to 35 percent. Among younger adults, the gap in educational attainment has become narrower. Thus, among persons 20 to 24 years old, the proportion of whites who were at least high school graduates increased from 67 to 83 percent, while the proportion for Negroes increased from 40 to 65 percent. In other words, this measure of the education of young Negroes places their attainment at about the same level as young whites in 1960.

However, among young adults of Spanish origin in the United States, about 10 percent fewer than Negroes had graduated from high school. To the extent that the schooling of Negroes and persons of Spanish origin has been deficient, on the average as compared with white schooling, this evidence tends to understate the educational gap between the ethnic groups.

Courses in vocational training had been completed by 29 percent of the men and 22 percent of the women 16 to 64 years old (with less than 15 years of school).

At the upper end of the educational scale, 18 percent of the white adults below retirement age (25 to 64) had completed four or more years of college. Among Negroes of comparable age, only one-third as large a proportion, 6 percent, had done so by 1971. By contrast, at the other end of the educational scale, the same proportion of both white and black children three and four years old were enrolled in nursery school or kindergarten in 1971 (21 percent). It will be instructive to observe whether this equality of school enrollment levels will persist as these young children move on through the regular school system.

Employment.—Because of the high level of economic activity of the 1960's, coupled with declining birth and death rates in the same period, the number of employed adults (14 and over) increased more rapidly than the total population (20 percent versus 13 percent). The growth in the employment of civilians occurred at a much faster pace among women than men (37 percent versus 11 percent) and at a somewhat faster pace among persons of "Negro and other races" than among whites (26 percent versus 19 percent). These unequal growth rates produced a very large increase in the proportion employed among females of Negro and other races (41 percent) and a relatively small increase for white males (10 percent), with the other groups in intermediate positions (37 percent increase for white females and 21 percent for males of Negro and other races).

Although men have a consistently higher rate of labor force participation than women at each age level, the amount of difference has been diminishing. At the peak period for employment, ages 25 to 44 years, fully 97 percent of the white males were employed in 1971, and approximately as high proportions were employed among men of Mexican origin (96 percent) and Negro men (93 percent) but a smaller proportion for men of Puerto Rican origin (85 percent).

In 1971, half (49 percent) of the women in the main ages for working (16 to 64 years) were in the labor force during the week before enumeration. Moreover, virtually identical proportions were in the labor force among women of each broad age group (16 to 24, 25 to 44, and 45 to 64). However, perhaps surprisingly, the highest labor force rate among those 16 to 64 was that for women of Negro and other races (53 percent). They were followed, in turn, by white women (49 percent), women of Mexican origin (36 percent), and women of Puerto Rican origin (29 percent). The female worker rate reached its highest level among women of Negro and other races 25 to 44 years of age (61 percent). Substantially more of the mothers of preschool age children were in the labor force in 1970 and in 1960 (31 versus 21 percent).

Among both men and women, the unemployment rate for white persons was still significantly lower than that for persons in the other ethnic groups in 1971.

Occupation.—As noted above, the 1960's witnessed a sharp decline in agricultural workers and in domestic workers. These changes coincided with gains in the number of white-collar workers, particularly those employed in professional and related occupations. By 1971, 44 percent of the white employed men were employed in the higher paid types of jobs classified as white-collar work, whereas only one-half that proportion was found among men of Negro and other races (22 percent) and men of Spanish origin (23 percent). The difference is related, among other things, to the smaller proportions of Negro men and men of Spanish origin who had completed a high school or college education.

Income.—The median family income in constant dollars rose by one-third between 1960 and 1970. For families of Negro and other races, it rose somewhat more, 54 percent, but was still far below that for white families. Thus, during the decade the ratio of Negro (median) family income to white (median) family income increased from 51 percent to 61 percent, after having remained virtually unchanged during the 1950's. Only about one-half as large a proportion of family incomes were below $3,000 (in constant dollars) at the end of the decade as at the beginning (9 versus 16 percent). On the other hand, the proportion above $15,000 doubled (22 versus 10 percent). Mean family incomes of about $16,000 were found in 1970 for white suburban families with the head employed year-round full-time each week. The same level of mean family income was recorded for white families with the head 45 to 54 years old and with the wife in the paid labor force. A peak mean family income of about $25,000 was noted for white families with the head 45 to 54 years old and with five or more years of college education.

In one small but noteworthy segment of families, the closing of the income gap between blacks and whites registered a significant gain during the 1960's. This was the ten or fifteen percent of young families in the north and west with both the husband and wife working (with the husband under 35 years old). Here the relevant fact is that black wives were more likely than white wives to be employed and working full-time year-round in 1970. Among these young families with husband and wife working, the ratio of black to white income was 104 percent in 1970 as compared with 85 percent in 1959. In these families, the black wives earned 30 percent more than their white counterparts and a larger proportion of the entire family income (35 versus 27 percent).

Migration.—For more than two decades the Bureau of the Census has published an annual series of data on residential movement during the preceding year. Throughout most of these years, about one-fifth of the population was found to change residences within a year's time. However, this proportion has been declining moderately since the mid-1960's. The chief component of the decline has been the reduction of local movement, that is, moves within the same county. This component amounted to 13 percent of the population in 1965 and 11 percent in 1971. Factors that seem to be logically associated with this decline have been the sharp reduction in low-income families, among whom local movement is consistently the heaviest, and the decline in the birth rate, which has resulted in fewer families feeling the pressure to move into larger quarters.

Marriage and divorce.—The 1960's were a period of declining first marriage rates among young persons and of rising first marriage rates among bachelors and spinsters. The 1960's were also a period of increasing divorce and remarriage rates, but falling widowhood rates. The available data for women are better for the study of these marriage trends than those for men because of the changing numbers of men in the Armed Forces.

In this light, a succinct summary of the effects of the marital changes among women in the 1960's was prepared especially for presentation at this conference. The method involved the computation of the number of persons who would have been expected in each marital status category (by age and sex) in 1971 if the percent distribution by marital status (by age and sex) had not changed since 1960. These expected numbers for 1971 were then compared with the actual numbers observed in the 1971 Current Population Survey, and the differences between observed and expected values were obtained by subtraction. The results of this study for women are as follows:

> The declining first marriage rates for young women caused an excess of 1.3 million women 14 to 29 years of age who were still single in 1971, while the rising marriage rates involving older women caused a drop of 600,000 spinsters (30 and over) between 1960 and 1971.
>
> In the same period the number of divorced women (of all ages) who had not remarried rose 900,000 (or 45 percent) more than the number that would have been expected from population growth within each age group.
>
> Moreover, the actual number of widows in 1971 was 700,000 below the expected number, because of continued declines in death rates and possible changes in remarriage rates for widows. The net effect of all the changes in first marriage, divorce, widowhood, and remarriage has been 900,000 fewer married women (of all ages) than would have been expected in 1971 if the marital status distribution by age had not changed since 1960.

Fertility.—Along with this shortage in married women has come the well-publicized decline in the birth rate during the 1960's. One of the most relevant and widely used measures of this decline is the drop in the *total* fertility rate from 3,654 in 1960 all the way down to 2,266 in 1971. (This rate is the number of births that

1,000 women would have in their lifetime if, at each year of age, they experienced the birth rates occurring in the specified calendar year.) The 1971 figure is about the same as the lowest *completed* fertility rate on record, namely, 2,288 for women born in 1905 to 1909.

This 1905-1909 cohort achieved this low rate without the benefit of present-day efficient means of contraception, liberal abortion laws, and urgings toward "Zero Population Growth." The husbands of these older women experienced depression level unemployment while the wives were at the prime ages for completing their family building. Many of them had already married and borne at least one child before the depression set in. Even so, 20 percent of these women, born in 1905 to 1909, (who had ever married) went through life without bearing any children. This is in sharp contrast with (ever-married) women currently in their late thirties among whom only 6 percent are still childless. These women were in their early 20's in the mid-1950's when birth rates were at their peak.

A 1971 survey of expected lifetime fertility brought replies from women in their late twenties that only 3 percent of them expected to remain childless throughout life. In this survey, wives under age 25 reported that they expected to have an average of only 2.4 children by the end of their childbearing period. Unless these women change their minds about their family size or have a significant number of unplanned births, they will come close to achieving zero population growth.

Living arrangements.—As income has risen and fertility has declined, an increasing proportion of married couples and other adults have been maintaining separate living quarters with a small average size of household. One of the major elements has been the increase in one-person households, which grew by more than 50 percent during the last decade. About one household in every six is a one-person household. The largest numerical increase (almost two million) has been among older women, but the largest proportional increase (over 150 percent) has been among young "singles" (an expression often used to include divorced and separated as well as never-married persons).

The typical family has a married couple heading a household. About seven out of every eight families are of this composition, with or without children or other family members present. However, 30 percent of Negro families now, as compared with one-fourth in 1960, have a female as the head. For white families, consistently 9 percent have had female heads.

The number of cases in which the absent man is an important source of economic support is unknown but is probably not large. The incomes and living arrangements of the majority of families with a female head clearly reflect their disadvantages in terms of economic support.

A related series of statistics shows the proportion of young children living with both parents. In 1971, 88 percent of the white children under 18 years of age were living with both their father and their mother, but only 54 percent of the Negro children lived with both parents. These current figures show a diminution in the proportions since 1960, when the figures were three percentage points higher for white children and nine percentage points higher for Negro children.

Housing.—The 1970 census shows that half of the current housing had been built since the end of World War II. An improvement in the average quality of housing had occurred in the last decade, as measured by the presence of complete plumbing equipment (bathtub or shower, hot running water, flush toilet for exclusive use of the household). Only seven percent of the housing units in 1970 lacked any of these facilities. The proportion had been twice that high in 1960 and was fully one-third of all units as recently as 1950. Even in 1970, more than half of the nonmetropolitan units occupied by Negroes did not have all of these facilities.

Most of the increase in home ownership during the last generation occurred in the 1940's and 1950's. Although the proportion owning their homes went up very little in the 1960's from 62 to 63 percent, this small change added more than seven million home owners.

Apartments increased much more rapidly than single-family homes during the 1960's, particularly in the suburbs, where units in multiunit structures almost doubled. Despite the recent growth in apartment building, two-thirds of all housing units in the United States in 1970 were still classified as single-family dwellings. Among these dwellings are the increasingly popular mobile homes, which grew in number by 150 percent in the 1960's and now constitute nearly 3 percent of the national housing inventory. Yet, the increase in apartments and trailers did not keep the average number of rooms per housing unit from becoming larger in the 1960's. Hence, the greater housing space and fewer children per family resulted in an average decline of residential crowding in terms of having more persons than rooms.

Concluding remarks.—Some of the foregoing facts were based on the 1970 census and some on the Current Population Survey. When all of the 1970 census reports have been published, far more will be known about the changing social and economic characteristics of the people and their homes.

All of the tabulations of inventory data on population for 1970 by States, counties, metropolitan areas, and cities will have been published within the coming month in that part of Volume I known as the PC reports. The more detailed data in Volume I for States and metropolitan areas, and on a selective basis for large cities, will be coming out in the PD reports State by State as they are completed over the next six months or so. Meantime, the special reports on some 40 different population topics will be published as Volume II of the 1970 census reports beginning this month or next month and extending over the next year or so.

When this conference re-convenes in 1974, more subtle analyses of population changes, based on "the whole thing" of the 1970 census, can be presented for your enlightenment.

Now, let me just say in closing that when you get the copy of the paper, you will find a list of 1970 census Volume II "Subject Report" titles. There are forty-one titles in Volume II series, which will be coming out in 1973 and 1974.

Many of you are acquainted with these as being reports that specialize on one topic, one on women by number of children born, one on marital status, one on age at first marriage, and so on. You may look forward to these reports as the source of our most detailed cross-tabulations from the 1970 census. I thank you.

DR. TAEUBER: Thank you, Paul.

Some 40 years ago the country became concerned about population and what it meant, and a Presidential Commission—it was then called the National Resources Planning Board—conducted a study, and the study was issued under the title, "Problems of a Changing Population."

Now we have had a Presidential Commission trying to evaluate the implications of recent population developments. It was called "The President's Commission on Population Growth and the American Future."

Bob Parke, who is Deputy Director of the Commission staff is going to summarize some of the highlights.

Let me just add that Bob belongs in this group in still another sense. Before he started with the Commission, he was at the Bureau of the Census. He had been at the Bureau of the Census for some time.

I think he didn't realize some three years ago, when he began meeting with the group that was concerned with the first hearings of this Commission, just how much he was getting into, but we are glad he did get into it. He is going to tell you a bit about how the Commission got where it got, and perhaps something about the flack which it had.

It is one of the few Presidential Commissions that has really gotten a response from the President.

Revised February 1973

1970
VOLUME II REPORTS*

1. *ETHNIC GROUPS*
   - A. National Origin and Language
   - B. Negro Population
   - C. Persons of Spanish Origin
   - D. Persons of Spanish Surname
   - E. Puerto Ricans in the United States
   - F. American Indians
   - G. Japanese, Chinese, and Filipinos in the United States

2. *MIGRATION*
   - A. State of Birth
   - B. Mobility for States and the Nation
   - C. Mobility for Metropolitan Areas
   - D. Lifetime and Recent Migration
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3. *FERTILITY*
   - A. Women by Number of Children Ever Born
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*Total of 41 proposed reports.

PRINCIPAL FINDINGS OF THE PRESIDENT'S COMMISSION ON POPULATION GROWTH AND THE AMERICAN FUTURE

Mr. Robert Parke, Jr., *Deputy Director, Commission on Population Growth and the American Future*

After these very competent and interesting presentations about what's happened to the United States population in the recent past, I face the responsibility of talking about the future. In this situation I feel a little bit like Amos Elan, the author of "The Israelis," who was interviewed about a year ago by the book review editor of the *Washington Post*, who was asking him some questions about what next for Israel. Elan's response was, "You are asking me for a forecast; I'm still trying to figure out what happened in the past."

The process this morning contributes a good deal toward answering a set of questions about the future, some of which were the responsibility of the Commission on Population Growth and the American Future in its study as to what comes next. This Commission was a two year research and reporting effort, the focus of which was on United States population growth, which was specifically included in the mandate.

Obviously there are many reasons for regarding world population growth as posing more immediate serious and critical problems. But the Commission was established in response to a request from President Nixon to the Congress in a speech he gave in 1969, in the course of which he pointed out that gradually we are coming to realize that rapid population growth—such as the United States has experienced in the periods since World War II—can pose severe problems for advanced nations as well.

This is not just a situation that characterizes the under-developed countries.

The policy report of the Commission was made public in March. It will shortly be published as a single volume by the Government Printing Office. The title is "Population and the American Future, the Report of the Commission on Population Growth and the American Future."

In addition to its policy report, the Commission is publishing the research reports which it obtained from many scholars and researchers and research organizations. The Commission felt it highly desirable to make available to the students of population matters the research results on the basis of which its own deliberations were conducted.

I'd like to give you a little bit of the flavor of the Commission, a little bit of the process by which it got where it did get, and to sketch for you the character of some of the recommendations, particularly those with respect to research and statistics in the population field.

As far as the Commission goes, it was one of highly diverse composition. There were 24 members of the Commission. This is an unusually large number, and it included two Congressmen and two Senators, split evenly between the major parties. It included five women, three blacks, one brown, and three people under 30—at least we started with three people under 30; one of them passed the magic barrier in the course of the Commission's lifetime—Catholics, Protestants, Jews, social science and social service people, professional people from medicine and law, and so forth.

It was a hard working Commission. These people came from all across the country, once a month, for two years, and spent two or three days at working sessions. They had an immense amount to read. Most of them did their homework. They, together with the staff, commissioned some 100 research papers, which will be published in seven volumes to come out of the Government Printing Office. They conducted public hearings in four cities across the country involving some 100 witnesses, and conducted a public opinion survey on a variety of issues related to population growth.

I would like to read you briefly from the capsule statement that the Commission adopted: "In the brief history of this nation, we have always assumed that progress and the good life are connected with population growth. In fact, population growth has frequently been regarded as a measure of our progress.

"If that were ever the case, it is not now. There is hardly any social problem confronting this nation whose solution would be easier if our population were larger. Even now, the dreams of too many Americans are not being realized and others are being fulfilled at too high a cost.

"Accordingly, this Commission has concluded that our country can no longer afford the uncritical acceptance of the population growth ethic that 'More is better' and beyond that, after two years of concentrated effort, we have concluded that no substantial benefits would result from continued growth in the nation's population."

Having said this, the Commission outlines its general perspective on population growth in the United States, which is still quite substantial in spite of the fact that the birth rate has been declining since 1957. The nation is still increasing at a rate of approximately two million persons per year.

The Commission concluded that population growth in the United States is not a basis for a crisis response; on the other hand, it is not a basis for complacency.

It concluded that population trends in the United States have a pervasive impact on every aspect of our collective life. It concluded that these effects are extremely long-run in character, as one would expect in a situation where the average expectation of life at birth is approximately 70 years.

That means that on the average, a person born this year will be counted in every census from now until the year 2040.

Finally, the Commission's perspective was based on the perception that its interest was not in population trends as such, but in population trends insofar as they impinge on the quality of life in the United States.

The Commission began its analysis with a review of the processes of population growth and redistribution in the United States and it moved rapidly from this to an examination of the probable effects of alternative population futures, and basically the question was this. Suppose the population were to grow at a rate consistent with an average of three children per family. Suppose, on the other hand, the population were to grow at a rate consistent with a two child family on the average. What difference would it make?

This question was posed to economists and resource experts, ecologists, political scientists and a broad range of professions, asking them from the point of view of their special knowledge what difference it made whether the population of the United States were to grow at a rate consistent with a two or three child average. Let me say that in asking that question, the Commission at no point was considering, nor did it finally endorse, a limitation on family size. While final result of its analysis was a strong endorsement of the two child average. The Commission was very clear about rejecting a two child norm in the sense of a rule imposing conformity on individual behavior.

The Commission concluded that the average that it seeks is capable of being produced through a wide variety of combinations of non-marriage, of childlessness within marriage, of small families, and of large families, and the demographers assured the Commission that this is so.

There is no way I can summarize the findings. I can simply indicate some of the topics on which research was conducted, the results of which are summarized in the Commission's report.

They include the economy, the impact on per capita income and on overall national economic growth. They include the effects of the different population growth projections on poverty, on the growth of the labor force, on the prospects for individual businesses—the diaper industry being an obvious case in point. There was a broad survey of the probable impact of slower versus more rapid population growth, on demand for the output of individual industries, and consequently for employment in those industries, the question being, "Is anybody going to lose his job if population grows more slowly?"

There was a broad range of inquiries in the area of resources and the environment. What is the impact of the two versus the three child projection on the consumption of natural resources, on energy, on the demand and supply of water in the United States, outdoor recreation, agricultural land, and food prices? What is the impact on the general level of pollution and does the prospect of slower population growth promise much over the next 30 years by way of reducing the increase in pollution levels?

With regard to government, what are the public service costs for education, health, and welfare associated with the different rates of population growth? What is there to the notion that more rapid population growth causes a weakening of democratic representation and participation in the United States? What is the impact on the administration of justice, on clogged court calenders?

Is there any reason to be worried that slower population growth would in any way work to the detriment of the national security?

There was a review of many aspects of the consequences of growth for the age structure, the family, population density, and an extended treatment of the very knotty problems associated with the racial and ethnic aspects of population change.

There is no way that I can tick off in a few minutes the results of this, but I would like to read the Commission's overall summary of its findings with regard to the impact of the alternative population future. The Commission said:

> "Each one of the impacts of population growth—on the economy, resources, the environment, government, or society at large—indicates the desirability in the short run for a slower rate of growth, and when we consider these together, contemplate the ever increasing problems involved in the long run, and recognize the long lead time required to arrest growth, we must conclude that continued population growth—beyond that to which we are already committed by the legacy of the baby boom—is definitely not in the interest of promoting the quality of life in the nation."

Now, that's a strong conclusion. It is, however, not unqualified. The Commission went on to say this:

> "While slower population growth provides opportunities it does not guarantee that they will be well used. It simply opens up a range of choices we would not have otherwise. Much depends upon how wisely the choices are made and how well the opportunities are used."

It's simply saying that the benefit of population stabilization does not occur automatically, that the allocation of resources which are "saved" through slower population growth is going to be the result of public and private decisions made for the next several decades, and the wisdom with which those decisions are made will determine how much population stabilization actually works to improve the quality of life in this country.

Now, that's the basic set of findings. It stated the case for population stabilization, and in turn to an articulation of what it was after, where it wanted to go, and on what grounds. Let me read briefly what the Commission said with respect to its policy goals:

> "Ideally, we wish to develop recommendations worthwhile in themselves which at the same time speak to the population issues. These recommendations are consistent with American ethical values in that they aim to enhance individual freedom while simultaneously promoting the common good.
>
> "Our policy recommendations embody goals either intrinsically desirable or worthwhile for reasons other than demographic objectives."

Let me put this another way. Having concluded that population stabilization would definitely be in the national interest, does the Commission then go Gung-ho for population control? It very clearly does not. Rather, it surveys American society, sees a number of areas in need of repair, and recommends those repairs desirable in themselves which are also expected to have a demographic effect in the desired direction.

The recommendations cover a broad range of topics. They provide a heavy emphasis on education, and on enhancing freedom of choice, not only with respect to access to family planning programs but also with respect to certain features of the institutional structure of society.

There is a strong emphasis in the Commission's recommendations on the development of alternatives to child bearing among the career options open to women. In quite a timely fashion, the Population Commission came out for the women's rights amendment to the Constitution only a week before the Senate adopted it.

I think it fair to say that among the rationales the Commission had in mind, in concentrating so much on the status of women in the United States, was the observation of one of its members, Dr. Joe Beasley, Professor of Medicine at Tulane University, who says, "The best contraceptive is a job."

Starting with this point of view, from a preoccupation with enhancing freedom of choice, the Commission prepared a broad range of recommendations with regard to freeing up legal impediments with regard to access to contraception, including minors, voluntary sterilization, abortion, and methods of fertility control, and improving fertility related services.

The upshot of all this is the Commission's anticipation that if the country makes a serious commitment to making the repairs which ought to be made on their own merits, the eventual result is likely to be population stabilization. Let me read the prologue to that particular recommendation. The Commission says: "We recognize that the demographic implications of most of our recommended policies concerning child bearing are quite consistent with the goal of population stabilization.

"In this sense, achievement of population stabilization would be primarily the result of measures aimed at creating conditions in which individuals, regardless of sex, age, or minority status, can exercise genuine free choice.

"This means that we must strive to eliminate those social barriers, laws, and cultural pressures that interfere with the exercise of free choice and that government programs in the future must be sensitized to demographic effects.

"Recognizing that our population cannot grow indefinitely, and appreciating the advantages of moving out toward the stabilization of population, the Commission recommends that the nation welcome and plan for a stabilized population."

Now, in a year in which the birth rate has hit an alltime low, what's the necessity for all that? I would suggest that this is one point on which the findings of the Commission may ultimately be more important than its recommendations, because the basic finding of the Commission's research is that the nation has nothing to fear from stabilization of its population, and a great deal to gain.

That is a message that is very, very hard for people to assimilate.

In Japan recently, and in Rumania recently, in the U.S. in the 1930's, and in a number of countries where the birth rate has gotten close to the level that would ultimately result in population stabilization, the general response has been a very high level of anxiety over what has happened to the national prosperity, security, and virility. That can very well happen in this country if the birth rate keeps going where it is, and it is going to be important to get the message across.

Suppose you do reproduce at less than a replacement level for a few years? Don't worry. In the long run, zero population growth is good for you.

DR. TAEUBER: At this point the chairman approaches his next task with somewhat mixed feelings. Recently I was given a definition of that particular term. It's the reaction of the parent who sees his teenage daughter coming home at 3:00 A.M. with a Gideon Bible under her arm. I don't believe that was in the Commission's report.

If any of you did not get copies of Mr. Starsinic's handout or Dr. Glick's handout, you can get a copy by writing to the Bureau of the Census, zip code 20233. Our address is Washington, D.C.

If you want to have more information about the results of the Population Commission, Bob did indicate there is a paperback, which costs only a dollar and a half. It's a Signet book called "Population and the American Future" and you can scoop the Government Printing Office, as many of us frequently do on other matters as well.

With that, the meeting is adjourned. Thank you.

Concurrent Session "E"

Family Growth and Health Services

This session focused primarily on data mechanisms and data needs relating to health services concerned with family growth. While the greatest attention was given to data needs relating to the new programs on family planning services, the term family growth is deliberately stressed in this title. By popular usage, the concept of family planning has become almost synonymous with family size *limitation*. Important as this emphasis is, the fact remains that health and family services deal also with problems of infertility, of helping people to space their children as they desire, and with expert care for mother and baby during and following pregnancy. The objective of this session was to include as well rounded a picture of the data sources and needs of this topic as possible.

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CONCURRENT SESSION "E"

FAMILY GROWTH AND HEALTH SERVICES

PRESIDING

Dr. Frank N. Beckles, *Associate Deputy Administrator for Health Services Delivery (Family Planning), Health Services and Mental Health Administration*

I'd like to welcome you to the session on family growth and health services. I am Frank Beckles and the panel has been described and introduced to you in your program booklet.

In this session today we are going to try to move a bit from the position of retrospective data use into the collection, use, and application of data from the standpoint of present need and current application to prospective planning, modification, and profile setting.

I have always been impressed with the archival nature of data and, as you are aware, not only is there quite an effort to become relevant and alive in the collection and application of data, but there is also a common press towards collaborating with one another as we design systems to collect data. There are at least four or five major emphases afoot in the United States today, but all groups do not concentrate on those. We will concentrate on the collection of family growth data and the applicability of such data in terms of modern or at least present-day thinking.

This session will focus on the family as a unique biota in our social structure, whose health and growth determine the quality of life for all of us.

We study the pathogenesis of specific infectious agents by defining the individual man or animal as the host unit. Epidemiology shifts its attention to the group or herd as the observational unit whose characteristics determine the natural history of a disease. By analogy, I submit the notion that we must define the "family" as that subunit in the environmental structure which must be nurtured and maintained in good health if we are to enhance the quality of our lives.

Dr. Merlin K. DuVal, Assistant Secretary for Health and Scientific Affairs, reminded health officers in December 1971, of the dramatic shift in interest in, and I quote. "A few specific diseases . . . to broad health services delivery systems," emphasizing very naturally there the close interrelationships.

Family planning programs must be understood as comprehensive health services designed to promote development of family units in which both adults and children achieve those levels of mental and physical health which are necessary for a meaningful life. Effective management of such services delivery systems requires development of a new data management system, indeed a new conceptualization of data management systems and their applicability.

This past April, the Chicago Conference on Ambulatory Care Records emphasized the need for a better system which is responsive at the micro-interface of patient-to-physician as well as the macro-level of planning and evaluation.

Eight functions were identified for a data system as follows: (1) to assist the physician in caring for his patients and managing his practice, (2) to facilitate self-evaluation by the physician and professional review, (3) to provide the medical profession with a better understanding of the natural history of health problems, complaints, and diseases, (4) to assist those responsible for the management of office practices, clinics, group practices, outpatient departments, and other settings in which ambulatory medical care is provided, in planning services, in allocating personnel and other resources, and in monitoring costs, (5) to assist medical educators in clarifying the objectives of their curricula for medical personnel and health services administrators, (6) to support the efforts of local, State, and national planning agencies, health departments, medical foundations, and regional medical programs in formulating objectives and policies and in improving health care services in general, (7) to serve the needs of private insurance carriers, Blue Cross and Blue Shield, the Social Security Administration, and related Federal payment programs, and to permit the development of a common insurance claims form and billing form, (8) to provide epidemiologists and health services investigators with sampling frames for research designed to improve the impact of health services.

As you see, this is a great deal to expect of a data system or systems. The speakers of this session will address some of the functions and describe approaches to collection of information relevant to family growth and health services. The format for the presentation will be our first three speakers followed by an interchange with you, the audience, followed by a break. And then the final two speakers after which I will attempt to summarize the presentations of the panel.

I will introduce each speaker very briefly and just prior to the presentation of his particular paper. It is very difficult with a distinguished panel, such as we have, to say anything that will not be covered. Beyond that, to do them justice and in order to maintain a semblance of commonality, I am going to say as little as I can about them and you will discover from their presentations as much as you would like to.

Paul Glick is the Assistant Chief of the Population Division of the Bureau of Census. He is our first presenter. Paul is a distinguished scholar who has published many significant articles on marriage, divorce, and demographic methodology. He is listed in American Men of Science, Who's Who in the Government, Who's Who in American Education, and Who's Who in the South and Southwest. For his unusual contributions in his field, Paul was awarded the Department of Commerce Gold and Silver Medals. It is an honor to present Dr. Paul C. Glick.

PRESENT STAGE OF OUR KNOWLEDGE AND DEVELOPMENT IN DEMOGRAPHIC DATA WITH REGARD TO FAMILY GROWTH

Dr. Paul C. Glick, *Assistant Chief, Population Division, Bureau of the Census*

I come to this session with some qualms as to what I should spend my few minutes on. I guess I will just talk about the things I know most and we will take it from there. What is new about the 1970 census on marriage and on fertility? I'll talk a few minutes about that.

In our 1970 census we asked the question for the first time on how the first marriage ended, so that now we can find out not only how many people are currently divorced but how many have been previously divorced and are now remarried, or have been previously widowed and are now remarried. Now we can show the characteristics of persons known to have been divorced or known to have been widowed. This greatly expands our ability to show the characteristics of persons whose marriages have been disrupted or have ended in death of a spouse.

We have, in the 1970 census, for the first time a small quantity of data which was put in there particularly for vital statisticians. I mentioned this two years ago. Data are being published in Chapter C of Volume I of the 1970 census of population down to the county and city level. For these areas there is a distribution of men and women of reproductive age by education. Thus in States where the question on education appears in vital statistics forms the numbers of births, marriages, and divorces can be tabulated by education (of the father or mother of the newborn child or of the person being married or divorced), and then birth rates, marriage rates, and divorce rates can be computed by educational level. This is something that has never been possible before.

We have data on racial intermarriage that will go down to the State level for the first time, showing how many Negroes are married to whites and how many Spanish are married to non-Spanish persons.

In the Volume II reports from the 1970 census, each report shows detailed information about one subject. Thus, in the Volume II report on marital status, we are showing married, widowed, and divorced persons cross-classified by several social and economic characteristics. For instance, men 45 to 54 years old will be shown by their current marital status, cross-classified at the same time by their education, their occupation, and their income, in order that a detailed analysis can be made of factors related to marital stability. In our 1970 Volume II report on women by the number of children that were born, we will feature additional data on persons of Spanish-American origin which we had not previously published. This group now is receiving attention in our various reports.

In our 1960 reports we showed much information for the total population and for the nonwhite population. Perhaps you have already been noticing in our 1970 reports that we show data for four population groups: total, white, Negro, and persons of Spanish language (or persons of Spanish origin, depending on which tabulation the data come from). We do not show data for non-whites anymore, in accordance with standard terminology that has been established by the Office of Management and Budget here in Washington.

There will be a Volume II report again on child spacing which we hope will be a source of useful information for improving our population projections. Along with the child spacing information, we are including material on current fertility, which will take the place of what was published in a 1960 census report on women by number of children under five years old.

From the census, we use numbers of children under five years old as a substitute for numbers of births, and we relate these data to the socio-economic areas of interest. But since so many children under five do not live with their mothers—especially among Negroes—we have decided to use adjusted numbers of children under five years of age based on data for women whose census returns (in the child spacing tabulations) have been edited to "allocate" an age for any child who is not living with its mother.

In other words, for a woman who says she has borne three children, only two of whom are living with her, we estimate when the third child was born, on the basis of information about otherwise similar women who had all of their children living with them. Thus, we account for the ages of all children, and we can develop current fertility rates which will be technically superior to any that we have had before.

We also hope to have a Volume II report on marital selection and fertility. If we do, we plan to feature characteristics of the husband, cross-classified by the same characteristics of the wife, and then you go on from there to study fertility differences, employment patterns, etc., within this cross-classification. If the education, the race, the occupation, and the income of the husband and wife are cross-classified, you can see what kind of men marry what kind of women and vice versa, and the relation of this marital selection to their other social and economic characteristics, including and featuring fertility.

The National Center for Health Statistics hopes to develop a set of birth rates using as bases 1970 census data on women by age, race, education, and size of place of residence. We are hoping to help them obtain these types of tabulations by States and some more detailed data for the U.S. as a whole.

There is a public use sample from the 1970 Census which may be purchased from the Census Bureau. This means that you can obtain a tape which has all of the census characteristics of one percent of all the households in the United States and you can tabulate them in your own way. Actually there are six variations of the one percent sample available. Each is a separate entity. There are three of these public use samples based on data from the 15 percent sample and three from the five percent sample of the 1970 census.

The three different formats are chosen so as to minimize the possibility of the disclosure of facts about any one person. If you want to know more about that topic, it is best to write to the Bureau of Census and ask for documentation.

Let me say a couple of words about a possible or probable two percent sample survey in 1975. Actually, a two percent sample survey would not be small—it would be something in the order of four million people. It is a really large survey meant to provide updated information for areas as small as 50,000 persons and would, according to present plans, have in it something like the same content as the 15 percent sample of the 1960 census.

If I had more time, I would have liked to have told you about the Bureau's studies of marital and fertility histories for 1967, 1971, and 1972 based on current surveys. These go into far more detail on the different marriages that people have had, the timing of their children, and their expected number of children in the future. These fertility expectations should help us improve our short-range population projections, something in which I know all of you are interested. Thank you.

DR. BECKLES: I am particularly pleased to note that the Bureau of the Census has finally identified persons of Spanish-American origin. I think that prior exclusion of this segment of our population was a bugbear and quite unfortunate indeed. Resulting censuses therefore hid vital demographic information concerning perhaps over five million Americans, I think, Paul, whose health status probably, next to that of American Indians, deserves our utmost attention. I think it is very obvious that this development is going to be of tremendous significance for us who are faced with the role of planning for health services delivery.

Our next presenter is Dr. Gooloo Wunderlich, Demographer in the Office of the Deputy Assistant Secretary for Policy Development in the Department of Health, Education, and Welfare.

Dr. Wunderlich is the single most knowledgeable person in the Department of Health, Education, and Welfare in the field of family planning patient record systems. She has played an original and leading role in development of the current National Family Planning Patient Visit Record.

Her credentials are most distinguished. May I introduce Dr. Gooloo Wunderlich.

FEDERAL FAMILY PLANNING STATISTICAL PROGRAM: RECENT DEVELOPMENTS

Dr. Gooloo Wunderlich, *Demographer, Office of Deputy Assistant Secretary for Policy Development, Department of Health, Education, and Welfare*

Thank you, Dr. Beckles. You make me sound much better than I think I am. In fact, in the audience are several people who I note are very familiar with the family planning statistics program and have dirtied their hands in it much more than I have.

The rapid expansion of Federally supported family planning service programs since the mid-sixties and the legislative acts of 1967 have clearly indicated the need for an adequate statistics base in order to have a rational basis for expansion of service programs and for evaluating their effectiveness. No such data existed.

Sporadic, often uncoordinated, reporting activities began to emerge, ranging from approximations and simple head counts to elaborate automated systems, but with no uniformity in content, definition, or methods.

The Office of Management and Budget in the Executive Office of the President, which coordinates all Federal statistical activities, has from time to time officially designated focal agencies when there is an agency of primary concern, but similar activities are being carried on by other Federal agencies.

In order to consolidate and coordinate the various statistical activities that were emerging simultaneously, in May 1968, the Office of Management and Budget designated the Office of the Assistant Secretary for Health and Scientific Affairs, HEW, as the focal agency for family planning reports and statistics throughout the Federal Government and delineated specific areas of responsibility. One of these was to exercise leadership in the development of a coordinated program of statistics on family planning.

The Office of the Assistant Secretary, in turn, assigned responsibility for a phased development and operation of a sound and effective family planning statistics program to the National Center for Health Statistics, HSMHA.

Under this assignment, the National Center for Health Statistics is expected to: (1) Develop and operate under the policy direction of the Office of the Assistant Secretary for Health and Scientific Affairs a coordinated program of statistics on all aspects of family planning programs in the United States covering all activities of the Federal Government and including, to the extent possible, those of other public and of private organizations, and (2) Work together with the Office of the Assistant Secretary for Health and Scientific Affairs in the Development of standard classification and terminology, and, when appropriate, in consultation with interested Government and private organizations.

In order to carry out this assignment, the National Center for Health Statistics is developing a comprehensive program of family planning services statistics which, when fully developed, will consist primarily of three data collection mechanisms: (1) National reporting system for family planning services, (2) National inventory of family planning clinics, and (3) Special studies.

National Reporting System for Family Planning Services

As a first phase in its efforts in the development of the National Reporting System for Family Planning Services, the National Center for Health Statistics has operated a provisional reporting system since its inception in May 1969. An ad hoc interagency group representing Governmental operating agencies supporting family planning services together with the voluntary agency, Planned Parenthood-World Population, actively participated in the determination of uniform content of the reporting form used in the provisional system.

After a slow and troublesome start in 1969, participation began to increase in late 1970 and continued to increase rapidly in 1971. By the end of calendar year 1971, a total of 451 projects, including 1,793 clinics, were active and participating in the reporting system. This represents a substantial increase in two years when we consider that in December 1969, only 210 projects, including 570 clinics, were participating in the system.

The provisional system has provided data on the utilization of family planning services provided by the Federally funded projects participating in the system.

Based on experience gained from the operation of the provisional system, the National Center for Health Statistics developed and began operating in January 1972, a modified and improved national reporting system to be used by all Federally supported family planning programs, clinics and service points, and by other agencies who wish to participate in the reporting system.

The national system, when fully operational, will provide a meaningful body of core data essential for the efficient and effective planning and partial evaluation of family planning programs throughout the nation. This reporting system, however, cannot substitute for total medical recording and cannot satisfy all the operating and management information needs of the clinics.

The basic approach has been to stress those areas of data collection and analysis which can be obtained on a routine basis without resulting in undue burden on the clinics.

A clinic visit record is prepared for each person receiving family planning services for every visit except when the purpose of the visit is to pick up contraceptive supplies only. This record is completed in duplicate on a uniform patient reporting form which has been developed by the National Center for Health Statistics in cooperation with the major Federal and other governmental and private agencies involved in family planning activities.

A carbon copy of the form is retained in the clinic files as part of the patient's records. The original is transmitted to the National Center for Health Statistics for processing, tabulation, and reports preparation. In order to ensure privacy of the individual patient, the top part of the form containing the name and address of the patient is also retained in the clinic files.

The reporting form is comprised of 18 items which may be divided into three main categories: (1) identification information, (2) social demographic information, and (3) family planning service related information. In order to save clinic and patient time, questions asked during a revisit are limited to those items of information that change over time.

In addition to these 18 items, the reporting form contains a section for agency use only. This section provides agencies the flexibility to obtain information for their own use relevant to their specific operation.

Standard statistical summaries are produced on a monthly, quarterly, and annual basis. The quarterly and annual reports are distributed down to the project level. The monthly tables are distributed down to the clinic level within 30-40 days of the reporting month.

The universe for the national system is potentially all patient contacts with all family planning clinics in the United States. A family planning clinic includes free-standing clinics, as well as clinic activities that are parts of hospitals or of health service points, such as maternal and infant care centers. Family planning activities in physicians' offices are excluded at present from the national reporting system, but will be covered in another study, as part of a national sample survey of ambulatory medical care which is being developed by the National Center for Health Statistics.

In the initial months of the national reporting system, priority has been given to enrolling all the programs funded by the major Federal family planning projects grants (projects funded by NCFPS and MCHS, DHEW, and OEO) and the non-Federally funded planned parenthood programs. As of May 1972, 761 projects with 3,189 clinics are enrolled in the national system.

The reporting system operated by the National center for Health Statistics recognizes that there are in existence several established automated systems for family planning services. A large number of these are Statewide in coverage. Clinics already participating in these automated systems are not required to submit information on the standard reporting form. These clinics may provide individual patient data in either magnetic tape or punch card format, provided that the definitions, data collection and processing, and record formats are in accordance with the standards and requirements of the national system. At present, 20 such automated systems are in the process of submitting the necessary information to the National Center for Health Statistics on tape or punch cards. Three other States are planning to develop Statewide systems. This effort between the States and the National Center for Health Statistics could be a start towards a truly cooperative Federal-State-local effort in the development and establishment of a strong and flexible family planning statistics system maximally useful at all levels.

Inventory of Family Planning Clinics

The second data mechanism planned as a component of a program of family planning services statistics is a National Inventory of Family Planning Clinics. In order to describe accurately the organized family planning activities in the United States, it is necessary first to develop and maintain a comprehensive inventory of facilities providing family planning services. Moreover, accurate and timely identification of the clinic universe itself is of critical importance to the success of any national reporting system for family planning services.

The clinic inventory system, in addition to identifying the basic universe providing family planning services, also would be a source of information on the characteristics of the clinics themselves. These include type and size of staff and the hours worked by the staff, services available, the settings in which the services are provided, outreach program, equipment supply inventories, type of ownership, relevant financial data, and other characteristics. These data, when cross-tabulated with patient data, would add considerably to the analytical potential of national family planning statistics obtained by the Federal Government.

At the present time, this program is still in the developmental stage. Preliminary work in the development of lists of clinics and matching of lists has been completed and a draft of the questionnaire for a clinic survey has been developed.

Special Studies

The third component of the program of family planning services statistics will be a program of ad hoc sample surveys and other special studies. This mechanism will be used to collect additional data necessary for evaluation and research purposes but which are not feasible to collect as part of the continuing service statistics program. The National Reporting System for Family Planning Services and the Family Planning Facilities Inventory would serve as sampling frames for the sample surveys.

In addition to the data collected on a continuing basis there are important data regarding the utilization of family planning clinics and related information which should also be obtained. To meet these needs a special studies program is being planned as an adjunct and supplement to the National Family Planning Reporting System and the Family Planning Clinic Inventory.

At this time, planning for the special studies program is in very preliminary stages.

National Survey of Family Growth

In addition to comprehensive service statistics, effective planning, management, and evaluation of the expanded Federally supported family planning programs require new and current information concerning the number of couples who are unable to control their fertility to the extent they want to, their social and economic characteristics, the severity of the problems they face, and whether or not the efforts to help them are succeeding. In addition, there is need at relatively brief intervals for detailed data on those factors which influence fertility, such as desired family size, birth spacing intentions, and family planning practices, in order to better interpret current trends in the birth rate and to prepare more realistic projections of future population growth.

The National Survey of Family Growth (NSFG) has been developed to provide information of this type on a biennial basis. This survey will be conducted by the National Center for Health Statistics, Health Services and Mental Health Administration, as an integral part of the Federal data collection system.

Previous surveys in this area conducted by private organizations have amply demonstrated the feasibility and usefulness of this sort of inquiry. In scope and content the NSFG will be similar to the previous surveys. It will have the advantage of being centrally organized on a continuing basis, will possess sufficient flexibility to permit the introduction of new inquiries every two years, and be specifically related to Federal program needs.

The NSFG is a multipurpose statistical survey that will produce a very wide range of information, some of which is needed by almost all persons and organizations that are concerned with the dynamics of population change, family planning, and health. However, the survey is designed primarily to produce data on factors influencing trends and differentials in fertility, family size expectations and family planning practices of the population, the effectiveness and acceptability of the various methods of family planning, sources from which family planning services are received, and those aspects of health that are most directly related to fertility and family planning.

The NSFG will be based upon personal interviews with a nationwide probability sample of ever-married women under 45 years of age. It will be basically cross-sectional in design and conducted once every two years. Plans for the survey will, however, permit the incorporation of longitudinal features so that certain subgroups of women in the biennial cross-sectional surveys can be recontacted for additional information as they proceed through the childbearing period. No specific plans have yet been developed for such longitudinal studies. The sample will include roughly 10,000 ever-married women under age 45, some 3,600 of whom will be black.

Current plans call for pretest beginning in December 1972, and initiation of the main field work about April or May of 1973.

DR. BECKLES: Thank you. Just in case you might not have noticed, we have moved from the presentation of a national, very broad based data collection efforts (such as collected by the Census activity) to another level of national effort (that which pertains to one specific program component of health), a family planning national system for the collection of data on patient visits.

In continuing, then, this progress from a very general to a specific example, we shall listen to Jack Smith from the Center for Disease Control in Atlanta, a mathematical statistician experienced in the family planning evaluation activity of the epidemiology program in Atlanta. Jack has brought the sciences of biostatistics and computer technology together and applied his considerable expertise to the epidemiology of contraceptive practice and fertility control. He is well versed in both theory and practice of data processing and analysis. It is a pleasure to introduce Jack Smith.

SPECIFIC INFORMATIONAL NEEDS OF THE HEALTH SERVICE PROGRAMS—A PROGRESS REPORT ON THE ABORTION SURVEILLANCE PROGRAM OF CDC

Mr. Jack Smith, *Chief, Statistical Services, Family Planning Evaluation Activity, Epidemiology Program, The Center for Disease Control, Health Services and Mental Health Administration*

The purpose of my paper is to summarize for you the Center for Disease Control's abortion surveillance program. I am a part of the Family Planning Evaluation Activity, which is located in the Epidemiology Program, Center for Disease Control (CDC), Atlanta, Georgia. The branch of which I am a part had its early interest in abortion beginning in 1968. This interest centered around a large municipal hospital in a State that had recently liberalized its abortion law.

As more and more States adopted liberalized abortion laws CDC felt that there was a need for establishing a system of abortion surveillance. Traditionally, State and local health departments have reported events of national health importance to CDC. CDC periodically produces surveillance reports in areas ranging from acute infectious diseases, such as hepatitis and encephalitis, to reports on congenital birth defects.

In light of the epidemiologic importance of timely surveillance and the historical role CDC has played in establishing surveillance systems, the Family Planning Evaluation Activity began in 1969 to secure the cooperation of State and local health departments to make abortion data available for compilation and dissemination by means of a periodic surveillance report.

At present there are four major objectives of the abortion surveillance program. The first is to encourage State and local health departments to develop abortion reporting systems. From a public health point of view, we consider it important to establish reporting of all legally induced abortions so that changes in performance of legal abortions will be documented and can be related to changes in fertility and maternal morbidity and mortality.

It is interesting to note that in some countries abortion reform was argued for years as a medical issue with the key pro-abortion and anti-abortion factions being led by physicians. In the United States, on the other hand, the liberalization of abortion laws has been argued by the legal community on grounds of rights of the woman and rights of the fetus, while the health community has in a large part stood on the periphery of the changing abortion legislation. Thus, CDC has tried to create an awareness among public health personnel of the importance of including a provision for reporting in any abortion legislation.

The second objective is to suggest minimum data items to be included on an abortion reporting document. The National Center for Health Statistics (NCHS) and the Center for Disease Control are jointly working on a suggested uniform reporting document for the States' consideration.

CDC, in cooperation with NCHS, has agreed on 11 data items which should be collected for each abortion procedure. These items are in accord with the data items proposed by a World Health Organization consultation on uniformity of abortion reporting. All 11 items are also included on the list of data items for abortion reporting recommended by the American Public Health Association Task Force on Family Planning Methods.

Third on the list of objectives is to encourage standardization of tabulations produced from reporting systems. Our abortion surveillance program relies totally on the cooperation of State and local health agencies to collect abortion information and compile that information into tabular form that can be used by CDC for analysis and comparison with other reporting areas.

Some of the categories of data for comparative purposes need to be in the same format as standard tabulations of birth and death statistics. Other data items, such as length of gestation, need standardization of categories in order to satisfy valid medical considerations.

The fourth objective is to aggregate, analyze, and disseminate data from each reporting area in the form of a periodic surveillance report. The national abortion picture is changing rapidly. New legislation and court decisions in one State often directly affect the availability of abortion services to residents of other States.

For 1971 almost 40 percent of all abortions reported to CDC were performed on out-of-State residents. Changes in abortion policies and procedures in one State may alter patterns of fertility, morbidity, and mortality in another State. Thus, there is an increasing need for sharing of information on a national basis.

Reporting of legally induced abortions to CDC began in 1969. As of the end of 1970, abortion information came to CDC from 13 State health departments and selected hospitals in six other States and the District of Columbia.

In the first quarter of 1971, the reporting network was expanded to include Statewide data from 17 States, as well as hospital reporting in six other States and the District of Columbia. At the end of 1971, there were still 16 States with reformed abortion laws in effect and a total of 24 States and the District of Columbia in the reporting network.

For the year 1971, 459,086 abortions have been reported to CDC from 24 States and the District of Columbia, giving a total abortion ratio of 266.7 abortions per 1,000 live births for these reporting areas.

Rates of morbidity and mortality may be expected to increase for women having abortions after the 12th week of gestation. For the nine States which have data available almost three-fourths of the abortions in these States were performed before the 12th week of gestation.

Abortions in the teen-age population comprise approximately one-third of all abortions. The 20-24 years age group accounts for another one-third and the remaining third are abortions to women 25 years old and older.

Six States have reported data for 1971 on type of procedure. The reports show a preference for the suction D and C method in four of the six States.

More than 175,000 of the abortions reported to CDC in 1971 were performed on women who resided outside of the State where the abortion occurred.

An overview of changing patterns of abortion in the United States may be summarized as follows:

(1) There is an increase in the total number of legal abortions reported. In 1970, 180,000 abortions from 19 States and the District of Columbia were reported to the CDC. In 1971, 459,000 abortions were reported from 24 States and the District of Columbia.

(2) There has been an increase in the national abortion to live birth ratio. Based on reported data the abortion ratio has increased from 3.5 in 1969 to 48.0 in 1970 and now to 128.5 in 1971. For the 13 States which reported Statewide abortion data for both 1970 and 1971 all showed an increase in the abortion ratio.

(3) There has been an increase in the percent of women receiving abortions outside their State of residence. Of the 459,000 abortions in 1971, 39.1 percent were reported to have been performed on out-of-State women. This compares with 29.8 percent in the last half of 1970.

(4) There is a trend toward abortions being performed earlier in gestation. Of the five States with gestational data for 1970 and 1971, four States show an increase in the percent of abortions performed before the 13th week; in one State the percent had remained constant.

(5) The type of procedure used has changed toward a large proportion of suction D and C's. Of the States which reported information on type of procedure in both 1970 and 1971 the data show an increase from 46.9 percent to 53.3

percent of abortions being done using the suction method.

In conclusion, let me say that although the current abortion surveillance program at the CDC is in its formative stages we believe it is already proving to be valuable and will become increasingly more important as other States alter their abortion laws. The program is totally reliant on the cooperation of State and local health agencies and, in particular, the vital statistics registrars and health statisticians in these agencies. We greatly appreciate their continued cooperation and would gladly receive any suggestions which might make the abortion surveillance program more beneficial. Thank you.

DR. BECKLES: We have moved from a general look at data on family growth and some behavioral trends to a description of the specific problems in the application and the structuring of a data collection system geared at patient visit information and to the final recording of an event in health activity—delivery of abortion services.

Now, as I promised you, this is a time for questions on the first segment of the presentations. What questions do you have and for whom?

FROM THE FLOOR: I'd like to ask Mr. Smith a question. In the handout data there were abortions by State of residence and then there is a graph at the end, for three months, which places the abortion by State of residence. Do you have any handouts, or will you have anything, by State references, so that we, for example, in Michigan would know where the abortions occurred?

MR. SMITH: Those data are available from some States but not available from all States.

FROM THE FLOOR: If you know the number of abortions as to Michigan residents, for example, then you must know where they occurred. How else could you have gotten them?

MR. SMITH: It so happens that all of the out-of-State abortions are occurring in New York State. In New York State reallocation is possible so we know the number of abortions in New York State that refer to out-of-State residents by each individual State. But, as you will notice, the D.C. residents are not reallocated in that graph although we do know how many D.C. residents are receiving abortions and how many non-D.C. residents are receiving abortions but not reallocated to the place of residence. That is why I mean that in some cases we do know where the residences of the out-of-States abortions are and in some places we do not have the information. But I think we will be able to provide you information on what we do know about this reallocation.

FROM THE FLOOR: In terms of tabulation?

MR. SMITH: In terms of tabulation.

DR. BECKLES: Is there another question?

FROM THE FLOOR: A question for Mr. Smith. On the third page from the end, you have a tabulation on the different procedures of abortions and you have listed as to "other," "unknown." Do you know what the "other" is?

MR. SMITH: No. In different States they would classify maybe in different ways. I have to hedge on this because this usually comes reported to us as "others," you see. So it could be something that the physician recorded as not being any of these reported here and reported as "others." In our present state of the recording system, we report as we get the tabulations. So different States would consider different other things. There is no uniformity, I would say, right now as to what "other" constitutes. It is difficult to imagine what "other" is, because we have listed the five most common procedures.

FROM THE FLOOR: As you were talking you were saying you would break it up to 11 different items, but you never got around to saying what the 11 were.

MR. SMITH: The 11 items would consist of items like those I see here; the type of procedure, the age of the patient, the hospital facility performing the abortion, and a few demographic items, not medical information.

It would be the type of information that we are putting here, and I should stress that. I keep talking about a reporting document, because we are not, right now, trying to involve ourselves in the hassle of certification. We are talking about a reporting document, not any sort of fetal death certification or something like this.

DR. BECKLES: Another question.

FROM THE FLOOR: Are there any data on the number of spontaneous abortions performed in hospitals, and what are they?

MR. SMITH: Our abortion surveillance program did not address itself to spontaneous abortions. This is only involved in legally induced abortions and we try to keep it to that because we realize that dealing with spontaneous abortions is another entire issue. Of course, NCHS has a Technical Consultant Panel that is involved in fetal death registration and with looking at the problems of collecting spontaneous abortion information. Of course that is important information, but we are trying to draw a very strong dichotomy right now between legally induced abortions and spontaneous abortions in this reporting system.

DR. BECKLES: Before I take the question in the back of the room, I must comment on the interest in abortion surveillance. As you are well aware, by law no family planning program funding may be used for the payment of abortion services, but we are managing to record a demand. In response to one of the questions about the breakdown of States, I think it is very, very intriguing to note which States have the political maturity to publish the work they are doing and those that have not yet arrived at this degree of political maturity. So you see the function of collection data is not simply a statistical or technical function. It is also subject to political sensitivities.

There is a question in the back of the room.

FROM THE FLOOR: Yes. I have a question for Dr. Wunderlich that has to do with the family planning programs. The program that you described speaks very well to those family planning programs that are funded with public monies, but those of us in local health planning councils also have a need to know about family planning in the private sector. Could you describe briefly if there is any way that we can get information out of this?

DR. WUNDERLICH: Yes. You could participate in this system, and if you would get in touch with the National Center for Health Statistics, Family Planning Statistics Branch, they will help you get enrolled in the system and you will get the data from the system.

DR. BECKLES: That's not the answer to the question you asked.

FROM THE FLOOR: No. In the private sector, you know—using private physicians, people that don't go to public clinics.

DR. WUNDERLICH: Oh, that's right. As I have briefly stated it is still not covered in this reporting system. Right now the only source we have for such data is through the National Ambulatory Medical Care Survey which has been developed by the National Center for Health Statistics and pretested. It will be, I think, instituted in this coming fiscal year.

Hopefully, as we develop experience in getting this kind of reporting from the organized programs, we will be able to also develop uniform reporting on a more extensive basis than the ambulatory care survey will do in the physicians' offices.

DR. BECKLES: I think part of the answer to the question is simply, to take you back just briefly, five or 10 years ago, as you are well aware, either people could not get family planning services or certainly, if they got them, nobody would talk about the delivery of such services. It's just been a brief five years since the Federal Government began offering these services and then only to a small segment of the population.

There is no doubt that a significant contribution to the provisions of family planning services is accounted for by the private sector. We have been unable nevertheless to devise a mechanism by which we can record accurately the total effort of the private sector. But we are moving in that direction.

Are there any other questions?

FROM THE FLOOR: I'd like to ask Mr. Smith what methods are being employed to assess the completeness of the reporting of legal abortions?

MR. SMITH: We maintain contact, of course, with the State health departments that are reporting to us and have asked them to assist in the completeness of reporting. As of about five months ago, there were only two States that had any sort of detailed study as to the completeness of their abortion reporting. Both of those came out in the 90's—over 90 percent of legally induced abortions being reported to the State health department.

But in other States where they have just made an estimate without having done any particular detailed study, it ran from 65 to 70 percent on up. I think that it depends to a large extent on how recently the State has instituted its abortion reform law. As you might suspect, if it has just instituted a law, it takes a little while for the reporting apparatus to get going and there were some States that did not institute reporting until well after the abortion law had taken effect.

FROM THE FLOOR: Were California and New York, the two States that have—

MR. SMITH: No. Neither one of those have reported to us any detailed study that they have done. The two that did report to us were Hawaii and Colorado.

FROM THE FLOOR: I'd like to ask Mr. Smith: Is the CDC doing any work in the evaluation of improvement of maternal health due to liberalization of abortion laws?

MR. SMITH: I would say "yes" to that. The Center for Disease Control has what we call the Epidemic Intelligence Service, which is a group of medical officers in the Public Health Service that investigates epidemics of all sorts throughout the nation. Right now, through our epidemic investigations, we are investigating morbidity and mortality that does occur to women who receive out-of-State abortions. This is the primary function that we are playing right now.

If an individual from, say, Arkansas receives an abortion in New York and there is morbidity or mortality associated with that event, then both the health departments in New York and in Arkansas will call upon the CDC to do the investigation that may be involved across the State lines.

DR. BECKLES: I'm going to have to ask you to hold your questions for this segment of the panel. I don't know, Jack, if you responded to the last question. I heard the question differently, that is: Is the provision and receipt of abortion services impacting on the status of maternal health? I think that is the question that was asked.

But that leads us into our next segment of the panel in which we shall show you the linkage between not just data collection but how the provision of services and a recording of such provision is beginning to affect the outcome, that is, the health of the individual receiving such services, and beyond that, how the knowledge that is gained from the collection of such data on health then permits health distributors, deliverers of health care, to more effectively manage the provision of the services.

I have promised you a 10-minute break. Since there has been such interest expressed in the presentations, if we could just stand in place, because the chairs are hard, for a few minutes, then we will go right into the second half of the session.

(Brief recess.)

DR. BECKLES: Our next presenter is Dr. Antonio Medina. Dr. Medina is from the island State of Puerto Rico. He is Associate Professor of Maternal and Child Health and Chairman of the Department of Human Development of the University of Puerto Rico School of Public Health.

Concurrently, he directs the Maternal and Child Health Section of this department in which capacity he serves as the director of three Federally funded maternal and child health projects: the San Juan City Family Planning Project, the San Juan Model Cities Children and Youth Comprehensive Health Care Project, and the Puerto Rico Maternal and Child Health Training Program.

Tony has had, as an obstetrician, the unique experience of moving from private practice into general health care delivery, public health care service oriented practice, and brings to us the importance of data as it relates to the change of indices in health status subsequent to the delivery of services.

Tony.

DATA NEEDS AS PERCEIVED BY PROGRAM SPECIALISTS. REVIEW OF PROGRAM ACTIVITIES IN THE FAMILY PLANNING AND MATERNAL HEALTH AREAS WITH AN EYE TO THE KIND OF EVALUATIVE INFORMATION NEEDED

Dr. Antonio S. Medina, *Associate Professor, Maternal and Child Health, University of Puerto Rico School of Public Health*

I have been invited to participate in this conference as a representative of the nation's family planning program administrators to discuss my perception of data needed in our day-to-day decisionmaking processes.

I perceive that without complete and valid information a program administrator cannot make the sound, unbiased, intelligent decisions which will ultimately represent the success or the failure of his endeavors. In fact, I consider the collection of the data which I am going to discuss in this paper nothing less than essential to optimal program performance.

The Department of Maternal and Child Health of the University of Puerto Rico School of Public Health in addition to its traditional functions of training and research has been actively engaged for the past three years in the delivery of maternal and child health services to its continent community, the City of San Juan. Since 1969 the MCH faculty of our school has been technically and administratively responsible for the delivery of family planning services to all families in the county of San Juan who need but who do not for some reason, economic or otherwise, have access to these services.

As an academic institution responsible for providing leadership to public and private health agencies in Puerto Rico, in Latin America, and in Spanish communities within the continental United States the University has an additional obligation above and beyond those of the typical human services agency, of developing the optimal pattern for the delivery of health care services.

The first stage in such a task was the design of a model which would permit us to assess program goals and objectives on a realistic basis. A far-reaching survey conducted in San Juan revealed that 40,000 women in the community were in need of contraceptive services but in addition there were 25,000 more women in the reproductive ages who in spite of having access to contraceptive methods were confronted with pressing health related problems and needs which rendered their use of contraception nothing more than a temporary relief from basic family health problems.

As maternal and child health specialists, we viewed family planning as only the first phase in the development of a comprehensive health services program designed to reduce infant and maternal mortality and to help to reduce the incidence of mental retardation and other handicapping conditions caused by complications associated with childbearing. The objective of this program was not fewer children; it was better children, and the improvement of the quality of human life within the family setting and the community.

To be healthy means to be in a state of feeling well in body, mind, and spirit, a physical and psychological adjustment to the environment, a possibility of a richer life. In essence, all aspects of life can be considered the concern of public health.

A study conducted in 1966 on the utilization of prenatal care services among a sample of 8,000 recently delivered women in the Commonwealth of Puerto Rico revealed that one out of every six women failed to utilize these services. Considering that the pregnant population is a high-risk group with a high degree of motivation for care, we assumed that women in the interconceptional stage would be less motivated and therefore more reluctant to avail themselves of family planning services.

In order to overcome the barrier of non- or under-utilization of family planning services we began offering comprehensive health services, including family planning, in the homes of the poorest of the San Juan families. Such a favorable response to our program was educed that we felt confident in moving the services to the hospital and satellite facilities of the San Juan City Health Department and the Puerto Rico Department of Health. Later on the needs of the women in the labor force who could not attend either our regular clinics or the evening sessions led us to establish family health clinics in the San Juan factories where they are employed. Near the end of three years of operation we are serving 20,600 women in 30 clinic sites which hold an average of 60 half-day clinic sessions per week.

I will proceed with a detailed description of program components' activities and the data needed in the decisionmaking process. Some of the following discussion will include data that are currently and continually compiled by our evaluation unit. Other data are contingent upon availability of funds for its collection and processing.

The first contact with the majority of our consumers is a brief orientation on family planning by our nursing staff to all recently delivered women in the immediate postpartum ward of the San Juan City Hospital. Data are needed to measure the output of the effort of this staff in terms of the percentage of patients counseled who keep their two-week postpartum examination appointment at our family planning clinics. Since these patients receive a home visit reminder by outreach workers three days prior to the appointment, data are again needed to justify the latter effort. In omitting the reminder visit to a random sample of patients, we found that the attendance rate to the clinic fell from 80 percent to 40 percent of the women counseled. Needless to say we halted our investigating schemes in this area. There just was too much at risk.

Within the clinic setting administrators are faced constantly with the quandary of optimum utilization of manpower. Data are needed to compare clinics conducted by a physician opposed to those conducted by nurse-midwives in terms of patients' acceptance measured by broken appointments and drop-out rates. We also want to measure the effectiveness of the orientation in the clinic by the nurse in terms of the incidence of unwanted pregnancies due to incorrect use of methods.

The nutritionist, one of the pillars of our comprehensive health team, counsels referred patients both in the clinic and at home on dietary and nutritional problems as well as on how to better utilize surplus food items. We must remember that Puerto Rico has the largest Department of Agriculture Food Surplus Program in the United States. There is an important question as to how better utilize such a professional. We therefore want to know the relationship between the number of home visits attempted by her and the number of patients actually reached.

We also want to know the effectiveness of nutritional counseling on the health profile of the patient by type of counseling setting—either home or clinic. Given the nutritionist's professional background in Home Economics and in the assessment of family health problems her role as a referral source to other program components and the completeness of such referrals also warrant investigation.

An analysis of the source, nature, and appropriateness of referrals to the social worker from other program components is essential to determine the proper utilization of this professional. A study conducted in our program revealed that although there was great variation among physicians in their recourse to the social worker, physicians as a group made the least use of the available social services while the paraprofessional outreach workers made the greatest and most appropriate use of this team member's resources.

As with the nutritionist we want to measure the efficiency of the social work home visits in terms of the number of patients reached in order to avoid useless effort and poor utilization of manpower. Moreover, how effective is the social worker in averting potential program dropouts? The volume of patients referred to other agencies and the completion of such referrals is another index of the effectiveness of this component.

The health education component has proven to be the backbone of our program. It consists mainly of paraprofessionals who reside in poverty stricken areas and whose main functions are those of outreach and follow-up.

These women represent the liaison between consumers and providers; they bridge the gap between the professionals and the patients. Therefore, the data obtained as a result of their effort constitutes one of the most valuable tools in making decisions, especially when they are given extended professional functions.

As peer-level interviewers with inherent rapport with the patients, the community workers are utilized to gather vital data on such key indices as reasons for broken appointments, reasons for dropouts, perception by patients of the quality of the services, and most important of all, the impact of our program on the improvement of the quality of family life. Besides merely acting as data collectors they deal with the results of their investigation through their training in family planning and nutritional counseling and their diagnostic ability to make referrals to other program components. They organize community communicational activities in which a health team composed of a doctor, a nurse, a nutritionist, and a social worker explain their roles in the program and discuss family planning and its relevance to the participants' well-being and health.

We want to measure these communicational activities in terms of attendance, patient participation in the discussions, knowledge of the various program components, and patient recruitment as a result of the meetings. The following are areas in which data are needed by the health education component: (1) Reasons for broken appointments, (2) Proportion of patients keeping the prescribed appointment compared to the proportion of those coming to the clinic within the vicinity (two to three days before or after) of the prescribed appointment, (3) Patients dropped out by stated reason, (4) Patients perception of the quality of the services, (5) Effective utilization of the various program components, (6) Effective utilization of the various contraceptive methods, (7) Effectiveness of the home visit by the community worker, (8) Proportion of patients keeping their initial clinic appointment by kind of personnel issuing it, (9) Distribution of health education personnel according to patient flow by census tract area, and (10) Proportion of patients not found by reason of either change of residence, deaths, or anything else.

I have covered the main data needed according to the different program constituents. I have talked about efficiency. Let's discuss the efficacy of the program.

We have several sources from which data can be obtained to measure the effect of the program on the community as a whole: the birth certificate, the stillbirth certificates, the death certificates of children up to preschool age, master sample surveys, fertility studies, and patients themselves.

From the birth certificates we are able to determine birth rates by rural, urban, and census tract settings, all by education and by age of mother. These same variables can be obtained for the incidence of congenital malformations and low birth weights. From the stillbirth certificate we can obtain stillbirth rates also by the same variables. From the death certificates of children up to preschool age we can determine death rates by age and cause of death which will give us preventability of death through better attention and care on a more individualized basis correlated to birth order, family size, and housing conditions.

A master sample survey carried out every five years would give us data on the following: (1) Birth rate (based on children under one year of age in the households surveyed), (2) Defects in children under one year of age by income level of households and regions, (3) Evidence of mental retardation in children, and (4) Deaths of children under four years of age by cause, family size, and living conditions to determine their preventability through better attention and care on an individualized basis, for example, infectious conditions, accidents, immaturity, et cetera.

Other fertility studies will throw light on live births, age when first married, sterilization (when, cost, regret, husband's reaction, presterilization contraceptive method used, et cetera) and contraceptive practices among nonsterilized, if any, as to source of contraceptive materials and satisfaction with the method.

The greatest source of program data is the patient herself. She will give us insight into the following: (1) Population served against target population, (2) Continued education as a consequence of spacing of pregnancies, (3) Occupational placement, advancement, and stability consequent to spacing of pregnancies, (4) Work productivity, which could be measured in part by the relationship of absenteeism and contraceptive practice, (5) Housing improvement as a result of family planning, (6) Health improvement through contraceptive practice, (7) Industrial accidents correlated to problems resulting from unwanted pregnancies, (8) Marriage stability measured through divorce rates, (9) Impact on nutritional problems of the population served versus general community nutritional problems, (10) Impact on community social problems as measured by incidence of drug abuse, alcoholism, et cetera, and (11) Impact on the incidence and prevalence of venereal disease.

The data which I need as a program specialist, when all is said and done, must really answer only one simple, but overriding question. What good has this program done for the health of the families in our community? The quality of life of a nation depends on the health of its people. If we are to envisage a family of man, more humane and more loving, it can only be achieved by those healthy of body, mind, and soul. Thank you.

DR. BECKLES: Thank you, Tony. We have gone through the discourse on the philosophy of data collection and the impact of health services when measured through data collection. Let us look now at the efficacy or the contribution to the efficacy of the management of the delivery of health services through the process of data collection.

I nearly erred by not introducing John Wells. He is such a close friend and "relative" that I felt you knew him as well as I did. John Wells, Executive Director, Illinois Family Planning Coordinating Council and the Family Planning Coordinating Council of Metropolitan Chicago. John Wells is that rare person who combines the art of serving the needs of people with the kind of discipline needed to organize and direct a health service program. He has had experience in several levels of management in family planning programs. John has received the Meritorious Service Award from the Governor of Oklahoma and the Distinguished Service Award from Agency for International Development. He also was given the Distinguished Service Award, Armed Forces of South Viet Nam. May I present Mr. John Wells.

DATA NEEDS AS PERCEIVED BY PROGRAM SPECIALISTS. REVIEW OF PROGRAM ACTIVITIES IN THE FAMILY PLANNING AND MATERNAL HEALTH AREAS WITH AN EYE TO THE KIND OF EVALUATIVE INFORMATION NEEDED

Mr. John Wells, *Executive Director, Family Planning Coordinating Council of Metropolitan Chicago*

At the present time in the State of Illinois we are funding 43 family planning projects at the rate of approximately $6 million per year. These 43 projects will provide service to approximately 100,000 patients this year.

In the final analysis as executive director of this council I am responsible for the management and coordination of the projects. The 43 project directors are responsible for providing the services. How well they perform is becoming a major concern of most people. This concern manifests itself in numerous ways, which is obvious to most of you in the management field. It is equally obvious that this concern is increasing at a very rapid rate.

The management performance expectations in 1972, as I perceive them, are much greater than I perceived them in 1962. Within recent years we have included within our rhetoric phrases such as "management and user-oriented data utilized in the decisionmaking and evaluation processes."

Stated somewhat differently, managers must have the tools and skills to effectively manage a large and complex health program. I would like to share with you just briefly some of my experience and observations as related to program management in 1972.

Underlying our rhetoric concerning program management is a basic premise that I think should be examined not only here but by most of us in a very intensive manner during the next year. Even though there are at least three fundamental parts to this premise, I would like to emphasize one and comment only briefly on the other two.

The first part concerns primarily manager performance. Having worked directly with at least 300 project managers within the past four years, it has become evident to me that we often assume basic competence when, in fact, management's skills in the health field range from very poor to very good, and are often skewed toward the very poor.

If you accept my observation as being somewhat true for the situation throughout the country, then we have perhaps the first clue as to the difficulty in defining the needs of management.

"User-oriented in decisionmaking" implies that the user knows how to use the information and has the necessary skills to make decisions.

Often when I am working with one of our project directors or consulting in other projects, I ask many questions relating to management. These are obvious questions that should be asked, such as, What are the goals and objectives of your program? How do you make a decision? What do you need in order to manage your program? How do you utilize the data that are generated in your program? There are at least 40 or 50 other similar kinds of questions that are usually asked.

The point is that after you go through this routine over a period of time you begin to realize that you very seldom are given good answers.

For example, I recently asked the question concerning program goals. The answer I got was that "The goal of this program is to plug the holes in the delivery system." My next questions were, How big is that hole? Where is it? and with what are you going to plug it? To paraphrase the answer that I received—"It is a big hole—it is somewhere between conception and resurrection and we are going to plug it with good intentions."

To summarize, it appears from my perspective as a program manager that we must first consider the ability of the managers to manage before we ask the question, What tools do they need?

It is my opinion that the very best tools in the hands of a poor manager only slightly improve the management capacity. Since this is not a conference on management, I will not pursue that in depth, but I think the relevance to the theme of this conference is that one of the greatest variables with which we must cope in providing service is the variation in the skills and abilities of the managers. We are often aware of this, but we seldom place this in perspective. We are making a concerted effort to help our project managers to increase their skills.

Recently we arranged with the School of Public Health to provide a series of graduate management courses beginning in September and many of our managers will be enrolling in these courses. This may sound very condemning of all management, but there are many good managers in the health field today. It is my observation that it is skewed in the direction of being generally poor.

Assuming that we are reasonably successful in our effort to improve management skills, then perhaps the benefits of the tools that can be developed from good data will not present such a difficult situation. I am sure that other speakers have already given, as others will in the course of this conference, a review in detail of some of the specific needs of management as related to data.

I would like to share only two observations in this area. During the past few years we have been attempting without a great deal of success to develop an adequate cost system for health care programs. There are many reasons why we have not been totally successful in this effort. However, one of the major problems is related to the manner in which data are collected and organized. I will be glad to discuss this in more detail later. But in general I think that in the future we must design data collecting systems that take into consideration that some of the information will be used in a cost accounting system.

Obviously, patient service data are an integral part of our cost-accounting system and a cost-accounting system is an integral part of a management system.

We recently completed a study of six major family planning record systems in use in this country today. We found that none of these systems was designed to provide data that directly could be utilized in a cost system. Yet the cost of providing service is one of the major issues in the field today and, certainly, one of the major items used in decision making.

I may add, to those who have difficulty in securing adequate funds to operate programs, that I found one of the most useful tools to utilize in securing funds is a very simple but adequate cost accounting system.

Recently we received a funding commitment of $25 million over a five-year period for the State of Illinois. I sincerely believe that one of the basic elements in this commitment was our capacity to generate current cost information and to project with reasonable accuracy probable costs over a five-year period.

In conclusion, I would just like to restate that we must improve our capacity to manage and, at the same time, we must give increased attention to the data needs of management which will require that everyone understand a great deal more about the management process. Thank you very much.

DR. BECKLES: Thank you, John.

We have thus finalized our panel presentation with a very timely paper on the role of the manager and the need for the manager in the delivery system, the system set up to deliver health services which result from a demand or a perceived need on the part of families in this country.

I shall now open the entire panel, therefore, for your questions for approximately 10 minutes before I summarize, then, our efforts for today. Are there questions from the floor?

DR. NEYMAN: I am not a physician. I am a mathematical statistician, but there was a point that mathematical discoveries take some time to penetrate and be available for use. It so happens that one of the important problems of family planning is to determine the contraceptive pills which are effective and which have not caused undesirable side effects. Now, it is a difficult problem.

A few years back, two very talented people developed a method of sequential experimentation which, as far as I can see, is about everything that anyone has ever published in the main. The names of the people are: Professor A. Donald Darling, Mathematics Department, University of California at Irvine and temporarily in the Department of Statistics at the University of California at Berkeley. The other person is Professor Herbert E. Robbins, chairman of the Department of Mathematical Statistics at Columbia University, New York.

My suggestion is that those agencies of the government which are concerned with the experimentation—that you take down these names and include these people in this work. That's all I want to say.

DR. BECKLES: Thank you.

FROM THE FLOOR: May I ask Mr. Smith a question. The figures on legal abortion provide us with only limited indication because there are implications that the number of illegal abortions is certainly very much larger than the number of legal ones, particularly in some parts of the country, and that in some States where abortion laws are liberalized, at least some of the number of abortions that occur after they change is merely a shift from illegal to legal abortion rather than an actual increase.

Is the Center going to do any studies on estimating the number of illegal abortions and estimating the extent to which an increase in legal abortions represents a true increase rather than a shift from illegal to legal?

MR. SMITH: The CDC has a longitudinal study that is hospital based at three large hospitals that have, in the past, received a great many people coming in for complications of legal abortions. These are in States where abortion is now legal. There is a longitudinal study of these hospitals that has been going on since 1969, to be able to monitor morbidity and mortality that is associated or seen at this hospital and what has happened with the change, the switch from illegal abortions to legal abortions. This is what we are trying to do in the hospital setting and carry this on also to see about contraceptive services in reducing repeat abortions to this population.

DR. BECKLES: Any further questions?

FROM THE FLOOR: One for Dr. Medina. I think you mentioned that physicians make fewer referrals than paramedical personnel to some of the outpatient clinics. Do you have any reasons for this difference in referrals?

DR. MEDINA: I was referring to the social worker referral more than the nutritionist. For instance, about 50 percent of the first 8,000 women were referred to the nutrition services by physicians. It is mostly the social work employment that I address myself to. There were some accidents, use of social work by some physicians, but by and large, as a component of the service, it was the least, the poorest, in referring.

I am making a very superficial survey. It is mostly lack of knowledge by the physician of the use of the social worker and her functions so the paraprofessional is more aware and makes better referrals because she is living with the patients. She has more knowledge of the conceptional component reports. The referrals by the professional is the best, so it is a matter of knowledge of her functions and experience. You see, the paraprofessionals have been living for a long time in stricken areas and they receive the services and they know more or less which problems thay have to refer to. That's the main thing.

DR. BECKLES: Thank you.

CHAIRMAN'S SUMMARY

Dr. Frank N. Beckles, *Associate Deputy Administrator for Health Services Delivery (Family Planning), Health Services and Mental Health Administration*

I don't see any more hands and we are getting on to the point of closure.

As I sat and listened to the presentations I was particularly impressed by the fact that in an industry now approximately $70 billion large we are only now beginning to grapple with the development and relationships of the kinds of data and data systems that we have talked about today. This was brought out in the presentations you have heard, beginning with those on the collection of census data, the very timely inclusion of a category for the Spanish-American, and introduction of the national family planning data collection system for patient visits but which still does not yet take into account the work contributed by the private sector.

Next was presented the problems with abortion surveillance, and the sensitivities, both political and private, that characterize these problems were raised. We have not yet been able to report fully the shift from illegal to legal abortions or the breakdown by State of contributors because of obvious sensitivities on the part of the States which either do not provide abortion or whose own statutes are being appealed or whose residents seek abortion services in other States. There was discussed the collection and use of data and its impact on the provision of services; additionally the picture that is gotten from data collection on such indices as maternal health and infant mortality and morbidity rates, on survival rates, on the change on health status and the quality of life. Stress was laid by Antonio Medina on the use of data to determine the impact on the family and on the quality of life resulting from the provision of health services; finally we heard described data collection for use in management. For how else can we provide a response to a tremendous demand for health services, and the differential in this demand by ethnic groupings in this nation, if the funds that we have cannot be effectively programmed into areas of greatest need by effective collection and use of data for both service delivery and management needs?

I think you would be surprised to note, in support of John's point of view, that there is little standardization in the accountability system. As a matter of fact, as you are well aware, there is little standardization in anything in the health field. We are still in the throes of a private oriented system where every physician and every unit does its own thing. Therefore, with the gradual shift from private to—and I am not going to say public or national health care—but less private delivery health service, we are finding, because we are using public funds, a need to be responsible because very few citizens want their money in the pool spent without a sense of accountability.

Yet, we find, for example, that we do not have a clear picture of the health index of the Spanish-surnamed population because, for so many years, because of political and cultural sensitivities this grouping in our nation was put with the white group so that their indices were very vastly diluted.

But we are maturing and we are seeking communalities. I have little doubt that this approach towards communality and the approach towards management and effectiveness in the use of data will demonstrate whether or not just the emphasis on health services impacts as significantly as you claim they do on family growth. We know, for example—at least, we think we know—and we observe, to take one example, that spacing contributes significantly. But does it? Which comes first? Is it the chicken or the egg? Is it the ability to space the children, or is it a motivation towards spacing which a job opportunity brings?

This interlinking between the economic motivation and the general demand for health care is a very interesting one that we have not really looked at very carefully. We do know that health status and family growth status are very intricately interwoven with economic status so that, hopefully, the collection and use of data, the managing of health services, and the sophistication that we are inputting into the collection and use of data will begin to give us guidelines or at least trends as to the many impacts of health services on family growth, family health, and national well being.

Now, before I thank the members of the panel and thank you for being an attentive and thoughtful audience, I would like to thank both Drs. Pearl Fisher and William F. Pratt who organized the panel for us, and I trust that the information shared by Mr. Smith and Drs. Glick, Wunderlich, Medina and Wells have proven to be both informative and stimulating.

I thank you very much.

Whereupon, at 12:00 noon, the session was adjourned.

Concurrent Session "F"

Census Data Uses

What health statistics can draw upon and how to do so with special reference to States and localities.

Contents

CONCURRENT SESSION "F"

CENSUS DATA USES

PRESIDING

Dr. O. K. Sagen, *Assistant Director for Health Statistics Development, National Center for Health Statistics, Health Services and Mental Health Administration*

Ladies and gentlemen, the session will come to order. As you see from your programs, the session is entitled "Census Data Uses." It is a logical outgrowth of the general session which was just concluded.

I believe that everyone from that discussion this morning realizes the importance of the census data to the health statistics efforts and the health planning effort without any further demonstration. However, as you know, the earlier papers were devoted to what is true of the United States as a whole. It is evident that the population characteristics, distribution and migration, formation, dissolution, and so on, are terribly important in understanding the problems of the nation. They are even more important, in the judgment of many of us, for the components of the United States: the cities, the counties, and the States. So this particular session is devoted to how you can get useful data for health statistics and health planning purposes for local areas.

It is important, I think, to recognize that for the first time we have a greater mass of such information available than has ever been true in the history of this or any other country. Particularly, this has come about because of the recognition on the part of the Bureau of the Census that its base population data must be made widely and readily available in as much detail as is feasible.

Some years ago the Bureau of the Census started plans for the release of information from the 1970 census. These plans have now matured and the Census Bureau has what is called the Data Users Service Office. The head of it is Mr. Robert B. Voight who is a long-time census man and has coursed over many areas of census activities, so he is particularly well suited for his very heavy responsibility of seeing that the users of census data can get all they need as rapidly and as efficiently as is possible.

It is a great pleasure to introduce to you the first presentation given by Mr. Robert Voight.

DATA USER SERVICES FROM THE BUREAU OF THE CENSUS

Mr. Robert B. Voight, *Chief, Data User Services Office, Bureau of the Census*

As I left the last meeting and wandered into the exhibit space down here I came to a conclusion from that brief survey, that data are here to stay. Whether that is good or not, I don't know. I am sure they are here to stay. The extent to which they are useful may be another problem.

As most of you may recall, there was a recommendation by President Nixon for reorganization in the Government by which four new major departments would be created, and in each of those, I think, due recognition was to be given to the importance of the data for a variety of needs.

In the Department of Commerce and the Department of Labor some of the sub-reorganization pointing to that possibility has already been accomplished. In the Department of Commerce a new administration has been established whose name is the Social and Economic Statistics Administration. In it the Bureau of the Census which was the Office of Business Economics but is now retitled the Bureau of Economic Analyses are grouped. They have been bound together as one of the first steps in accomplishing this grouping of statistical activities in each of these major departments.

Just a few months ahead of that actual reorganization, which was duly announced on January 1st of this year, the Bureau of the Census also did some reorganizing and brought together within one office—the Data User Services Office, reporting to the Director of the Census—several activities which were engaged in research and development concerning the uses of data, techniques, and tools for the use of census information, and all of the statistical directory activities carried out by the census.

A special programming staff was established, and we even included the so-called Census History Program where we tried to keep a record of where we had been, the mistakes we made, and, hopefully, ways to avoid them in the future.

I should also perhaps point out, at the outset, that with the 1970 census there are two main systems of delivering the data. One, of course, is the long-established and well-known service of census publications. You actually won't see a great deal of difference between the makeup of the publication program in 1970 from that in 1960.

As we did before, we tried to issue the basic data first and then get into the sample data as rapidly as we could. I hesitate to use the word "rapid" because I hate to think of the many censuses where I must apologize for the lateness of the delivery of the data. We make plans but we are not always able to live up to them.

However, I must qualify that to some extent by pointing out that in 1970, when the publication program is completed about the end of the year, we will have published some 200,000 pages of data as compared to 100,000 in 1960. In effect, we are doubling the amount of information made available through publications—not that that is particularly good, but I think it does reflect one central theme, if you can find a theme for a census, and that is a tremendous explosion of interest in small area data, not necessarily the small area data that we publish but small area data provided in terms of your own areas of particular interest. When I say "areas," I am speaking essentially of the geographic areas.

The other mainstream of data delivery in 1970, of course, are summary computer tapes, which are going out to quite a number of potential users of census data, and a good many special tabulations. Despite the fact that we try to provide as much data as we can, people are always anxious to manipulate the data for their own particular purpose, which requires that we go back to the basic census records. And there we have a monopoly. Maybe that is unfortunate, but we do because of the provisions in the census where we must do the tabulations when it does require that we go back to the confidential basic record.

Another setting, I think, for the 1970 census data delivery program is the fact that during the 1960's, there were a greater number of social and economic programs established through legislative action than in any other decade in our country's history. At the same time, the 1960's were the coming of age of computers, as we all know. As a matter of fact, the general electronic service computers grew from something like 3,700 in 1960 to more than 35,000 in 1970, a tenfold increase. As you all know, if you have a computer you have to keep it busy, so that means a lot more data processing.

These parallel developments have had a substantial impact on statistical data such as those issued by the Bureau of the Census. Midway in the decade, we tried to estimate the increase in demands made on the 1970 census by establishing a research and development program known as the Census Use Study, to study the nature of uses by working with users at their sites and having day-to-day, face-to-face interaction with them.

Among the first areas of interest explored at the initial test site in Connecticut were the uses of census test data to assist in determining the best locations for various types of health facilities. To cite a particular example, city health officials asked for identification of household relationships, specifically on whether households were headed by male or female, or by the subdistrict of the city. These data became a part of their interest in community stability which would be indicative of health needs.

Analysis of these data in conjunction with clinical data showed that the greater the ratio of abnormal families, the more numerous health problems there tend to be. That may not be a world-shaking discovery, but here was a demonstration of the data that provided this type of information.

To improve communications with a broad spectrum of census data uses in the Government, private, and academic sectors, the Bureau established the Data Access and Use Laboratories in the fall of 1967. Major efforts in communication by this unit have included some 140 conferences on the use of census data throughout the country, where more than 14,000 interested potential users were convened under local governments, university, or professional society auspices.

A series of simple concise publications were developed to inform interested users of the anticipated availability of 1970 census data in publications on computer tape, microfilm, or microfiche. These reach some 10,000 individuals and organizations, including many in the education field. I have some of the literature here. I am sorry that I do not have supplies of these to pass out, but some of you may be interested in glancing through these later. I am sure that some of you are familiar with them. They do indicate the type of information that is made available to users where we issue, for example, on a monthly basis a little publication on small area data notes. We are trying to let you know what is going on and what is developing in the Census by citing, as often as we can, local uses which might be of interest to others who are facing the same data needs in other localities.

To distribute the effort and to provide more rapid access to census information, this laboratory fostered the development of census summary tape processing centers where users can request tabulations of unpublished census summary data, buy copies of the tapes, and obtain various statistical services.

This was a new effort. The Bureau of the Census does not franchise these centers. They simply recognize them as they apply to become centers and meet certain operating criteria. They are divided almost equally between university based computer centers, private organizations, and State and regional planning organizations. Today there are some 160 such centers, many of them in educational institutions, spread across every State where people may obtain services and data and avoid cueing up and waiting for the Bureau to handle their request.

I would like to stress this. What we are trying to do in establishing this summary tape process and summary program is to get information out into the hands of organizations, right at the local level, where it gives the user the advantage of being able to go in and talk to the people about his problems rather than trying to handle matters through correspondence with us in the Bureau in Washington.

More importantly, I think it enables people to get the information more quickly.

We are not well geared to handle the requests when they come in, and I think this alternative is performing a very valuable service to the users. In fact, we are just in the process now of evaluating the effort of the summary tape processing centers to see how effective they have been and to try to shore up any weaknesses that we detect so that the next time around they will be performing even better service for the users.

This program means that the Bureau can accommodate more readily to the requests for special tabulations which call for the use of the basic records which are confidential and can only be processed by the Bureau to avoid disclosure of individual information.

Anticipating a substantial increase in the demands for data for small areas, such as school districts, neighborhood health areas, and the like, and to provide basic indices and denominators for the many new social and economic programs at the Federal, State and local levels, the Bureau established, in the latter part of 1968, a User Services Staff to handle inquiries concerning Census products and handle orders for census maps, summary tapes, computer program packages for data matching and statistical and special tabulations.

The logical sequence of these developments has culminated in the consolidation of these functions in the Data User Services Office, set up as a part of the general Bureau of the Census reorganization as it became an arm of the Social and Economic Statistics Administration of the Department of Commerce in January of this year. The key objective of this office is "one stop" service.

Ideally, someone who wants information can call or write or come in to see us and we will either undertake to provide the data directly or we put him in touch with the appropriate subject matter within the Bureau. If it is a matter of exploring something concerning a new survey that might be undertaken or a technical problem with respect to the data in terms of particular subjects, we try to get him to the person who can answer the questions directly. The reacting effect is a funnel. Hopefully, everything drops into the funnel and we get the information that the person is seeking.

In addition to the three activities just reviewed, the Census Use Study, the Data Access and Use Laboratory, and the User Services Staff, the Data User Services Office includes three other units, the Statistical Compendia Staff, the Census History Staff, and the Special Tabulations Programming Staff. Here we have attempted to provide a group of highly skilled computer programmers, responsible for program development, to process special tabulations of census data requested by the users at cost. We are also, at the same time that we are handling these sorts of requests, attempting to improve our skills in programming service. I have a couple of examples in this area.

I know you cannot see the detail, but held up before you is a completely computerized statistical report. This one happens to be a social economic profile of the Second Congressional District in Montana. What is a bit unusual about it is the fact that the analytical text, along with the tables in this little report, has been accomplished completely on a computer. Once we let it go, this is what comes out. This one type of effort that I think we will see more and more of in the future which enables brief concise reports to be accomplished in very rapid order. Also they are being computer checked which practically eliminates the long-drawn-out process of reviewing what has been put down, making sure the percentages are right, the rankings are right, and so on.

This is simply a way of providing data in summary form in much speedier fashion than has been done in the past. At the moment we are working on two or three other such services. We expect to issue, in the first quarter of this next fiscal year, a series of city socioeconomic profiles. We have already completed a set of State profiles built in this same fashion.

Another aspect of the work in the Data User Services Office, is in terms of the research and development effort to provide computer programs to enable people to have easier access to our summary tapes, and herein I think I must apologize. Some of those who are trying to use them, I am sure, will understand, but I think we have to have a mental image of what the summary computer tapes are. They are essentially a by-product of the regular census process at this time. The culmination of that processing means the published reports. You learn, of course, by doing, by suffering, I guess.

The summary computer tapes, in effect, provide on the average 10 times as much data as you find in the published reports. A good example is block statistics, where we publish 25 data items for over a million and a half blocks in the urban complexes around the country, the computer tapes providing 250 data items per block.

Look at the first count of census data where publication provides in the neighborhood of 1,000 cells of data and the computer tapes provide 13,000 cells. Then when you get up into the large area tabulations, where you are cross-classifying detailed occupation by detailed income, there is some astronomical level like 100,000 cells of data on the computer tapes. It is too much.

If we had been smart concerning the program for computer tape availability, we would have established an intermediate level of computer tape which would save people time and money in the use of the tapes. We are already looking at that sort of step to be taken for 1980.

Of course, by 1982, it is conceivable that rather than having to buy some of the computer tapes for your direct use, you would be able to access the census files through terminals. That is a possibility that people are working on right now.

We have, also, in our effort to be of service to users, provided a number of program packages. Let me give you one example which I think will be one of the items used perhaps more than any other, and that is a computer program that does address-matching (ADMATCH).

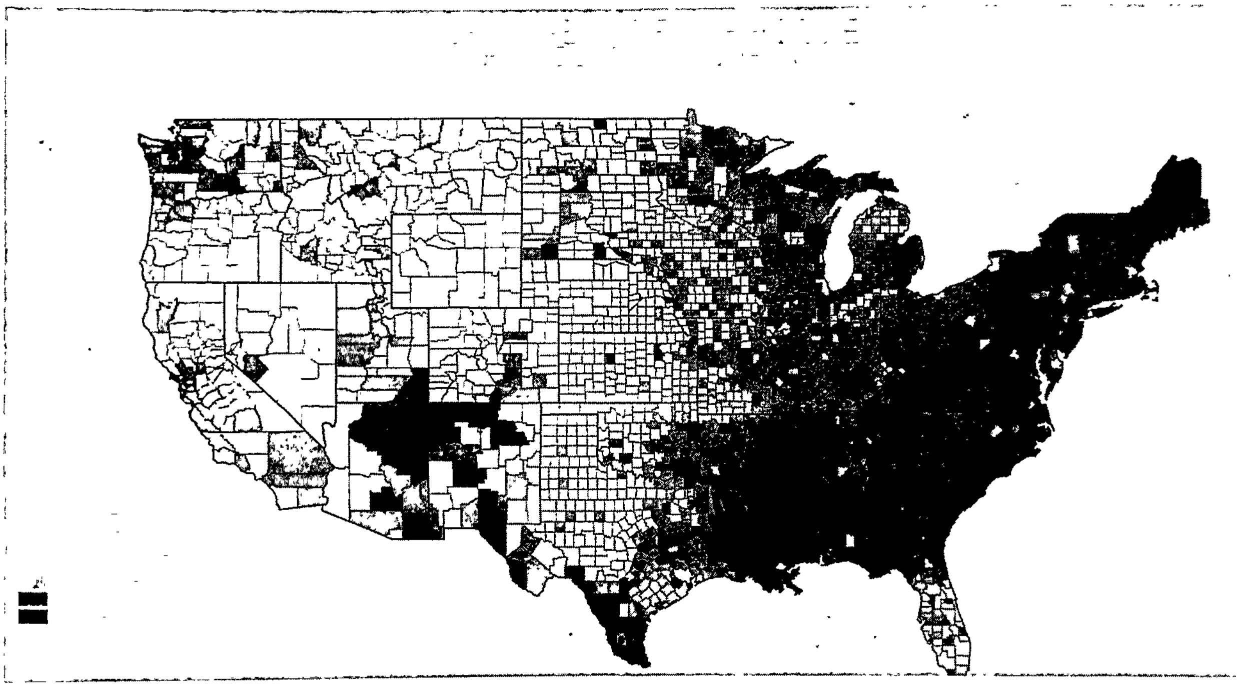
Why does one want to do address-matching? It is probably the easiest link between local data and census summary data. If you have a local administrative or operational record with an address on it, you can use this program to link it into the census system and relate it to the various census data for various types of areas—not only census areas, but more particularly, I think, of interest to your own local area, health areas in the city and so on.

The address matching program is being used by some 150 different organizations at the moment. We are about to complete and provide an improved version of that which we have labeled UNIMATCH, which has several more features to it. It is easier to operate. We do not need sophisticated programmers to use it. Its main advantage, I think, is the speed with which the matching can be accomplished. I have forgotten the factors, but it has something to do with millions of matches within a few minutes, should you have the need for that.

Another avenue which we have been exploring, again in terms of making the census data of greater use to potential users, has been a computer match and statistical map process. We have developed several programs being used by people to map information in terms of their own areas of interest and providing a display of census information or combination of census and local information. I apologize, but this, even though you cannot see the detail, will give you an indication, perhaps, of the facilities that have now been developed. (See Figure 1.) This, as you can see, is a map of the United States, done entirely by the computer on a geo-space plot with the use of coordinates for the counties. This particular exercise is simply the total registered vehicles by county.

The thing of interest that I hope I leave with you about such a facility is the fact that it is very quick to prepare. Perhaps, more important, a map of this size, for example, costs about $15 to prepare. By the computer, with the programs that we have prepared and with the geo-space plotting, you can do this for a variety of data comparisons. It is our feeling in the Data User Services Office, as we talk to people about the future of data needs, that there will be a tremendous increase in the use of statistical maps and computer operated mapping systems for the display of data in the future.

As some of you are aware, in the course of the census procedure, in order to accomplish a mail-out census in all major areas, we had to establish address coding guides. From that address coding guide has finally developed what we call the DIME system, and the DIME system with coordinates in it will premit you to accomplish this type of statistical mapping in



your own organization. What it does, of course, is add really a new dimension to the data because it permits you to establish spatial relationships in the data on these computer maps.

This is one of the main developments that I can well see being used more and more. It is conceivable that in 1980 the structure of the census publication program would be revised substantially to provide much more of this visual display with the deemphasis perhaps on tables of statistical data, and more data to be made available on summary computer tapes.

That, in a very quick review, is the description of the Data User Services Office in the Census Bureau.

We invite you to come by and see us when you are in town, if you have problems with the data that you have already received, if you have problems about the fact that you have not received the data that you have asked for. That is probably going to be the longer line, I am afraid.

We welcome suggestions on the ways in which we can serve you better. Thank you.

DR. SAGEN: Thank you very much, Bob.

I expect that there are some people who want to ask you questions about the difference between UNIMATCH and the DIME system when we come to the questions and answers.

You heard Bob tell about the number of data use laboratories and processing laboratories. A little different character is the subject of the next presentation. Incidentally, the national laboratories have gone into a very important demographic exercise directed primarily to the sourthern States, and I think our next speaker will discuss that, but still not limited to the southern States.

The Oak Ridge Laboratory has now all of the available census tapes, both for 1960 and 1970. They have all the various software things that are available and they stand ready to furnish services therefrom to prospective users from outside the Laboratory.

The speaker on this is Dr. Richard Taeuber, a member of that unique extended family of demographers, the Taeubers. None of the Taeubers need to be introduced in detail, except to say that they constitute two generations of demographers, making up three families of distinguished demographers, and a great asset to this country and to the world.

It is a pleasure to introduce you, Dick, to tell about the new program at Oak Ridge.

THE OAK RIDGE PROGRAM

Dr. Richard C. Taeuber, *Chief, Urban Research Section, Health Physics Division, Oak Ridge National Laboratory*

Bob Voight started out by saying that the data are here to stay. Although I know from our perspective they are here to stay, I sometimes wonder what we will do with all that we have.

Oak Ridge as a community is a phenomenon of the past 30 years or so. It started as part of the Manhattan Project in 1942 to produce the nuclear elements needed in the atomic bomb, and the production of nuclear fuel continues now for peacetime uses. These peacetime uses will interact in many diverse manners with all the peoples of the country. This in turn requires massive planning and evaluation efforts and thus massive amounts of data and their analysis.

Nonetheless, given that the prime missions of the Oak Ridge National Laboratory (ORNL) have a nuclear, physical or biological orientation, the questions of what was happening in Oak Ridge in terms of demographic study, of what the Atomic Energy Commission was doing with census data, and to what end was ORNL accumulating all those data intrigued me from the point about two years ago when I picked up the first inklings of such activity.

At the time of my first visit to find out what was happening in Oak Ridge, I returned to Washington and wrote a memorandum entitled "From the AEC to census Data in 25 Easy Steps: Some Comments." That memo included a summarization of a very logical but hypothetical causal chain which could connect Atomic Energy considerations to demographic studies.

Figure 1

FROM THE AEC TO CENSUS DATA IN 25 EASY STEPS

civil defense
  bomb shelters
    locations of shelters
      cities and their peoples
        population dispersion
          energy demand
            location of nuclear power plants
              new cities and new industries
                regional modelling

This Figure shows the start is with an interest in civil defense, from that to bomb shelters, and from there to the location of shelters. If you were worrying about the location of shelters, then you need to be concerned with cities, their peoples, and where those people are. Thus, you go on to population dispersion and also into demographic analysis of the population. In any emergency situation, whether or not it be a nuclear emergency, one must be interested not only in the dispersion of the population at 2 a.m.—which the census measures and when everyone is at home—but also at 2 p.m. when the kids are at school, people are out shopping or at work, the roads are clogged, etc.

One can go from studies of the population to the question of energy demand. Energy demand in turn leads to questions of power plant locations. Locating power plants could lead to locating new industries and new cities. Under new industries one finds such curiosities as proposals to use the cooling lakes at nuclear power plants as catfish farms. New cities considerations can include modeling the prospective community. From that step one passes to regional modeling, which at Oak Ridge has progressed from a one-county model to three counties and currently up to 16 counties in

Eastern Tennessee. The eventual aim is to model the whole TVA region, with not just demographic but also economic, ecologic, and general land use considerations. And who knows, after that is in working order, maybe the whole world will be modeled.

That is the nice "logical" chain of why the AEC should be interested in census data; unfortunately, it did not happen quite that way. The only element of reality that must be introduced is to acknowledge that thus far the data base accumulation has been almost totally funded by the Department of Housing and Urban Development, and thus the major analytic focus has been to evaluate urban growth patterns.

At ORNL, having gotten into demographic research not following the logical chain given in Figure 1 but with HUD monies footing the bill, the primary activities using the data set are:

Figure 2 ORNL DWG. 72-7115

OAK RIDGE NATIONAL LABORATORY

* Environmental Sciences Division
  * NSF/RANN Regional Modelling Task in Environmental Research Project
    * Urban Growth Patterns Research Group
      * Environmental Information System Office

To service the first three of these organizations, ORNL decided the various information sets should be put into a system. This is to insure that there are people concerned with problems of how to access the data, and how to be sure that they are not lost. To those ends, the data base has been placed under the Environmental Information Systems Office as one of the information systems that they coordinate.

Now what the Urban Growth Patterns Research Group is doing for Hud is working with their research efforts to measure the pulse of the nation.

Figure 3

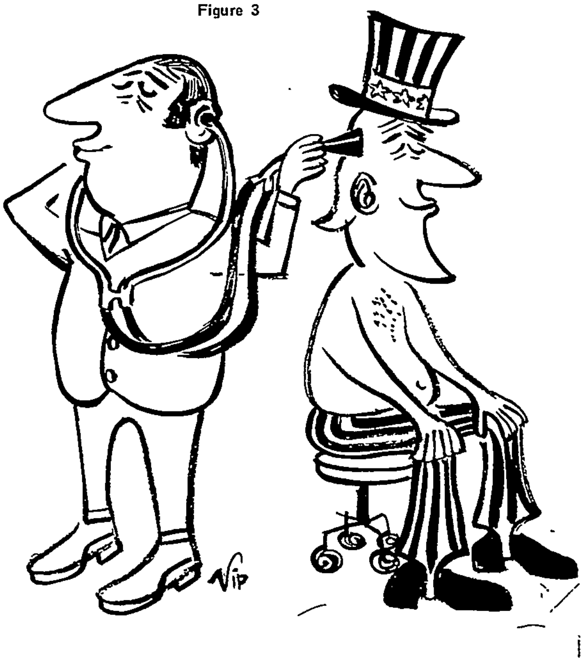


Figure 4 ORNL DWG. 72-7114

URBAN GROWTH PATTERNS RESEARCH GROUP

* study national urban growth patterns

* determine the principal factors affecting such patterns

* evaluate alternative policies

For the Department of Housing and Urban Development

The Urban Growth Patterns Research Group, very briefly, is aiming at studying national growth patterns, trying to find factors which determine or have a very close association with the patterns, and also exploring the question of evaluating policy. In this or any type of research, it is very difficult to get at cause and effect. Nonetheless, the group is keeping alert to policies which HUD may either activate or support to try to help ease or solve urban problems.

In this approach to assisting HUD research efforts, the available data set can be briefly summarized as:

Figure 5 ORNL DWG. 72-7117

ENVIRONMENTAL INFORMATION SYSTEM

Census materials

1970 – summary tapes
- public use samples
- geographic area code index
- DIME files
- MEDList, MED-X version

1960 – tract summary file
- 1-in-100 public use sample

Other materials

SSA sample, LEED version

County Business Patterns

City-County Data Books

1960 state economic area data

The implication that all the 1970 census summary tapes and all the Public Use Samples will be available is obviously a statement of the future, since several of them have not yet been released. ORNL will acquire full national sets of all counts and all Public Use Samples, as well as a variety of support tapes which are made available.

I might add we are primarily going after any social science data we can get, especially those which are available in machine-readable form. To that end, if the data are project-related, they will be purchased as needed; if not, we will either swap for them or purchase them when funds become available. In addition to the readily available files, we also have a variety of specialized files and are interested in acquiring more.

Now we are not only acquiring the data, we are also hoping to digest the informational content of the data.

Figure 6

In our HUD-sponsored efforts, the main research areas are:

Figure 7 ORNL DWG. 72-7118

RESEARCH AREAS

- population distribution and concentration, specifically suburbanization
- urban-suburban-rural differences in socioeconomic characteristics
- national and intrametropolitan labor force mobility
- city and urbanized area growth patterns by size of place
- migration flows and the characteristics of migrants
- integration of HUD program data and policy considerations into analyses of intrametropolitan spatial dynamics

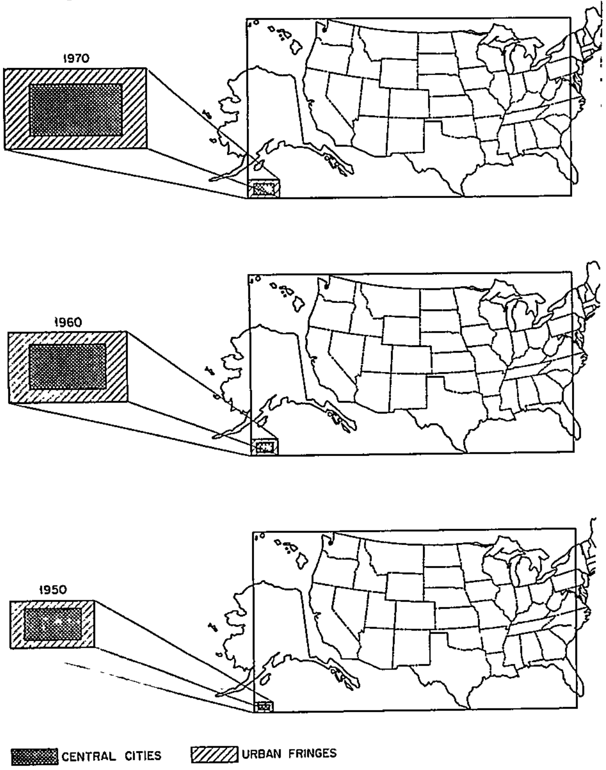
These research areas break down into three major functional groupings. One group involves the examination of interregional migration flows, in terms of the census data as well as the Social Security data. Second, and possibly most important, is the question of intrametropolitan spatial dynamics, meaning studying the movement of people and employment within an urbanized area, most specifically, the flows out from the central cities. Special emphasis in this area is being placed on examining movements of minority groups into suburban areas. The third major analytic area is the question of how and the rate at which cities grow, or rather how urbanized areas grow since growth obviously is not constrained by artificially defined political boundaries.

Across these various research areas have to come attempts at evaluation of prior policies and, to whatever extent possible, a provision of assistance to HUD in indicating areas for future policy action.

At this point I would like to show you some of the things the Urban Growth Patterns Research Group has done in the past in working with our various data files. In looking at the concentration of peoples over the land area of the United States, Figure 8 indicates the population in the urbanized areas in the United States over the last three censuses. Urbanized areas concentrate around the larger cities and are defined by the Bureau of the Census based on density considerations rather than strictly on political boundaries.

ORNL-DWG 71-1392

Figure 8 Urbanized Land Area 1950-1970.

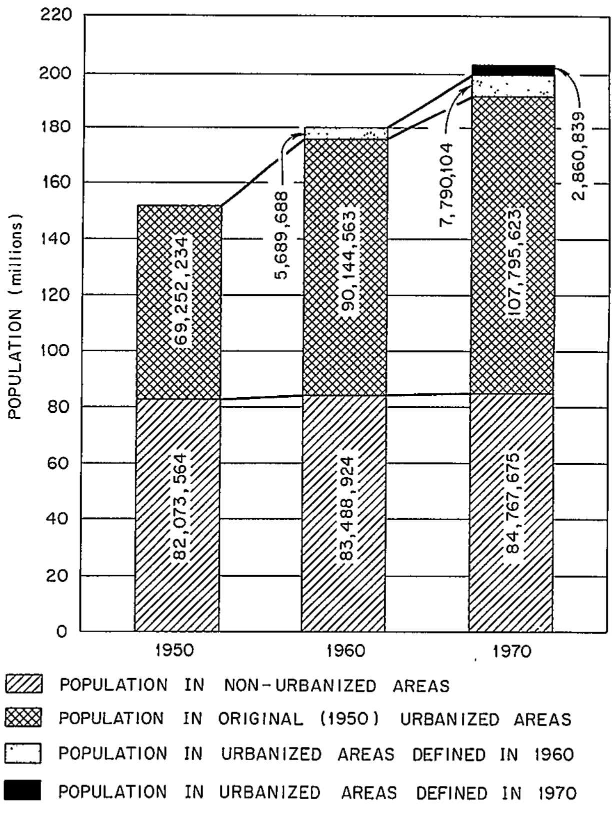


In this Figure, the large rectangular box is proportional to the land area of the 50 States. The small box in the lower left corner represents the portion of the total land area contained in the census-defined urbanized areas. The small boxes are then enlarged to the left of the figure so you can better see the proportion of the urbanized area in central cities and in the fringes as well as the proportionate growth over the two decades.

Another way of looking at this growth over the two decades is to look at the relative growth of the urbanized and nonurbanized portions of the population. Figure 9 indicates that most of the growth in population over the past two decades has, in fact, been in urbanized areas in this country.

Figure 9 ORNL-DWG 72-2786

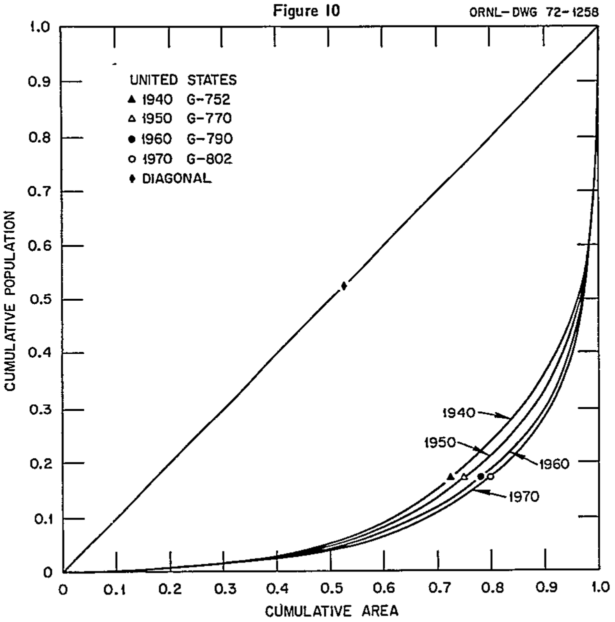
Urbanized vs Non-Urbanized Population, United States 1950-1970.



The bottom portion of each of these bars reflects the population in the area outside that defined as being urbanized. You can readily see that the nonurbanized population growth has been about a million and a half each decade—a very small amount of growth. The real growth, then, is in the urbanized areas which, as implied by Figure 9, have not been consistently defined over the three censuses. In each successive census since the concept was introduced in 1950, the definition of what constitutes an urbanized area has been relaxed somewhat. For instance, in 1970 the definition was relaxed to include areas with densities of 1,000 persons per square mile, rather than the 1960 definition of 500 households per square mile.

To view the question of the increasing concentration of the population in the United States on any real basis, one can use a Lorenz Curve. Such a curve portrays the cumulative population on one axis; the cumulative land area on the other axis. If all land area has an equal porportion of population, then the curve which would result would be a diagonal line. To the extent that there is inequality, the curve which results is further and further from that 45° diagonal line. On a national basis, the increasing concentration of our populace is shown by Figure 10:

Figure 10

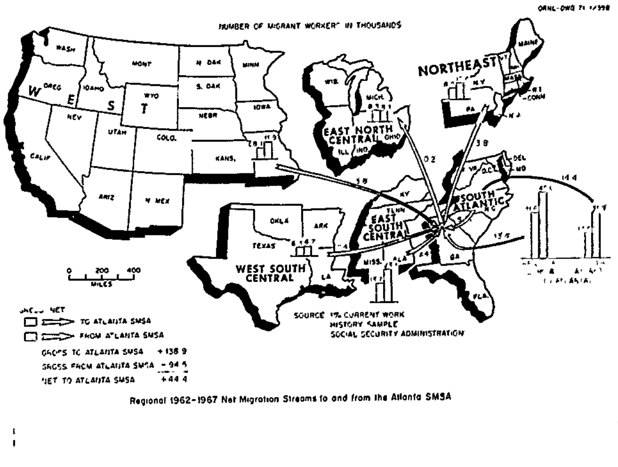


These curves are derived from ranking the counties of the United States at each census from the least dense to the most dense and then calculating cumulative porportions of area and population. As is evident from the Figure, the U.S. is putting a continuously higher proportion of its population onto any given portion of the land area (it might be noted that within these heavily growing urbanized areas the density of population has in fact been declining, so that while we are putting more people into our urbanized areas, we are not doing it quite as densely as has been done in prior years).

In Figure 10, by each of the years, there is a number preceded by G-; this number is a Gini coefficient which is derived from the ratio of the area in the figure between the diagonal line and the curve to the area of the triangular half of the square in which the curves lie. The Gini coefficient is used as a measure of the extent to which there is a departure from the line of equal distribution—in this case, of people over land area.

One of the major research areas indicated earlier in this paper is that of examining migration flows. From the 1970 decennial census we will be able to study migration flows between 1965 and 1970 when these data are released and available for analysis. There is another major source of migration data available, however, and that is the continuous Work History Sample provided by the Social Security Administration. We have taken those data and examined the flow of migrant workers to and from the Atlanta metropolitan area between 1962 and 1967. These workers are those in occupations covered by Social Security and thus represent only about 90 percent of the work force. A further caution is that the results deriving from the Social Security data are for workers—not for total population.

Figure 11



SOURCE 1% CURRENT WORK HISTORY SAMPLE SOCIAL SECURITY ADMINISTRATION

Regional 1962-1967 Net Migration Streams to and from the Atlanta SMSA

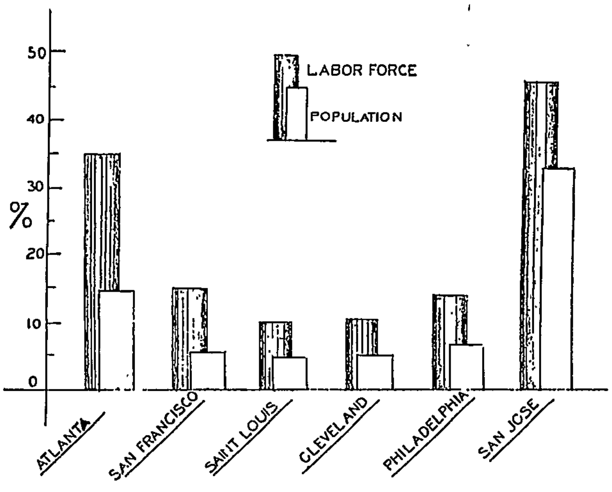
Figure 11 shows that Atlanta is definitely a growth area. It is growing with a net inflow of workers with all other regions except the east north central. It is possible that during this 1962-1967 period Atlanta functioned somewhat as a way station wherein people came from other portions of the south into Atlanta and then on to the east north central which includes both Chicago and Detroit.

It should be noted that with the limited staff and limited budget available for research, one thing the group at Oak Ridge is doing is to come up with prototype analyses such as the above. Having derived the techniques for analyzing the migration streams to and from Atlanta, we know the types of analyses and types of computations necessary to support those analyses. If there is need for, or interest in, analysis of any other city in a similar manner by another analyst such as yourselves, obtaining the data and processing it to support such an analysis becomes much easier. I would also add that Atlanta was picked as our major prototype because three of our consultants are from the area: one from the University of Georgia, two from Emory University. Although Atlanta is our prime prototype city, we are exploring other cities partially from our own interests and partially from HUD's interests.

From the same Social Security data and from estimates deriving from the census data, we are also able to compare the estimated growth in both the labor force and the total population.

Figure 12 ORNL-DWG 72-4253

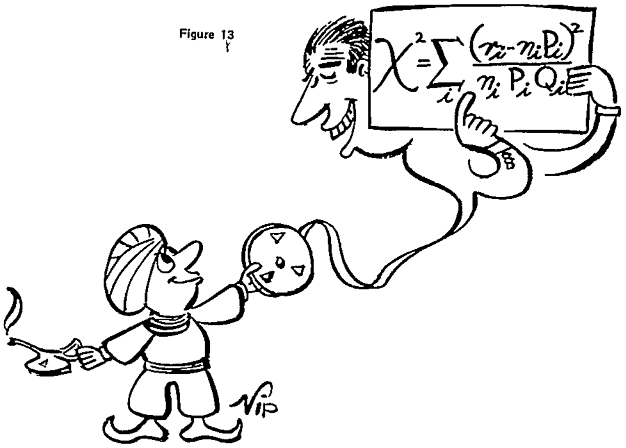
INCREASE IN POPULATION AND IN LABOR FORCE
1962-1967



It should be noted that these are not randomly selected cities but are a combination of our and HUD's interests. the results do seem to fit in with the growing depopulation of farm areas and the attraction of the peoples to jobs in the cities.

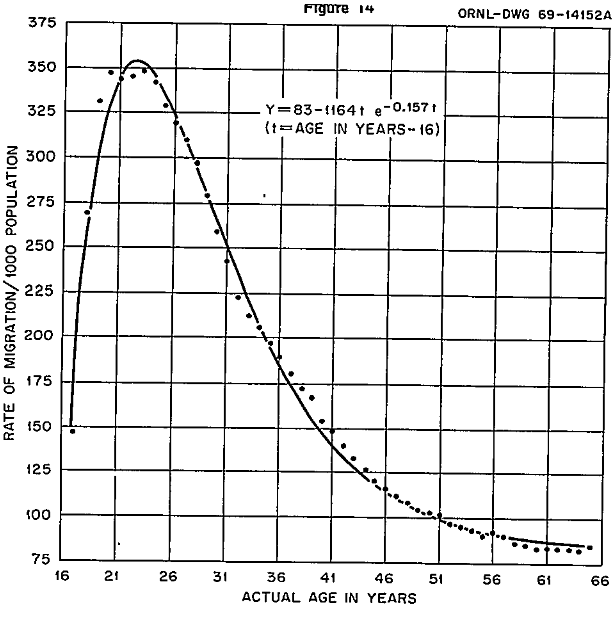
At ORNL we are interested not only in summarizing the informational content of the various data files available to us, we are also interested in analysis.

Figure 13



As you may be aware, the Oak Ridge National Laboratory is primarily oriented toward the physical and biological sciences. In examining a scatter diagram of the 1955-1960 migration rates for the total U.S. population by single

Figure 14 ORNL-DWG 69-14152A

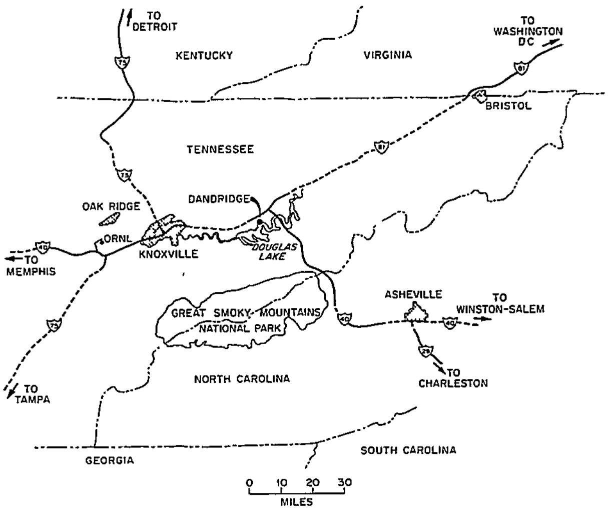


years of age, the physicist-mathematician husband of one of the project staff members looked at the dots and indicated he felt that they could be represented by a gamma distribution.

The computational techniques for fitting such a curve to a set of data produced the indicated solid line with the mathematical representation to that curve also given. A comment should be added in interpreting this Figure that up to and including age 16, the portion of the age distribution omitted from the figure children move with their parents.

The Urban Growth Patterns Research Group has in the past, at HUD's request, looked into the question of possible future growth centers. These are areas which are currently sparsely settled but which may have the potential for growth at some future time. By and large, these turned out to be areas located near interstate highway intersections.

Figure 15 ORNL-DWG 70-1295R



In evaluating the potential for these growth centers, it might be noted that one of the major seat belt manufacturers in the United States is located in Knoxville, Tennessee. Because of the interstate highway system, it is now possible for the company to schedule overnight delivery by truck from Knoxville to Detroit. This means that a day's production can, if needed, be in Detroit the following day. This in turn means that the area supporting major industrial centers such as Detroit can greatly expand as the areas within a day's or an overnight's delivery zone expand. Such support industries no longer have to be concentrated in the immediate proximity of the industry which they are supporting.

This, then, has been a brief introduction to the program of the Urban Growth Patterns Research Group at the Oak Ridge National Laboratory. In addition to this project, there are two other developments within the Oak Ridge area which should be of interest.

Figure 16 ORNL DWG. 72-7116

DEMOGRAPHIC RESEARCH IN OAK RIDGE

* Oak Ridge National Laboratory

* Southern Regional Demographic Group

* Oak Ridge Population Research Institute

The latter two organizations in Figure 16 are both affiliated with the Oak Ridge Associated Universities (ORAU) which has existed for some 25 years as a link between the 43 universities with graduate schools in the southern region and the biological and physical science programs at ORNL. Some two years ago, the Southern Regional Demographic Group (SRDG) was organized.

Figure 17 ORNL DWG. 72-7113

SOUTHERN REGIONAL DEMOGRAPHIC GROUP

* supplement and complement the population research and training programs of institutions in the South

* stimulate and broaden demographic research in the region

Membership in SRDG is open to any demographer on an individual basis, although, at present, full membership is limited to those individuals associated with a university and residing in the southern region. Associate membership is available to any other individual interested in the activities of SRDG.

SRDG in carrying out its missions will function primarily in a coordinative and an informational mode.

Figure 18 ORNL DWG. 72-7112

SRDG

- * coordinate multi-institutional research
- * promote academic research and training
- * an information channel for
  - – ORNL programs and facilities
  - – individual research projects

It is hoped that SRDG can serve as a coordinative mechanism for multi-institutional research projects wherein larger projects can be defined to involve a number of individual investigators. These efforts may or may not include use of the capabilities and facilities at ORNL. However, it is felt that there is a need to move academic research away from that which is defined in terms of a single principal investigator—for many problems are much broader in scope than can be handled by an individual, with or without graduate student support.

SRDG also is sponsoring conferences and a Newsletter to disseminate information as to existing research efforts and analytic and processing capabilities.

The third component in demographic research in Oak Ridge is the forthcoming Oak Ridge Population Research Institute (OPRI) which is scheduled to commence its formal existence on July 1, 1972.

Figure 19 ORNL DWG. 72-7111

OAK RIDGE POPULATION RESEARCH INSTITUTE

Interdisciplinary population research

from basic biological research

through clinical research on demographic and behavioral aspects of population

to population policy

ORPRI is going to aim at bridging the gap between the biological approach to the study of population problems and the demographic approach. They will attempt to do this on an interdisciplinary basis either in terms of coordinating research or being directly involved in such research, as well as being involved in training and information dissemination activities.

Figure 20 ORNL DWG. 72-7110

ORPRI MISSIONS

- * biomedical research
- * behavioral and social science studies
- * training in biological and demographic population problems

That briefly is the story of demographic research in Oak Ridge. The future should be growth; the orientation is toward service. We are in everything but fact a government installation in that the various facilities at Oak Ridge are run by the Union Carbide Corporation which has a management contract with the Atomic Energy Commission. That being our status, we probably have to restrict our service clientele to the academic and government, all levels, but I am not sure that would rule out anyone in the audience. If you are interested in more information about any of the above-mentioned organizations, their publications or their mailing lists, please feel free to contact me.

DR. SAGEN: I hope you find this development as exciting as I do.

It is really unique and I do want to add this one little footnote. Dick can correct me, but I believe that the catalyst and the prime mover in this development is our good friend, Professor Everett Lee of the University of Georgia. Originally through his consultative assignment with HUD on demographic matters, he promoted this demographic interest at Oak Ridge and stimulated the formation of the Southern Regional Demographic Group.

Thank you, Dick, for an excellent exposition.

The final paper on the program is about another exciting development in census data uses, specifically a program of the National Institute of Mental Health. Over the years NIMH has become more and more concerned with the relationship of mental health to the demographic and social characteristics of the population. Because of this, they have developed very interesting programs to make such data available on a small area basis. I believe that is what Dr Harold F. Goldsmith will tell you about. As you can see from the program, Dr. Goldsmith is Chief of the Population Research Branch in the Mental Health Studies Center of the National Institute of Mental Health. The paper he will read is co-authored by Elizabeth L. Unger.

It is with great pleasure that I introduce to you Dr. Goldsmith.

MENTAL HEALTH DEMOGRAPHIC PROFILE: ITS VALUE FOR SOCIAL AREA ANALYSIS

Dr. Harold F. Goldsmith, *Chief, Population Research, Mental Health Studies Section, National Institute of Mental Health, Health Services and Mental Health Administration*

Introduction

A small area demographic profile system using data from the 1970 Census of Population and Housing has been developed at the National Institute of Mental Health that provides the requisite data for the delineation of meaningful social areas and, accordingly, for the estimation of the health and related needs for area resident populations. The system was developed because of the recognition that it was necessary to identify the key social, economic, and demographic axes and associated behaviors that differentiate residential sub-areas in order to understand urban social structure and to deal preventively with social problems. The Mental Health Demographic Profile System (MHDPS) provides the 1970 census data items that yield the information presented in Tables 5 and 6 (presented in alternate form in Tables 7.1 and 7.2 and 8.1 – 8.9) (Appendix I) for mental health service areas, cities, standard metropolitan statistical areas, or other designated census areas (e.g., census tracts, minor civil divisions, counties). An age-sex profile by race and/or rural-urban status is also provided (see Figure 2).

As stated above, the 1970 census data incorporated in the system allow the delineation of meaningful social areas (residential areas with common social rank, life style, ethnicity, and other related characteristics), as well as the subsequent drawing of inferences about the health and related needs of resident populations of those areas. The system contains indicators of the major components of the social rank dimensions—economic status, social status, and educational status. The component parts of the life style dimension are also indexed, using indicators of family status, family life cycle stage, residential life style, and familism. In addition, the system provides indicators of ethnicity, community stability, area homogeneity, and populations with high risk of social problems.

In this paper, we will illustrate how the data items of the profile can be used to determine the social area characteristics of a small area (census tract) population. Figure 1 specifies the data items that can be used as basic indicators of the major social area dimensions. This figure suggests general conditions under which given items may be most appropriately used as indicators. A separate appendix (Appendix A) that provides codes (for example, high or low economic status) for comparing and evaluating areas along the various dimensions referred to above is available upon request. Coding procedures for all basic indicators are available. Subsequent reports will present an analysis of the health and mental health problems associated with different types of social areas. We feel that this report and related reports will enable the reader to become familiar with and aware of the potential value of the Mental Health Demographic Profile System.

We have selected census tract 52.01 in Prince George's County, Maryland, as our demonstration unit of a small residential area primarily because of its particular racial distribution in 1970—approximately a 50-50 split among the population of whites and Negroes. We begin with a brief discussion of the major social area dimensions. This will be followed by a summary of the tract characteristics.

Figure 1. SOCIAL AREA DIMENSIONS BY CENSUS DATA INDICATORS IN TABLES 5 AND 6

Social Area Dimensions	Census Data Indicators Description	Table 5 Item	Table 6 Item	Comment	Classification
Social Rank					
Economic Status	Basic Indicators:				
	Median income of families and unrelated individuals	7		This item is a useful initial indicator of economic class of areas. However, it does not discriminate between families and unrelated individuals nor between the white and Negro populations in terms of economic class. To determine if these populations require separate evaluation, see Ethnic Composition below and the denominators of Items 1 to 5 in Table 6. To determine if significant differences exist for these aggregates, look at the income items in Table 6. These are discussed below.	A code providing low to high values is presented in Appendix A. This code is based on a ranking of counties in the State of Maryland. When available, data for the United States will be substituted.
	Percent of population below poverty level: all, white and Negro		8,9,10	These items are indicators of the degree of poverty in an area. Percent of persons in poverty is used as a basic indicator rather than percent of families, because in many areas a significant proportion of the total population are not in family units. To determine if the Negro population of an area is large, see the items listed under Ethnic Composition below.	Areas with *25%* or more of its population in poverty are considered poverty areas. Also, a code providing low to high values is presented in Appendix A. This code is based on a ranking of counties in the State of Maryland.
	Median family income: white and Negro		1,2	When families (Negro or white) constitute almost all of the households in an area (i.e., few households headed by primary individuals—Table 6, Item 69), these are the most appropriate indexes of area economic class. When Negro families or white families constitute a sizeable subpopulation of an area (see denominators of Items 1 and 2), then these items provide estimates of the economic class of said populations. To determine the family status of an area by race, see Family Status and Ethnic Composition below.	A code providing low to high values is presented in Appendix A. This code is based on a ranking of the *white* populations of the counties in the State of Maryland. The white population is suggested as a standard so that both the Negro and white populations can be evaluated using the same criterion. A code for the Negro population is also provided.
	Median income of unrelated individuals: All, white and Negro		3,4,5	For nonfamily areas and/or areas where unrelated individuals constitute a sizeable proportion of the household population, income of unrelated individuals should be used in ascertaining the overall economic class of an area. Discussion of the family status of an area is presented	A code providing low to high values is presented in Appendix A. This code is based on a ranking of the *white* populations of the counties in the State of Maryland. The white population is suggested as a standard so that both the Negro and white populations

Figure 1. SOCIAL AREA DIMENSIONS BY CENSUS DATA INDICATORS IN TABLES 5 AND 6—(Continued)

Social Area Dimensions	Census Data Indicators Description	Table 5 Item	Table 6 Item	Comment	Classification
Social Rank (cont.)					
Economic Status (cont.)	Basic Indicators: (cont.)				
	Median income of unrelated individuals: all, white and Negro (cont.)		3,4,5	in Family Status below. Also, comparison of the denominators of Items 4 and 5 in Table 6 with those of Items 1 and 2 in Table 6 is suggested as a means of determining if the number of unrelated individuals relative to the number of families warrants separate consideration of data for unrelated individuals.	can be evaluated using the same criterion. A code for the Negro population is also provided.
	Additional Indicators:				
Poverty/ Income	Percent of families below poverty level: all, white and Negro	8	6,7		
	Highest quartile family income		11		
House Value/ Rent	Median house value: non-Negro and Negro		12,13		
	Median rental value: non-Negro and Negro		14,15		
Unemployment/Underemployment	Percent of labor force unemployed: all, white and Negro		16,17, 18		
	Percent of male labor force, 25-64, underemployed: all, white and Negro		19,20, 21		
Labor Force Participation	Percent of females, 16 and over, in labor force: all, white and Negro		22,23, 24		
Information Status	Basic Indicators:				
	Percent persons 18 and over who have completed high school: white and Negro		39,40	Of the items available, Items 39 and 40 of Table 6 probably provide the best estimate of the information status of an area since the base populations considered here are 18 and over. Most other items relevant to information status are based on populations 25 and over and thereby represent biased estimates because the adult populations 18 to 24 are ignored. This item was not computed for the total population and is only available by race.	A code providing low to high values is presented in Appendix A. This code is based on a ranking of the *white* populations of the counties in the State of Maryland. The white population is suggested as a standard so that both the Negro and white populations can be evaluated using the same criterion. A code for the Negro population is also provided.

Figure 1. SOCIAL AREA DIMENSIONS BY CENSUS DATA INDICATORS IN TABLES 5 AND 6—(Continued)

Social Area Dimensions	Census Data Indicators Description	Table 5 Item	Table 6 Item	Comment	Classification
Social Rank (cont.)					
Information Status (cont.)	Additional Indicators:				
	Median school years completed, persons 25 and over: all, white and Negro	11	34,35		
	Percent persons 25 and over:with 8 years or less education: all, white and Negro		36,37, 38		
	Percent young adults 18-24 who have completed high school: white and Negro		41,42		
	Percent persons 25 and over with 4 years or more college education		43		
Social Status	Basic Indicators:				
	Percent of employed males in low status occupations (operatives, service, laborers): all, white and Negro	9	25,27	Assuming that occupation is a reasonable indicator of social class and that the occupation of the male household head makes a major contribution to the social status of a household, males in low status occupations are used to provide an initial estimate of area social class level. When appropriate, differentiation by race should be made (see Ethnic Composition below).	A code providing low to high values is presented in Appendix A. This code is based on a ranking of the *white* populations of counties in the State of Maryland. The white population is suggested as a standard so that both the Negro and white populations can be evaluated using the same criterion. A code for the Negro population is also provided.
	Percent of employed males in high status occupations (professional, technical and managers): all, white and Negro	10	26,28	Percent of males in high status occupations may be substituted for percent of males in low status occupations. Used in combination, these two items provide an estimate of the social class distribution within an area. For example, some areas may have sizeable proportions of both high and low social strata while others may have only high or low or middle social strata.	A code providing low to high values is presented in Appendix A. This code is based on a ranking of the *white* populations of the counties in the State of Maryland. The white population is suggested as a standard so that both the Negro and white populations can be evaluated using the same criterion. A code for the Negro population is also provided.
	Additional Indicators:				
	Percent of employed females in low status occupations (operatives, service, laborers): all, white and Negro		29,30, 32	Data on occupational status of women is particularly important when looking at areas with high proportions of female-headed households.	

Figure 1. SOCIAL AREA DIMENSIONS BY CENSUS DATA INDICATORS IN TABLES 5 AND 6—(Continued)

Social Area Dimensions	Census Data Indicators Description	Table 5 Item	Table 6 Item	Comment	Classification
Social Rank (cont.)					
Social Status (cont.)	Additional Indicators: (cont.)				
	Percent of employed females in middle status occupations (sales, clerical, craftsman, foreman and kindred workers): white and Negro		31,33		
Ethnic Composition	Basic Indicators:				
	Percent household population Negro	12		The largest ethnic aggregates currently in the United States are the Negro and foreign stock populations. The Spanish-American population and persons of southern or eastern European stock are also sizeable. Data items identifying these populations are presented.	Codes provided in Appendix A.
	Percent household population other nonwhites	13			
	Percent population of foreign stock	14			
	Percent population of southern or eastern European stock		44		
	Percent population of Spanish heritage		45		
Life Style					
Family Status	Basic Indicators:				
	Percent of households headed by primary individuals (estimates of this indicator for white (Negro) populations can be derived as follows: find the ratio of the Item 1(2) denominator to the Item 52(53) denominator, multiply by 100, and subtract from 100)		69	Using three measures, (1) percent of households headed by primary individuals (2) percent of husband-wife households and (3) percent of female-headed households, one can develop a family status typology. Thus, one can distinguish: (1) nonfamily areas (high percent of households headed by primary individuals); (2) mixed family/nonfamily areas (moderate percent of households headed by primary individuals); and (3) family areas (low percent of households headed by primary individuals). One can further distinguish, within family areas, husband-wife family areas (high percent of husband-wife households) and female-headed family areas (high percent of female-headed households).	Codes provided in Appendix A.
	Percent husband-wife households: all, white and Negro	15	52,53		
	Percent female-headed households		76		

Figure 1. SOCIAL AREA DIMENSIONS BY CENSUS DATA INDICATORS IN TABLES 5 AND 6—(Continued)

Social Area Dimensions	Census Data Indicators Description	Table 5 Item	Table 6 Item	Comment	Classification
Life Style (cont.)					
Family Status (cont.)	Additional Indicators:				
Persons Living Alone	Percent households with only one person		47	This item is an indicator of the extent to which nonfamily households contain persons living alone	
Boarders	Percent of persons non-relative of household head		70		
Persons Not in Households	Percent of population living in group quarters		65		
	Percent of population in group quarters, inmates of institutions		66		
	Percent of population in group quarters, inmates of mental hospitals		67		
	Percent of population in rooming houses or other non-institutional group quarters		68		
Children in Disrupted Households	Percent of children living with both parents		49	These items provide an estimate of the extent to which children live in standard (husband-wife) or non-standard family units.	
	Percent of households with own children, female-headed: all and Negro		77,103		
Persons Not Currently Married	Percent of males 25 and over never married		71		
	Percent of females 25 and over never married		72		
	Percent of males 14 and over divorced or separated		73		
	Percent of females 14 and over divorced or separated		74		
	Percent of females 14 and over widowed		75		
Sex Ratio	Males per 100 females in household population		50		

Figure 1. SOCIAL AREA DIMENSIONS BY CENSUS DATA INDICATORS IN TABLES 5 AND 6–(Continued)

Social Area Dimensions	Census Data Indicators Description	Table 5 Item	Table 6 Item	Comment	Classification
Life Style (cont.)					
Family Life Cycle	Basic Indicators:				
	Median age of household head: all, white, Negro	16	54,55	Procedures have been developed that allow areas to be classified according to area family, life cycle stage (Prefamily, Childbearing, Early Childrearing, Middle Childrearing, Late Childrearing, Childlaunching and Post-Childlaunching). Two coding systems are presented in Appendix A. One is based on the four items in Tables 5 and 6, and the other on the age-sex pyramid.	Code using basic indicator items presented in Appendix A.
	Percent of families with children under 6 only		61		
	Percent of families with children under 6 and 6-17		62		
	Percent of families with children 6-17 only		63		
	Age-sex distribution: all, white and Negro	AGE SEX PYRAMID			Code based on age-sex pyramid presented in Appendix A.
	Additional Indicators:				
	Persons under 18 per 100 persons 18-64 (in households): all, white, Negro	17	56,57	Youth Dependency Ratio.	
	Persons 65 and over per 100 persons 18-64 (in households): all, white, Negro	18	58,59	Aged Dependency Ratio. An extremely high ratio would indicate not only a post-childlaunching population, but also an aged population.	
	Children under 5 per 1000 females 15-44 (in households)		51	Fertility Ratio.	
	Percent of families with own children under 18		60		
Familism	Basic Indicators:				
	Percent of households with 6 or more persons		48	High percent of large households is indicative of an area with large families.	A code providing low to high values is presented in Appendix A. This code is based on a ranking of the counties in the State of Maryland.
	Additional Indicators:				
	Median household size		46		
Residential Life Style	Basic Indicators:				
Type of Housing	Percent of housing units that are single detached: all, non-Negro and Negro	19	88,89	Residential life style denotes the day-to-day activities conducted in the immediate	Code presented in Appendix A.

Figure 1. SOCIAL AREA DIMENSIONS BY CENSUS DATA INDICATORS IN TABLES 5 AND 6—(Continued)

Social Area Dimensions	Census Data Indicators Description	Table 5 Item	Table 6 Item	Comment	Classification
Life Style (cont.)					
Residential Life Style (cont.)	Basic Indicators (cont.):				
Condition of Housing	Percent of persons in overcrowded households: all, non-Negro and Negro	21	82,83	vicinity of the residence. It appears that residential life style of an area is directly related to the type and condition of the housing units available.	Code Presented in Appendix A.
	Additional Indicators:				
Type of Housing	Percent of housing units in structures of 7 or more stories	20			
	Percent of housing units that are renter-occupied		85		
	Percent of housing units that are trailers		86		
	Percent of housing units in structures with 20 or more units		87		
Condition of Housing	Percent of housing units standard: all, non-Negro and Negro	22	79,80		
	Percent of housing units overcrowded		81		
	Percent of population in highly overcrowded housing		84		
Community Instability	Basic Indicators:				
	Percent of population recent movers (within 1 year): all, white and Negro	23	91,92	Estimate of recent (1 year) area residential instability and long-term (5 years) residential instability are provided. Together, these indicators provide an estimate of the extent to which mobility has been continuously high, low or changing during a 5-year period.	Codes providing low to high values are presented in Appendix A. These codes are based on a ranking of the *white* populations of the counties in the State of Maryland. The white population is suggested as a standard so that both the Negro and white populations can be evaluated using the same criterion. A code for the Negro population is also provided.
	Percent of population 5 and over mobile (changed house in last 5 years)		93		
	Additional Indicators:				
	Percent of population 5 and over migrants (mobile persons from different county)		94		
Potential High-Risk Populations	Teenagers (14-17 years) not in school: all and Negro		95,96		
	Mothers, with children under 18, who work		97		

Figure 1. SOCIAL AREA DIMENSIONS BY CENSUS DATA INDICATORS IN TABLES 5 AND 6–Continued)

Social Area Dimensions	Census Data Indicators Description	Table 5 Item	Table 6 Item	Comment	Classification
Potential High-Risk Populations (cont.)	Mothers, with children under 6, who work		98		
	Aged persons living alone		99		
	Aged persons in poverty		100		
	Extremely crowded (1.51 or more persons per room) housing units with incomplete plumbing facilities		101		
	Large families with low income (less than $7,000)		104		
	Families with children that are female-headed and in poverty		105		
	Population 16-64 disabled		106		
	Population 16-64 disabled and unable to work		107		
	Children in poverty		108		

Table 5. PRINCE GEORGE'S COUNTY, MARYLAND
SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)

Statistic description	Number, percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county(B)	Median value of all counties in Maryland(B)
			SMSA	State	U.S.		
			Ratio or value(A)	Ratio or value	Ratio or value		
General Population Data							
(1) Total population	660567	---	2861123	3922399	203211926	92	53764
(2) Number of males (in households)	316987	---	1331512	1851019	95456663	92	24804
(3) Number of females (in households)	327069	---	1443391	1966563	101943250	92	26225
(4) Population in group quarters	16511	---	86220	104817	5812013	88	1589
(5) Population white	561476	---	2124903	3194888	177748975	92	46423
(6) Population Negro	91808	---	703745	699479	22580289	92	7424
Socioeconomic Status							
Economic Status							
(7) Income of families and unrelated individuals: median income of families and unrelated individuals	$10467	218761	$10085	$ 9130	$ 7,699	83	7125
(8) Families in poverty: percent of all families below poverty level	4.3	163400	6.1	7.7	10.7	13	11.9
Social Status							
(9) Low occupational status, males: percent of employed males 16 and over who are operatives, service workers, and laborers including farm laborers	22.6	160697	23.5	30.3	36.0	8	37.2
(10) High occupational status, males: percent of employed males 16 and over who are professionals, technical and kindred workers, and managers except farm	37.2	160697	42.2	31.4	25.4	88	20.6
Educational Status							
(11) School years completed: median school years completed by persons 25 and over	12.5	319843	12.6	12.1	12.1	92	11.0
Ethnic Composition							
(12) Negro: percent of household population Negro	13.9	644056	24.6	17.7	11.1	46	15.9
(13) Other nonwhite: percent of household population nonwhite and non-Negro	1.1	644056	1.1	0.7	1.4	92	0.2
(14) Foreign stock: percent of population who are foreign born or native born of foreign or mixed parentage	12.4	660564	13.5	11.6	16.5	88	5.0

Table 5. PRINCE GEORGE'S COUNTY, MARYLAND
SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)—(Continued)

Statistic description	Number, percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county(B)	Median value of all counties in Maryland(B)
			SMSA	State	U.S.		
			Ratio or value(A)	Ratio or value	Ratio or value		
Household composition and Family Structure							
(15) Husband-wife households: percent of all households with husband-wife families	75.1	192962	64.8	70.9	69.4	54	74.3
(16) Age of household heads: median age of household heads	39.2	192962	45.0	45.7	48.2	4	48.7
(17) Youth dependency ratio: persons under 18 per 100 persons 18-64 in household population	65.3	374295	60.1	63.4	63.4	63	64.1
(18) Aged dependency ratio: persons 65 and over per 100 persons 18-64 in household population	6.8	374295	9.8	13.1	17.4	0	17.2
Type of Housing (Urbanization)							
(19) Single dwelling units: percent of all year-round housing units that are single detached (excluding mobile homes and trailers)	49.8	200179	43.1	51.1	66.4	4	75.4
(20) High rise apartments: percent of all year-round housing units that are in structures of 7 or more stories	2.7	200185	10.0	2.8	2.1	88	0.0
Condition of Housing							
(21) Overcrowding: percent of persons in households in housing units with 1.01 or more persons per room	12.5	644056	13.3	13.6	16.9	25	14.5
(22) Standard housing: percent of occupied housing units with direct access/complete plumbing and kitchen facilities for exclusive use	98.2	192962	97.8	95.4	93.4	92	88.9
Community Instability							
(23) Recent movers: percent of population who moved into present residence 1969-1970	29.4	660564	27.8	22.6	23.5	92	20.5

The Following Conventions and Footnotes Apply To This and Table 6:

(A) Medians estimated from SMSA county medians and county populations.
(B) Except as noted, based on 23 counties and Baltimore city.
(C) Based on 22 counties and Baltimore city.

Table 6. PRINCE GEORGE'S COUNTY, MARYLAND
SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)

Statistic description	Number, percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county(B)	Median value of all counties in Maryland(B)
			SMSA	State	U.S.		
			Ratio or value(A)	Ratio or value	Ratio or value		
General Population Data Socioeconomic Status							
Economic Status							
Income							
(1) Income of families, white: median income of white families	$12748	141258	$14841	$11635	$ 9,961	88	$ 9333.
(2) Income of families, Negro: median income of Negro families	$10624	20578	$ 8513	$ 7701	$ 6,067	96	$ 6431.
(3) Income of unrelated individuals: median income of unrelated individuals 14 and over	$ 3809	55361	$ 4539	$ 3099	$ 2,489	83	$ 2207.
(4) Income of unrelated individuals, white: median income of white unrelated individuals 14 and over	$ 3859	49813	$ 5274	$ 3349	$ 2,568	83	$ 2352.
(5) Income of unrelated individuals, Negro: median income of Negro unrelated individuals 14 and over	$ 3436	4789	$ 3839	$ 2325	$ 1,936	96	$ 1834.
(6) Families in poverty, white: percent of white families below poverty level	3.8	141258	3.5	5.3	8.6	13	8.9
(7) Families in poverty, Negro: percent of Negro families below poverty level	8.0	20578	14.6	20.9	29.8	4	24.5
(8) Population in poverty: percent of population below poverty level	5.8	644486	8.3	10.1	13.7	13	15.4
(9) Population in poverty, white: percent of white population below poverty level	5.0	548636	5.0	6.9	10.9	13	11.3
(10) Population in poverty, Negro: percent of Negro population below poverty level	10.4	89320	18.4	24.7	35.0	4	29.1
(11) High income families: upper quartile family income	$18311	163400	$22459	$16675	$14176	88	$12805.
Value of Housing							
(12) House value, non-Negro: median value of non-Negro occupied housing units	$24169	79799	$32392	$19637	$17504	88	$16484.
(13) House value, Negro: median value of Negro owner-occupied housing units	$19783	10816	$18947	$11107	$8948	91(C)	$ 9363.
(14) Rent, non-Negro: median monthly rental of non-Negro renter-occupied housing units	$145	82107	$145	$121	$97	92	$ 76.
(15) Rent, Negro: median monthly rental of Negro renter-occupied housing units	$131	10740	$ 98	$ 85	$75	91(C)	$ 47.

Table 6. PRINCE GEORGE'S COUNTY, MARYLAND
SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)—(Continued)

Statistic description	Number percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county(B)	Median value of all counties in Maryland(B)
			SMSA	State	U.S.		
			Ratio or value(A)	Ratio or value	Ratio or value		
Employment Level and Labor Force Participation							
(16) Unemployment: percent of civilian labor force 16 and over unemployed	2.4	275984	2.7	3.2	4.4	13	3.3
(17) Unemployment, white: percent of white civilian labor force 16 and over unemployed	2.2	235476	2.2	2.7	4.1	21	2.6
(18) Unemployment, Negro: percent of Negro civilian labor force 16 and over unemployed	3.3	37787	4.0	5.6	7.0	17	5.2
(19) Under employment, males 25-64: percent of males 25-64 who worked in 1969 less than 40 weeks.	5.4	141609	6.2	6.3	7.9	29	7.2
(20) Under employment, white males 25-64: percent of white males 25-64 who worked in 1969 less than 40 weeks.	5.1	122686	5.3	5.6	7.5	29	6.2
(21) Under employment, Negro males 25-64: percent Negro males 25-64 who worked in 1969 less than 40 weeks.	7.5	17418	9.1	10.4	12.0	0	11.7
(22) Labor force participation, females: percent of females 16 and over in the labor force (including Armed Forces)	50.2	224804	50.3	44.4	41.4	92	42.0
(23) Labor force participation, white females: percent of white females 16 and over in the labor force (including Armed Forces)	48.4	194410	47.5	42.6	40.6	96	39.4
(24) Labor force participation, Negro females: percent of Negro females 16 and over in the labor force (including Armed Forces)	63.0	28092	58.9	53.1	47.5	96	51.1
Social Status							
(25) Low occupational status, white males: percent of employed white males 16 and over who are operatives, service workers, and laborers including farm laborers	19.3	139433	15.7	25.0	33.2	4	30.1
(26) High occupational status, white males: percent of employed white males 16 and over who are professionals, technical and kindred workers, and managers except farm	39.4	139433	49.9	34.7	27.0	88	25.3
(27) Low occupational status, Negro males: percent of employed Negro males 16 and over who are operatives, service workers, and laborers including farm laborers	45.7	19698	50.1	61.4	64.9	8	68.0

Table 6. PRINCE GEORGE'S COUNTY, MARYLAND SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)—(Continued)

Statistic description	Number, percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county(B)	Median value of all counties in Maryland(B)
			SMSA	State	U.S.		
			Ratio or value(A)	Ratio or value	Ratio or value		
Social Status (Continued)							
(28) High occupational status, Negro males: percent of employed Negro males 16 and over who are professionals, technical and kindred workers, and managers except farm	19.9	19698	15.6	11.3	8.9	88	7.8
(29) Low occupational status, females: percent of employed females 16 and over who are operatives, service workers, and laborers including farm laborers	15.9	108708	20.8	28.8	36.2	4	42.3
(30) Low occupational status, white females: percent of employed white females 16 and over who are operatives, service workers, and laborers including farm laborers	13.1	90810	12.8	22.5	32.7	4	32.5
(31) Mid occupational status, white females: percent of employed white females 16 and over who are sales, clerical and kindred workers, and craftsmen, foremen and kindred workers, and farmers and farm managers	62.5	90810	57.7	54.5	47.0	96	48.5
(32) Low occupational status, Negro females: percent of employed Negro females 16 and over who are operatives, service workers, and laborers including farm laborers	30.4	16830	40.1	55.1	62.4	4	74.6
(33) Mid occupational status, Negro females: percent of employed Negro females 16 and over who are sales, clerical and kindred workers, and craftsmen, foremen and kindred workers, and farmers and farm managers	46.3	16830	43.2	29.7	24.8	96	17.3
Educational Status							
(34) School years completed, white: median school years completed by white persons 25 and over	12.5	276886	12.9	12.2	12.1	92	11.4
(35) School years completed, Negro: median school years completed by Negro persons 25 and over	12.2	39413	11.4	9.9	9.8	96	9.0
(36) Low educational status: percent of persons 25 and over with 8 years or less education	15.1	319843	15.9	27.4	28.3	4	32.6
(37) Low educational status, white: percent of white persons 25 and over with 8 years or less education	14.2	276886	11.9	24.7	26.6	4	31.3
(38) Low educational status, Negro: percent of Negro persons 25 and over with 8 years or less education	21.9	39413	29.3	42.1	43.8	4	49.1

Table 6. PRINCE GEORGE'S COUNTY, MARYLAND
SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)—(Continued)

Statistic description	Number, percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county(B)	Median value of all counties in Maryland(B)
			SMSA Ratio or value(A)	State Ratio or value	U.S. Ratio or value		
Educational Status (Continued)							
(39) High school completion, white: percent of white persons 18 and over who have completed at least 4 years of high school	69.5	359682	74.4	58.2	56.9	92	48.5
(40) High school completion, Negro: percent of Negro persons 18 and over who have completed at least 4 years of high school	57.9	50476	48.0	36.3	35.8	96	29.4
(41) High school completion, young white adults: percent of white persons 18-24 who have completed at least 4 years of high school	72.7	82796	69.3	68.8	75.0	88	68.7
(42) High school completion, young Negro adults: percent of Negro persons 18-24 who have completed at least 4 years of high school	65.4	11063	59.4	52.6	55.2	83	50.5
(43) High educational status: percent of population 25 and over with 4 or more years of college	17.1	319843	23.4	13.9	10.7	88	7.0
Ethnic Composition							
(44) Southern or eastern European stock: percent of population who are foreign stock of southern or eastern European background (Europe excluding northern Europe)	4.5	660564	4.6	5.3	6.6	83	1.3
(45) Spanish Americans: percent of population who are of Spanish heritage	2.2	660567	2.5	1.4	4.6	92	0.6
Household Composition and Family Structure							
General Characteristics							
(46) Median household size	3.1	192962	2.9	2.9	2.7	58	2.9
(47) Small households: percent of households with only one person	12.0	192962	19.4	14.9	17.6	29	13.4
(48) Large households: percent of households with 6 or more persons	11.1	192962	9.9	11.3	10.4	50	11.0
(49) Children living with their parents: percent of persons under 18 living with both parents	86.0	244446	81.2	81.0	82.7	75	83.8
(50) Sex ratio: males per 100 females in household population	96.9	327069	92.3	94.1	93.6	58	95.5
(51) Fertility ratio: children under 5 per 1000 females 15-44 in household population	443.4	155706	387.7	412.6	415.7	71	420.9

Table 6. PRINCE GEORGE'S COUNTY, MARYLAND
SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)—(Continued)

Statistic description	Number, percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county(B)	Median value of all counties in Maryland(B)
			SMSA	State	U.S.		
			Ratio or value(A)	Ratio or value	Ratio or value		
(52) Husband-wife households, white: percent of white households with husband-wife families	75.3	167889	68.9	73.8	71.3	42	75.6
(53) Husband-wife households, Negro: percent of Negro households with husband-wife families	73.3	23170	52.4	54.9	52.6	96	55.3
Family Life Cycle							
(54) Age of household heads, white: median age of white household heads	39.7	167889	42.9	46.2	48.5	4	49.0
(55) Age of household heads, Negro: median age of Negro household heads	36.2	23170	42.0	43.5	45.5	0	48.0
(56) Youth dependency ratio, white: white persons under 18 per 100 white persons 18-64 in household population	62.3	323170	57.5	59.8	60.8	50	61.1
(57) Youth dependency ratio, Negro: Negro persons under 18 per 100 Negro persons 18-64 in household population	87.1	46737	68.7	82.3	85.5	61(C)	83.3
(58) Aged dependency ratio, white: white persons 65 and over per 100 white persons 18-64 in household population	7.1	323170	10.2	13.6	17.9	0	18.1
(59) Aged dependency ratio, Negro: Negro persons 65 and over per 100 Negro persons 18-64 in household population	4.8	46737	8.7	10.7	13.6	0(C)	15.1
(60) Families with children: percent of families with own children under 18	63.5	163379	59.7	57.4	54.9	88	55.3
(61) Childbearing only families: percent of families with own children under 6, no children 6-17	18.4	163379	15.3	13.5	12.7	92	11.9
(62) Childbearing and childrearing families: percent of families with own children both under 6 and 6-17	15.7	163379	14.1	14.1	13.4	71	13.6
(63) Childrearing only families: percent of families with own children 6-17, no children under 6	29.3	163379	30.3	29.8	28.7	67	28.3
(64) Childrearing completed: percent of husband-wife families with husband 45 or over and with no children present	20.7	144880	26.0	30.7	34.7	4	35.5
Persons Not in Families							
(65) Group quarters: percent of total population who live in group quarters	2.5	660567	3.0	2.7	2.9	54	2.3
(66) Inmates of institutions: percent of population in group quarters who are inmates of institutions	14.5	16511	23.2	37.9	36.5	13	42.0

Table 6. PRINCE GEORGE'S COUNTY, MARYLAND
SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)—(Continued)

Statistic description	Number, percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county$^{(B)}$	Median value of all counties in Maryland$^{(B)}$
			SMSA	State	U.S.		
			Ratio or value$^{(A)}$	Ratio or value	Ratio or value		
Persons Not in Families (Continued)							
(67) Inmates of mental hospitals: percent of population in group quarters who are inmates of mental hospitals	0.2	16286	6.3	8.6	7.3	46	0.3
(68) Group quarters excluding institutions: percent of total population who live in rooming houses and other noninstitutional group quarters	2.1	660567	2.1	1.7	1.8	63	1.1
(69) Household heads primary individuals: percent of households with heads who are primary individuals	15.3	192962	23.3	17.3	19.7	46	15.5
(70) Non-relatives: percent of persons in households who are not related to the household head	2.2	644056	2.9	2.0	1.6	79	1.7
Population Not Currently Married							
(71) Single males: percent of males 25 and over who have never married	7.8	156744	11.3	9.1	8.9	25	8.8
(72) Single females: percent of females 25 and over who have never married	5.6	163183	10.2	7.1	7.0	21	6.7
(73) Divorced or separated males: percent of males 14 and over who are divorced or separated	4.0	224616	5.5	5.0	4.3	38	4.1
(74) Divorced or separated females: percent of females 14 and over who are divorced or separated	6.3	237020	8.2	7.0	6.2	79	5.2
(75) Widowed females: percent of females 14 and over who are widows	7.5	237020	9.6	11.1	12.4	0	12.0
Non Husband-wife Households							
(76) Female headed households: percent of households with female head	15.9	192962	23.4	20.0	21.0	33	17.1
(77) Female headed households with own children: percent of households with own children under 18 that are headed by females	9.0	103756	12.4	11.2	10.7	50	8.7
Condition of Housing							
Housing							
(78) Vacancy index: percent of all year-round housing units that are vacant	3.6	200211	4.2	4.8	6.2	13	6.2

Table 6. PRINCE GEORGE'S COUNTY, MARYLAND
SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)–(Continued)

Statistic description	Number, percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county$^{(B)}$	Median value of all counties in Maryland$^{(B)}$
			SMSA	State	U.S.		
			Ratio or value$^{(A)}$	Ratio or value	Ratio or value		
Housing (Continued)							
(79) Standard housing, non-Negro: percent of non-Negro housing units with direct access and with complete plumbing and kitchen facilities for exclusive use	98.8	169792	98.3	96.6	94.6	92	92.4
(80) Standard housing, Negro: percent of Negro housing units with direct access and with complete plumbing and kitchen facilities for exclusive use	93.5	23170	95.8	89.2	82.0	87$^{(C)}$	58.5
Density							
(81) Overcrowded housing: percent of occupied housing units with 1.01 or more persons per room	6.4	192962	6.9	6.6	8.2	33	7.0
(82) Non-Negro population in overcrowded housing: percent of non-Negro household population in housing units with 1.01 or more persons per room	10.0	554364	7.5	9.7	14.3	42	10.3
(83) Negro population in overcrowded housing: percent of Negro household population in housing with 1.51 or more persons per room	27.9	89692	31.1	31.3	38.1	13$^{(C)}$	35.6
(84) Persons in highly overcrowded housing: percent of household population in housing units with 1.51 or more persons per room	2.7	644056	3.9	3.0	5.0	25	3.8
Type of Housing (Urbanization)							
(85) Renter occupancy: percent of occupied housing units that are renter occupied	49.9	192962	54.0	41.2	37.1	92	32.0
(86) Trailers: percent of all year-round housing units that are mobile homes or trailers	0.7	200211	0.7	1.5	2.7	8	3.5
(87) Large apartment structures: percent of all year round housing units that are in structures with 20 or more units	8.9	200179	17.3	5.9	6.6	92	0.8
(88) Single dwelling units, non-Negro: percent of non–Negro housing units that are single detached	51.9	169988	52.2	57.6	71.9	4	81.6
(89) Single dwelling units, Negro: percent of Negro housing units that are single detached	47.9	22974	18.2	29.1	52.2	9$^{(C)}$	75.9
(90) Rural population: percent of population	7.8	660567	10.3	23.4	26.5	4	71.6

TABLE 6. PRINCE GEORGE'S COUNTY, MARYLAND
SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)—(Continued)

Statistic description	Number, percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county(B)	Median value of all counties in Maryland(B)
			SMSA	State	U.S.		
			Ratio or value(A)	Ratio or value	Ratio or value		
Community Instability							
(91) Recent movers, white: percent of white population who moved into present residence 1969-1970	28.3	562773	28.1	21.8	23.2	92	21.1
(92) Recent movers, Negro: percent of Negro population who moved into present residence 1969-1970	35.4	91390	26.1	25.5	24.6	83	22.0
(93) Mobile persons: percent of population 5 years and over living in a different house than in 1965	61.6	591440	58.3	48.5	47.0	96	43.1
(94) Migrants: percent of population 5 and over residing in a different county than in 1965 (1965 residence known)	36.9	549107	33.7	23.6	19.5	92	16.8
Other Populations With High Potential Need for Health, Welfare and Related Services							
(95) Teenagers not in school: percent of population 14-17 not enrolled in school	4.3	47021	4.8	6.8	7.3	8	8.7
(96) Teenagers not in school, Negro: percent of Negro population 14-17 not enrolled in school	7.8	7177	8.9	11.2	10.8	8	14.5
(97) Working mothers of children under 18: percent of women 16 and over with children of their own under 18 who are in the labor force	44.8	105566	44.6	42.0	40.8	58	43.2
(98) Working mothers of preschool children: percent of women 16 and over with children of their own under 6 who are in the labor force	35.6	57474	35.6	32.2	30.8	63	33.6
(99) Aged persons living alone: percent of households that are 1 person households with head 65 or over	2.4	192962	4.3	5.3	7.8	4	6.8
(100) Aged persons in poverty: percent of persons 65 and over below poverty level	13.8	25492	12.9	21.9	19.2	4	27.4
(101) Extremely crowded housing units lacking plumbing facilities: percent of occupied housing units with 1.51 or more persons per room and without complete plumbing facilities	0.2	192962	0.1	0.3	0.6	17	0.6
(102) Female headed households with own children, Negro: percent of Negro households with own children that are headed by females	15.0	14887	27.5	29.1	30.6	0(C)	21.9

Table 6. PRINCE GEORGE'S COUNTY, MARYLAND
SELECTED STATISTICS FROM 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT (ALL FILES)—(Continued)

Statistic description	Number, percent, ratio or value for the total area	Denominator for percents and ratios or population for medians and averages	Comparisons with other areas			Percent of values less than the county(B)	Median value of all counties in Maryland(B)
			SMSA Ratio or value(A)	State Ratio or value	U.S. Ratio or value		
(103) Large households with low income: percent of households with 6 or more persons that have an annual income of less than $7,000	11.9	21510	16.8	20.3	27.0	13	30.9
(104) Female headed families with children in poverty: percent of families with at least one related child under 18 that are female headed and below poverty level	2.1	107725	4.1	4.7	5.1	13	4.8
(105) Disabled population: percent of persons 16-64 not inmates of institutions and not attending school who are disabled or handicapped	8.2	351414	8.7	9.9	11.2	21	9.2
(106) Disabled population unable to work: percent of persons 16-64 not inmates of institutions and not attending school who are disabled or handicapped and who are unable to work	2.6	351414	2.8	3.6	4.3	13	3.5
(107) Children in poverty: percent of related children under 18 below poverty level	6.0	243269	9.5	11.5	15.1	13	15.4

(A) Medians estimated from SMSA county medians and county populations.
(B) Except as noted based on 23 counties and Baltimore city.
(C) Based on 22 counties and Baltimore city.

Table 7.1
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	General population data						Economic status		Socioeconomic status		
									Social status		Educational status
									Percent employed males in		
	Total population (1)	Males in households (2)	Females in households (3)	Population in group quarters (4)	Population white (5)	Population Negro (6)	Median income families and unrelated individuals (7)	Percent families in poverty (8)	Low status occupations (9)	High status occupations (10)	Median school years completed (11)
Area total											
Statistic	121799	57942	61725	2132	111694	8517	$ 9532	4.2	23.0	32.7	12.3
Base population	—	—	—	—	—	—	44148	31154	32486	32486	64646
Tract 8052.01											
Statistic	4674	2206	2462	6	2249	2372	$ 9968	5.4	32.9	29.3	12.4
Base population	—	—	—	—	—	—	1666	1282	1205	1205	2603

Table 7.2
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	Ethnic composition			Household composition and family structure				Type of housing		Condition of housing		Community instability
	Percent household population							Percent year round housing units				
	Negro (12)	Other nonwhite (13)	Percent population foreign stock (14)	Percent households husband-wife (15)	Median age household head (16)	Youth dependency ratio (17)	Aged dependency ratio (18)	Single detached (19)	In high rises (20)	Percent persons in overcrowded housing (21)	Percent occupied housing units standard (22)	Percent population recent movers (23)
Area total												
Statistic	7.0	1.3	14.7	66.8	43.3	53.9	11.1	48.6	3.6	12.4	98.8	25.5
Base population	119667	119667	121684	39702	39702	72560	72560	41069	41181	119667	39702	121684
Tract 8052.01												
Statistic	50.7	1.1	19.1	64.4	44.7	51.8	14.1	50.3	0.0	13.2	98.9	24.4
Base population	4668	4668	4674	1571	1571	2815	2815	1604	1579	4668	1571	4674

Table 8.1
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	Socioeconomic status Economic status Income											
	Median income					Percent families in poverty		Percent population in poverty			Upper quartile family income (11)	Median house value non-Negro (12)
	Families		Unrelated individuals									
	White (1)	Negro (2)	Total (3)	White (4)	Negro (5)	White (6)	Negro (7)	Total (8)	White (9)	Negro (10)		
Area total												
Statistic	11706.0	10427.0	4323.0	4353.0	3957.0	4.2	4.6	6.4	6.3	8.2	16941.0	19966.0
Base population	28696	2106	12994	12215	511	28696	2106	119969	110170	8362	31154	17318
Tract 8052.01												
Statistic	11924.0	10853.0	4854.0	4629.0	5237.0	4.9	6.0	6.4	5.6	7.3	17910.0	21734.0
Base population	649	617	384	222	151	649	617	4666	2237	2364	1282	473

Table 8.2
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	Socioeconomic status											
	Economic status											
	Value of housing			Employment level and labor force participation								
	Median house value Negro (13)	Median rent		Percent labor force unemployed			Percent male labor force underemployed			Percent females in the labor force		
		Non-Negro (14)	Negro (15)	Total (16)	White (17)	Negro (18)	Total (19)	White (20)	Negro (21)	Total women (22)	White (23)	Negro (24)
Area total												
Statistic	22917.0	127.1	132.9	2.4	2.3	3.2	7.5	7.2	9.1	49.7	48.2	69.9
Base population	805	18978	1605	55889	51320	3862	26270	24315	1589	45843	42488	2844
Tract 8052.01												
Statistic	27250.0	132.0	136.0	2.2	3.2	1.4	11.4	7.0	15.4	63.4	51.1	76.6
Base population	259	347	458	2361	1130	1182	991	483	482	1812	964	825

Table 8.3
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	Socioeconomic status											
	Social status									Educational status		
	Percent employed males				In low status occupations	Percent employed females				Median school years completed		Percent persons with 8 years or less education
	White		Negro			White		Negro		White	Negro	
	In low status occupations (25)	In high status occupations (26)	In low status occupations (27)	In high status occupations (28)	(29)	In low status occupations (30)	In mid status occupations (31)	In low status occupations (32)	In mid status occupations (33)	(34)	(35)	(36)
Area total												
Statistic	22.1	32.7	40.1	26.6	14.7	13.9	63.4	22.1	55.9	12.3	12.5	18.7
Base population	30243	30243	1847	1847	22053	19872	19872	1893	1893	60055	3741	64646
Tract 8052.01												
Statistic	25.6	31.1	41.3	25.6	19.1	13.3	67.0	21.5	53.6	12.3	12.6	18.1
Base population	637	637	542	542	1103	457	457	623	623	1474	1080	2603

Table 8.4
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	Socioeconomic status							Ethnic composition				
	Educational status							Percent persons		General characteristics		
	Percent persons with 8 years or less education		Percent persons who have completed high school				Percent persons over 24 at least 4 years college	Southern or eastern European stock	Spanish heritage	Median household size	Percent households	
			Aged 18 and over		Aged 18-24						Only one person	With 6 or more persons
	White (37)	Negro (38)	White (39)	Negro (40)	White (41)	Negro (42)	(43)	(44)	(45)	(46)	(47)	(48)
Area total												
Statistic	18.9	16.7	62.9	66.7	68.9	69.5	14.6	5.1	2.7	2.6	17.6	8.9
Base population	60055	3741	76596	4979	16541	1238	64646	121684	120980	39702	39702	39702
Tract 8052.01												
Statistic	24.3	10.0	60.7	72.5	72.5	76.4	16.4	8.2	3.6	2.7	16.7	7.6
Base population	1474	1080	1765	1448	291	368	2603	4674	4674	1571	1571	1571

Table 8.5
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	Household composition and family structure											
	General characteristics					Family life cycle						
	Percent children living with both parents (49)	Sex ratio (50)	Fertility ratio (51)	Percent households husband-wife		Median age householdhead		Youth dependency ratio		Aged dependency ratio		Percent families with own children under 18 (60)
				White (52)	Negro (53)	White (54)	Negro (55)	White (56)	Negro (57)	White (58)	Negro (59)	
Area total												
Statistic	83.3	93.9	414.2	67.0	64.0	44.4	34.0	52.8	69.8	11.6	4.5	55.3
Base population	39088	61725	27420	36693	2522	36693	2522	66717	4817	66717	4817	31012
Tract 8052.01												
Statistic	78.9	89.6	442.3	63.6	65.2	56.0	34.0	37.2	65.4	25.7	2.8	53.8
Base population	1457	2462	1110	826	730	826	730	1380	1406	1380	1406	1267

Table 8.6
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	Household composition and family structure											
	Family life cycle				Persons not in families						Population	
	Percent families			Percent older couples child-rearing completed (64)	Percent group quarters population			Percent persons in non-institutional group quarters (68)	Percent household heads primary individuals (69)	Percent persons in households not related to head (70)	Percent males never married (71)	Percent females never married (72)
	Child-bearing only (61)	Child-bearing and rearing (62)	Child-rearing only (63)		Percent persons in group quarters (65)	Inmates of institutions (66)	In mental hospitals (67)					
Area total												
Statistic	17.1	12.1	26.1	29.9	1.8	27.2	0.0	1.2	21.9	2.9	10.3	7.8
Base population	31012	31012	31012	26524	121799	2132	2025	121751	39702	119667	30572	33959
Tract 8052.01												
Statistic	18.7	10.7	24.4	32.8	0.1	0.0	0.0	0.0	19.4	2.1	8.9	10.4
Base population	1267	1267	1267	1012	4674	6	0	4674	1571	4668	1189	1424

Table 8.7
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	Household composition and family structure					Condition of housing						
	Not currently married			Female headed households		Housing			Density			
	Percent males divorced or separated (73)	Percent females divorced or separated (74)	Percent females widowed (75)	Percent households		Vacancy index (78)	Percent housing units standard		Percent housing units overcrowded (81)	Percent household population in		
				Female headed (76)	With own children female headed (77)		Non-Negro (79)	Negro (80)		Overcrowded units		Highly overcrowded units (84)
										Non-Negro (82)	Negro (83)	
Area total												
Statistic	5.1	8.0	11.0	21.9	11.5	3.3	98.8	98.4	5.9	11.9	19.1	2.3
Base population	42872	47847	47847	39702	17149	41075	37180	2522	39702	111338	8329	119667
Tract 8052.01												
Statistic	4.8	9.7	10.3	25.8	15.1	2.1	98.6	99.3	6.8	10.9	15.4	1.8
Base population	1589	1898	1898	1571	682	1604	841	730	1571	2299	2369	4668

Table 8.8
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	Type of housing (urbanization)						Community instability					
	Percent occupied housing units rented (85)	Percent year-round housing units		Percent housing units single detached		Percent population rural (90)	Percent persons recent movers		Percent persons 5 years and over living in different		Percent teenagers not in school	
		Trailers (86)	In structures with over 19 units (87)	Non-Negro (88)	Negro (89)		White (91)	Negro (92)	House than in 1965 (93)	County than in 1965 (94)	Total (95)	Negro (96)
Area total												
Statistic	52.8	0.1	12.5	50.3	37.3	0.0	23.9	44.1	52.4	27.0	7.6	15.5
Base population	39702	41075	41069	37284	2425	0	111840	8371	110121	103102	6056	380
Tract 8052.01												
Statistic	52.1	0.1	13.7	61.9	38.2	0.0	13.0	35.4	61.5	50.8	3.6	5.0
Base population	1571	1604	1604	841	730	0	2214	2372	4147	4063	225	119

TABLE 8.9
COMPREHENSIVE CMHC I, MD. FF
SELECTED STATISTICS FROM THE 1970 CENSUS OF POPULATION AND HOUSING, SECOND PLUS FOURTH COUNT DATA FILES (ALL SAMPLE QUESTIONS)

Statistics	Other populations with high potential need for health, welfare and related services										
	Percent mothers in the labor force (97)	Percent mothers of preschool children in the labor force (98)	Percent households aged persons living alone (99)	Percent aged persons in poverty (100)	Housing units highly overcrowded and lacking plumbing (101)	Percent Negro households with own children headed by women (102)	Percent large households with low income (103)	Percent families with children females headed and in poverty (104)	Percent noninmates nonstudents disabled or handicapped (105)	Percent persons disabled or handicapped and unable to work (106)	Percent related children under 18 in poverty (107)
Area total											
Statistic	46.0	37.1	4.6	13.9	0.1	22.4	11.3	2.2	10.7	3.6	6.1
Base population	17602	9660	39709	8262	39709	1497	3541	18046	65797	65797	38972
Tract 8052.01											
Statistic	68.5	66.7	4.4	10.4	0.0	19.0	8.3	4.0	9.2	2.9	7.4
Base population	705	424	1571	386	1571	448	120	708	2365	2365	1404

Economic Status

On a variety of income measures, the economic class level of census tract 52.01 and its significant sub-populations (white and Negro families and unrelated individuals) is seen as higher than that for comparable populations in the United States as a whole. For example, the median income of white families and of Negro families in this tract exceeds by nearly two thousand dollars and by $890, respectively, the median family income of $9,961 for whites in the United States.

Exploring the additional items related to economic status, one observes that the proportion of women—particularly Negro women— in the labor force is very high. This information about working women—particularly as it applies to Negro families—adds to our knowledge of median family income, here in terms of the quality rather than the quantity of the income. Thus, it can be assumed that in many instances there are (at least) two wage earners contributing to the total family income.

Social Status

Using the percent of employed males 16 and over in low status occupations as an indicator of social status, the white population of census tract 52.01 has higher social status and the Negro population lower social status than the comparable white population of the United States. Thus, 26 percent of white employed males and 41 percent of Negro employed males in this tract are in low status occupations; the comparable figure for white employed males in the United States is 33 percent.

Educational Status

Using the percent of persons 18 and over who have completed high school as an indicator of area educational status, one finds in census tract 52.01 that the Negro population has higher educational status than does the white population which, in turn, has slightly higher status than the comparison white population of Maryland (data for the United States not available). About 73 percent of the Negro tract population and 61 percent of the white tract population have at least a high school education, as compared to 58 percent of the white population of Maryland. The higher educational status of the Negro population may in part be a reflection of the fact that the Negro population is younger than the white population.

Ethnic Status

As noted previously, this is a racially mixed census tract, with Negroes accounting for about 51 percent of the total population. On an additional measure of ethnicity, 19.1 percent of the total tract population are of foreign stock. Since probably most persons of foreign stock are white, one can infer that the proportion of the white population of foreign stock may be as high as 40 percent.

Family Status

The family status of census tract 52.01 can be described as follows: both the white and the Negro populations are characterized as family populations (79 and 85 percent, respectively, of the households are families), with a predominance of husband-wife families (64 and 65 percent of the households are husband-wife families), with some non-husband-wife families (15 and 19 percent of the households are non-husband-wife families), with some primary individuals (21 and 16 percent of the households headed by primary individuals). Based on national figures, non-husband-wife families are in most instances female-headed families, and this is particularly true for Negro families. Although there are some slight differences between the two populations, they are very like one another in terms of family status.

Family Life Cycle

Examination of the age-sex profiles of the white and Negro populations of tract 52.01 reveals that the two populations are at very different stages in the family life cycle. Using our code based on the age-sex pyramid (see Appendix A or Goldsmith and Unger, 1973), the white population is classified as post-childlaunching with some childlaunching households, while the Negro population is classified as early childrearing with some middle childrearing households. Thus, although the white and Negro populations in census tract 52.01 are approximately the same in number, the difference between them in terms of family life cycle stage is such that one might expect little or no interaction between the two populations.

Familism

Using the proportion of large families (six or more persons in a household) in an area as an indicator of area familism, census tract 52.01 demonstrates a relatively low degree of familism. Only 8 percent of the households in the tract have six or more persons, a proportion slightly lower than the 10 percent of households in the United States so constituted.

Residential Life Style

Type of housing and condition of housing are used as indicators of area residential life style, Census tract 52.01 is characterized by a combination of single dwelling units and non-highrise apartments, and relatively uncrowded housing conditions. Approximately 50 percent of the housing units in the tract are single dwelling detached units; most (about 72 percent) of the non-single dwelling units are in small apartment complexes (less than 19 units in a building), while only about 28 percent are in larger apartment complexes (19 or more units in a building). Moreover, there are no highrise apartment buildings (structures with seven or more floors) in this tract. Approximately 62 percent of the non-Negro* housing units and 38 percent of the Negro housing units are single dwelling units (for the most part, these are owner-occupied units). Since 52 percent of the housing units in the tract are rented, we can estimate that about 40 percent of the non-Negro housing units and about 60 percent of the Negro housing units are rented and most likely apartments. Although neither the extent nor the exact nature of residential segregation in this tract can be determined from the available data, one can hypothesize conservatively at least that white home owners and Negro apartment dwellers probably do not live side by side. In respect to condition of housing, 11 and 15 percent of the white and Negro populations, respectively, reside in overcrowded housing units (1.01 or more persons per room). Since a population is defined as overcrowded when 25 percent live in overcrowded housing units, both the white and Negro populations of census tract 52.01 are considered uncrowded.

Community Stability

The 15-month mobility rate (percent who moved between January, 1969 and April 1, 1970) of 24 percent for the total population of census tract 52.01 is the same as that for the total population of the United States. However, the total rate masks the fact that the rate for the Negro population is high (35.4 percent) and the rate for the white population is low (13.0). Noting the difference in rates for whites and Negroes, we can at least describe the white community as more stable than the Negro community. With such additional information as the very large increase in the total Negro population between 1960 and 1970 and the fact that only 37 housing units were built in the tract between 1965 and April 1, 1970, it is possible to infer that these differential rates indicate an influx of Negroes in combination with a movement out of whites. The population makeup of census tract 52.01, from an older more stable white population to a younger more mobile Negro population, can be as descriptive of a tract in transition.

Indicators of High Risk Populations

Two of the high risk indicators deserve special attention in census tract 52.01: proportion of women with children under 18 who work (Table 8, Item 97) and proportion of women with children under 6 who work (Table 8, Item 98). Both items are extremely high in comparison with corresponding figures for the United States.

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*Data for some of the housing items refers to non-Negro and Negro populations rather than white and Negro populations.

Thus, 69 percent of women with children under 18 work and 67 percent of women with children under six work, compared with 41 and 30 percent, respectively, for the United States. Since most of the preschool children in this tract are found among the Negro population, one can infer that well over one half of the Negro mothers with young children are employed. The employment of Negro mothers contributes to the relatively high level of Negro family income; however, at the same time, it creates a need for child care when mother and/or father are at work. Given this potential need for day care, the adequacy of existing services would certainly merit investigation and evaluation.

FIGURE 2

```
   TOTAL  POPULATION
     TRACT 8052.01
  TOTAL POP     4674                     MALES (  2209)                FEMALES (  2465)

NUMBER|   %   | AGE 9   8   7   6   5   4   3   2   1  |  1   2   3   4   5   6   7   8   9 |   %   | NUMBER
     14|  0.30|85+                                     |                                    |  0.26|     12|
     15|  0.32|80-4                                    |F                                   |  0.47|     22|
     25|  0.53|75-9                                   M|FF                                  |  0.73|     34|
     43|  0.92|70-4                                  MM|FFFFF                               |  1.71|     80|
     71|  1.52|65-9                                MMMM|FFFFF                               |  1.71|     80|
     89|  1.90|60-4                               MMMMM|FFFFFFF                             |  2.40|    112|
     96|  2.05|55-9                              MMMMMM|FFFFFFFF                            |  2.70|    126|
    126|  2.70|50-4                            MMMMMMMM|FFFFFFFFF                           |  3.06|    143|
    113|  2.42|45-9                             MMMMMMM|FFFFFFFFF                           |  3.19|    149|
    117|  2.50|40-4                             MMMMMMM|FFFFFFFF                            |  2.89|    135|
    120|  2.57|35-9                             MMMMMMM|FFFFFFF                             |  2.55|    119|
    164|  3.51|30-4                          MMMMMMMMMM|FFFFFFFFF                           |  3.27|    153|
    196|  4.19|25-9                        MMMMMMMMMMMM|FFFFFFFFFFFFFFFFF                   |  5.54|    259|
    198|  4.24|20-4                        MMMMMMMMMMMM|FFFFFFFFFFFFFFFFF                   |  5.50|    257|
    169|  3.62|15-9                          MMMMMMMMMM|FFFFFFFFFFFFF                       |  4.04|    189|
    165|  3.53|10-4                          MMMMMMMMMM|FFFFFFFFFFFF                        |  3.94|    184|
    217|  4.64| 5-9                      MMMMMMMMMMMMMM|FFFFFFFFFFFFF                       |  4.09|    191|
    271|  5.80| 0-4                  MMMMMMMMMMMMMMMMMM|FFFFFFFFFFFFFFF                     |  4.71|    220|
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   WHITE  POPULATION
     TRACT 8052.01
  TOTAL POP     2249                     MALES (  1056)                FEMALES (  1193)

NUMBER|   %   | AGE 9   8   7   6   5   4   3   2   1  |  1   2   3   4   5   6   7   8   9 |   %   | NUMBER
     13|  0.58|85+                                    M|F                                   |  0.44|     10|
     15|  0.67|80-4                                  MM|FF                                  |  0.93|     21|
     23|  1.02|75-9                                 MMM|FFFF                                |  1.33|     30|
     40|  1.78|70-4                               MMMMM|FFFFFFFFF                           |  3.07|     69|
     68|  3.02|65-9                           MMMMMMMMM|FFFFFFFF                            |  2.93|     66|
     76|  3.38|60-4                          MMMMMMMMMM|FFFFFFFFFFFFFF                      |  4.45|    100|
     81|  3.60|55-9                          MMMMMMMMMM|FFFFFFFFFFFFFFFF                    |  5.02|    113|
     97|  4.31|50-4                        MMMMMMMMMMMM|FFFFFFFFFFFFFFFF                    |  5.11|    115|
     71|  3.16|45-9                           MMMMMMMMM|FFFFFFFFFFFFFF                      |  4.45|    100|
     46|  2.05|40-4                              MMMMMM|FFFFFFF                             |  2.45|     55|
     39|  1.73|35-9                               MMMMM|FFFFF                               |  1.78|     40|
     45|  2.00|30-4                              MMMMMM|FFFFF                               |  1.69|     38|
     58|  2.58|25-9                             MMMMMMM|FFFFFFFF                            |  2.98|     67|
     86|  3.82|20-4                         MMMMMMMMMMM|FFFFFFFFF                           |  3.11|     70|
    100|  4.45|15-9                       MMMMMMMMMMMMM|FFFFFFFFFFFFFFF                     |  4.71|    106|
     80|  3.56|10-4                          MMMMMMMMMM|FFFFFFFFFF                          |  3.56|     80|
     62|  2.76| 5-9                            MMMMMMMM|FFFFFFFF                            |  2.85|     64|
     56|  2.49| 0-4                             MMMMMMM|FFFFFF                              |  2.18|     49|
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  NEGRO  POPULATION
     TRACT 8052.01
  TOTAL POP     2372                  MALES (  1124)                 FEMALES (  1248)

NUMBER|  %  | AGE 9  8  7  6  5  4  3  2  1  |  1  2  3  4  5  6  7  8  9  |  %  | NUMBER
     1| 0.04|85+                             |                            | 0.08|     2|
     0| 0.0 |80-4                            |                            | 0.04|     1|
     2| 0.08|75-9                            |                            | 0.17|     4|
     3| 0.13|70-4                            |F                           | 0.46|    11|
     2| 0.08|65-9                            |F                           | 0.59|    14|
    12| 0.51|60-4                           M|F                           | 0.51|    12|
    12| 0.51|55-9                           M|F                           | 0.55|    13|
    26| 1.18|50-4                         MMM|FFF                         | 1.18|    28|
    41| 1.73|45-9                       MMMMM|FFFFF                       | 1.94|    46|
    70| 2.95|40-4                    MMMMMMMM|FFFFFFFFF                   | 3.29|    78|
    80| 3.37|35-9                   MMMMMMMMM|FFFFFFFFF                   | 3.29|    78|
   118| 4.97|30-4              MMMMMMMMMMMMMM|FFFFFFFFFFFFF               | 4.81|   114|
   132| 5.56|25-9            MMMMMMMMMMMMMMMM|FFFFFFFFFFFFFFFFFFFFFF      | 7.93|   188|
   112| 4.72|20-4              MMMMMMMMMMMMMM|FFFFFFFFFFFFFFFFFFFFF       | 7.80|   185|
    69| 2.91|15-9                    MMMMMMMM|FFFFFFFFF                   | 3.41|    81|
    84| 3.54|10-4                  MMMMMMMMMM|FFFFFFFFFFFF                | 4.30|   102|
   148| 6.24| 5-9           MMMMMMMMMMMMMMMMM|FFFFFFFFFFFFFFF             | 5.31|   126|
   210| 8.85| 0-4    MMMMMMMMMMMMMMMMMMMMMMMM|FFFFFFFFFFFFFFFFFFF         | 6.96|   165|
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Summary of Social Area Characteristics

The data reveal a bi-racial census tract in which the older (post childlaunching with some childlaunching households), white population is in the process of being replaced by a younger (early childrearing with some middle childrearing households) Negro population. The transition from an older white population to a younger Negro population will most likely continue.

Looking at each population separately, the resident white population has consistently high status on the three components of social rank (economic, social and educational status), is residentially stable, and for the most part lives in uncrowded single dwelling units. This population consists of family households, predominantly husband-wife, with some households headed by primary individuals. The area family life cycle stage for whites is post childlaunching with some childlaunching households. Given the family life cycle stage and the influx of younger Negro families, one can infer that the resident white population may be considering moving.

For the Negro population, there is evidence of some status inconsistency in social rank in that economic and educational status are high but social status is low. High economic status is probably in part a consequence of more than one family member being in the labor force. Like the white population, the Negro population consists of family households, predominantly husband-wife. Most likely, there are also some female-headed families. The area family life cycle stage for Negroes is early childrearing with middle childrearing households. The Negro population are relatively recent migrants to the area and tend to live in uncrowded rented apartments. The high proportion of mothers with young children who are in the labor force implies a specific need for adequate day care facilities for this population.

Conclusion

In this paper we have presented the Mental Health Demographic Profile System (MHDPS), suggested the basic items that can be used to identify the major social area axes, and illustrated the use of said items to determine the social area characteristics of a given tract. Similar procedures can, of course, be applied to other residential areas. The MHDPS allows one to obtain the relevant census data rapidly, at low cost, and in what we believe is a useful format for effective planning.

DR. SAGEN: Thank you very much, Dr. Goldsmith. The strong interest in your report is evidenced by the fact that all copies available here today have been snapped up, leaving many of the audience eager to obtain a copy. The hour of adjournment is 12:00 noon, but there may be some who would like to ask questions. The panel has consented to stay a little longer to answer such questions as you may wish to raise.

PANEL DISCUSSION: REGISTRANT QUESTIONS

Chairman and Speakers

DR. SAGEN: I would like to point out that this session has not told you how to use census data, but it has at least let us know that there are many possible uses. It is necessary to judge for one's self as to the uses most appropriate for our particular problems.

One other observation I have to make is in connection with labor force dislocation; judging from the amount of material available from the 1970 census, I think the professional statistical analyst is going to be offered unlimited employment opportunities!

Now, the floor is open for comments and questions, first from the panel. Does the panel want to comment on each other? Bob?

MR. VOIGHT: I just want to make one statement. I agree with the comments of the other two panelists concerning the information on the population in the daytime where it works. In terms of certain tabulations from the 1970 census, we are doing a substantially large one for the Department of Transportation wherein we are providing data on the place of work. They are asking for place of work by place of residence based on the 1970 data. The workers were quoted as to the city block in which their location of work occurred.

This can mean, to people who are interested in that, that you can ask us for any particular location of blocks in any given area and we can give you the so-called daytime population of workers for that area.

DR. SAGEN: Thank you, Bob. Now, questions from the audience? Jim Williams?

MR. WILLIAMS: Community Health Services, HSMHA: I just have a fast question. It has to do with the coordinates and the grid squares which seems to be implied in the two speakers' presentations. Has there been a system agreed upon, selected, and if so what is it?

MR. VOIGHT: The DIME system which you heard a couple of us mention, has in it coordinates at the block intersects in the urbanized area of all of the major metropolitan areas. This is converted to the particular areas if the people so desire.

It does not give you complete grid squares, but you could establish by grid squares, and then by means of coordinating system you could establish population industries, numbers of various characteristics of population by trades.

DR. TAEUBER: I will add, we are doing some exploratory presentation, not on our project, but another project at the labs looking at square kilometers. That is, at this time, solely an approximation. In terms of validation to those squares, working with a square system does not have an advantage.

DR. GOLDSMITH: If I may make one comment. I understand the Office of Emergency Preparedness is also locating various types of service systems. It may be able to marry the two systems, service systems and service functions, in terms of analytical purposes.

DR. SAGEN: Are there further questions from the audience?

DR. ORTMEYER. Carl Ortmeyer, National Institute for Occupational Safety & Health, HSMHA: I would like to ask, is there any work being done on mental health needs in rural areas, such as West Virginia and Kentucky?

DR. GOLDSMITH: When you ask the question, is anything being done, of course, the answer is "Yes."

I discussed about four days ago using our materials for looking at rural parts of West Virginia. It is applicable. It is derivation and the basic use is urban, but it has certainly other uses.

DR. SAGEN: Further questions? Please raise your hand if you have a question.

Well, thank you very much.

Due to the lateness of the hour, the session is adjourned.

(Whereupon, at 12:10 p.m., the meeting was adjourned.)

REFERENCES

1. Small Area Data Notes, Data Access Descriptions, Census Use Bulletins, available from the Data User Services Office, Bureau of the Census, Washington, D.C. 20233

Concurrent Session "G"

Acceptability of Birth Records by Federal Agencies

A problem faced by many vital registration offices is that of knowing what to do when birth records are found to be unacceptable by Federal agencies.

This session presented the needs and requirements of some of the agencies and their reasons for rejecting certain birth records. It dealt with ways of improving communications between State and Federal offices—coping with the reasons for deficient records and the solutions to some of these problem cases.

Contents

CONCURRENT SESSION "G"

ACCEPTABILITY OF BIRTH RECORDS BY FEDERAL AGENCIES

PRESIDING

Mr. Loren E. Chancellor, *Chief, Registration Methods Branch, Division of Vital Statistics, National Center for Health Statistics, Health Services and Mental Health Administration*

Mr. Dean L. Huxtable, *State Registrar and Director, Bureau of Vital Records and Health Statistics, Virginia State Department of Health*

MR. HUXTABLE: Mr. Chancellor, our cochairman, will give you the background of this meeting before we get started, but right now I would like to introduce the participants from the Federal agencies.

Mr. Edward Duggan is Chief of the Legal Division of the Passport Office, U.S. Department of State. Ed, hold up your hand.

MR. DUGGAN: Just change first name to Bill and we will be all set.

MR. HUXTABLE: Okay, call him Bill and when you ask the questions, the word is "Bill," remember.

Next Mr. Edwin Coile, Intelligence Officer, Intelligence Branch, Security and Intelligence Branch, Immigration and Naturalization Service, U.S. Department of Justice.

And Mr. Joe Earley, Social Security Administration. He is the Director of the Division of Entitlement from Social Security, Department of Health, Education, and Welfare.

Okay, Chanc.

MR. CHANCELLOR: One of the reasons we would schedule a session like this is to try to iron out the problems that some of the States face in issuing certified copies and maybe having them rejected by Federal agencies. We felt if we would get together and talk with each other, at each other and with each other, maybe we could iron out some of the problems that seem to exist around the country.

So rather than take any more time on preliminaries, this is just a brief background. I know all of you are familiar with certified copies, and the frustration of having them rejected by a Federal agency. So to kick the ball off we are going to have the representative from the Passport Office.

We are sorry Miss Knight could not attend. She sent a letter at the last moment saying it was necessary for her to be out of the city during the time of the meeting and she regretted she was unable to be here. I know Mr. Duggan and am sure many or you over the years have met him. He has been with us before. Mr. Duggan is Chief of the Legal Division of the Passport Office. I am sure you are all familiar with Mr. Duggan.

PANEL PRESENTATION

Mr. William E. Duggan, *Chief, Security Office, Legal Division, Passport Office, Department of State*

I convey Miss Knight's regrets that she cannot be present at this session of your 14th National Meeting. She had hoped to be here but things did not work out as planned.

It is, however, a pleasure for me to discuss our mutual problems regarding evidence of birth in the United States.

In looking back to the difficulties we were experiencing in the 40's and 50's, I believe you will agree that we have come a long way together in solving many of our mutual problems, especially in the area of fraudulent records.

At the outset let me preface my remarks with a statement which Miss Knight made to your organization in a previous meeting with you regarding birth certificates. She stated:

> "A birth certificate is one of the most important documents a person will ever possess. By virtue of the Fourteenth Amendment to the Constitution it is a certificate of membership in the world's greatest political society. Membership in this society has been rightly called 'man's most precious heritage'."

Based upon a bonafide birth certificate and appropriate evidence of identity, a United States passport may be issued which certifies, as an official document of this nation, that the person is a United States citizen and also verifies his identity. The Passport document officially notifies all foreign counties that the bearer is entitled to the protection of the U.S. Government while travelling abroad.

Despite the progress we have made, there is a cloud on the horizon casting a shadow across identification documents. It is not large, it is true, but it is nevertheless menacing. As you must be well aware, there are elements astir in our country which are using your documents and ours to undermine the integrity and security of our official documents.

Almost daily we receive information which indicates that certain individual groups or organizations are in possession of blank certificates of birth, generally counterfeit, as well as blank documents of identity including drivers licenses. They are also in possession of valid birth certificates of children who died in infancy. It is a fact that these vicious elements are endeavoring to obtain identity documents, including United States passports, to aid them in their illegal activities. Unfortunately, in some cases they are being successful. These sources include radical groups, drug traffickers, confidence men, better known as Flim Flam Artists, and a variety of fugitives from justice.

Add to this picture advertisements in newspapers across the country offering to furnish for a fee blank forms of all kinds including birth, marriage, and divorce certificates as well as driver's licenses.

Against this disturbing background the Passport Office has taken steps to orient all our personnel on the detection of fraud. As a result of this program, I have visited most of the passport agencies throughout the country. While these fraud seminars generally concentrate on "impersonation" problems, the discussion necessarily overflows into the area of birth documentation.

During these visits to our agencies I made a survey of problems involving birth documentation. This revealed that the problems with birth certification fall in the following three basic categories;

(1) Applicants using the so-called "notification of birth registration" as a birth certificate,

(2) Birth documents without the seal of the registrar and

(3) Our perennial delayed birth certificate problems.

None of these documents comply with the Department's regulation concerning acceptable birth certificates which reads as follows:

> "Birth certificate. A person born in the United States in a place where official records were kept at the time of his birth may submit a birth certificate under the seal of the official custodian of birth records. To be acceptable, a certificate must show that the birth was recorded at the time of birth or within a reasonable time thereafter."

Let me discuss for a momemt why the Passport Office refuses to accept "notification of birth registrations"? I think the answer is obvious. The piece of paper simply is not a birth certificate; it does not contain the seal and in many cases the information inserted is limited. It may contain strike-overs and it does not indicate when a birth record was filed. It is generally typed or perhaps handwritten on plain paper which contains no fraud safeguard whatsoever. As a practical matter, it is generally sent to a parent to afford him or her an opportunity to make necessary corrections, or to inform the parents where a certified copy of the birth record may be obtained.

The second category, the absence of a seal, makes the document automatically unacceptable. You will recall I mentioned that blank certificates were found in the possession of certain elements of our society at the time they were arrested. With modern photographic equipment, as well as printing equipment, which is available to anyone who can purchase it, almost any single-page document can be reproduced. At the present time we find that the embossed seal is a very good fraud preventative for the simple reason it is more difficult to reproduce such a seal. However, the presence of a seal does not make the document acceptable per se. For example, we recently ascertained that an embossed seal on a fradulent birth certificate contained the words "quality forms officially made in the United States." In another case, an applicant submitted an ostensibly standard birth certificate form with a seal which contained the words "Pink Pussycat" followed by the name of a city and State. We still have not found the significance of the words "Pink Pussycat."

During the past year registrars have reported the theft of blank certificate forms. In instances where forms were controlled by a numbering accountability system, it was possible to ascertain not only how many forms were stolen but also to identify such certificates.

However, in other cases where the forms were not controlled by any system, it was impossible to ascertain how many forms were stolen or to identify the missing certificates. Obviously it is more effective to alert our offices to look for specific certificates than to admonish them to examine carefully all certificates issued by a certain registrar.

In one case where we had problems regarding fraudulent birth certificates, the registrar cooperated fully and instituted a control system over the forms as well as the seal. The registrar changed the combination on the safe and each night all forms and seals were placed in the safe. We learned to our dismay that all these safeguards were nullified by one event. One night the office was burglarized and the entire safe with contents was removed from the premises.

The delayed birth certificate is becoming less of a problem with the passage of years. Most of the problem cases involve certificates which do not show what evidence was submitted to cause the records to be filed. The general subject of fraud and other problems in delayed birth certificate cases was dealt with in detail during previous meetings with you and, therefore, I will cite merely a case or two to indicate the current situation.

Two weeks ago a passport applicant submitted a delayed birth certificate indicating birth in the United States in the late 1940's. The age of the applicant and other circumstances of her case caused the passport agent to interrogate the applicant closely regarding her birth. It was ascertained that the applicant was not born in the United States as claimed but was born abroad of a GI father. During the interview the applicant did state that "she had an awful time" convincing the registrar to file the birth record.

At the present time, the Passport Office is defendant in a civil action because we refused to accept a birth certificate which was allegedly filed by a "mid-wife." A check into the circumstances under which the birth certificate was filed resulted in a statement by the "mid-wife" that she did not, in fact, file the birth record. Notwithstanding this admission the father is still affirming the birth of the child in the United States and is relying solely on the birth record as evidence of birth in the United States. To date, we have been unsuccessful in obtaining the dismissal of the civil action.

At this juncture, I believe any further discussion of our problems can best be explored in the question phase of this program.

In closing let me say that we appreciate your continuing cooperation and welcome the opportunity to work with you to solve our mutual problems to the end that we will further improve our service to the American public.

MR. CHANCELLOR: Thank you, Mr. Duggan.

I think we will hold the questions until each of the speakers have had their say and then we will have all the questions following. Our next speaker will be Mr. Edwin E. Coile, who is Intelligence Officer with the Intelligence Branch of the Security and Intelligence Branch of the Immigration and Naturalization Service. Mr. Coile.

PANEL PRESENTATION

Mr. Edwin E. Coile, *Intelligence Officer, Intelligence Branch, Security and Intelligence Branch, Immigration and Naturalization Service, Department of Justice*

I would like to point out some of the problems that we have which are aggravated by the birth certificate problem.

It is the volume that we are dealing with in illegal aliens in this country, and also the amount of travel in and out of the country, where we have to rely on a birth certificate as proof of citizenship.

I have a document here that was prepared by the recent Presidential Commission that was looking into the population problem. I will quote portions from it. Speaking about immigration in relation to future population of the country, it says: "A major and growing problem associated with immigration is that of illegal immigrants. It is impossible to estimate precisely how many escape detection; but, during 1971, over 420,000 deportable aliens were located. This figure is larger than the number of immigrants who entered legally during the same period. Estimates place the number of illegal aliens currently in the United States between one and two million. Most are men seeking employment. Because the number of illegal aliens apprehended has risen dramatically (from less than 71,000 in 1960 to over 400,000 in 1971), the number of aliens in illegal status has probably been increasing significantly.

"The economic problems exacerbated by illegal aliens are manifold and affect the labor market and social services. It is often profitable for employers to hire illegal aliens for low wages and under poor working conditions; these workers will not risk discovery of their unlawful status by complaining or organizing. Thus, illegal aliens (who usually take unskilled or low-skilled positions) not only deprive citizens and permanent resident aliens of jobs, but also depress the wage scale and working conditions in areas where they are heavily concentrated. Because of the illegal and precarious nature of their status, these aliens are ready prey for unscrupulous lawyers, landlords, and employers."

One other little section: "The Commission recommends that immigration levels not be increased and that immigration policy be reviewed periodically to reflect demographic conditions and considerations."

They also mention "it is imperative for this country to address itself, first, to the problems of its own disadvantaged and poor. The flow of immigrants should be closely regulated until this country can provide adequate social and economic opportunities for all its present members, particularly those traditionally discriminated against because of race, ethnicity, or sex.

"In order for Congress and immigration officials to consider these economic problems, apply appropriate regulations, and expect the economic conflicts to be alleviated, they must also eliminate the flow of illegal immigrants."

They also mention here that the Immigration Services and all Federal, as well as State agencies, should cooperate in an effort to reduce the number of illegal aliens in the country.

I mentioned that we apprehended over 420,000 aliens last year. So far this fiscal year, through April, we have nearly 400,000; 399,319. We are apprehending in the southwest region alone over 10,000 a week. At the present rate we will apprehend somewhere in the neighborhood of 500,000 aliens in this fiscal year.

We don't know how many are here. It is impossible to say how many are here. These are some fairly high level people who made the guess that there are between one and two million.

In this connection, we have had this problem of false claims to citizenship. The group that is the biggest problem are the ones who are making money. When we start to close in on them, to pick them up to put them out of the country, their first thought is to try to run. If that doesn't work, they will try to buy some sort of document. A birth certificate is the preferred document. We do have a problem with people selling them down in Mexico, also, so they can try to come across the border.

I have some statistics for the last calendar year, again, just in our southwest region where most of our problem has been. Fraudulently obtained U.S. passports, counterfeit birth and baptismal certificates, voter's registrations, counterfeit and altered citizen's identification cards, draft cards, driver's licenses, and so forth, were used to substantiate these false claims to citizenship. During 1971, we had Mexican documented false claims to citizenship, 4,307. There are approximately 200 false claims by other nationalities. The biggest group are Chinese, Guatemalans, El Salvadorans and Nicaraguans. Nearly every nationality is represented at some time or other as making a false claim to citizenship.

We rely on what the alien tells us about how he obtained the document. The majority of them tell us they "found the documents," which we know was a lie. Otherwise, if that were true, the streets of Matomoros would be a solid mass of lost purses. (Laughter) At any rate, we did get of this 3,700, over 1,000 who admitted they bought the birth certificates. Of this group, also, there is an increasing number of counterfeit birth certificates.

The biggest problem that we have with the misused genuine document or counterfeit document is still with Mr. Don Carroll's State of Texas. This goes back many years to the problem we had with the delayed birth certificate. Also there are well established rings in Texas and the neighboring area of Mexico that make it a very definite business. It is a good business. Also there are midwives down there that fraudulently register births.

We have had from all over the country increased reports of the counterfeit Texas birth certificates. I think we have more counterfeit Texas birth certificates than anything else.

We just received information that in California for between $500 and $1,000, you can buy a package which includes a counterfeit birth certificate (primarily Texas but there were other States also), a voter's registration, a citizen's I.D. card, driver's license, draft registration, draft classification, and—did I mention Social Security card also? All of these things for from $500 to $1,000. As Bill said, it is relatively easy to counterfeit any of these documents. Anyone with just a poor, cheap printing outfit can produce these documents. If you have a ready market of two million illegal aliens who are willing to pay $1,000 for these things, you know there are enough enterprising good, ole U.S. citizens to go out here and make a buck, that is all.

The next State in fraudulent use of birth certificates was California. We have about 40 States represented.

We have had an increase of false claims to citizenship in the other regions also, predominantly Mexican. About 90 percent of our claims are by Mexican aliens. We have had an increasing number of aliens claiming to be born in Puerto Rico. Several years ago we had quite a serious problem and we developed a little pamphlet which would help you spot somebody who claimed he was born in Puerto Rico but wasn't. We had things in there about the geography, the history, and the language which was slightly different. We were able to break some fairly good sized rings that were using counterfeit Puerto Rican birth certificates.

The problem now is primarily Cubans and Dominicans who are closely enough associated with Puerto Rico that they know all the answers in this little pamphlet we put out.

We caught two recently coming across the Canadian border—Cubans who had gone to Canada from Spain. A U.S. citizen from New York took two Puerto Rican birth certificates up to them in Toronto and they tried to enter with these birth certificates. They are legitimate birth certificates, just assuming the identity facts on the certificate.

A couple of weeks ago at O'Hare Airport, Chicago, we caught two Mexicans coming in with counterfeit Texas birth certificates. The way they were able to establish that these were counterfeit, or that they didn't belong to the people who presented them, were the small areas in there that call for the complete names of the parents and then the number of children previously born to this mother.

This is one of the best things that we have to rely on when it comes to trying to find if a certificate is legitimate or not. Most of you now are putting out a short form and this information is not on it. We are left completely in the dark with the short form, which just has that this guy was born here. You have to have more than a sixth sense in order to break this type of an individual. Where we have the old long form, where we have the complete history of the family practically as well as other family members, this is the big thing for breaking this particular type of a false claim to citizenship.

We are confronted increasingly with the short form which does not have this information on it. I don't anticipate that you are going to revise the form, but we sure would like to see it.

You too?

MR. DUGGAN: I think it would be advisable.

MR. COILE: Bill mentioned the delayed birth certificates. Initially this was a very serious problem, but it was mostly men trying to prove they were born here so they could come in as citizens and work. There has been a complete new revision in the delayed certificate problem as far as the Immigration and Naturalization Service is concerned in the last two or three years, the first time we noticed it. Prior to the 1965 Immigration Act, Mexicans were nonquota. They had nothing to do but come on up, get a visa, and come on in. With the 1965 Act, when that was revised, all Western Hemisphere aliens, not just Mexicans—Canadians or whoever—have to present a labor certificate saying they are not displacing a U.S. citizen or a legal resident alien from employment. This is, supposedly, to cut down on our unemployment problems.

There are certain exceptions to this, however. One is if they are close relatives of a United States citizen.

Initially it started right after the 1965 Act with the midwives in Texas saying this kid is born here. Once they say this child is born in the United States, is a United States citizen, then that child's parents, both mother and father, and then all the brothers and sisters, can get visas to come into the United States to live permanently. They actually come in as resident aliens. They are not claiming citizenship themselves; they are claiming a benefit through this citizen child.

This has expanded to all across the country. Recently we had in Chicago, I believe it was, a Mexican who had gotten a visitor's visa to come up here. He went to some registrar in the Chicago area and said, "I was here during the early 1940's. I was in the United States illegally, working here. I had my wife with me, and during the time we were here we had a child born. I certify that this child was born in Chicago." Here he gave proof—certificates and slips—showing where he was employed at that time. The registrar accepted this as sufficient evidence that the child was born here. That man, his wife and four of the other children immigrated to the United States on this false claim that the child was born here.

I don't know what your local requirements are on a delayed birth certificate, but generally when a parent says the child is born here, this is pretty conclusive evidence. When a child comes in himself and tries to file, he has to get many other documents, but if he can get a parent to say "yes, this kid was born here," this is normally one of your better sources of evidence. But in these instances it is the parent himself who is going to benefit by being allowed to come into the United States legally, so the parents want to establish this fraudulent delayed birth record for the child.

We also, as we mentioned before, have the problem of the midwives. In Texas we have been very successful in cooperating with Mr. Carroll in getting some fairly good convictions. There have been about a dozen in the last year that have been convicted, haven't there, Don? Some of them have voluntarily withdrawn from the midwife profession. Some of them haven't even been in it for the last several years, but have been filing the records.

I have one other little statement I would like to read here if I can find it amongst my souvenirs, then I will be through.

This is a letter from Mr. A. William Olson. At the time this letter was written, May 16, he was Acting Chairman of the Interdepartmental Committee on Internal Security. Last weekend he was appointed Assistant Attorney General for

Internal Security. The letter was to the Secretary of Health, Education, and Welfare commenting on this problem of birth statistics, validity of records, and so forth. "This Committee's interest in vital records stems from the fact espionage agents in the past have fraudulently obtained copies of such records, in order to enter the United States illegally, or to change their identity after entry. The ICIS has kept abreast of developments in the field of vital statistics, and has commented from time to time on matters of interest arising in this area.

"In a recent review of this matter, the ICIS was advised that there has been an increasing misuse of birth records within the past two years. Changing tactics in the fraudulent acquisition of such documents, increased efforts to obtain them, and insufficient monitoring of the degree to which the States are adhering to the minimum guidelines set forth in the act may account for the increase.

"In the light of the foregoing, the ICIS strongly recommends that you give consideration to the upgrading of priorities in this area, in order to impede the increasing misuse of birth records."

With that I will close, and have the questions later. Thank you.

MR. CHANCELLOR: Thank you.

Our next speaker will be Mr. Joseph B. Earley, of the Social Security Administration.

PANEL PRESENTATION

Mr. Joseph P. Early, *Director, Division of Entitlement, Social Security Administration, Department of Health, Education, and Welfare*

I guess it would be pretty safe to say that the Social Security Administration is one of the largest users of birth records in the country, because obviously the date of birth comes into play in virtually all of our claims. We are now processing approximately 350,000 new monthly benefit claims per month.

We have reached a grand total of approximately 27 million people on the rolls and the amount payable averages about $100 apiece. Needless to say, the amount involved is quite substantial.

The date of birth is a key factor in determining not only the person's eligibility, but it also determines the amount of his benefit in many situations. It determines, further, whether he is permitted to work; say if he reaches age 72, he can continue working and still receive all of his benefits. Not only are we interested in showing that a person is at least 65; we have reached a point where we must be very precise in determining the individual's date of birth.

Fortunately, at this particular point the calendar has helped us tremendously in that about 60 percent of all Social Security claims which are being handled today involve situations where there is a birth or baptismal record available, and one which was established before the person reached age five. Fundamentally that is our basic rule today. We look to age five and we try to seek evidence around about that date.

With the advent of the 20th century births in our claims, and we are well into that now, the individual who was born in 1910 is eligible to receive Social Security benefits today at age 62. We are modernizing to that extent and obviously you people have seen the added increase in the number of birth records which have been made available for the purposes of Social Security claims.

Of course, it wasn't always that way. Maybe it would be helpful to all of us if I try to give a brief history of our proof of age policy so as to give us a better insight as to how we reached our present position. Also maybe we can determine what the future would hold for us.

From 1940 until about 1965, 1940 being the year we began paying monthly benefits, we operated under a proof of age policy that included a rule which allowed us to accept a claimant's allegation on his application for benefits if it agreed with what he told us when he applied for his Social Security number. That generally would have been five or more years earlier. Nevertheless, if there was agreement between these two dates—no real discrepancy—that was the proof of age that we used in many, many cases.

We continued with that until about 1961. Then a study conducted by research people showed there was a tremendous heaping of showing 1900 as a person's year of birth even though they may have been born in 1901, 1899, or years approximating 1900; 1900 seemed to be a convenient year to pick so they used it. We conclusively proved in many, many cases the use of 1900 as year of birth was incorrect.

About the same time, or maybe shortly thereafter, we ran a study which showed that this proof of age rule I mentioned a moment ago, that is the one based on corroboration, was incorrect in 10.2 percent of the cases. Not only was it incorrect, but it was incorrect to the extent that it worked each way. The rule we used made people older; it made people younger.

With the advent of these two items and several other studies conducted by other people, including the General Accounting Office, it was decided that the time had come when we had to more or less get away from that corroboration rule and move to a rule which was a little more reasonable and which had a little more probative value attached to each determination that was made.

So a new proof of age policy formulated in 1965 introduced what we call a best evidence rule. Basically it required that proof of age determination be made on the basis of a birth, baptismal, or other public record established before an individual's fifth birthday before proceeding to evidence of later origin. The criterion for acceptability of this evidence basically is whether it is convincing. Under this policy, the word "convincing" came into our vocabulary.

Let me go back one step. We know that in 60 percent of the cases we have very good evidence of age, birth, or baptismal record before age five, so that leaves us with 40 percent of the cases where we have to seek evidence of some other character.

We have found, further, that in 30 percent of the remaining 40, the evidence we secured was very clear. No variances occurred. True consistency applied throughout. Consequently we were able to make determinations without too much difficulty in those 30 percent. We wound up with a residual of about 10 percent of the cases which truly have given us problems over the past five or six years, and which continue to give us such problems.

We try to find ways and means of minimizing this problem. One of the devices we used, and we had a lot of assistance from the Office of Research and Statistics people in our organization, was the institution of what we call an evaluation and measurement system. These people studied innumerable cases to see what types of evidence could be considered convincing, say without various discrepancies. They further sought to give us some rules as to what combinations of types of proofs could be used without fear of being erroneous in too many cases. They came up with another rule that permitted us to use a delayed birth certificate if the delayed birth certificate was taken out before the person was 55 years of age.

Prior to that, as you may recall, the delayed birth certificate was virtually unacceptable to us unless the evidence upon which it was based met our criteria as being acceptable as of that time. But now if the delayed birth certificate was issued prior to the person's fifty-fifth birthday, we will accept it on its face.

I would say over the years we have made considerable progress in our consideration of age and consequently we feel very confident we are making good determinations. In our studies into the field of age of various types, and even in the situation where a person presents an original birth certificate or an original baptismal certificate, we have gone back and verified the fact that this particular certificate may have or should have belonged to this individual.

These studies have been on a sort of random basis, but nevertheless they have given us some support as to rules and also have given us a little bit of security that we may not have the problems described by the previous gentleman in the acceptance of public records.

We are in a much better position than we would be because we have documentation as to the individual's work history. We have documentation as to what he told us when he came in for his account number as well as the information he includes on his application for benefits. We feel quite confident that we are doing a pretty good job in this area.

Another thing that these recent studies have given us is to permit us to use some tolerances as to whether a given piece of evidence is acceptable. One of the more common items we use for proof of an individual's date of birth is the 1910 census. We found that is a very good item to use for proof; there are many, many variances in it. We found further that if we are allowed to use a tolerance of one year either way, the percentage of acceptability increased 15 to 20 percent. The use of that tolerance has been another aid in our coming up with proofs.

With respect to the studies I mentioned a moment ago, these are on a continuing basis. They not only encompass the proof of age field, but they go into the proof of relationship of individuals to one another also.

Consequently, we are moving forward. Our problems in the age area have decreased tremendously since the last time we discussed this matter with any of you people.

At the present time, there are no real problems with respect to domestic births. The problems we have had with foreign births remain with us, of course. We don't know whether the best evidence is being secured in all of these cases, but we try real hard to get the best thing that we believe is available.

With that I will close and leave it open for questions.

PANEL DISCUSSION: REGISTRANT QUESTIONS

Chairmen and Speakers

MR. CHANCELLOR: Thank you, Mr. Earley. The question period is open. Mr. Huxtable, I think, wanted to start, since he is a panel cochairman.

MR. HUXTABLE: Thanks a lot.

MR. CHANCELLOR: First, a reminder, anyone asking a question, please give his name so that the stenotypist can record it. Mr. Huxtable.

MR. HUXTABLE: You can understand the self-control I am exercising up here and I am not going to mention the State of Texas and its problems because I think that we have a spokesman here for them that will answer a little later on.

Obviously we have all been aware of some of the problems that were laid out by the Federal agencies, but this is nothing compared to the problems that are coming up.

For example, with about 10 percent of our births being illegitimate, we are now registering on documents, and it can be done under the law, records from hippie communes, for example, where you get in a simple record and it says "Sunflower." No last name—period. And "Lucky 7,"no last name. And so these are the things, the way people are going and what they want their children to be known as, at least in the immediate future.

The other day we had a presumptial agreement which it had already been filed with the court showing the fact that the woman was going to always be known by her maiden name and she was not to assume under any circumstances, legal documentation or anything else, the surname of her husband.

Now, here again, this is where you can see what the future is going to hold. The children probably will be named after the father, but, on the other hand, maybe all the girls will be named with the mother's surname and the boys named with the father's surname. We are fragmenting and going off in all directions as far as names are concerned.

I might throw in a parenthetical remark that you can see the importance of the birth number in something like that.

One of the ways, of course, to overcome some of the things Joe mentioned would be simply for the States to cease and desist this notification nonsense. There are other and better methodologies now, I think. Not only would it help the Federal agencies and help cut the fraud possibility, but also it would be a heck of a lot cheaper for your offices to operate on different methodologies rather than this notification.

I was happy to hear that many were going to get some kind of feedback. I would like to ask the other two members of the panel in addition to Joe as to whether, through Mr. Chancellor's office, a notification procedure could be established whereby when any State's record was determined to be fraudulent, that State should be notified immediately through the National Center for Health Statistics. After all, we all do have laws in the Model Act as far as prosecution is concerned and know how to handle fraud.

I am asking the members here, now, if perhaps there could be some kind of a feedback mechanism established routinely from all the Federal agencies through Mr. Chancellor's offices to notify the States what is going on with their records.

Also I would pose a question for Social Security. I still don't understand why they do not establish the date of birth at the time of application rather than waiting 62 and 65 years later. By that time names have changed and the records are now deteriorating, I might say, in some of the offices, and we are having transfers or problems of conversion to electronic automation procedures and microfilming, and so on.

It always seemed to me if the date of birth with a very recent birth certificate could be established at the time of application for Social Security, it would then be locked in that this is the date of birth of this individual. Rather than waiting until after all the pay-ins have taken place down through the years and at the time the pay-out is to come to the recipient he now has to prove how old he is, this could have been a matter of record I think from the initial beginning.

I am also going to try something on the panel on which none of you people are going to agree with me. In terms of innovation—blue sky if you will—as a partial solution, perhaps the total solution to everything these gentlemen have been saying, I think the time is rapidly approaching when a serious question must be answered. I think the United States and its citizens are deserving of a single unified vital statistics registration system, which would equally protect the personal and property rights of all our people.

The sad truth is—and these gentlemen well know—that we are still encumbered with 53 separate registration areas in the United States, and this doesn't even include the territories or the thousands of Americans whose vital records are subject to the whim of various Federal agencies because of overseas occurrences. All of these areas and agencies have differing laws and regulations in spite of the Model Act, in spite of the standard certificate. They have different forms and regulations to be registered; they have different procedures and registration methods; they have different time limitation for filing, officials in charge and fees for services, different degrees of completeness of registration, and finally, different publications, and even the quality of research material that comes out of this system.

So I can see your confusion, gentlemen, because these differences are there and they exist and they are real.

In fact, because of such a wide diversity there are no two States, independent cities, or Federal agencies that are the same. Some of our States have registration systems that more clearly resemble systems in effect in central Europe than they do their sister State next door. This is not to downgrade any European nation or even some countries in Africa or Asia, because their systems may be superior to our own, and some I have observed and think they are.

We are, in fact, an underdeveloped nation in vital registration procedures.

A specific proposal could be, why not now consider the establishment of a joint Federal-State study committee to review and if necessary make recommendations to the Congress concerning the feasibility of a nationwide Federal vital records system?

As much as anyone, I fully appreciate the problems that are inherent in such a study. I know that a program such as this could be recommended by people such as ourselves, and maybe come to fruition because the States viewpoints would then be included. I think we should do it before somebody is going to dictate it some place at the Congressional level and force it on us.

The Federal Government isn't always wrong, and I don't for a minute doubt the sincerity or intelligence of the Federal agencies that are involved, in one way or another, in vital registration, but they would never make such a proposal as this on their own by themselves. Therefore, the proposal has to come from somewhere and what better organization than ours here? We are the most concerned so isn't it mandatory that we should have some factual information at our fingertips concerning the pros and cons of federalization?

I could be very naive but I believe that other than the usual cry of "States rights,"—or maybe a better term is jealous perogatives—there is not a real solid argument against a Federal registration system in this country. There are, however, many advantages to be gained by federalization, some of which I have already mentioned, so why should the mere accident of place of birth determine the quality of the registration service that our citizens can expect?

State offices of vital statistics can be compared to human growth. As we mature, we grow to be independent, some of us more than others. This growth, this maturity, and particularly our independence is pulling us farther apart each year that passes. To use an example, Slippery Rock State Teachers, which is a small college in Pennsylvania, I guess it is, could go to Chicago to play a football game against Lewis and Clark

College in Oregon. The schools are a continent apart, yet they would play the game the same way. This is because there are nationwide rules to be followed.

Why not a nationwide set of rules resulting in standard registration practices?

The game of life, it seems to me, is of equal importance to the game of football, but I realize passions can run pretty high in sports, so we should use more practical standards.

Death and taxes are used in an old saying as things you can always be sure of. Well, you can be sure your income tax assessments will be standard throughout the country, but not death registration. It is also said that entrance into the Armed Services is akin to being reborn for all of you who have been there. You can be sure the laws concerning military service will be standard, but not birth certificates.

Even dog breeders across the country are sure of standard pedigrees, but not human beings. There is nothing standard in our marriage procedures or in the registration. Doesn't it kind of give you a start to realize a race horse is better documented than you? You'd better believe these records are in better shape than your own.

The study I am suggesting regarding federalization of the vital record system could review the many precedents that have already been established. For example, Federal operations now conducted through district or State Offices are Social Security, Internal Revenue, Selective Service, Armed Forces recruiting, and many others. Why not vital records which in our estimation might be the most vital of all?

A federalized system could set standards for the birth record being a basic citizenship document. A delayed record would be acceptable to all agencies. Record linkages could become truly feasible.

Finally, there is this thought to consider. The Federal Government has superior access to the important tax sources of this nation and the States turn increasingly to Federal aid for these programs.

Positive results would be gained in behalf of the citizens. Appropriate requests could be made for Congressional action.

I simply throw that out to see what the response of the panel would be because I know what you guys think. (Laughter)

MR. CHANCELLOR: That wasn't a question, that was a real speech. (Laughter)

MR. HUXTABLE: It was meant to be. (Laughter)

MR. CHANCELLOR: The floor is now open for questions. I am sure there must be some.

MR. HAWKINS: I am Paul Hawkins, Supervisor, Vital Records, State Board of Health, Mississippi. The Passport Office is not accepting certified copies of our adoption certificates because we remove the original record placed with the adoption decree and place the date that we prepare the revised certificate, the adoption certificate, as the date filed, which could be from three months to 64 years after the date of birth.

MR. DUGGAN: I think you have pretty much answered your own question. Basically many of the States, I know, when they have an adoption decree will use the original filing date. Therein lies the problem. If you issue a birth certificate and it shows that it was filed, as you say, and I am using your words, 64 years after birth, where does that leave us?

There are ways that we have cooperated with some registrars. If we know this is an adoption case, there are certain indicators which some of our agencies know about and we work it out. Of course, we do not have a passport agency in Mississippi, but isn't it possible to put the original filing date on the adoption decree?

MR. HAWKINS: No, format of the certificate is different altogether from the original.

MR. DUGGAN: It is only one birth though.

MR. HAWKINS: That's right.

MR. DUGGAN: And the birth was filed shortly after birth, probably, so you only have one birth.

MR. HAWKINS: That's right.

MR. DUGGAN: I don't see any legal reason, unless you have a State regulation or a State law that would prohibit this.

MR. HAWKINS: We have a State law that says the date that the certificate is prepared is the date we enter, to be filed.

MR. DUGGAN: I am sorry. Cannot it be interpreted that the date this was filed pertains to this human being and, therefore, the date this human being's birth was recorded is the original date?

MR. HAWKINS: Could be.

MR. DUGGAN: Okay. That would solve the problem.

MR. HAWKINS: If the law was changed.

MR. CHANCELLOR: I wonder if we could keep the questions on the general nature, if we can.

MR. DUGGAN: Don Carroll, I think, has some. Don, you said you were going to throw a curve at me.

MR. CARROLL: Don Carroll, State Registrar, Texas. No, I am not going to throw a curve at you, Bill. I would like to clarify one or two remarks that were made. (Laughter)

We do have a long border and we have a number of cities on both sides of the border. I think when you referred to the number of fraudulent claims to citizenship, it should have been more specifically noted, at least, that a great many of those, possibly more than 2,000 a year, involve fraudulent claims to citizenship by persons who are using valid birth records, but which relate to other people.

I think that is correct, there are about 2,000 a year. We used to receive notices of where an invalid birth record was fraudulently used.

MR. COILE: I don't think that number is quite that high now. I think it is lower. I think the problem now is increase in the counterfeit. When they are counterfeit, they don't even tell you—because it is never registered with you.

MR. CARROLL: That is true. Some of you know there are places—at least outside of the United States, I will put it that way—that are manufacturing certified copies, that are purported to come out of my office, where they falsify the entire record. They are being manufactured and they are being sold at a rather good price, to be used in either an illegal entry into this country or to maintain an illegal residence.

I am not going to personalize. We do have a big problem. We have got a long way to go.

At our AAVRPHS meeting later this week, I do plan to submit for consideration by the Association the possibility of a committee composed of representatives from the States and from your three agencies, because time does not permit here our discussing many, many aspects which should be discussed. I am going to submit that and, Bill and Ed and Joe, I am sure your agencies would be interested in meeting with us to discuss mutual problems. I hope you will be.

Are you receptive to such a possibility if we could have the State Association have a committee to meet with you to discuss some of these problems?

Bill, let me give an example. I think that the State offices should have knowledge of the guidelines that are handed down to the agencies with respect to the acceptability or nonacceptability of birth records, as proof of citizenship for passport applications. I think that would help us to help the people, and I think it would eliminate some criticism that is now being leveled both at our offices and at your office.

I think the States really ought to know more about the guidelines that the agencies use in passing on these applications.

MR. DUGGAN: If I may speak for the Passport Office, we would be happy to participate in any committee that may be organized to help solve our mutual problems. We did in the past, as you know, Don. I think we accomplished a great deal.

As to the guidelines, I would like to chat with you a little bit more on exactly what you have in mind. Of course, we do have a regulation which pretty much covers the point. Apparently it is not giving you sufficient information to help you realize why we do not accept certain documents. If we can get together, I certainly would like to get together because we do want to be helpful. We do want you to know why certain documents cannot be accepted.

I tried to give some very few examples and there are very, very few—why we insist upon seals and why we will not accept photographic copies, and of course Hux touched on a notification of birth to help us.

Maybe if we talk about it, so far as the Passport Office is concerned, that would be our position on the committee. I can't speak for the others.

MR. COILE: I would say we in the Immigration and Naturalization Service would certainly be interested in joining in any committee also.

A clarification on your remark on the documents that I was mentioning—by far most of these documents are misused legitimate, genuine documents. As I mentioned, out of 3,700, over 1,00 admitted they bought the documents and these were legitimate documents. They were not counterfeits. They were also loaned and then found, eventually found.

Frankly, our problems with fraudulent registrations now are very small. The delayed certificates are not nearly the problem they used to be. Our big problem now is somebody impersonating the person he has the certificate for.

As far as the committee is concerned, INS would certainly be interested in participating.

MR. EARLEY: If there is any Social Security problem you would like to include in that, why we would be very willing to participate also.

I might add one item here. As I am sure most of you people know the local district managers of the Social Security offices, I hope these people have offered all assistance possible to you whenever needed. Any questions, specific ones you want brought to the Central Office's attention could be done that way or be done directly, as you see fit.

MR. CHANCELLOR: I think Sid was next.

MR. NORTON: Sidney Norton, State Registrar, Baltimore. I would like to direct my remarks to the gentleman from the Passport Office.

You come across the situation in Baltimore where the local office insists on a certified copy of a birth certificate. You have a situation where at times the local State Department office, which is also in Baltimore, will accept certified copies and other times they will accept a notification of birth which has a preprinted seal and the date of birth on it. What I can't understand is why such things are demanded of us while in other parts of the country they will accept a notification, a birth card, other types of documents such as a notification, a birth card, and there is no standardization around the country.

MR. DUGGAN: There is standardization in the regulation. (Laughter) Where human beings are concerned, standardization sometimes becomes subjective rather than objective.

I dealt with the question of notification of birth and they certainly should not be accepted for the reasons I stated, the reasons you know better than I do.

If in a given case someone accepts a notification of birth, it could very well be that might be a child with a couple of parents in there and supplementary evidence was submitted, or corroborative evidence, such as Joe mentioned, might be submitted. I am not here to say that with something like 4,000—and God knows how many post offices now are taking applications—that everyone is going to adhere to the objective standards of the regulation. However, with regard to Baltimore, I would be glad to take a look at the situation and see. Certainly I wouldn't want the City of Baltimore discriminated against. That would be terrible. (Laughter).

MR. NORTON: It is terrible.

MR. DUGGAN: We will check into Baltimore. I think you can appreciate when you have got 4,000, and sometimes there are other considerations involved such as the composite of the individual in front of you, that in a given situation they may say, "Well okay," because the parent is there or somebody else is there who can vouch for authenticity. There may be an emergency situation. Our rule is this, the emergency situation must be taken care of, because you do have a lot of American citizens traveling abroad and they have people getting into difficulties, dying, and in accidents, and things like that. Our rule is take care of the emergency. It can be that.

I don't say that is the entire solution, but I will take a look at Baltimore.

MR. NORTON: We would like for you to take a very hard look at it.

MR. Chairman, may I pose one other problem that I have been thinking about for sometime. This is the idea of the use of a printed seal against a raised seal. Since it is the seal that gives authenticity of the record, do you gentlemen have any preference as to one over the other? The reason I raise that question is because in Baltimore we have been using a blue printed seal. The reason we have been using that is because if the record were to be photocopied, the seal would come out black.

I realize also there are many problems arising with using a raised seal, because this is very easily phonied. You can get anything with the same circumference of the seal used, put a handkerchief over it and you can get an impression if it is not a brand new stamp. This will go by the board and I am sure it would be accepted. We don't hear anything to the contrary.

How do you folks feel about a printed seal versus a raised seal?

MR. DUGGAN: I mentioned in the talk that I made that I favored an embossed seal, which is a raised seal, for the simple reason a printed seal can be reproduced easier than an embossed seal. It is as simple as that. Ed touched on it and I touched on it that anything can be reproduced with photographic equipment or printing equipment, including your printed seal, obviously.

We used to think maybe colored documents might be more secure than the others, but now we are finding that our adversaries, if you want to call them that, can come up with copies of colored documents. If you choose between the two, I would say definitely a raised seal based on our experience.

MR. NORTON: Now, how do you fellows in the other agencies feel about that?

MR. COILE: I feel the same on the seal; yes, sir; I prefer the raised.

MR. EARLEY: From our standpoint I don't think we make any distinction. Generally we will take the notification as evidence of a child's date of birth, so I know of no problem within the Social Security regulations on that point.

MR. BROCKERT: I am John Brockert, Director of Statistical Services, Utah Division of Health. I have a couple of comments. First of all, I am glad to hear that you are willing to exchange some information. I don't think we have many problems in Utah, but I am sure that you haven't told me about them if we do have, and I think that is very important. It would be more important to me than your guidelines if each time you found a fraudulent certificate from Utah I could be informed. I think we might have some effect if it was prepared in Utah. We do have good relationships with Social Security, the mutual agent in Salt Lake, and have no problems there at all.

I keep waiting for somebody to make some comments about Mr. Huxtable's remarks. Of course, being an eager fellow, I guess it is up to me to start the ball rolling.

Rather than take a stand for State's rights, I would like to say I don't think just because something is big makes it good. We have seen enough big Federal organizations that are in my judgment disasters, from the point of view of operating efficiently and effectively. I don't think by nationalizing our registration system we would necessarily get the improvement. I think we should look for the National Center to get the resources, to bring each of the States up to the standards that you are suggesting, and I agree there are many differences between States.

I don't see why the States can't be brought to the standards by providing them with the adequate resources.

I do not agree at all that it requires federalization of the system.

MR. HUXTABLE: Thank you, John

MR. DUNNING: I am Harry Dunning, Chief Vital Statistics Section, Seattle-King County Health Department, Seattle Washington. I would like to ask Mr. Earley to comment on the new wrinkle we seem to have run across in our local Social Security office. That is when paternity acknowledgement is made where the parents do not marry each other, the father simply acknowledges paternity and of course his name is put on the certificate. There seems to be a demand, if I may call it that, for Social Security people to verify that the father has indeed signed a paternity affidavit.

MR. EARLEY: I guess the answer to that would probably lie in the fact that in order for a child to be eligible on his father's account under Social Security law, he has to either be a natural legitimate child, adopted, stepchild, or probably a legitimated child. I guess now it would be the last of those classifications that you are talking about.

MR. DUNNING: Not legitimated. Parents are not married.

MR. EARLEY: It could be an acknowledged child, let's put it that way.

MR. DUNNING: Yes.

MR. EARLEY: And probably under Oregon law—did you say Oregon?

MR. DUNNING: Washington.

MR. EARLEY: Probably under Washington law, an acknowledged child can become entitled to benefits on his father's account. Consequently we are down to a matter of what evidence can we secure to show such acknowledgement? I would believe that may be the only thing that would be available in the case that you cite.

We don't necessarily resort to that alone. We look to any other documentation that may be available to prove the acknowledgement of such children. If you think it is a real problem, if you think it is a burden of any kind, discuss it with the local manager there and see what can be done to ease it.

Beyond that I have no further acknowledgement on the point.

MR. GOODRICH: Fred Goodrich, State Registrar, State of Washington. We have a law which I am sure gives the Passport Office fits and starts. Many of our birth certificates we may give to anyone who requests them for a fee of $3.00.

MR. HUXTABLE: Dr. Bailey.

DR. BAILEY: Albert E. Bailey, Pennsylvania. I have a comment that is not exactly a question, but I think will help clear up some of the misunderstanding and attempt to reach a meeting of the minds between the gentlemen on the panel and us as a group.

There is a misconception, both among Federal people and among those of us in the States, that the birth certificate is a document of identification. It is not. It is a statement of a certain set of facts regarding a certain newly arrived individual at a certain point in time.

There are standard methods of identification, such as fingerprints, signatures, scars on the body, et cetera. But to assume a gentleman carrying a piece of paper that says "John Blow" is himself John Blow makes a very, very serious misconception in a lot of the relationships that we are talking about here this morning. I think we ought to keep that in mind.

MR. HUXTABLE: Thank you, Bert.

MR. DUGGAN: May I make one comment.

Thank you very much. I am glad you brought that up, because so far as we are concerned, there are two things that must be proved when you get a passport. Number one, do you have a claim to citizenship? Submit the proof to show citizenship. Then number two, are you the person behind the evidence of citizenship? And this identification problem is a bucket of worms. I am using strong language because I mean every word of it.

How to prove a person is the person, as Dr. Bailey said, behind this piece of paper is pretty difficult. That is why we, in the Passport Office, are trying to get this new idea of it being a composite of many things, accidents, occupation, and everything should tie in together.

This is where Social Security has an advantage because they have a whole background history of the man and they can then have a composite. But thank you very much, Doctor.

MR. HUXTABLE: Was there somebody in the back there? Yes.

MR. RANDALL: Vernon Randall, Chief, Division of Vital Records, Maryland Center for Health Statistics. I heard some disparaging remarks about birth registration notification. Why? We feel that is a very important part, getting the information back. If the hospital got the wrong facts on the certificate at the beginning, how are you going to get the registration notice out to show what you have?

MR. DUGGAN: The notification of birth—you refer to my remarks as disparaging? I agree. The purpose of the notification of birth—and I didn't include this and I should have—is obviously exactly what you said, that is, to notify the parents that their little Johnny or Jimmy, look, he is here. You know he is here; now we have a record of birth. Now tell us is there anything in this statement that is wrong? Maybe it doesn't even have his name, so they can go and correct the record at that time.

That is the purpose it serves, I agree with you. But it is not a birth certificate. It is disparaging only in that the purpose for which it is being used is not the purpose for which it was created.

MR. RANDALL: Yes, sir.

MR. HUXTABLE: Yes, Ma'am.

MRS. O'HARA: Lera O'Hara, Rhode Island. I have been encouraging the discontinuing of birth registration notices for years. I think it is about time we enforce the knowledge we have about certified copies and accept only valid copies ourselves and issue only valid certified copies.

A lot of the disadvantages that we found with birth registration notices is that when we were sending a full notice to the parent with the information, if any of the information was reported incorrectly, then they notify us of wrong information and let us correct the record, but we were deluged with corrections that were not valid corrections. They would have moved between the time of the birth and the notification. The parents' ages would have changed by one year. We were deluged with so many minor corrections that were not even worth noting, that would not affect the statistics, that I think the value of birth notifications is way, way out of proportion in almost all of the States. We discontinued notifications a number of years ago and we have not suffered any loss from it.

We frequently find that people who have hung onto those old notifications that were issued years ago thought this was it. The statement on the back was so misleading it was terrible. They go to the Passport Office and they are irate because they cannot use it for passport. The statement on the back leads them to believe that they could. Also quite often they knew that the information was wrong on the record but did nothing about it. They deluge your office with minor corrections which are not really corrections.

So I say down with birth registration notices.

MR. HUXTABLE: Thank you, Lera. I couldn't agree with Lera more, because we have been through the same process.

You remember the mystery of this thing, back in the old days of the Bureau of the Census. The special agent would always handwrite on what looked like an official piece of paper, watermarked, seal and the whole bit, and those things are still bugging us and giving us trouble.

If you are going to use notifications for correction purposes only, there are others ways to do it. For example, I think it was Georgia that started the original parent participation project. Now several of the States actually require signatures of the mother or the father on the original record prior to the time that the record leaves the hospital and goes to the registrar. When their signature is on there, that is an indicator that the facts above are true and correct and you don't have to go through the notification process for that reason only.

Brice.

MR. HALL: Brice Hall, State Registrar, Tennessee. I want to counteract. I inherited this thing and when I took over, the assistant before me had discontinued notification. Fine with me. I would do it tomorrow if I could get by with it. But the Commissioner caught holy hell—pardon the expression—from every health officer in the State of Tennessee because those local health people had used that for immunization and different things, not all I can enumerate. If you want to get in trouble in Tennessee, try to stop it.

It was stopped. The Commissioner, Dr. Hutchinson, said, "Who stopped it? Start it back today and get them off our neck."

They do serve other purposes. I would do away with them tomorrow, but you have to face 95 counties, because they demand them for their use in the local offices. Therefore it is not quite the thing to say, "I am going to stop it. I will take the bull by the horns and stop it; the heck with it." It is not that easy.

MR. HUXTABLE: Of course, with the advent of the computer, it is a lot easier to do it, I admit. But if you are going to have an immunization form for every child, call it an immunization form and put that on it. You don't have to call it birth notification. Or the people will think that it can be used for any type of legal document.

Yes, sir.

MR. BURDO: Harold Burdo, State Dept. of Health, Connecticut. I support Lera in her position. We computerize our registrations now and we run into a fantastic problem with the Christophers, you know, these real long names. The computer just can't handle this kind of stuff, with all respect to the computer. What happens is that we have to put somebody to type up the notice manually.

Originally it was simply the notice that came out. Apparently somebody inside the Health Department saw the value of this kind of system so they decided, why don't we send out a list of our publications inside the notice of registration, giving, you know, all the good things a mother should do to her child.

Then what happened is that the Feds apparently saw the value of this system and decided they should throw in the immunization record and, you know, now the envelope that goes out is about an inch thick. Quite frequently, all the time, we get calls saying we need to make a correction to the record. In the State of Connecticut, we don't do corrections. It goes to the local level, which, you know, comes back to some remarks I would like to make to Passport. But the local level makes the correction. The State Health Department is required to send out the notice of registration. So about the first week after those notices go out, we can expect two days of phone calls, and the same answer—you have to go to the local level to get the correction made. It generally is just a pain in the neck, among other places.

As to the problem that we have in terms of the Federal agencies, I would like to compliment the Social Security people. Those people who come into my office that I refer to the

Social Security Agency have always been most satisfied with the service they receive. They have a very nice group over there, very understanding. However, when they go to Passport, it is a completely different attitude. It is like trying to go to Motor Vehicles to try to get your driver's license on the last day. (Laughter)

They come back fuming, wanting to know how come we can't make the correction, why won't Passport accept this, and what do they mean by an exemplification?

I think the Passport agency somehow should, you know, relate to the citizens. There are certain requirements that you need. The exemplification I am talking about is something apparently they need for South American countries. Quite frequently people come in and say, "We are going to Argentina and they don't believe your Commissioner is a Commissioner, so we need an exemplification from your Governor telling them he appointed this Commissioner." That is an additional $3 fee they don't look forward to when they come into my agency.

I would support the gentleman from Utah in his position. And, Mr. Huxtable, feedback to our State would be good. We would appreciate it.

My last comment would be to Deane's remark. I will support my fellow from Utah that I have seen and heard about some of the monster systems the Feds have created. I am not sure they can do the job as well as we can at the State level.

In the area of legitimations, we are coming out with a new birth certificate in Connecticut January 1, 1973, and the certificate is probably as long as my arm right now.

It is a problem where we know what information we need to record the facts of birth, but other areas of the State can see the value of what we are doing and the facility with which we collect this information. They think it is a facility. So we have a standard certificate, 8½ by 9, and we have a supplemental portion 8½ by 11. So, you know, it gets on the brink of ridiculous in this area.

When we got the legitimation, we found the problem where the mother will come in and put somebody elses name down, her maiden name, no father. I have an attorney general's opinion that I received in the past two weeks stating that I can require the mother, when she goes to the hospital, to use her maiden name and she can't use any other name except that name. Hopefully this is going to cut down on a lot of my own corrections in this area. But, you know, this is going to be a problem, no doubt about it.

Thank you very much.

MR. CHANCELLOR: Thank you. We are running a little past twelve o'clock. Unless there are some burning questions, one more?

Okay.

I would like to take this opportunity to thank each you, gentlemen, and I am sure out of this will come better working relations.

Thank you.

Whereupon, at 12:03 p.m., the session was concluded.

Concurrent Session "H"

New Techniques and New Methodologies

This session had the function of acquainting the audience with techniques of data acquisition and reduction which are probably not too commonly known or understood. The three speakers chosen for this session concentrated on telling the audience of two new ways of collecting data and one of reducing the data from literal form to coded magnetic tape.

The first talk was on "random inquiry." In this technique, a randomizing device selects either question A or B to which the respondent answers with a simple "yes" or "no." Since which question is selected is known to the respondent but not to the interviewer, questions of a sensitive nature can be asked and truthful responses obtained.

The second talk was on household surveys with multiplicity. In this type of survey, a sample household reports about specified types of persons, such as relatives, regardless of whether these persons reside in the sample household or elsewhere. The design of the multiplicity survey appears to be particularly applicable to estimating the prevalence of rare vital events or rare health conditions.

The final talk discussed computer techniques for taking literal data from a questionnaire and having a computer program recognize this and record a numerical code on magnetic tape. This code can then be used in forming distributions, analysis, etc.

Contents

CONCURRENT SESSION "H"

NEW TECHNIQUES AND NEW METHODOLOGIES

PRESIDING

Mr. Walt R. Simmons, *Assistant Director for Research and Scientific Development, National Center for Health Statistics, Health Services and Mental Health Administration*

This is the afternoon session which has the title of "New Techniques and New Methodologies." Obviously we're not going to try to cover all the new techniques and methodologies that have been emerging in the last few years, or even in the past year. But there will be three new topics covered this afternoon. These are three new techniques, two of which are techniques in securing data and one in processing data. Each of these has, I think, exciting new potentialities and has, to some degree, already become a proven technique.

I'm not going to say very much about the speakers. They are well known to all of you, I think. I'm not going to spend very much time talking about the subjects, either, because I hope you have read the brief abstracts that are in the program itself. They are concise but I think explanatory in a general way of the topics that are going to be covered.

I can't resist saying one word about our first speaker, who, I think is probably known by almost everyone present. Dr. Greenberg is certainly one of the outstanding people in our field, as a statistician and as a contributor to health statistics and related affairs. He has also been very helpful to many of you and to almost anyone who asks him for help. In addition, and the special thing I want to say, is that we are all basking in reflected glory as one of our statisticians has been designated to become Dean of the School of Public Health at the University of North Carolina. This must be the first occasion when a thing of this sort has happened, and we all are pleased that it happened and I am additionally pleased to be able to offer Dr. Greenberg this afternoon.

RANDOMIZED RESPONSE TECHNIQUE IN SURVEYS OF HUMAN POPULATIONS AND ITS APPLICATION TO DEMOGRAPHY

Dr. Bernard G. Greenberg, *Chairman, Department of Biostatistics and Dean Designate, School of Public Health, University of North Carolina*

Thank you, Walt. I appreciate very much the kind words. I think Lowell Reed was the first statistician to become Dean of a School of Public Health and, of course, many of you know he was a Dean at Johns Hopkins University.

There was a paper that could be picked up as you came in (Appendix I).

Let me say a word about the title on the handout paper. It is slightly different than the one that's in the program. I don't want to deceive you, so let me explain the background. About five or six weeks ago, several of us gave a paper at the meeting of the Biometric Society at Ames. Iowa. The contents of that paper were practically identical with what I would like to bring to the attention of the group today. I am using that paper as the handout (Appendix I) for this presentation and will be referring to it as I go along. The fact that the title on the handout is different from that in the printed program doesn't make that much difference.

I'm going to talk about the randomized response method as a technique in human surveys and how it might be used in demography. At the end, in order to make sure that this presentation is slightly different from the one I gave at Ames, Iowa, we will have an audience demonstration which should stimulate interest and, hopefully, will show that the method is really simple and convincing to even the greatest skeptic.

For those of you who are unfamiliar with the randomized response procedure, it's a relatively new statistical technique designed to encourage cooperation and truthful replies to questions which involve socially or legally deviant behavior, or questions of a very personal and confidential nature.

For example, if one were to ask in a survey, "Did you have an abortion last year?" or "Did you cheat on your income tax last year?" or "Are you using hard drugs?" and so on, it's obvious there would be a refusal to answer the question, or that there would be a lying response to the question, thereby creating a response bias. This bias would be impossible to measure and, therefore, there would be no way to adjust for it. In other words, we know there would be a bias, but we don't know the magnitude of the bias and, therefore, we can't adjust for it. The purpose of the randomized response is to overcome or do away with this response bias.

The technique was first developed in 1965 by Stanley Warner, who was concerned with dichotomous variables such as voting behavior or whether persons belonged in a certain income group. Since that time (1965) there has been a large number of modifications and improvements. Many of them have centered in North Carolina.

I will review the procedure briefly, explaining Warner's technique, and bringing out some of the major developments, and then I will try to illustrate a recent improvement that we have developed that should make the technique very simple and applicable to almost any situation.

Warner considered the case where there was a proportion Pi of the population—let's call it

Group A—who possessed some sensitive characteristic, while the remainder of the population did not.

In other words, there was some sensitive characteristic, Pi sub A, which he was interested in estimating. The objective was to estimate Pi sub A without bias, as well as its variance. Warner suggested that the interviewer use a randomizing device such as a spinner—the kind of spinner that you see in children's games, where you give it a zip and it turns around and points to a one or a two, and so on.

When the spinner stopped, it was supposed to point to one of two questions by chance, and the two questions or statements are as indicated on page 2 of the handout.

The statement would be, "I am a member of Group A," meaning "I had an abortion last year," or its converse, "I am not a member of Group A," meaning "I did not have an abortion last year." The probabilities involved were P(probability of selecting the sensitive question) and 1 minus P (probability of selecting the non-sensitive question).

All the respondent had to do was answer yes or no to whichever one of the two statements had been selected by the randomizing device (spinner).

Only the respondent knew to which one of the two statements his reply was addressed because the interviewer deliberately remained some distance away from the use of the randomizing device, so that he did not see which statement had been selected. All he got was a "yes" or "no" answer from the respondent and he didn't know whether the respondent was answering the question, "I am a member of Group A" or "I am not a member of Group A."

The respondent thus can answer a rather sensitive or confidential question without revealing his personal situation to the interviewer. Hopefully as a result of this, potential stigma and embarrassment have been removed so that the person is encouraged to reply truthfully. With the simple "yes" or "no" response, plus knowledge of sample size and the probability of selection of each of the two questions, we can make estimates of the proportion of the sample possessing the sensitive characteristic, i.e., we can estimate Pi sub A.

If the respondent is convinced that the method does shield him, so to speak, we assume that we will get a truthful response. Warner demonstrated in his 1965 paper that, under these conditions, the method works.

One of the first improvements—although not really an improvement—in the technique was an extension of it. We put one of our Ph.D. students Mr. Abul-Ela on the problem to see if he could extend Warner's dichotomous model into a trichotomous framework. This work was published as a paper, (reference 2 in the handout) in which he showed how one could make an estimate now of three parameters with the restriction that the sum of the three is equal to one. All that one needed to do, in order to make this estimate, was choose another non-overlapping sample and use a slight variation of the randomizing device with that sample. The result was that you now had only two independent parameters, since the third one was estimable by subtraction since all three had to sum to one.

The next attempt at improvement was one that we tried out five years ago to try to estimate illegitimacy and, for reasons I won't go into, it just never worked. At that point, the chairman of this session, Walt Simmons, who was working with us on this project at the time, suggested a procedure which at first didn't appear to offer much hope. He suggested that we investigate and describe a variation of the Warner procedure where, instead of making the second question, "I am not a member of Group A," the second question would be a very innocuous or non-sensitive question. This would be a question which anybody would be perfectly willing to answer, such as "I have been to Washington, D.C.," or "I was born in the month of April," or "I like chocolate ice cream," and so on.

The two questions might be as indicated on page 3 of the handout. The first would be the sensitive question, "Did you have an induced abortion during the past year?" and the second would be a non-sensitive, innocuous question, "Were you born in the month of April?"

If the survey designer feels that the respondent may suspect that you can look up his birth certificate and find out whether he was born in April. The solution is very simple. All he has to do is change the question and say "Was your mother born in the month of April?" It's pretty hard to look up the date of birth of the respondent's mother.

In summary, Simmons' idea was to have only one question pertaining to the sensitive attribute. The other question would be non-sensitive, innocuous, and unrelated to the sensitive question.

We have already referred to the sensitive question as A and the proportion of the sample possession the sensitive attribute as Pi sub A. The non-sensitive question is referred to as Y and the proportion of the sample possessing the non-sensitive attribute is Pi sub Y. Now if Pi sub Y is known in advance, then only one sample is needed, as with the original Warner method, to get an estimate of Pi sub A, the sensitive attribute.

If Pi sub Y is not known in advance, then we in the situation described by Abul-Ela which requires two non-overlapping samples. From these two samples we are able to get an estimate not only of Pi sub A, but also of Pi sub Y.

The formula for estimating Pi sub A is shown in Equation 1 on page 4 of the handout. In that equation P sub 1 and P sub 2 are the probability of getting a sensitive question in sample 1 and sample 2, respectively. Lambda sub 1 and Lambda sub 2 are the reported frequency of "yes" responses in sample 1 and sample 2, respectively.

This estimate of Pi sub A is an unbiased, maximum likelihood estimate with variance as shown in formula 2 on page 4 of the handout.

In an earlier paper, (reference 6 in the handout) several colleagues and I showed that this "unrelated question" or "alternate question" model is actually better than the original Warner procedure, better in that the variance of Pi sub A is less than in the Warner model.

In that paper we also described how to design a survey so as to optimize the survey to minimize the variance of Pi sub A and also indicated how to choose the alternate question to best advantage.

The real challenge to this method came in 1968 when we actually tried it in a survey in North Carolina to see if we could estimate the frequency of illegal abortions among women in five metropolitan areas. The results we got were quite reasonable, although we have not yet been able to validate them. To do so would require a register of women known to have had an illegally induced or criminal abortion, and such a register is hard to find. In spite of the fact that we have never been able to validate the abortion question, we are fairly well convinced that the method worked. We know that it worked with other fairly sensitive questions, such illegitimacy where we did have validating data.

In the North Carolina survey, instead of using a randomizing device like a spinner, or a deck of cards which we used earlier, we turned to a randomizing device consisting of a box, a transparent box with balls of two different colors in it. The randomizing device selects a single ball, the color of which determines which of the two questions the person answers with a "yes" or "no" response. This box and balls device is described in reference 1 of the handout.

If you don't know the frequency of Pi sub Y, then as I indicated, you have to choose two samples. On the other hand, if you are using the box and balls device you can build in the non-sensitive question, the innocuous question, right into the box, by having three colored balls, so that you have red, white, and blue colored balls. This permits an *a priori* estimate of Pi sub Y to be made, thus obviating the necessity of two samples (reference 5 in the handout).

If you are going to use two samples, however, the recent work of Moors (reference 9 in the handout) is of special interest. He showed that the two sample, unrelated questions randomized response procedure is not only an improvement over the Warner procedure, but also calculated how much the variance could be reduced by using the second sample for the sole purpose of estimating the proportion, Pi sub Y, the non--sensitive attribute. Instead of using the randomizing device with the second sample, you simply ask the non-sensitive question directly, for example, "Was your mother born in April?" You can ask that question in a small sample and get an estimate of Pi sub Y from this second sample to be used with the first sample results in estimating Pi sub A.

The variance of Moors estimate is shown on page 5 of the handout.

About a year or two ago, several colleagues and I also introduced the idea that the use of the randomized response procedure was not limited to variables that were answerable with either a "yes" or "no," a qualitative kind of response. The technique can also be used to estimate quantitative variables (reference 7 in the handout). In other words one could estimate the mean and standard deviation of some kind of frequency distribution. We tried it out using data collected in the North Carolina survey. One such variable was income, and the other was the number of abortions a woman had had in her entire lifetime.

The income variable was very easy to verify or validate. We compared our estimates with the estimates made for the southeast by the Bureau of Labor Statistics, and we hit it practically on the head for both white and black families.

The randomized response technique, therefore does not have to be limited to simply a "yes" or "no" question; it can be used with a quantitative question.

Let me summarize what I have said so far, and then go on to the most interesting development, as far as we are concerned.

If you want to estimate something which is sensitive and is going to be answered in a dichotomous fashion, then it is always preferable to select an unrelated or an alternate question whose frequency in the sample population is known beforehand. If this is not possible, then consideration should be given to the procedure where you build in the frequency of this non-sensitive attribute into the randomizing device itself. If that is not possible, then you use two samples, and the second sample, as indicated by Moors, should be used as a direct questioning of the non-sensitive attribute. If none of these are possible, then you can, of course, go back to the original method we suggested, of using two samples and allocating them optimally in a different fashion.

What we have done most recently is to improve on the Moors estimate by adopting the concept of using part of the sample to ask the non-sensitive question directly. The model is indicated on page 6 of the handout for the situation where we have two samples. The samples can be approximately the same size.

In Sample 1, you use some kind of randomizing device with a sensitive question, (A) and a non-sensitive question (Y sub 1). The non-sensitive question might be, for example, "Were you born in the month of April?" In that same sample, in a direct question (Y sub 2), you ask the respondent, "Was your mother born in April?" or "Did you live in this county five years ago?" or some other innocuous question.

Now, in sample 2, an entirely different group of respondents, you do exactly the same thing, except that you alternate the two non-sensitive questions. That is, in Sample 2 you use the randomizing device with the sensitive question (A), but now the Y sub 2 question that you would ask directly in Sample 1 would be the second question in the randomized set. Similarly, the Y sub 1 question used in the randomized set of Sample 1 would be asked directly of the respondents in Sample 2. This scheme is shown diagrammatically on page 6 of the handout.

As a result of this direct questioning, you get a direct estimate of Pi sub Y sub 1 and Pi sub Y sub 2. You use those to get an estimate of Pi sub A, as shown on Page 7 of the handout. We indicate by Lamdba with r in the superscript as the probability of a "yes" response to the question selected by the randomizing device, and Lambda with o in the superscript as the probability of a "yes" response to the direct question, this will allow us to then get an estimate of Pi sub A from each of the two samples, as shown in Equations 6 and 7 on Page 8 of the handout. The subscripts of the Lambda's refer to sample number.

We thus have two estimates of the sensitive attribute, Pi sub A sub 1 and Pi sub A sub 2, although not completely independent because of some correlation what we'd like to do is to combine them into one estimate. To do that we use a weighted function as shown in Equation 9 in the handout.

The variance of this estimate is shown in Equation 15 of the handout. The Cap Sigmas in Equation 15 are defined in Equations 10, 11, and 12.

This then is the model. The question is how good is the technique?

The variance in this particular new method can be compared directly with the variance that we would get if we used a Moors type estimate, and this is shown in the table on Page 12 of the handout. We compared the estimate by our method of with that obtainable by Moors' so-called optimized model. It is easy to see that in the left hand side of this table, regardless of the probabilities used in the randomizing device, i.e. whether you use the probability of selecting the sensitive question as .5 or .7, you will achieve almost a doubling of the efficiency—that is, you reduce the variance so much that you can almost double the efficiency of the technique.

We also wanted to know how this new model would compare if you knew Pi sub Y in advance. That's the right-hand side of the table. You can see that some of the efficiencies, particularly when P is equal to .07, are over 90 percent, so that we are losing very little information by not having an estimate of Pi sub Y in advance of doing the survey.

The reason that I have shown the value P equal to 1/2 with this increased efficiency that we demonstrated is that we became a little bit more daring and decided we could chance using a coin as the randomizing device. That's why P equals 1/2.

This is the technique we tried in a recent survey. I will describe very quickly the results of that survey, and then we will get to the audience participation which I promised.

About a year ago we did a survey among "drinking drivers" in Charlotte, North Carolina, where we asked the respondents if they had had an automobile accident in which they were at fault during the past year. The test was done in connection with a Drinking and Driving Attitude Survey for the Department of Transportation. The sensitive question, as indicated on Page 13 in the handout, was "Did you have an automobile accident in which you were at fault?" The two alternate questions were, "I was born in the month of April"—"yes" or "no," and "I lived in North Carolina but not in Mecklenburg County in 1966." Incidentally, Charlotte is in Mecklenburg County.

These were the questions we used. Rather than boxes and coins, we used cards showing pictures of a penny, a head and a tail. One of the two questions was printed beside each picture. These cards were explained to the respondent prior to his tossing the coin. Obviously the respondent has to be literate in order to participate in the survey.

From the data that we obtained in that survey, as shown on page 14 of the handout, we obtained two estimates of the proportion of persons who admitted they were at fault in an automobile accident. From Sample 1 it was somewhere around 15 percent and from Sample 2 it was around 34 percent.

What we wanted to do then was to get a weighted average of the two estimates using our optimum weighting function, the derivation of which is shown on page 9 of the handout culminating in Equation 13.

By combining these two estimates, as shown on page 15 of the handout, we end up with an estimated 23.38 percent of persons who had had an automobile accident during the past year in which they had been at fault. This estimate might be compared with insurance records and would probably be around six times higher than anybody in the insurance business ever suspected. Maybe they suspected it, but they never had any evidence for it. The variance of this estimate, also shown on page 15, was 3.89 percentage points.

The remainder of the handout paper is a little bit more mathematical. It shows how the estimation procedure can be calculated as a general linear model, and we get exactly the same results, as I just demonstrated.

This is a brief summary of the technique that we have now refined to the point that if you don't know the proportion of this innocuous attribute in advance, then use two samples with two unrelated questions in this alternating procedure, and you are practically at the same efficiency as if you knew Pi sub Y in advance.

What I would like to do during the remainder of my time is go down to the overhead projector and for those who might still be skeptical as to whether this method really works, I'd like to demonstrate it to you by a very small experiment.

I previously stated that the best randomizing device is one which has universal acceptability. A coin comes close to meeting this requirement because every country has coins and everybody is familiar with them. I am going to ask you to take a coin out of your pocket and to use it as the randomizing device.

The sensitive question that I am going to ask you to answer truthfully, if the randomizing device selects that question is "Did you cheat on your income tax last year?" I'm sure the Internal Revenue Service would love to know this. I promise that there will be no loss of confidentiality and that your privacy will be protected.

What do I mean by cheating? Let's say you cheated if you overstated your contributions by at least 10 dollars, if you listed more medical expenses than you really had, or if you didn't report a few $25 or $50 gifts or honoraria that you received. You know in your own mind whether or not you cheated on your income tax.

The non-sensitive question will be whether or not your mother was born in the month of April.

Now take out the coin and in a moment I will ask you to toss it. If the coin falls heads, I want you to answer the question "I cheated on my income tax last year with a "yes" or "no." Fair enough?

If the coin falls tails, you answer the question "My mother was born in the month of April" with a "yes" or "no." Okay?

I will then ask for a show of hands on the number of "yes" responses; then I will ask for a show of hands on the number of "no" responses. With that information, I will work through the formula, and you will be surprised how many persons cheated on their income taxes last year.

All right, toss the coin. Walt, will you count the middle section and the end, and I will count the section over here. All set? If your coin shows "heads," answer the income tax question "yes" or "no." If it's "tails," answer the "mother born in April" question with a "yes" or "no."

Incidentally, if you don't know the month of birth of your mother, then use your own month of birth.

All right. All those who would answer "yes," please raise your right hand. Twelve.

How many, Walt?

MR. SIMMONS: Fourteen "yes's."

DR. GREENBERG: All right. That gives us 26 yes replies. All those who would have answered "no," raise your hand. We have a lot of honest people in this audience.

MR. SIMMONS: Twenty-seven "no's."

DR. GREENBERG: And I have 50 for a total of 77 no replies. You have a lot of cheaters on your side, Walt.

We had a total "n" of 103 persons. If there was no cheating at all on income tax, when the heads turned up everybody with no cheating would have said "no." If a tail turned up, the only ones that would say "yes" are those whose mother was born in the month of April.

Let's say the chance of your mother being born in April is about one twelfth and the probability of your getting that question was one-half. So, one-half times one-twelfth is 1/24th. Therefore, we would have expected, if there was no cheating on your income tax, 1/24th of 103, or about five persons would have answered "yes." But 26 persons answered "yes." We would, therefore, estimate that in this audience of 103, there were about 21 persons who must have cheated on their income tax.

Now, how many persons answered the question, "Did you cheat on your income tax?" Obviously those who got "heads" on the toss, or about one-half of the the persons in the room. So, of the 103 persons, about 52 had heads and, of the 52 persons who could have answered the cheating question 21 said "yes." Therefore, 40 percent of you must have cheated on your income tax last year based upon the ratio 21/52.

All I can say is I'm associated with a lot of tax cheats.

Thank you.

MR. SIMMONS: Thank you, Bernie, and thank you, audience.

MR. SIMMONS: The natural thing to do at this point would be to open the floor for questions, but I want to make sure that we cover our other topics this afternoon as well. So I am going to hold up the questions from the floor, or discussion from the table here, until we have had our three presentations.

The second paper deals with another collection technique, this one presented by Dr. Sirken.

Just as we can say Dr. Greenberg is probably the outstanding expert today on the method of using randomized response or randomized inquiry as a collection technique, so Dr. Sirken is an expert on the use of the multiplicity procedure about which he will be talking as our next speaker.

TESTING FOR DEATH REGISTRATION COMPLETENESS BY A MULTIPLICITY SURVEY

Dr. Monroe G. Sirken, *Director, Office of Statistical Methods, National Center for Health Statistics, Health Services and Mental Health Administration*

Introduction

We wish to estimate P, the proportion of deaths in the population that are registered. One estimator is

$$P = \frac{D}{N} \tag{1}$$

where N and D respectively represent the number of deaths that occurred in the population and the number that were registered. We could determine D by counting all the deaths that were registered and estimate N by enumerating deaths in a single time household survey. In this kind of mortality survey, respondents report retrospectively the deaths that occurred in a specified reference period prior to the survey. We recognize, however, that the survey will inevitably underestimate N and that consequently estimator (1) would exaggerate the completeness of death registration. Therefore, we propose instead to use the following estimator, often referred to as a dual system estimator,

$$P = \frac{X_r}{N_r} \tag{2}$$

where N_r denotes the number of deaths enumerated in the household survey and X_r represents the subclass of these survey deaths that are registered. We plan to estimate X_r by conducting a one-way match of the deaths enumerated in the survey against the deaths recorded in the registration system. Even if N_r underestimates N we know that estimator (2) is unbiased to the extent that X_r and N_r are independent. The subscript "r" denotes the counting rule adopted in the survey.

We plan to conduct a sample survey and as the sample estimate of P, we will use

$$P'_r = \frac{X'_r}{N'_r} \tag{3}$$

where N'_r and X'_r are survey estimates of N_r and X_r respectively. Our objective is to investigate the affect of the counting rule "r" on the sampling variance of P'_r.

Counting Rules

Every household survey adopts a counting rule that links individuals to the housing units where they are enumerated in the survey. Typically, a premium is placed on rules that uniquely link every individual to one housing unit and wherever possible, rules of this type have been adopted in sample surveys. These rules, which we will refer to as conventional counting rules, have been attractive because they assure that every individual has a chance of being enumerated once without duplication in the survey. De jure and de facto residence rules are examples of conventional counting rules.

We have been investigating the properties of sample survey estimators that are based on multiplicity rules.[1,2,3] This type of counting rule links every individual to at least one and possibly more than one housing unit. For example, a rule that links individuals to both their de jure and de facto residences is a multiplicity rule. We have proposed that the selection of a counting rule be viewed as a deliberate strategy for improving the survey design and have indicated that under specified survey conditions, estimators based on multiplicity rules necessarily have smaller sampling errors than those based on conventional rules.[4]

Multiplicity rules are often apropos when mobility or some other characteristic of individuals makes it impractical to execute conventional rules. For example, the conventional rule usually adopted in single retrospective mortality surveys links decedents to their former de jure housing units. The rule works out poorly in practice because many of the households occupying the decedents' former units moved into the units after the deaths occurred and being unaware of the deaths, do not report them in the survey. Sometimes the single retrospective mortality survey adopts a conventional rule that links decedents to their former households. This rule runs into difficulty because households frequently dissolve after the death of one of its members.

We have been particularly interested in the properties of two kinds of multiplicity rules: consanguine and neighbor rules. For example, the consanguine rule links deaths to housing units of surviving relatives such as parents, children, spouse and siblings. The neighbor rule links deaths to housing units that are located next to the decedents' former housing units. However, since we have encountered difficulties in implementing the neighbor rule, we will not discuss it further in this report.

Estimators

We denote the L housing units in the population by $H_1, \ldots, H_i, \ldots, H_L$. We denote the deaths by $I_1, \ldots, I_\alpha, \ldots, I_{N_r}$ where N_r = number of different deaths that would be enumerated in a survey of L housing units based on counting rule r. Let $I_1, \ldots, I_{X_r}$ denote the survey deaths that are unregistered and $I_{X_r+1} \ldots, I_{N_r}$ denote the survey deaths that are successfully matched with registered deaths. We use the indicator variable

$$
{}_r\delta_{\alpha,i} = \begin{cases} 1 \text{ if } I_\alpha(\alpha=1,\ldots N_r) \text{ is linked to} \\ H_i(i=1,\ldots L) \text{ by rule } r \\ 0 \text{ otherwise} \end{cases}
$$

to specify the links between the N_r deaths and the L housing units defined by the rule r adopted in the survey. (In the following, r is set equal to c and m respectively to denote conventional rule and multiplicity rule.) It follows that

$$
\sum_{i=1}^{N} {}_r\delta_{\alpha,i} = {}_rN_i
$$

$$
= \text{number of deaths linked to } H_i(i=1,\ldots,L) \text{ by rule } r
$$

and

$$
\sum_{i=1}^{L} {}_r\delta_{\alpha,i} = {}_rs_\alpha
$$

$$
= \text{number of housing units linked to } I_\alpha(\alpha=1,\ldots,N)
$$

by rule r. We will refer to s_α as the multiplicity of I_α.

A simple random sample of l housing units is selected without replacements and a single retrospective mortality survey is conducted based on rule r. Subsequently, the deaths enumerated in the l housing units are matched against the records filed in the death registration system. The sample estimates of X_r and N_r are

$$
X'_r \doteq \frac{L}{l}\sum_{j=1}^{l} {}_r\lambda'_{ij} \text{ and } N'_r \doteq \frac{L}{l}\sum_{j=1}^{l} ({}_r\lambda'_{ij} + {}_r\lambda''_{ij}) \tag{4}
$$

where $i_i, \ldots, i_j, \ldots, i_l$ represent the indices for the housing units selected in the sample, and

$$_r\lambda_i' \doteq \sum_{\alpha=1}^{X_r} \frac{_r\delta_{\alpha,i}}{s_\alpha}$$

and

$$_r\lambda_i'' \doteq \sum_{\alpha=X_r+1}^{N_r} \frac{_r\delta_{\alpha,i}}{s_\alpha}$$

respectively, denote the weighted number of registered and unregistered deaths enumerated at the H_i $(i = 1, \ldots, L)$ housing unit. N_r' and X_r' are unbiased sample estimates of N_r and X_r respectively.

It is particularly noteworthy that multiplicity estimators require the s_α for every I_α enumerated at a sample housing unit but this auxilliary information is not required by conventional estimators because by conventional rules $s_\alpha = 1$ $(I_\alpha = 1, \ldots, N_c)$. If the multiplicity values are not known independently, the housing unit reporting I_α in the multiplicity survey would also report s_α, that is, the number of housing units that are linked to I_α by the multiplicity rule. For instance, suppose the multiplicity rule states that "I_α is linked to his former housing unit and to the housing units of his surviving children." In the survey S_i reports I_α if it is the former residence of I_α or if it is the residence of a surviving child. Having reported I_α, S_i also reports s_α, that is, the number of different housing units representing either a residence of a surviving child of I_α or the former residence of I_α.

Variances

The sampling variance of $P_r' \doteq X_r'N_r'$ is given approximately by

$$V(P_r') \doteq \frac{L}{N} \cdot \frac{L-l}{(1-1)l} P(1-P)\Omega_r \qquad (5)$$

where $\Omega_r = \theta_r/\varphi_r$ is a measure of inefficiency of counting rule r. Its denominator, $\varphi_r = N_r/N$ = proportion of the N deaths that are enumerated in a single time household survey based on rule r. Its numerator, $\theta_r = (1-P)_r E_x + P\,{}_rE_{N-X}$ where

$$_rE_x = \frac{1}{X_r} \sum_{\alpha=1}^{X_r} \frac{1}{_rs_\alpha}$$

= the harmonic mean of the multiplicities of registered survey deaths

$$_rE_{N-X} = \frac{1}{N_r - X_r} \sum_{\alpha=X+1}^{N_r} \frac{1}{_rs_\alpha}$$

= the harmonic mean of the multiplicities of unregistered survey deaths

If $_rE_X = {}_rE_{N-X}$, then $\theta_r = (1-P)\,{}_rE_{N+X} + P_r\,{}_rE_X$ $= {}_rE_X$ where

$$_rE_N = \frac{1}{N_r} \sum_{\alpha=1}^{N_r} \frac{1}{_rs_\alpha}$$

= the harmonic mean of the multiplicities of deaths enumerated in the survey based on counting rule r.

The simplified version of the sampling variance formula given by (5) is an adaptation of the formula for the variance of a proportion based on the ratio of multiplicity estimators[5]. The formula assumes that $N_i \leqslant 1$ $(i = 1, \ldots, L)$ or, in other words, that the counting rule links no more than one death to a housing unit.

Obviously a survey should adopt the counting rule that minimizes Ω_r. If a conventional rule is adopted $\Omega_c = 1/\varphi_c$ because $\theta_c = 1$, and hence the sampling variance of the estimator $P_c' = X_c'/N_c'$ is

$$V(P_c') \doteq \frac{L}{N} \cdot \frac{L-l}{(L-1)l} \cdot \frac{(P(1-P))}{\varphi_c} \qquad (6)$$

If a multiplicity rule is adopted $0 \leqslant \theta_m < 1$. The estimator becomes $P_m' \doteq X_m'/N_m$, and from (5) and (6) we have

$$V(P_m') = V(P_c')\frac{\Omega_m}{\Omega_c} = V(P_c')\,\varphi_c\,\theta_m/\varphi_m \qquad (7)$$

If $\varphi_c = \varphi_m$, formula (7) implies that $V(P_m') < V(P_c')$ since $\theta_m < 1$.

An Example

Survey experiments are needed to estimate θ_r and φ_r for different counting rules. We recently completed one such experiment[6] which tested the following rules for enumerating adult white noninstitutionalized deaths.

Rule	*Statement of Rule*
1	Deaths are linked to their former housing units
2	Deaths are linked to their former housing units and to units of their surviving children
3	Deaths are linked to their former housing units and to units of their surviving siblings
4	Deaths are linked to their former housing units and to units of their surviving children and siblings

Rule 1 is a conventional rule and rules 2, 3, and 4 are multiplicity rules.

Selected findings from the experiment are presented in Table 1. These findings are based on a sample of 142 registered noninstitutionalized white adult deaths that occurred in Los Angeles during the period July-October 1969. Interviews were conducted during January-March 1970 at the decedents' former housing units and at the housing units of the decedents' surviving children and siblings.

Estimates of θ are based on the number of residences of surviving relatives reported by the decedents' former housing units. Estimates of φ are based on the proportion of the housing units linked to the death by the counting rule that reported the death in the survey experiment.

Table 1. ESTIMATES OF θ AND φ FOR NONINSTITUTIONAL WHITE ADULT DEATHS FOR SELECTED COUNTING RULES

Counting rule r	Housing units linked to deaths by the counting rule	$\hat{\theta}_r$	$\hat{\varphi}_r$	$\hat{\Omega}_r$
1	Conventional rule.	1.00	.77	1.30
2	Conventional rule and units of children	.61	.81	.75
3	Conventional rule and units of siblings	.59	.76	.78
4	Conventional rule and units of siblings and children	.38	.80	.48

The estimates of θ range from 1.0 for the conventional rule to about 0.4 for rule 4. The estimate of θ is about 0.6 for rules 2 and 3. The estimates of φ are about 0.8 for each of the rules, ranging from 0.76 for rule 3 to 0.81 for rule 2.

The index of inefficiency, Ω in Table 1, ranges from about 1.3 for the conventional rule to about .50 for rule 4. In other words, for fixed sample size the variance of the estimate of death registration completeness based on either rule 2 or 3 would be about three-fifths as large as the variance of the conventional estimator, and the variance based on rule 4 would be less than two-fifths the size of conventional estimator variance.

Suppose we wished to estimate $(1 - P)$, the incompleteness of death registration in the United States, utilizing an existing government sample survey such as the Current Population Survey (CPS) or the Health Interview Survey (HIS). How large a sample of housing units, l, would be needed to assure that the survey estimate of incomplete registration, $(1 - P)$, would be subject to a relative sampling error of less than δ, that is to assure that $\sqrt{V(P)}/1 - P \leqslant \delta$? Ignoring the finite multiplier and assuming the complex design of CPS and HIS doubles the variance of a simple random sample design, we solve (5) for l to obtain

$$l = \frac{2}{\delta^2} \cdot \frac{P}{1 - P} \cdot \frac{\Omega_r}{\bar{\lambda}} \qquad (8)$$

where $\bar{\lambda} = N/L$ is the number of deaths per housing unit. Assuming the length of the survey reference period is one year, we have $\bar{\lambda} \doteq .02$, which is the estimated annual noninstitutional death rate per housing unit in the United States. We speculate that $(1 - P) = .01$, and by specifying that $\delta = 50\%$, we would be assured at the 95 percent confidence level that $(1 - P) \leqslant .02$.

Substituting $\Omega_c = 1.30$ in (8), we calculate that $l = 52{,}000$ housing units would be required in a single time household survey based on a conventional counting rule to assure a relative sampling error of less than 50 percent. The same precision requirements would be satisfied by $l = 31{,}000$ housing units in a survey based either on counting rules 2 or 3 and by $l = 20{,}000$ housing units in a survey based on counting rule 4.

MR. SIMMONS: Thank you, Monroe.

I think our audience can judge that in both these techniques that have been presented, despite the fact that our speakers have very dutifully stayed within their time limits, there is very much more to the story than we have had time to tell.

We will a little bit later, I hope, still have a few minutes so that we can expand on what has been said.

Thus far in the program I am sure that you can gather that Dr. Greenberg has found a way to discover whether you cheated on your income tax or not.

Dr. Sirken proposes that in the event you should die, he can find out that you have, whether or not the death has been registered.

Aside from collecting data, as all of you who have done any data processing know, one of the real problems for any survey is a device for getting input to mechanical or other devices with which we can process the data effectively.

Your next speaker, Dan McGann, has worked with this problem and that's the one he is going to talk about. While I cannot say that he is or is about to become Dean of a school of Public Health, he is about to become author of a book which I think may be a best seller. So you can look for that in addition to his telling us how to get data into the computer.

Mr. McGann.

CONTEXT—A COMPUTER PROGRAM DESIGNED TO PRODUCE ICDA CODES FROM FULL TEXT INFORMATION ON MEDICAL CONDITIONS AND CAUSES OF DEATH

Mr. Leonard D. McGann, *Director Division of Data Processing, National Center for Health Statistics, Health Services and Mental Health Administration*

This afternoon I would like to describe a computer technique and a system for converting medical terms in causes of death to the codes of the ICDA, the International Classification of Diseases.

Before we begin, I would like to introduce two of my co-workers, actually those people who have done most of the work on this project. One is the Chief of the Research Branch, Mr. Bill Spillane and the other is a Chief Systems Analyst and a man who actually developed the technique and who has done all of the programming, Mr. Bob Denny, also of the Research Branch.

I would like to emphasize at the outset that this is a prototype model that we have developed and it is still in the experimental stage, although the programs within the system are operational.

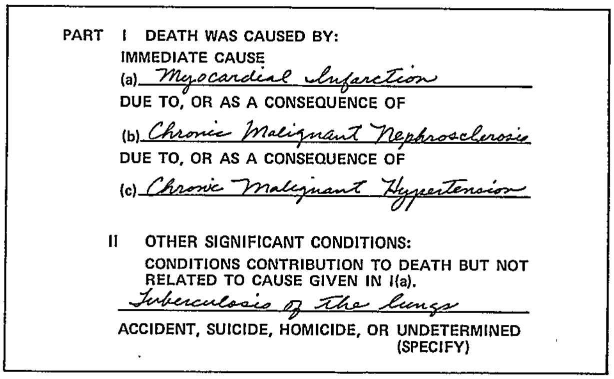
As with most systems, it began with a problem, that of converting medical terms, conditions and causes of death to the ICDA codes. As most of you, I am sure, know, this process of assigning ICDA codes to medical terms and conditions requires nosologists and medical coders with very extensive training and a high degree of knowledge.

We first attempted this in 1968, and that first study produced some unexpected results, the primary one being that you probably couldn't do it with a computer. We didn't believe that, however, and we proceeded. So we started to do one thing and ended up by doing something else.

This was something like the man that intended to slim his waist by exercises, whereby he did pretty active bending over and grabbing his feet, and after just two weeks, he went from a size 8 to a size 14½ shoe.

I'd like to show some slides. The first one is what the medical coder is presented with, a portion of the death certificate.

Figure 1



PART I DEATH WAS CAUSED BY:
IMMEDIATE CAUSE
(a) Myocardial Infarction
DUE TO, OR AS A CONSEQUENCE OF
(b) Chronic Malignant Nephrosclerosis
DUE TO, OR AS A CONSEQUENCE OF
(c) Chronic Malignant Hypertension

II OTHER SIGNIFICANT CONDITIONS:
CONDITIONS CONTRIBUTION TO DEATH BUT NOT RELATED TO CAUSE GIVEN IN I(a).
Tuberculosis of the lungs
ACCIDENT, SUICIDE, HOMICIDE, OR UNDETERMINED (SPECIFY)

It's essentially in two parts. The first part, which reads "death was caused by" and the "immediate cause," a line on which you can have one or more conditions.

Then "due to, or as a consequence of," is the second line, and so forth, to a third line.

The second part pertains to "other significant conditions" contributing to death but not related to the cause given in the first part.

That shows a typical death certificate and it is a sample of an actual one.

It was our intention at the outset to maintain the integrity of the original record, in other words, to attempt to convert to a form that would, insofar as possible, maintain the information in its original form.

We established various systems objectives. A major one was that we would not attempt, certainly not at the outset and probably never, to code 100 percent of the conditions on the certificates.

Through some early calculations with respect to the economy of the effort, we decided that anything in the area of 60 percent would be economically sound and would be worth doing, but our objective was established at 70 to 80 percent for machine coding of the conditions.

We excluded at the outset those difficult conditions, associated with traumatic deaths, accidents, and therapeutic misadventures.

We decided that the system should be small enough so that it could run on most 360 computers. We later changed the 360 concept and decided to make it so that it could be altered to run on almost any system of medium scale or above.

The coding rules established were easily applied and something very easily learned. This was done for a number of reasons. One was that we wanted the training period for the data preparation people not to exceed three weeks, and we have stuck pretty close to that. Since then we have decided four weeks training is the upper limit.

The output of this system should be acceptable as input to another system that I am sure most of you have heard of, and that is the ACME system, which essentially selects the underlying cause of death from an array of already coded conditions. This program would be functional with that one in that this would provided the input to ACME.

We decided, after the first few attempts at using the natural language, to make the encoding process, the conversion process, easier by using a system of abbreviations. We decided to make the abbreviating process itself contained a series of rules which would allow you to determine the abbreviation, whether or not you knew it at the outset.

One of the major problems, and the major considerations that we looked at in the beginning, was that in the process we were now following, the information contained on the death certificate was to a large degree altered or lost in the conversion process. You were going from medical terms in a natural language to a four digit code with a maximum possible 10,000 codes.

In the current process of coding to the four digit code, a great degree of specificity and information is lost. We had hoped in this process to maintain the original information insofar as possible, in case it was needed at some future date for a variety of reasons. For example, if you changed the ICDA code, you might want to go back and recalculate, reprocess the old information.

There are three general rules for making the system work. First of all, where there were frequently found terms—the authors took many of the most frequently occurring conditions and constructed easily remembered standard abbreviations for them.

For example, arteriosclerotic heart disease, the standard abbreviation is ASHD.

If there is no standard abbreviation for the term, and if it is composed of one word, then the entire word is spelled out. There is no abbreviating.

Figure 2

RULES FOR ABBREVIATING

1. USE STANDARD ABBREVIATION WHERE POSSIBLE.
   EXAMPLE: ARTERIOSCLEROTIC HEART DISEASE
   RULE 1 : ASHD
2. WRITE WHOLE WORD WHEN ENTITY IS COMPOSED OF ONE WORD.
   EXAMPLE: PNEUMONIA
   RULE 2 : PNEUMONIA
3. MEDICAL ENTITIES COMPOSED OF MORE THAN ONE WORD
   A. USE FIRST LETTER AND FIRST FOUR CONSONANTS OF FIRST WORD.
   B. USE FIRST FOUR LETTERS OF SECOND WORD.
   C. USE FIRST THREE LETTERS OF THIRD WORD.
   D. USE FIRST TWO LETTERS OF FOURTH WORD.
   E. USE ONLY FIRST LETTER OF FIFTH WORD.
   EXAMPLE: BENIGN ESSENTIAL HYPERTENSION
   RULE 3 : BNGN ESSE HYP

For medical entities composed of more than one word the set of rules to be applied, all under Rule 3 was, use the first letter and the first four consonants of the first word, use the first four letters of the second word, use the first three letters of the third, and first two letters of the fourth word, and only the first letter of the fifth word.

You can see in the example on slide 2—"benign essential hypertension" came out to be what you see on the bottom line, following Rule 3.

This shows an example of the formats. First of all, in the upper left is the format of the information contained on the death certificate, with the two parts of the three lines in the first part.

Figure 3

MEDICAL CERTIFICATION FORMAT			CONTEXT FORMAT
PART	I(a)	ACUTE MYOCARDIAL INFARCTION	ACT MI ; /
	(b)	ARTERIOSCLEROTIC HEART DISEASE	ASHD ; /
	(c)	GENERALIZED ARTERIOSCLEROSIS	GAS ; /
			/
	II	HYPERTENSION	* HYPERTENSION

1. SEMICOLON USED TO DENOTE END OF MEDICAL ENTITY.
2. SLASH USED TO DENOTE END OF EACH LINE.
3. ASTERISK USED TO DENOTE BEGINNING OF PART II.

TAPE FORMAT

ACT MI ; / ASHD ; / GAS ; / / * HYPERTENSION ; /

With that information then, by the person at the keyboard doing the encoding, they produce the abbreviations shown. ACT for acute, MI is a standard abbreviation for myocardial infarction, ASHD is the standard abbreviation for the term on the second line, and a standard abbreviation for the term on the third line.

The other indicators you see are to indicate the end of the medical entity. The slash is used to denote the end of the line itself, and an asterisk used to denote the beginning of Part 2 of the form.

Without regard to which type of device you are using you would eventually get to magnetic tape. The tape format is as shown on Slide 3.

This is a chart that I won't go into in great detail, but it indicates the flow of actions throughout the system. First of all, as we mentioned, the traumatic deaths would not now be handled by the system and they would be referred to the experienced nosologists and medical coders. But those records that did enter the system, perhaps 80 percent of the total, would go on to the next step, where abbreviation coding would be done.

Note that in this coding, using the abbreviations, there is no requirement for a manual to work with, to look up individual codes. The codes are self-generating.

One of the constraints that we placed upon ourselves was the desirability of having this system function on a relatively modest sized computer. That requirement led us away from utilizing large memories in order to go into random look-up of entities over an internally stored dictionary.

We decided to put the information in dictionary form on a magnetic tape. This, of course, is slower than a random look-up in such things as magnetic cord. But by exploding the record and putting it in alphabetical order, as far as each individual term is concerned, the average run could be confined to a period of 12 minutes or less.

We accomplished that by taking the original death certificate as a record and exploding it into a number of individual records, where the individual record contained the certificate number and a medical entity—a condition.

These data were then sorted and put in alphabetical sequence, and you would note at that point that a certificate may be strewn out throughout the length of the magnetic tape.

The next step was to do the matching and assign the ICDA codes based upon either the full text or the abbreviations listed for each condition.

A certain number of records would be rejected, since the dictionary is not complete and may never be a 100 percent. They would be handled by the medical coders and the nosologists, and put back into the system. That manual review enables not only the correction and the inclusion of those records into the file, but the updating of the dictionary and the associated files.

Finally, after the updating of the files involved in the system, a run is undergone to convert the records back into a format to be acceptable to the ACME program. At that point the records pertaining to the traumatic deaths

Figure 4

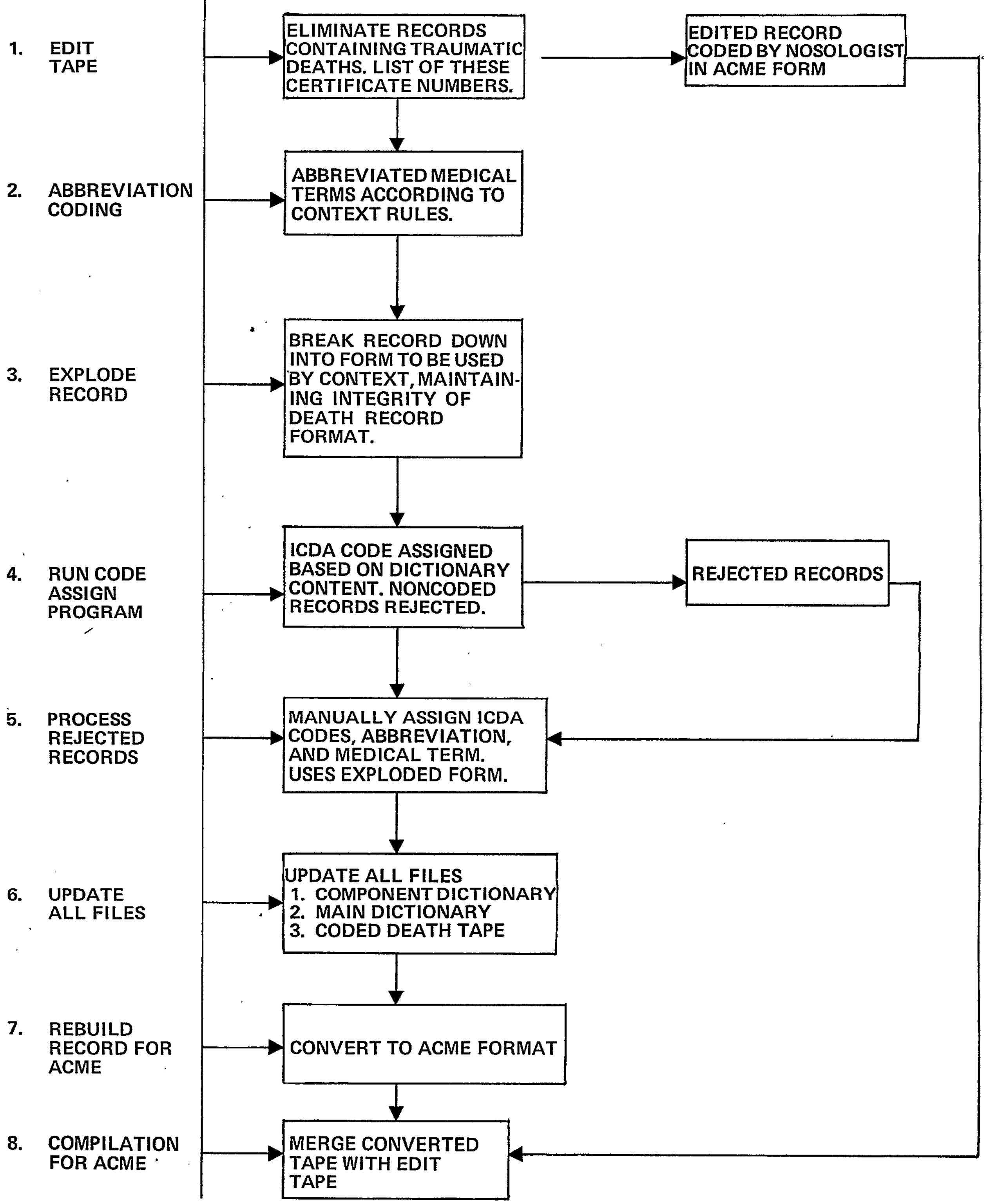
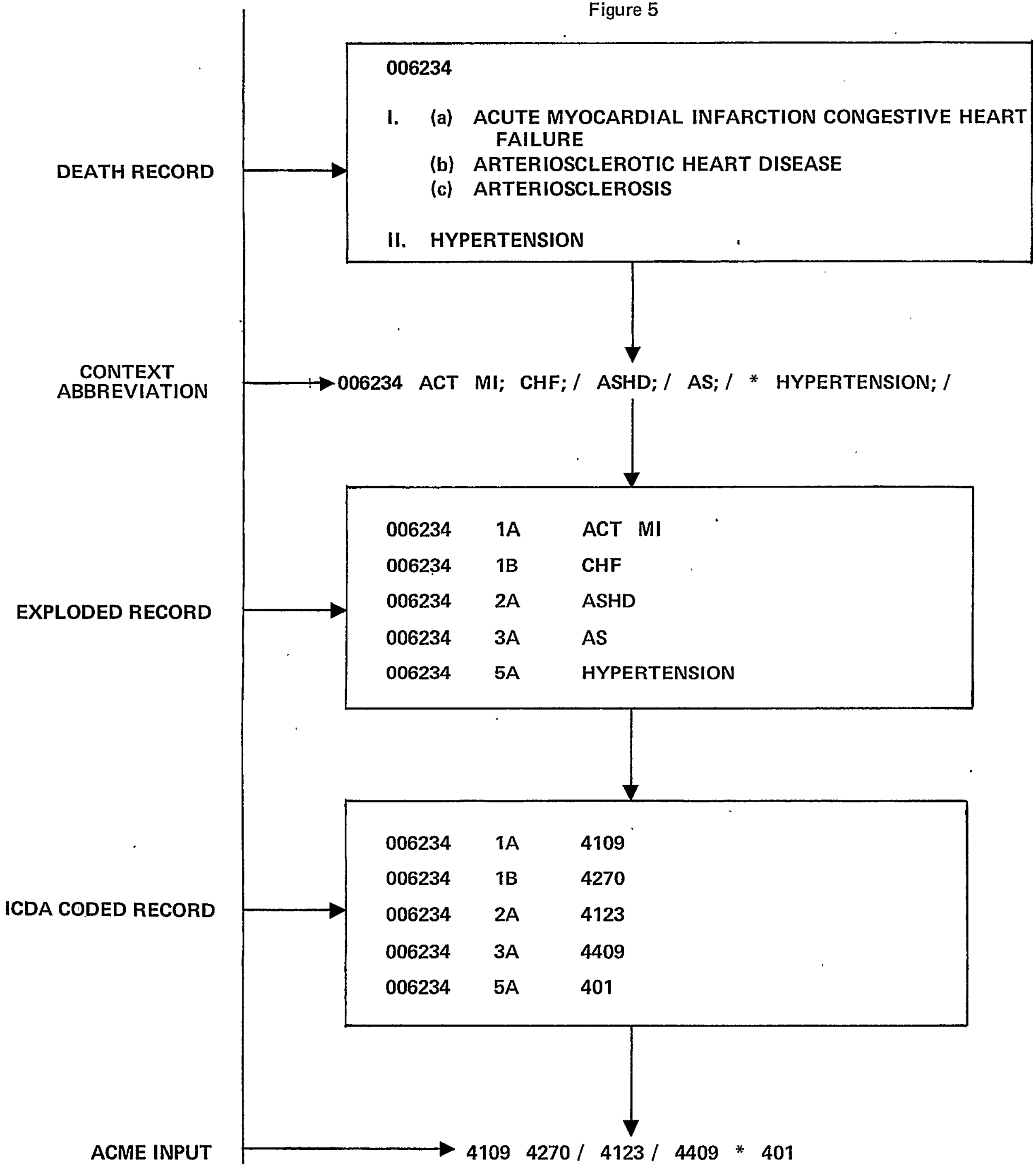

1. EDIT TAPE
ELIMINATE RECORDS CONTAINING TRAUMATIC DEATHS. LIST OF THESE CERTIFICATE NUMBERS.
EDITED RECORD CODED BY NOSOLOGIST IN ACME FORM
2. ABBREVIATION CODING
ABBREVIATED MEDICAL TERMS ACCORDING TO CONTEXT RULES.
3. EXPLODE RECORD
BREAK RECORD DOWN INTO FORM TO BE USED BY CONTEXT, MAINTAINING INTEGRITY OF DEATH RECORD FORMAT.
4. RUN CODE ASSIGN PROGRAM
ICDA CODE ASSIGNED BASED ON DICTIONARY CONTENT. NONCODED RECORDS REJECTED.
REJECTED RECORDS
5. PROCESS REJECTED RECORDS
MANUALLY ASSIGN ICDA CODES, ABBREVIATION, AND MEDICAL TERM. USES EXPLODED FORM.
6. UPDATE ALL FILES
UPDATE ALL FILES
1. COMPONENT DICTIONARY
2. MAIN DICTIONARY
3. CODED DEATH TAPE
7. REBUILD RECORD FOR ACME
CONVERT TO ACME FORMAT
8. COMPILATION FOR ACME
MERGE CONVERTED TAPE WITH EDIT TAPE

Figure 5



would be merged with these records and the entire tape then fed as input to the ACME system for selection of the underlying cause.

This slide shows an example of processing one record. The death record shown at the top is essentially the original form. The context—context, by the way, standing for conversion of text—the abbreviations, as shown—from that, the exploded record, showing an individual record for each condition in its abbreviated form, and after the matching process, the exploded records with the ICDA codes assigned.

The record would then be reconstructed and put back in its original form, the numbers after the certificate numbers indicating the line and the position on the line that should be occupied by that particular condition.

Figure 6

The following chart gives some preliminary results we have obtained with the CONTEXT System. The records were coded by a key puncher with approximately two weeks training in CONTEXT Rules. Although at this stage we are not coding the predicted 70 - 80 percent, the results indicate that with a larger dictionary, the 70 - 80 percent is an attainable figure.

CONTEXT SUMMARY RESULTS

NUMBER OF RUNS	TERMS ON DICTIONARY	RECORDS INPUT	PERCENTAGE OF RECORDS CODED	PERCENTAGE OF TERMS CODED
1	260	500	20%	51%
2	760	500	40%	65%
3	1050	1200	51%	63%
4	1554	2348	53%	72%
5	3571	2446	57%	77%
6	3571	3198	65%	73.3%
7	3571	13484	50%	73%
8	4661	13484	56%	77%

This slide shows the results of some of our early efforts up through the latest attempt of a week or so ago. On the first run we began with only 500 records, that is, death certificates, used as input, in an attempt to code those. The dictionary at that time purposely contained only 260 terms, and as I mentioned, these terms were chosen by a review of the frequency of occurrence. In that effort, 20 percent of the records were coded, meaning the entire certificate was completed, and 51 percent of the terms. Even this small test indicates that there is a high degree of repetition in types of medical entities encountered.

On the second run, again 500 records were used, and in each case these are different records, selected randomly. The dictionary was increased to 760 terms. Again 500 records were fed through, 40 percent of the records were coded, and these are correctly coded—they were checked—and 65 percent of the terms.

The dictionary was again updated through the process we noted on the systems flow chart. Some 1,050 terms were put in the dictionary; 1,200 randomly selected certificates were put through the system, and 51 percent of the records were coded and 63 percent of the terms.

On the fourth run the dictionary was up to 1,554. There were 2,348 records put in and we produced 53 percent of the records, 77 percent of the terms.

Finally we were up to 3,572 dictionary entries, ran 2,446 records into the system, and coded—77 percent of the conditions and 57 percent of the records themselves.

We believe that we will produce a functioning system in a reasonable amount of time. All of the early indications are that the degree of repetition is such that we will be able to at least take out the humdrum from the every day coding operations, have the computer do that, and leave the more difficult cases to the humans, to use their experience and knowledge to code those.

To summarize, these are the system's features.

Figure 7

	SYSTEM FEATURES
1.	SYSTEM WILL ACCURATELY CODE APPROXIMATELY 70-80 PERCENT OF THE DEATH RECORDS.
2.	TRAINING PERIOD FOR A CONTEXT CODER IS RELATIVELY SHORT ALLOWING THE CODER TO BECOME PRODUCTIVE IN LESS TIME THAN IS NOW REQUIRED.
3.	COUNTER ON EACH DICTIONARY TERM TO GIVE THE TOTAL NUMBER OF TIMES EACH TERM IS ENCOUNTERED IN A GIVEN RUN OR IN ALL RUNS FOR A PARTICULAR REPORTING PERIOD. STATISTICS READILY AVAILABLE FROM THESE COUNTERS.
4.	CONTEXT IS EASILY ADAPTABLE TO OPTICAL CHARACTER RECOGNITION.
5.	CONTEXT CAN BE USED ON MOST 360 SYSTEMS.
6.	CONTEXT OUTPUT CAN BE USED AS ACME INPUT.

We wanted a system that would accurately code approximately 70 to 80 percent of the death records. We wanted a training period for a context coder to be confined to a relatively short period of time, allowing the coder to become productive in less time than is now required.

In this training process the technique utilized so far is to concentrate primarily on what the coder can be expected to encounter as the rule, and little time is spent on the exception. If the coder cannot handle the exception or handles it incorrectly, the computer will reject that record and it will be referred to the more experienced coder.

We have established counters in the program to maintain a complete record of the number of times terms are encountered and the number of times codes are assigned for a particular condition. We think that these counters indicating frequency of encountering various conditions on the record may prove to be useful to the statisticians.

The system itself is easily adaptable to optical character recognition techniques, whether or not the OCR method is used as a result of source data automation, that is the OCR document existed at the outset of the capture of the data, or whether the OCR technique is used as a replacement for other types of data preparation activity, such as card punching or magnetic tape encoding or other techniques. The system will accept data prepared in any conventional manner.

CONTEXT can be used on most 360 systems and anything in the size category of 360-30 on up would handle it.

Finally, the CONTEXT output can be used as input to the ACME system.

Figure 8

	SYSTEM OBJECTIVES
1.	ATTEMPT TO CODE 70-80 PERCENT OF DEATH RECORDS DUE FREQUENT REPETITION OF CODES.
2.	DO NOT CODE TRAUMATIC DEATHS.
3.	CONTEXT SHOULD BE SMALL ENOUGH TO INSTALL ON MOST 360 SYSTEMS.
4.	CONTEXT RULES SHOULD BE EASY TO APPLY.
5.	TRAINING PERIOD OF 3 WEEKS OR LESS.
6.	CONTEXT OUTPUT SHOULD BE ACCEPTABLE AS ACME INPUT.

We may change some of the objectives; we may modify them as we go along. This is a prototype, but it does have some very significant, we think, advantages in the offing, one of which pertains to training and productivity during training.

If we take the CONTEXT system versus the present system and consider productivity over a period of months, currently—and I am speaking now somewhat in generalities—for the most part, under the present system, the length of training is such that the individual is essentially unproductive for an extended period of time, perhaps as much as six months.

Utilizing the CONTEXT system, the individual would not be productive for the first month, but then would be able to produce, and we are giving here what we have decided as a conservative estimate for the second month, 300 records per day.

Let's suppose, just for the sake of argument, that for the six month period, the coder can produce an average of 300 records per day, over this entire period, and use as the average number of productive days in the month the figure 20.

So 300 records a day would produce 6,000 records. If we are utilizing, say, 30 coders in the training, we come up with 180,000 records per month. For the six months period then, these people who, remember, were in a training status, could produce 1.08 million records.

I will make available for anyone who is interested sample copies of the dictionary entries and what is expected or could be expected to be found on the dictionaries. Requests should be sent to Research Branch, NCHS, Research Triangle Park, N.C. 27709. And I thank you.

MR. SIMMONS: I thank you, Dan.

We have had three processes described here this afternoon. Each of these is different from what has typically been done in the past. Each I think is a very promising possibility.

I think each also is a somewhat controversial kind of thing in that you can find questions to raise and perhaps flaws or dangers in each of them.

The floor is open now for comments or questions or argument with any of the speakers.

I wish those who would raise the questions would move toward one of the floor microphones, or one of the people on the floor will carry a microphone to you. Please identify yourself by name and some sort of affiliation. It helps in the discussion that will take place.

All right. Any one of the papers or all three are open for discussion.

MR. RAMASWAMY: I am Krishnan Ramaswamy, Biostatistician, Department of Health, Harrisburg, Pennsylvania. This is for Dr. Greenberg.

MR. SIMMONS: The question is for Dr. Greenberg?

MR. RAMASWAMY: Yes. Instead of using a nonsensitive, innocuous attribute Y, why don't we use less sensitive attribute B so that the minimum variance, unbiased estimate B as a variance is not significantly different from the sensitive or non-sensitive attribute Y?

DR. GREENBERG: You can use correlated questions, but you have to have some idea as to the magnitude of the correlation. If you do use correlated questions, you improve the estimate by reducing the variance.

You can find this discussed in our paper, in the Journal of the American Statistical Association, where we discussed how you can improve the efficiency by using correlated questions—correlated, but non-sensitive.

For example, in the case of abortion, you might ask, as the alternate question, not something about the month of birth, but the parity of the mother—"Have you had four children?" Yes and no. Women of high parity tend to have a higher frequency of abortions.

Here is a question which is related; it's correlated, but is is still an innocuous question. If you do use that, you can increase the efficiency by reducing the variance, but you have to know the magnitude of the correlation.

MR. RAMASWAMY: Thank you.

MR. SIMMONS: All right, there is a question here. Mr. Israel, I believe.

MR. ISRAEL: Robert Israel, from the National Center for Health Statistics. I actually have a question for each of the presenters.

MR. SIMMONS: Will you specify the order.

MR. ISRAEL: First of all, let me start out with what I think may be a sort of foolish question to ask of Dr. Greenberg, but I was interested in the quantitative kind of question, and for the life of me I couldn't think of a non-sensitive kind of question for the income. I just wondered what question you ask.

DR. GREENBERG: The question that was asked for the sensitive question was, of course, how much money did the head of this household earn last year. The non-sensitive question was, "How much money do you think a person with, let's say, your husband's education, should earn?" In other words, how much would they like to have earned. You end up with an average value about $400 or $500 more for both black and white. Everybody would like to have around $500 dollars more.

As far as abortions were concerned, the sensitive question was, "How many abortions have you had in your lifetime?" The non-sensitive question asked was, "If a woman had to work fulltime in order to support herself, how many children do you think she should have?" Zero, one, two, three, and so on.

MR. ISRAEL: Thank you. I would like to ask Dan McGann whether or not, in the process of developing the CONTEXT system, you have tried to measure the difference between learning the abbreviation rules and the errors that one might make in applying the abbreviation rules, as compared to straight full text without doing any abbreviation.

MR. McGANN: Yes. The amount of time it took to learn the rules for the individuals we used was approximately two weeks. For an inexperienced coder, we would expect to conduct in-training with about a week of training in medical terminology and anatomy, another week on the CONTEXT system itself and observing what is currently being done in all condition coding, and finally a week which involves essentially practical exercises, which is a significantly lower level of training then is currently required.

Although the training required to get someone to punch everything that is on the death certificate was minimal, to say the least, still the rate of error in punching full text was considerably higher than in punching the abbreviations. I don't have the exact figures with me, but it was a significantly higher rate of error in punching everything. Misspellings were involved, transposition of letters, and various things of that nature.

MR. ISRAEL: Thank you. If I may ask my last question, I'd like to ask Monroe, regarding a survey to estimate the amount of under-registration of deaths in the United States, whether you are thinking of a special survey that would be designed to get at this question or whether this isn't something that could ride piggyback on some other survey.

I think you mentioned the possibility of the Current Population Survey or some of the other surveys, but I just wondered if you would say a word or two about these two different kinds of approaches to the question.

DR. SIRKEN: I am glad you asked the question. I was thinking of a piggyback ride, and that's why I specifically mentioned ongoing surveys, like the Current Population Survey and the Health Interview Survey. I just don't see any possibility in the near future of having the kind of money that would be necessary in order to have an ad hoc survey completely devoted to death registration.

Even if we did have that kind of money, I don't think it's necessary, and I think it would be inefficient because to ask the kind of questions that would be necessary in a death registration test would take very very little time and could easily be appended to an ongoing survey.

As a matter of fact, a prototype for this was a recent birth registration study that was done as a supplement to the current population and the health interview survey, where survey birth records were completed for infants enumerated in the surveys. In a similar way, survey death records would be completed if it was a death survey.

It turns out in the United States you would only have, for a conventional rule, a death reported about once for every 50 housing units.

For the multiplicity rule for the kind I mentioned, you increase that from one in 50 to about one in 20, but the fact remains that for most of the housing units you have just one or two questions to ask to determine that there really were no deaths to be enumerated.

MR. SIMMONS: All right. You have a question here, Dr. Marks?

DR. MARKS: I am Eli Marks, Research Professor, University of Pennsylvania. First a comment. Both the randomized response technique and the multiplicity technique are attempts to overcome biases and presumably they overcome biases by increasing the variance.

In the case of the randomized response technique you have two sources of variance. One is the fact that the proportion getting the sensitive question is not fixed actually. It means that just its expected value is fixed, presumably, hopefully. And the other is the fact that you are actually asking the sensitive question and you are bound to be asking it in less cases.

In the case of the other technique, of course, it's the same problem that one has with dual system estimation in general, that you have the variance of the percent.

But particularly with respect to the randomized response technique, have you studied the question of at what point does it pay to use a randomized response technique of any sort, assuming that the one that you have described is the best technique?

DR. GREENBERG: Thank you, Eli. This is discussed by Warner, it's been discussed by us in other papers, and it's on Page 13 of the present paper. Those of you who have the paper, turn to Page 13. I will simply read it.

"It does not take more than about 10 percent evasiveness." In other words, 10 percent of the population have to either not respond or lie. "It does not take more than about 10 percent evasiveness in a sample size of 500 to make the mean square error of the randomized response procedure with two alternate questions highly preferable to that of asking the sensitive question directly."

Obviously you can create all kinds of situations, but we took one particular case and sample sized it at about 500 and all you need is about 10 percent of the population lying and you are a heck of a lot better off with the randomized response.

MR. SIMMONS: Monroe, do you wish to make any comment?

DR. SIRKEN: Yes, I would like to. The similarity, Eli, that you pointed out between the randomized response and the multiplicity surveys with respect to sampling error, is not so.

It can be demonstrated that the variance of a multiplicity estimate is less than the variance of a conventional estimate.

You improve your variance as well as possibly improving your bias, so you have an opportunity for gaining on both grounds.

DR. MARKS: No—

MR. SIMMONS: Briefly, please. There are some other people here, too, Eli, who would like to speak.

DR. MARKS: My point, Monroe, with respect to the multiplicity estimate, was just the reverse actually. I am afraid that what you may be doing with the multiplicity estimate is increasing the bias particularly in a dual system estimate, because you increase the correlation.

DR. SIRKEN: If I may answer that, Mr. Chairman, I would say I deliberately constrained myself from considering biased questions. I was only concerned with sampling. However, I really don't think that what you are implying is so. I don't think so, but I don't know for sure.

MR. SIMMONS: May we turn to another point?

Dr. Tenney.

DR. TENNEY: I am Jim Tenney, School of Hygiene & Public Health, Johns Hopkins University. I would like to ask Dr. Greenberg what effect the randomizing device might have. You suggested that there might be some fault or error or certainly unsatisfactory results in the previous survey that stem from using a different kind of randomizing device. I wondered whether you conjectured on what effect this had.

DR. GREENBERG: I will tell you our experience with all different kinds.

The first one that was suggested by Warner was the spinner. There are two reasons why we didn't actually field test. We tried out a spinner. A spinner, in order to be perfectly unbiased, must be horizontal. In order to retain confidentiality, we would suggest to the interviewer that the respondent hold it in a vertical position and that automatically biases; it would point down.

The other problem with the spinner reminded me of the difficulty with my children. Whenever it falls on the line, they always argue—why, it's a five, and the other one says no, it's a six. We didn't want to have that argument as far as the respondent was concerned and to be in doubt as to whether it was in one group or in the other group.

The spinner just isn't very practical. I think Warner was suggesting it only as a "for instance."

What we actually did with three households was decks of cards. We printed small decks of cards, slightly smaller than a deck of playing cards, and had printed on them symbols as well, for persons who were illiterate. Each interviewer had 50 cards in her deck. At the end of the survey, some interviewers came back with 47 cards, some came back with 48 cards. One interviewer, I swear, came back with 51 cards. Where she got it we don't know. Either we made a mistake initially in counting out 50, or she borrowed one from her friends, or something.

What happens is that shuffling cards is not random. I have no faith in the shuffling of cards as being a randomization device. That's why we developed these sealed plastic boxes. The question with that is do you develop electrostatic electricity, because we had to dye those beads. We answered that in the negative. We do not.

We had a person shaking these things day in and day out to make sure the probabilities were what we thought they were. But it has problems, too, and in terms of acceptability, somebody always may feel that you are pulling some trick on them.

That's why we think the coin is really the ultimate in the sense that everybody, especially if they use their own coins, is willing to accept the fact that heads falls 50 percent and the tails 50 percent and in every country they use the same terms, head and tails, even though it may not look very much like a head or a tail.

DR. TENNEY: Thank you. I have always suspected the power of the coin.

MR. SIMMONS: I think we have time for about one more question from the floor. Who would like to ask it?

The gentleman here.

MR. MESARD: I am Louis Mesard, Chief, Biometircs Division, Veterans Administration. I would like to ask Mr. McGann if his work on the death certificates has been paralleled by any effort on hospital discharges which constitute, I think, a much larger nationwide problem than death certificates.

What effort have you made along those lines, and do you think that what you found in your death certificate coding would also hold for hospital discharge coding?

MR. McGANN: Yes. We feel that there will be application in the hospital discharge area, and we feel also that the range of possibilities there are considerably wider.

We have not, within our own shop, done any work with respect to the hospital discharge information, but it would be our next logical step if and when this finally works and is accepted.

MR. SIMMONS: We have been discussing this afternoon these three different processes. I think that they have at least one element all in common. They are developing techniques in each instance.

There is not a single fixed procedure, but rather, I think, each of these schemes reflects an idea, a process, a general approach to trying to solve a particular problem.

In randomized response, we already have seen proposed, at least a half dozen, perhaps as many as 20 different specific varieties of the technique.

I doubt that we have yet the best scheme, but only the best scheme so far in this field, and I think that this same kind of argument applies to both the other two processes as well.

We are just starting down a road that has a good many branches in each case, and I think we can expect to see developments in each of the techniques.

I would like to thank the speakers and the audience, too, for this afternoon's session.

Whereupon, Concurrent Session "H" was concluded.

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Concurrent Session "I"

Health Economics

This session was concerned with economic problems of health care at the State level—the poor (Medicaid); the insured non-poor who find their health care costs rising; and economic planning for health care, particularly for capital expenditures.

Contents

CONCURRENT SESSION "I"

HEALTH ECONOMICS

PRESIDING

Dr. Stuart Altman, *Deputy Assistant Secretary for Planning and Evaluation—Health Department of Health, Education, and Welfare*

When I was called a few months ago by David Schenker, and invited to be the Chairman of this session, after thinking about it, I said, "Sure, I guess I could do it, both my background as an economist and my recent exposure to health problems qualify me, among many."

I have known Dave for a long time and he is a thoughtful person, but he usually has about three things up each sleeve. He said he would take charge of putting the panel together and I need not worry about it, and he would tell me who was going to be on the panel.

About a week ago, he sent me the list of speakers on the panel. As those of you who have looked up to the front dais realize, the panel is made up of three very charming women. I happen to know each of them personally which Dave didn't know that.

Something he did know is that in my professional career the only time I seem to do any research it deals with females in the labor force, both in terms of their unemployment and their work habits. I think Dave was trying to sort of turn me back, in a way, to my professional statistical career in anticipation of this seminar. I think it is now fair to say that an objective evaluation would probably indicate me as, best person to be Chairman of the session. (Laughter)

I thought about whether I should say anything about the fact that there are three females on the panel. Being a rather cool person and recognizing that we are in a new world, I thought the best thing to do would be just to ignore it and just introduce the speakers as if they were any other speakers, but one of them said to me. "How come there are three of us who are women? Was this perfectly planned?"

And I said, "Well, Dave is a very thoughtful planner and he planned it that way." That is not fair. That is not true at all. We changed the program to accommodate interests of people and a couple of speaking engagements, and as it worked out, we have all three speakers who are women. This obviously is not simply tokenism. We got a big token if it is.

These speakers in their respective fields rank as leading experts. I am pleased that they have consented to join the group. I can't take personal satisfaction for putting this group together, but I can take satisfaction in being its Chairman.

The subject spans a rather wide arc in terms of health problems with one central focus. As far as I can see, the era of essentially a semi-laissez faire health system is over and has been over for sometime. However, we have not yet put together the machinery that would allow us to properly plan for the fact that we do have a system, which has a lot of abnormalities which reach over State boundaries, which involves the Federal Government, State governments, and private providers.

What we have done is put in place certain laws dealing with Federal funding and State funding for the poor. We are putting in new laws dealing with comprehensive health planning. We are about to, in a number of pieces of legislation passed, give these comprehensive health planning agencies tremendous power and responsibility over the whole health care system.

We have recently introduced phase two with a strong active role in the health area, and we have done all this without adequately putting in place the basic tenets that those of us who are analysts know we must have. That is, we have not put together the basic statistical information systems that will allow anything resembling rational planning to take place.

One can both be impressed and in some sense taken aback by the wealth of data that exists shown in a convention like this. But if you are trying to get information quickly and get it in a coherent way, you are pretty frustrated by the fact that there is not any single or even a few bodies of statistics which tell you all you want or need to know.

What we are going to hear about today from our three speakers are some of the problems of trying to work within a system like this. Our first speaker, Mildred Shapiro, is from the State of New York and works at the State governmental level; Mary Lee Ingbar is from the State of Massachusetts and has had experience in working in and analyzing hospitals; and Lucille Reifman is in the Federal Medicaid program.

All of these speakers have had a good deal of experience dealing in the health planning area, and they have been frustrated by the lack of adequate data to do their jobs.

Today, we will hear about some of the problems they have faced. I don't know whether they are going to tell us how to get out of them or not.

Let me begin by introducing our first speaker. She is Mildred Shapiro, who is currently the Director of the Bureau of Economic Analysis of the New York State Department of Health, and an adjunct professor in Health Economics at Union College, as well as a lecturer at Albany Medical College in Community Medicine.

Before joining the Health Department, Miss Shapiro in 1966 was the Senior Economic Research Editor with the New York State Department of Labor, and prior to that an Economic Research Editor for several trade union publications. She is a cum laude Phi Beta Kappa graduate of Brooklyn College, with a Masters in Economics from the New School for Social Research. She is the author of numerous articles on the economics of health.

We will have all three of the speakers make their formal presentations and then open the floor for a general discussion between the audience and speakers.

Let me present Mildred Shapiro.

WHAT THE HEALTH ECONOMIST NEEDS FROM THE HEALTH STATISTICIAN

Ms. Mildred B. Shapiro, *Director, Bureau of Economic Analysis, New York State Department of Health*

Too often, public health policy has been based on myths, shibboleths, gut feelings and unique experiments in a controlled environment. The time has come to unmask and even destroy the sacrosanct images in public health in the light of hard data and cost-benefit analyses. We should not be encouraging prepaid group practice because the government says "Try it, you'll like it," but because there may be statistical evidence available which indicates that the coverage is more comprehensive, the care better and more convenient, and the costs lower than in the present solo practice fee-for-service system. Whether or not to "go with an HMO" should be decided on facts—not fancy, fashion, or fiction in health delivery.

In discussing the dearth of data in the health field, I would like to confine my areas of attention to two fields, hospital reimbursement and health insurance.

Only recently have hospital accounting and hospital statistics emerged from the Middle Ages to come crashing into the 20th century. Despite considerable progress, they have a long way to go. The emerging importance of third-party payers, Blue Cross, Medicaid and Medicare, has had a hormonal influence in promoting rapid development of a patient whose growth has been stunted.

In most States, hospitals complete one cost report for Medicare, still another for Medicaid, and a third for Blue Cross. In addition, each commercial insurance carrier supplies a different claim form. Added to this inundation of paper and variety of forms is the lack of a uniform accounting system in most States. In short, comparisons among hospitals by cost, by service statistics or any other parameter is impossible because of the lack of uniformity, and poor quality of existing data.

In New York State, we have embarked on a strangely logical course. Since 1968, a single report has been employed for Medicare, Medicaid and Blue Cross. The Uniform Financial Report and Uniform Statistical Report totaling 42 pages will this year be the subject of a joint audit by all three programs.

Chauvinistic propaganda aside, I would like to be able to assure you that New York now has a data base for all hospitals with historical statistics available to solve the multi-faceted problems involved in hospital financing. In fact, however, we are still frustrated and discontent with the quality of the data. While the report may be uniform, the reporting and accounting still are not. Those States which embark on a similar course will have to consider the first few years an investment in the education and training of hospital finance officers which should pay dividens in later years. Perhaps in the future, it may even be possible to make State-to-State comparisons if reporting and accounting were uniform throughout the nation.

No recitation of statistics need be cited to demonstrate what we have already witnessed—that hospital costs have soared in the past six years. Yet when we try to identify more precisely the causes of these rising costs, even among hospitals grouped for their relative homogeneity, we find wide unexplainable variations in costs.

Can the statisticians help us identify and quantify the economic impact of teaching or research on patient care in terms of direct and induced costs? How can we explain variations in staffing among hospitals offering the same mix of services? How do we explain wide ranges in unit costs of x-rays and laboratory tests when we have little knowledge of contractual agreements with hospital-based physicians and their outside earnings generated from hospital resources? And how can we use hospital reimbursement formulae to influence hospital management to contain costs, and then measure the effectiveness of these reimbursement techniques?

The three major third-party payers, for the most part, are wed to the per diem method of reimbursement, at least for the present. But why should there be anything sacred about per diems? In fact, third parties would do well to investigate further some of the pitfalls of per-diems, for instance, in a period of declining occupancy, how well the per diem serves hospital management and physicians alike by keeping the patient in the hospital a day or two longer. Health economists would generally agree that the latter part of a patient's stay is the most profitable to a hospital receiving a fixed per diem, since ancillary services are at a minimum and bed rest is the order of the day. And how convenient for the physician to make morning rounds with all his patients assembled and generating hospital visit fees. But perhaps in all fairness, it is the patient himself, whether covered by Medicaid, Medicare, or Blue Cross, who would like to prolong his stay for a few more days since no member of his nuclear family is able to care for him at home. With no out-of-pocket payment necessary on his part thoroughly desensitized to soaring hospital costs, why not stay another few days?

And yet, when we think of experimentation and innovation in hospital reimbursement, we find ourselves starved for meaningful statistics. For instance, we have been considering a reimbursement formula based on a spell of illness, by diagnosis, irrespective of length of stay. Thus for a patient with a diagnosis of cholecystitis or pneumonia, a dollar amount would be determined based on the average length of stay for that disease category, and average cost per day. A prolonged stay would result in no additional compensation to the hospital. The net effect would be to shorten the length of stay, regardless of level of occupancy. When the occupancy rate is high, and elective cases are awaiting admission, each to be accompanied by prearranged payment to the hospital, the incentive is to make the bed available to the new patient—and the new infusion of dollars. When utilization rates are low and beds are empty, it is less costly to discharge the patient as early as possible. A filled bed incurs, in addition to fixed costs, variable costs, e.g., food, laundry, nursing, and testing for which no additional income will be generated. An empty bed incurs only fixed costs.

The statistics which are needed to implement this system, even as an experiment, are average length of stay per diagnosis. While the Professional Activity Study (PAS) in Michigan collects this type of data for some hospitals, the majority do not participate. In addition, this type of data collection can be complicated by single or multiple diagnosis, particularly among the aged, but it can be done. The problem would be further simplified if all third-party payers could ultimately agree on a single reimbursement formula with an average rate for all patients instead of the experience rating of each individual program group. A universal health insurance system embracing or superseding current programs would bring us a step closer to that goal.

The subject of health insurance brings to mind the second topic of interest. While national health insurance proposals are cluttering many drawing boards and legislators' desks, what we currently have on the national scene is a little bit of social insurance, or Medicare, costing about $8 billion, and somewhat more private insurance, costing $20 billion. Yet Medicare covers only 45 percent of the elderly patient's health bill and private insurance covers only 40 percent of consumer expenditures for health. Clearly the importance and contributions of social health insurance and private health insurance have been oversold. How do we counter the myths? Arming the public with readily understandable, simple facts is one step forward.

All forms of social insurance in this country have been liberalized over the years, Old Age and Survivors Insurance, Unemployment Insurance and Workmen's Compensation. Yet Medicare stands alone as the only social insurance program which has suffered cutbacks since its inception. Deductibles and co-payment have been increased under Part A, further cuts for the number of covered days for a spell of illness are proposed under H.R. 1, and under Part B the premium has almost doubled, from $3.00 to $5.80 per month starting July 1 of this year. Why have Medicare benefits been trimmed while other social insurance programs continue to expand benefits? Most social insurance programs have been indemnity plans, that is, dollar payments at specified levels which are therefore controllable.

Medicare has been the first major attempt at a service benefit, or a pledge to provide hospital and medical care. Soaring costs have defied and belied all previous estimates of expenditures. Numerous interacting factors have been responsible including a mass infusion of government dollars creating increased demand without affecting supply, retrospective cost-plus reimbursement, usual and customary fees, and lack of effective cost control.

To a Medicare beneficiary, these are just vague concepts which do not assist him in evaluating his protection. With greater absolute out-of-pocket expenditures, is the Medicare beneficiary ahead or behind? Surely it should be the obligation of economists and statisticians to provide this kind of analysis. Medicare benefit, that is a day of hospital care, is certainly worth more today than it would have been six years ago, while a fixed dollar amount would be worth a lot less.

Suppose the costs of a procedure common to the aged were analyzed, such as extraction of a lens, commonly known as a cataract operation. The value of the Part A benefits based on prevailing charges less out-of-pocket expenditures for deductibles, and co-payment after 60 days if the stay is lengthy, could be divided by the total cost of the hospital stay to produce ratios, to be compared annually between 1966 and 1972.

The higher the ratio, the better the measure of protection, and the greater the understanding and appreciation of value received. Should the ratio fall, what better trigger mechanism for actuaries, legislators and senior citizens to review the program and take appropriate action.

The Health Department in New York State has developed and published a similar model for evaluating private health insurance policies by the use of a grading system. Pity the poor consumer who has to wade through a host of policies, no two of which are identical, with varying coverages, durations, deductibles, coinsurance, indemnity limits, exclusions, exceptions, elimination periods, waiting periods, special restrictions for pre-existing conditions, riders, and who knows what other tortuous devices. The benefit-cost ratios and benefit-expenditure ratios in our porposal would enable the consumer to grade a policy between A and F and cut through the verbal debris designed to delude him.

To further advance the cause of the health insurance consumer, legislation was passed in New York State in 1971 which calls for standardization and simplification of coverage to facilitate understanding and comparisons, elimination of provisions which may be misleading or unreasonably confusing, elimination of deceptive practices in connection with sales, elimination of provisions which may be contrary to the health care needs of the public, and elimination of coverages which are so limited in scope as to be of no substantial economic value to the insured.

To further that end, regulations have been and will continue to be promulgated. It will be proposed that all policies require a disclosure statement as to whether they are "basic" hospital or medical insurance policies, that is, whether or not they meet certain minimum criteria. If they do not, they must warn the policyholder that it is a "limited" policy and does not provide minimum basic protection as defined by the Department of Insurance. In addition, policies must disclose their loss ratios, that is, what percentage of the premium dollar will be be paid out in the form of benefits. Many of the individual policies of commercial carriers selling mail order insurance return as little as 30 percent of premiums in the form of benefits. This type of information should be routinely collected and disclosed in all States, not just New York which happens to be among the foremost in health insurance regulation.

In many States, though, public hearings are held each time a Blue Cross plan seeks a premium increase for a community-rated contract. These plans, some of which return 96 percent of premiums in the form of benefits, are frequently the subject of abuse and criticism from consumer and other groups. This visibility of community-rated Blue Cross plans is frequently due to special regulations required of such plans because of their non-profit status. Yet what we hear at public hearings on community-rated Blue Cross contracts is often only the tip of the iceberg. What are the circumstances surrounding rate-setting for experience-rated contracts which are so often shrouded in mystery and secrecy?

High volume, low-risk business is the darling of the Blues and commercial carriers. Imagine, if you will, the bargaining power of a company employing many thousands of employees, most of whom are in good health. In an effort to secure as low a premium as possible for his low-risk attractive offering, the company official will exercise all the bargaining talents at his command. The underwriter, on the other hand, is anxious to keep those high volume premium dollars flowing into the carrier's coffers, and to minimize the possibility of the account being pirated away by a competitor. The resultant premium is usually quite favorable to the large employer and may be described as cream skimming. If enough of the cream is skimmed off for favorable treatment, what we have left for public scrutiny and hand-wringing is the residue of high risks to be community-rated at increasingly high costs. Does experience rating produce more premium dollars to subsidize high-loss enrollment? Or do community rating contracts subsidize short-sighted low premiums of highly competitive experience-rated business? No one seems to know and the experts differ. It is time for disclosure of (1) tightly guarded experience-rated formulae, (2) a look at the books to ascertain which group is being subsidized, and at the expense of whom, and (3) a general review of experience rating and social policy.

Health insurance should offer protection—not peanuts. Yet the rising cost of good protection often places it beyond the reach of those who need it most. It is a dilemma for economists, statisticians and policymakers to resolve in their search to provide adequate health care for all Americans. There is no such thing as free medical care. The questions are: who will pay, and how much? Thank you.

DR. ALTMAN: Our second speaker this afternoon is Dr. Mary Lee Ingbar, who has been Director of Research and a consultant in health economics for the State of Massachusetts Comprehensive Health Planning Agency.

While working for the Department of Health, Hospitals, and Welfare of the City of Cambridge, Dr. Ingbar has also been developing a record-keeping system for cost-benefit analysis. She previously did a study of hospital costs in Massachusetts while at Harvard University in the Graduate School of Public Administration. She is about to make a move to the West Coast to the School of Medicine of the University of California in San Francisco, where she will be Associate Professor in the Division of Ambulatory and Community Medicine. In this new capacity she will be involved with the development of a new Health Policy Program which Dr. Philip R. Lee is directing. Dr. Lee used to be the Assistant Secretary for Health and Scientific Affairs. Dr. Ingbar will speak about the infusion of capital and the capital-labor ratios in hospitals.

Dr. Ingbar.

CONTROLLING THE EXPANSION OF HEALTH CARE FACILITIES IN A STATE: THE PREDICTION DILEMMA

Dr. Mary Lee Ingbar, *Associate Professor of Health Economics, Division of Ambulatory and Community Medicine (Health Policy Program), Department of Medicine, University of California, San Francisco.*

Recognition and response to the importance of controlling the expansion of health care facilities has become an increasing preoccupation of many State governments. Some 20 States have now enacted "certification of need" legislation which requires that State agencies give specific approval to applications for any major change in bed complements or any capital expenditures exceeding a certain level, often \$100,000.[1] Massachusetts has been involved in such programs for the last six months through the Commonwealth's Department of Public Health. My own experience in this area has come through my work with the Office of Comprehensive Health Planning which was offered the opportunity to review and comment upon these applications under the legislation which became effective November 15, 1971.[2] It is not my intent, however, to pursue today the details of the Massachusetts experience. Rather, my remarks will represent my own views concerning what I shall term the prediction dilemma that is posed in controlling the expansion of health facilities. My comments do not necessarily represent, therefore, the views of any officials of the Commonwealth or any of its official agencies.

FIGURE 1

PREDICTIVE DILEMMAS

1. FORECASTING COSTS
    a. VARIATION WITH SIZE
    b. VARIATION WITH SERVICE-MIX
    c. VARIATION WITH UTILIZATION
2. PREDICTING NEED, DEMAND, AND USE
3. ESTIMATING FACILITIES, MANPOWER, AND OTHER RESOURCE REQUIREMENTS
4. DEVELOPING POPULATION PROJECTIONS
5. ANTICIPATING THE STATE OF THE ART WITH RESPECT TO MEDICAL KNOWLEDGE

Why do I refer to the prediction dilemma? Because, as indicated in Figure 1, implicit or explicit in each decision with respect to certification are not only evaluations of the immediate impact of the expected change upon health care, but also forecasts concerning the ultimate effects of these changes on the costs of building and maintaining the health care system. In addition, any change in the health care system both reflects and creates changes in consumers' perceptions of what care they need, how much they will demand, and when and where they will use services. For any anticipated quantitative level of medical care, moreover, resource requirements may differ, depending upon how facilities and manpower are organized and the extent to which their productivity is thereby enhanced or diminished. In addition, because new health facilities must last for long periods of time, their number, nature, and specific design must derive from predictions concerning both the population to be served and the state of the art with respect to medical care. Since limitations of time will not permit thorough discussion of all these predictive dilemmas, I shall concentrate my remarks on those dilemmas that relate primarily to cost, use of services, and resource requirements.

Much of the impetus for controlling the expansion of hospitals and other health care facilities stems from the desire to curtail rising costs of health care in general, and hospital care in particular. Thus, if public policy is to be successful, the first assumption that needs to be examined is that we can predict the effect on cost of controlling expansion of health facilities.

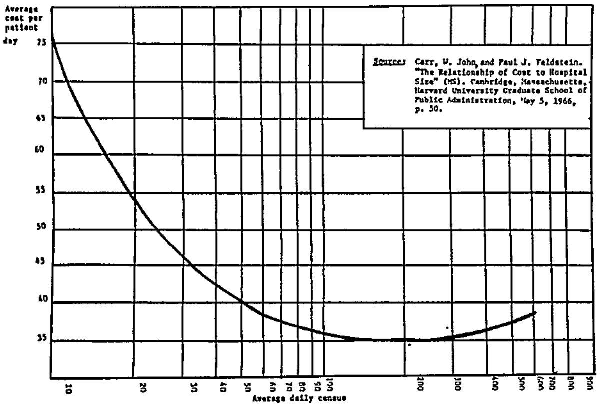
More specifically the question is "Will curbing the expansion of hospitals and other medical facilities alleviate rising costs of health services without sacrificing the quantity or quality of medical care or its accessibility and attractiveness to the consumer?" The usual answer is that much could be saved by prohibiting the construction of unnecessary beds. Ostensibly, this would involve two types of saving: first, that related to construction costs alone, and second, that resulting from the provision of fewer days of inpatient care. The former is often calculated by multiplying the omitted beds by the average capital cost of building a bed, reported to be \$48,000 for 1971[3] or between \$35,000 and 75,000 per bed, depending upon the type of institution.[4] The latter saving is usually estimated by multiplying the estimated number of inpatient days that will be eliminated by an estimated expost average cost, such as the \$81.01 national average expense per patient day reported for 1970 by the American Hospital Association.[5]

Such estimates of saving lack validity from the economist's point of view. Total cost is not a simple, straight-line function equal to average cost multiplied times volume. Consequently, we cannot accept the assumptions that would necessarily follow if this were true.

We do not, for example, expect average cost of hospital care to remain unchanged regardless of the volume of care provided, but rather expect some variation as size is altered. That this is true is documented in Figure 2. This figure, taken from a study by Carr and Feldstein[6] of 3,147 voluntary short-term general hospitals, depicts a "u" shaped cost curve in which the average cost per patient day varies decidely with the average daily census, declining sharply, and then rising significantly. On the other hand, the findings of Lester Taylor and myself in our study of 72 community hospitals in Massachusetts are in apparent contradiction with those just shown. We found increasing unit costs as hospitals increased in size, until a size of 150-190 beds was reached, beyond which point traditional declining unit costs and economies of scale appeared.[7]

Figure 2

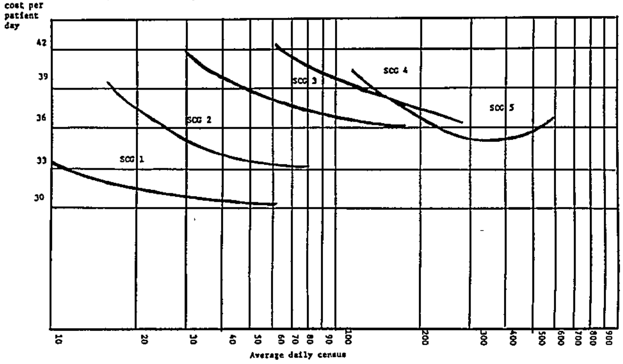
Estimated Average Cost Per Patient Day in Relation to Average Daily Census,
3,147 U.S. Voluntary Short-Term General Hospitals, 1963



Source: Carr, W. John, and Paul J. Feldstein. "The Relationship of Cost to Hospital Size" (MS). Cambridge, Massachusetts, Harvard University Graduate School of Public Administration, May 5, 1966, p. 50.

Figure 3

Estimated Average Cost Per Patient Day in Relation to Average Daily Census,
3,147 U.S. Voluntary Short-Term General Hospitals by Service-Capability Group, 1963



Source: Carr, W. John, and Paul J. Feldstein. "The Relationship of Cost to Hospital Size" (MS). Cambridge, Massachusetts, Harvard University Graduate School of Public Administration, May 5, 1966, p. 57.

How can these seemingly contrary finding be reconciled? The answer appears to be provided by the data shown in Figure 3 which depicts in relation to size, costs of several service-capability groups—that is, groups ranging in the number and variety of specialized services that they provide. A family of "u" shaped curves is described. But, a line connecting these curves would obviously describe an inverted "u" of the type we observed for the Massachusetts hospitals. Thus, there exists an interrelationship between size and service capability as determinants of unit cost. Since this relationship is complex, judgments with respect to expansion of bed capacity must reflect the initial size of the institution as well as the nature and number of services to be provided.

These few examples have been chosen to illustrate not only the role of economies of scale[8] and the nature and number of services[9] provided as determinants of unit costs, but to illustrate the complexity of the interaction between them. Similar complex interactions also pertain to other factors which have been identified in studies of hospital costs and which include such variables as percentage of occupancy, the amount of surgical versus nonsurgical care, presence of teaching programs or schools of nursing, and so forth.[10] Consequently, truly informed decisions must take cognizance of such influences on unit cost. Ultimately, to the extent that public policy is to meet a demonstrated need for expanded health facilities, their impact on unit cost, rather than on total cost, becomes the major consideration.

Let us turn now to the second category of predictive difficulty. Can we project the quantity of health care a population will require with sufficient precision to define what is an adequate capacity for meeting health needs? Several differing approaches are possible.

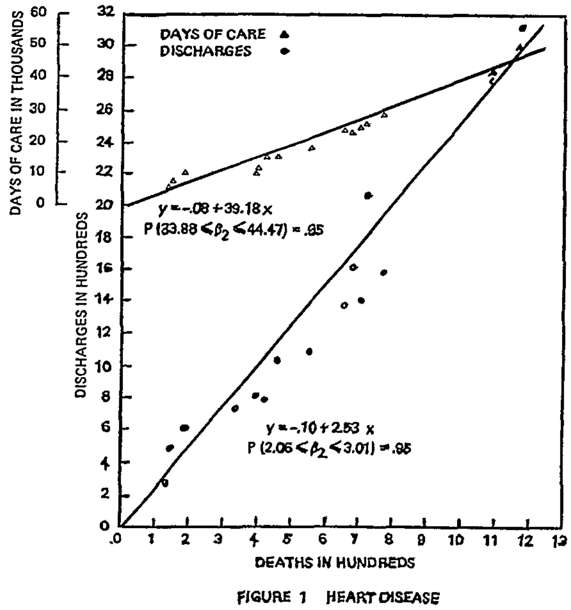
In planning for hospital-based units of emergency and outpatient care, for example, New York State has adopted the viewpoint that constraints related to economic, manpower, and quality of care considerations dictate that no such unit be located at hospitals of less than 100 beds or at centers which serve a population of less than 20,000 to 25,000 people, unless adherence to these criteria would require users to travel for more than 30 to 40 minutes.[11] Given these principles, and data on population densities, the Division of Health Facility Financing and Development of the New York State Department of Health could estimate how many visits each region and county should be prepared to provide under a variety of assumptions concerning the use rates per 1,000 population. Capacity to offer this number of visits was then expressed in terms of the number of examining rooms that would be required of the institutions in each region under alternate assumptions concerning the number of visits to a room each day.

Similar projections can be made for other types of medical services, given anticipated rates and population data. The Department of Public Health of the Commonwealth of Massachusetts has developed such estimates of expected caseloads from both its own vital statistics records and the National Center's morbidity and mortality rates. Computer technology, moreover, makes it possible for estimates to be derived for substate areas and regions, and even for cities and towns when of sufficient size to generate valid results.[12] Such calculations can be further refined, given sufficient computer capability of a sophisticated nature. Finally, demand and supply could be interrelated in terms other than a one to one correspondence by geographic area. Patient origin studies could provide the basis for relating facilities and services to consumers in many different geographic area. Locational patterns, transport networks, travel times, and alternative sites of service could all be taken into account.[13]

To link such demand estimates to resource requirements, however, requires more than population data and patient origin information. One approach is to express morbidity information directly in terms of associated services as in Figure 4. Using data for fifteen geographically defined and demographically characterized subpopulations in Northeast Ohio, Decker[14] has applied regression techniques to relate area

Figure 4

Days of Care and Hospital Discharges in Relation to Deaths for Heart Disease in Fifteen Geographically Defined and Demographically Characterized Subpopulations of Northeast Ohio during 1967



Source:

Decker, Barry. "Hospital Discharges and Days of Care in Relation to Medical Need" (MS). Cambridge, Massachusetts: Arthur D. Little, Inc., December 1971, p. 12.

deaths on the horizontal axis and days of care on the vertical axis. The linear relationship observed can then be used both to predict required days of care, that is hospital utilization, and to evaluate utilization experience of subpopulations. Thus, Decker observed that "increased hospital utilization for heart disease, probably resulting from inadequate ambulatory care, was noted in both a poor ghetto and a well-to-do suburban subpopulation."

Another approach which links demand factors with their supply counterparts is to seek information on the number and types of resources and to evaluate their productivity. This necessitates dealing with the third predictive problem, can we estimate the resources required to provide adequate care?

This question, like the others we have touched upon, can be approached in a variety of ways. A recent study by Hughes, Fuchs, Jacoby and Lewit,[15] for example, developed techniques for evaluating the productivity of general surgeons and the extent to which their skills were fully utilized. Figure 5 describes the productivity of 19 general surgeons in private practice, indicated by the letters A through S, in terms of annual herniorraphy equivalents, or H.E.'s. H.E.'s were chosen as the standard for measuring surgical effort based upon an analysis of the operating room time and length of stay of patients undergoing 24 categories of general surgical procedures. A mean of 224 H.E.'s a year (or 4.3 per week) and a median value of 161 H.E.'s per year (or 3.1 per week) was observed. This compares with what was deemed an ideal surgical work load of about 500 H.E.'s per year (10 per week). The authors consequently concluded that there was "substantial under utilization of costly and highly specialized medical skills."[16] Such findings have immediate significance for hospitals in terms of the use and construction of operating rooms. They also illustrate one method applicable to translating expected morbidity experience into resource requirements.

Figure 5

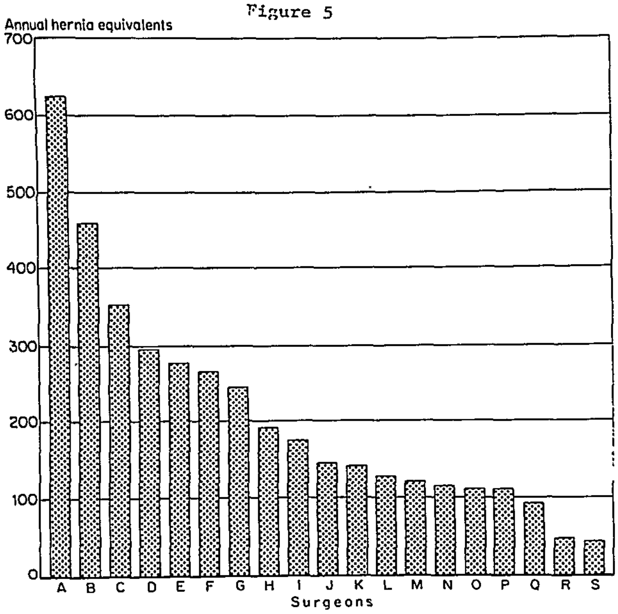


Fig. 2. Annual hernia equivalents, by surgeon.

Source:

Hughes, Edward F.X., Victor R. Fuchs, John E. Jacoby and Eugene M. Lewit. "Surgical Work Loads in a Community Practice," Surgery, 71:3:315-327 (March 1972). p. 320.

How such results are to be translated into a public policy which requires exact specification of allowable changes in resources, is, however, another question. On the one hand, as in most studies of this type, initial findings document the variability of existing medical practice and the lack of central tendencies which lend credence to statistical norms. On the other hand, as the authors themselves indicate, results may be influenced by the fact that the study was undertaken in a State known to have a general surgeon to population ratio 65 percent in excess of the national average. To explore these latter types of problems, it will be necessary to accumulate enough national data to permit the application of regression techniques. That such efforts will be rewarding is suggested by another recent finding of Martin Feldstein who concluded that "An increase in the number of general practitioners would induce a very large saving in hospital resources, on the order of $39,000 a year per general practitioner."[17]

Resource requirements may also be predicted in other ways. Logic may be reversed, in which case assumptions concerning workloads and the types and varieties of procedures to be performed become the basis for estimating manpower and space requirements. Perhaps the best example of this latter approach is to be found in the extensive specifications of the United States Veterans Administration which are described department by department and function by function in its M-7 manual, entitled *Planning Criteria for Medical Facilities*.[18] This document outlines in detail the square footage requirements of all major activities and functions in which the Veterans Administration hospitals may be engaged. It therefore provides a benchmark against which to evaluate the adequacy of facilities, given estimates of the expected workloads.

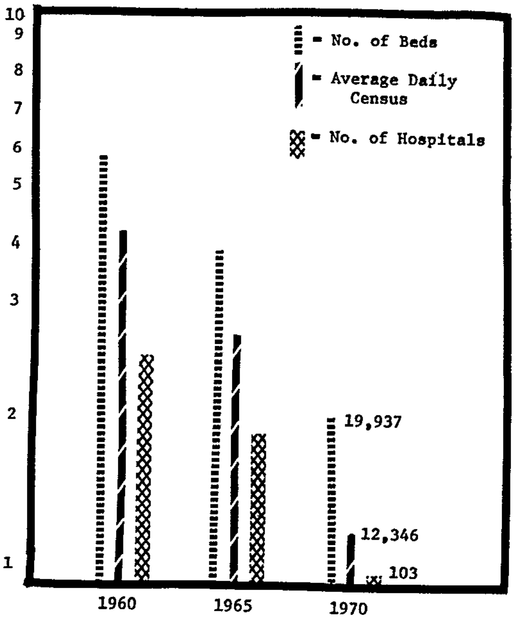
The prediction dilemma can, of course, be extended. If we could predict cost so we would know where to economize, if we could predict need and demand so we would know what services would be required, and if we could predict productivity and organizational patterns so we would know the extent to which available resources would indeed be capable of meeting these requirements for service, we would then reach another prediction dilemma. Can we predict where people will live and what facilities they will use with sufficient foresight and accuracy to know where to locate and build those new facilities and services that are deemed to be required?

This question, of course, introduces the full range of skills related to demographic projections and locational theories. Furthermore, to the extent that populations respond to industrial developments, projections of the one cannot be made without consideration of the latter. People, factories and firms will also be responsive to innumerable other factors, including those relating to general economic activity and those reflecting technological advances in the production of goods and services, not merely those related to the delivery of health care. Responses, moreover, will not be static with time. Changes in the rapidity and modes of transport, for example, have immediate impact on where firms situate and on where people locate, both as producers of health services and as consumers of medical care. Whatever the complexities of undertaking such forecasts, moreover, a frank acceptance of the relevance of such considerations and of the expertise they require is better than predictions by default through implicit assumptions of continuance of the status quo. As demonstrated in many of the New Haven Census Use Studies,[19] population data can be made relevant to improving health care as well as to analyzing its patterns.

Finally, of course, there is the predictive dilemma of the state of the art with respect to medical care itself. New knowledge, new procedures, and new diseases create new problems and new opportunities in the provision and use of services. Development of hemodiaylsis and transplant procedures, by complicating and prolonging the treatment of patients with chronic renal disease, has increased bed use in this category. On the other hand, as illustrated in Figure 6 tuberculosis sanitariums have largely become obsolete, only 103 hospitals with an average census of just over 12,000 and under 20,000 beds being classified in this category in 1970.[20] Ambulatory activity, meanwhile, is being introduced for many conditions once demanding bed rest.

Figure 6

CHANGES IN NUMBER OF BEDS, AVERAGE DAILY CENSUS AND NUMBER OF TUBERCULOSIS HOSPITALS, UNITED STATES, 1960, 1965, 1970



Source:

Abstracted from "Guide Issue," Hospitals, 35:15, Part 2: 396 (August 1, 1961), 40:15, Part 2:442 (August 1, 1966), 45:15, Part 2:463 (August 1, 1971).

As I have tried to enumerate and illustrate, the development of a public policy whose mission is to guide the evolution of a system for providing the most professionally effective and economically efficient health care requires involvement with a multiplicity of variables which themselves interact in a multiplicity of ways. The sheer magnitude of data concerning certain of these variables and interactions, and, in contrast, the virtual absence of quantitative data concerning others, gives rise to the predictive dilemmas I have described and attempted to categorize.

Yet these dilemmas and difficulties should not and cannot serve as a basis for inaction, since both economic and human needs in this area are extensive and urgent. What is required, therefore, is a program of both action and study—action in the light of what is currently known and presently feasible and study to expand these capabilities.[21] Most important in this respect would be the development of systems for applying the study component to determine continuously the effects and effectiveness of the action component. The latter in turn should be structured in such a manner as to be promptly responsive to what is learned about the results of its own actions.

What then is the situation of State agencies in relation to these difficulties? Few would deny that they are often surveying only the small most immediate and most readily visible proportion of these problems. But can we therefore criticize them? The reality is that they are often inadequately staffed, have inadequate access to pertinent information, and inadequate power to command the resources that they require. Moreover, while we all exist in a political system, this is particularly true of State agencies. Political systems, much as they may find long-term goals to be desirable, often find short-term and visible goals mandatory.

Enlightened public policy, therefore, must build a system which recognizes these dilemmas, creates the desire for their resolution, and provides the resources with which this can be achieved. Thank you.

DR. ALTMAN: To balance the ticket between the State and Federal governments, our third speaker is a fellow worker of mine in the Medicaid Program. Her name is Lucille Reifman. Many of you know her, I am sure. She is the Acting Associate Commissioner for Planning of the Medical Services Administration, which is the Federal bureau administering the Medicaid program. She has been with medicaid for two years, which says a lot for her tenacity if not her capability. She has served as the Chief of Program Planning and Evaluation. She has also served with the National Institutes of Health and the Organization for Economic Cooperation and Development in Paris.

At this point I should add that she put a little parenthetical note which said, "the last time I gave a chairman a resume of mine, he introduced me as Lucille Reifman, the wife of a Foreign Service Officer who has managed to swing five assignments in Paris." She also has three lovely daughters.

She has taught at the University of Paris, the Institutes of Statistics, American University, and George Washington University, and is the author of many books and articles on health and educational planning and econometric models.

Lucille Reifman.

MEDICAID: THE DATA DILEMMA

Mrs. Lucille Reifman, *Associate Commissioner (Planning), Medical Services Administration, Social and Rehabilitation Service, Department of Health, Education, and Welfare*

Let me extend Howard Newman's regrets that he is unable to be here today. I am sure that he would have preferred to be here rather than testifying before the Senate Finance Committee. And, of course, I would have preferred that he be here; I was eager to learn about the Medicaid Data Dilemma, about which he had promised to speak.

My own dilemma was quite clear. If a dilemma is a situation involving choices between unsatisfactory alternatives, I saw that I could try to speak in Howard's place, or - - - -. That dilemma has been resolved.

You have often heard criticisms and comments about the status of information about the Medicaid program; I imagine you may have made some of them yourself. These comments have ranged from "disaster" to "desperate." In fact, the lack of good, accurate, and timely data on the Medicaid program has become widely known shibboleth. This condition, one of those which Mildred suggested earlier, which was characteristic of the program from its inception in 1965, was documented in somewhat painful detail by Secretary Finch's Medicaid Task Force, when in 1969, they undertook their thorough examination of the health financing programs of Medicaid and Medicare. For many unfamiliar with recent developments, Medicaid appears to be a $9 billion program operating in an informational vacuum. I hope today, to raise your consciousness about Medicaid data and to elevate your conception of it from a "disaster area" to, at least, an "enigma."

As most of you know, Medicaid operates in 52 jurisdictions, will soon be operating in Alaska, with only Arizona currently electing not to have a Medicaid assistance program. The programs cost a total of $9 billion, of which a little over half is Federal funds; the remainder is State and local. These funds will have paid for medical services received in fiscal year 1973 by over 23 million people of low income. Despite our informational difficulties, we know (or at least we believe we know) that during 1973, about $3.5 billion in hospital services will have been provided through Medicaid, about $3.1 billion in nursing homes (skilled nursing homes and intermediate care facilities) $.6 billion in prescription drugs and about $1 billion in physician services. The remaining $.9 billion will be paid for dental services, laboratories and x-rays, home health care services, clinic services and the like.

The Medicaid program is fulfilling at least part of its design, which is to provide needed health services to that segment of the low income population, who would be eligible for cash assistance, or who would be so eligible except for certain income and resource conditions. This means that Medicaid services are available only to persons with special characteristics, namely that they are aged, blind, or disabled individuals or members of families where at least one parent is incapacitated or absent or, in some States, just unemployed.

At State option, coverage may also be extended to any foster child or any other low income child under 21 who needs medical care. In addition to the requirement of being a member of a particularly defined group, the recipient must meet certain income and resource requirements. Beyond the relatively simple State income tests of the public assistance program, Medicaid coverage may also be available to families and individuals, in States which elect the so-called medically needy option, when their medical expenses are high enough that when these are deducted from their income, the remainder available for rent, clothing, food and other purposes is less than the State's medical assistance standard. It is emphasized that the standards for eligibility are different in each State and the definitions, standards, and income disregards are applied differently between States and even within the same State.

I review these rather tortuous requirements for Medicaid eligibility, not to confuse you (although I suspect I may have succeeded), or even to make you into instant Medicaid experts, but rather to emphasize that these complex conditions preclude finding an easy way to measure the size of the population, eligible for Medicaid. And without this measure of the eligible population, it is difficult to develop measures of the effectiveness of the program in providing services to its target population, or to study the characteristics of those who exercise their eligibility versus those who do not, or to devise program changes which would serve the needy population in a more effective manner.

We are dealing with a program which: (1) varies greatly in benefits from State to State; (2) is available to different populations in different States, and that population differs from the standard definition of the poor; (3) is tied to another program, cash assistance, which is complex in its own right; and (4) depends on data collection, that also varies greatly from State to State.

One example of the difficulties arising through our inability to use Medicaid data to provide answers to significant questions was found in the uncertainties the Administration faced in developing the Family Health Insurance Plan, a suggested reform of Medicaid. To derive actuarial estimates of the cost and use of the FHIP package, it was necessary to have information on the experiences when health care has been provided at low or no cost to the poor population. Private insurance plans offered little information—partly because many low income people are not covered by private insurance and partly because private insurance companies have very little income data.

The Medicaid experience was called upon to fill the gap. But, as suggested earlier, while we know a great deal about Medicaid recipients, we had difficulties assessing the proportion of the *eligible* Medicaid population who actually took advantage of the program to visit a physician, dentist or whatever, how many of the *eligibles* needed more than eight or ten or whatever number of visits to particular providers. Furthermore, we couldn't even hope to get a handle on how much of the changes in the demand for Medicaid services were directly attributable to the vagaries of the cash assistance population.

However, even with these grave limitations on our available data, we have been able to achieve valuable insight into these and other issues. Working with staff in Stuart Altman's office, we have begun to search for more detailed answers in the several States where Medicaid information is highly developed. But we still do not have available to us on the National level, the kind of data needed to undertake sophisticated analyses of the use of health services by the poor.

Severe problems have arisen through the imperfect match of the cash assistance population with the "poor", as defined by the Government. In the absence of good information from the States on their cash recipients, we have turned to the census data for the numbers and income of the poor, and to the National Center for Health Statistics for a measure of their need for health services. First, we have found, as I am sure you have, that a lack of comparability between these statistics makes combinations of these data highly suspect. Secondly, we have found the census data sorely lacking as a measure of the public assistance population. The number of eligibles, according to census, appears to be smaller in some States than those actually on the cash assistance rolls. Should we then assume that all eligibles are participating plus some ineligibles as well? That would probably be a pretty risky conclusion. How could we then explain the rapid growth in the welfare population? If, as we suspect, census severely undercounts the welfare eligible population, should we assume that this is also true, and to the same degree, for the rest of the poor—the male headed families, the singles, and the couples without children? We can only speculate.

And when we try to move to measuring the need for health care, current health care coverage, or health practices of the poor, we move into even more uncertain ground. And the ground disappears almost entirely when we try to talk about some of the more abstract implications of a medical assistance program.

Does the increased incidence of mental retardation, lead based paint poisoning, or other illnesses frequent to the poor indicate failures on the part of the Medicaid program? Conversely, can we point to the decrease in infant mortality among certain poor populations as a tribute to Medicaid success? Our data would hardly support such analysis, (and I question whether others would) even if we could make the connecting links between program activity and health outcome.

Which leads us to another facet of our data problem. Even though we improve and standardize our data base, we still cannot overcome the difficulties inherent in trying to measure the "outcome" of our program when the outcome sought is good health. Operational definitions of health are hard enough to come by, let alone definitions of health that take account of income, cultural differences, and varying health practices.

We recently tried to investigate a problem which we naively hoped would be somewhat simpler than some of our others. Could we measure output in terms of providing "necessary" services? If we could, we would be in a better position to evaluate the effects on his use of health services when we require a low income person to pay for part of the cost of his medical care. Would he cut down on the use of "unnecessary" services and limit his demand to those services required for effective maintenance of his health? Or would he put off getting services until his problem reached crisis proportions, when probably more expensive and more extensive care would be required? Or does his general economic situation at that time, more than his need for medical care, determine how he reacts to a co-payment. The answer to some of these questions is helped by a definition of "necessary services."

Even if we could delineate definitions of "health" and of "necessary services" would we honestly be able to hold constant the effects of education, nutritional practices, housing, and other health affecting programs in order to evaluate the impact of a single program or policy? These are, of course, problems for all of us and relevant to a range of programs and Government policies. Devising ways of measuring the impact of public actions in the social area is likely to remain a concern for all of us.

I do not wish to leave you just with a sense of doom and gloom about the prospects for Medicaid data. I believe that we've made significant progress over the past few years; I know that we will expand this progress over the next several years.

After all, our programs continue to operate, States continue to pay their providers, and we were assured by the Senate Finance Committee remarks recently that a reasonable degree of fiscal integrity exists in the program. In fact, back home, we believe that we've come a lot further than our nearest competitor, that so-called centrally run program. Of course, you might say that we had a lot further to go.

First of all, as the psychiatrist said, we've had great success in recognizing our problems, and that's progress. We've acknowledged that our data were deficient and often irrelevant. As a result of this admission and the strong support for reform which came from the Medicaid Task Force, and favorable attention in the form of personnel and contract funds, we have undertaken to assist the States in building their capability for a Medicaid management information system. This system will serve the dual purpose of allowing for more effective management of the program at the State level and allow for the collection of uniform data at the national level.

Further, in concert with SRS and the Department's FAST Task Force, we have redesigned our data collection instruments. While they do not provide us with significantly more information, they will provide it in a more usable form, and in a more timely fashion.

Finally, we have been working closely with the Offices of the Under Secretary (including the Welfare Planning Group), the Assistant Secretary for Planning and Evaluation, for Health and Scientific Affairs, and the Medicare program and the Maternal and Child Health program to provide for coordination and interrelationship of data and for complementary analysis.

Your expertise can be of great assistance in this effort.

(1) Tell us where there are data on our population, their income, their health needs and practices;

(2) Help us to build adequate and comparable data bases at the State and local level;

(3) And (particularly those of you who are interested in research in the area of health utilization) help us to evaluate the impact of the current Medicaid program, so that we can all use these experiences to assure that the changes in our health programs for the poor will be *improvements*.

(4) And, if you insist on criticizing Medicaid, please do it because we're aiming too high.

PANEL DISCUSSION: REGISTRANT QUESTIONS

Chairman and Speakers

DR. ALTMAN: Before I turn the program over to general discussion, I would like to discuss one area which has recently taken a good deal of my time and which I see as one of the major thrusts over the next decade, which is the need for new and significantly better statistics.

This deals with the measurement of quality of care. No area that I have seen in the year that I have been in my new job is fraught with more dangers and yet has more possibility for improving health care delivery than a well designed analysis of the quality of care received.

Many of you who deal with Federal and State legislation know that in the Senate Finance Committee there is a proposal that would establish Professional Standard Review Organizations throughout the United States—to analyze and measure quality of care. Senator Kennedy in his HMO bill would establish a quality of care Commission at the Federal level to do the same thing. Both of these have as a central focus that the providers of health care have to be the key gatekeeper in measuring and safeguarding the quality of care.

This may be as it should be. Nevertheless, I feel that a task as Herculean as that cannot be done by individuals without a massive data system backed up by sophisticated computer capability.

In a few places I have been to—in Albuquerque, New Mexico; San Francisco, San Joaquin; and Minneapolis—we are moving to the use of computers as ways of monitoring quality of care.

If some of you have a couple of spare years to devote toward a new effort, I would very much urge you to look seriously into doing some hard thinking on how these new activities can be better performed. I am concerned because the quality of care activity could be for good or evil. This may be a little preaching, but the good will only come, I think, if you understand and have good statistics so that you can understand what is good quality care and what in fact is happening with respect to utilization of care.

Our speakers have all talked about rapid increases in costs, increases and decreases in utilization of care, but even then these are pretty fragmented pieces of information. If you are going to do an indepth analysis, there is no way of doing it with bits and pieces. You have to have a detailed, a composite picture of the quality and amount of health care received in an area.

So before I throw the discussion open, I would put on the table this suggestion that very serious thought on the part of statisticians and economists in the area is needed to give help to backing up the providers in trying to measure quality care.

I would like now to open the floor for a general discussion and ask for any questions. I want to say that if you have comments or questions, would you give your name and your affiliation so people can both praise and condemn you with proper spirit.

Are there any comments or questions?

Do any of the speakers have comments?

DR. REIFMAN: We had the last word.

MS. SHAPIRO: I would like to ask a question of Lucille. Nursing home costs in the Medicare program are declining, whereas in the Medicaid program nursing home costs are increasing. If you just looked at Medicaid independently, you might imagine that it was due to soaring per diem costs, but if you looked at Medicare—and anyone who knows anything about the program knows they have been disqualifying nursing home stays after the fact, and won't pay—this all spilled over into the Medicaid rolls. So in a sense the onus of rising costs is on Medicaid, although Medicaid and Medicare are both Government medical programs.

You can't look at programs separately, and you wonder if the Government is saving anything, when it is a transfer from one program to another. Sometimes Medicaid and Medicare people don't seem to talk to each other.

Sometimes State Medicaid officials are told not to pay more than the 75th percentile of usual and customary fees under the Medicare program. Then when you try to get the information, the Medicare people won't release it. So we could use coordination between the programs.

This is another instance of fragmented administration. You would probably agree.

DR. REIFMAN: I thoroughly agree. I am sorry to see that a representative of Medicare is not here to answer your question. I think Mildred has pointed out one instance of Medicaid being a victim of an attempt by Medicare to shift costs. There are others.

As many of you may or may not know, almost 95 percent of the aged on Medicaid have already exhausted their Medicare benefits. An interesting point that may not be apparent to everyone is that while Medicare for the average (as Mildred pointed out earlier) provides about 45 percent of the costs of medical care, for the aged, it provides much smaller proportion of the costs of medical care for the poor aged. Medicaid is called on to pick up at least 60 to 80 percent of their costs of medical care.

Medicaid benefits are considerably broader. Of necessity they have to be, because Medicaid recipients do not have available to them the alternatives that we assume other patients have.

Thank you very much for the question.

DR. ARONSON: Norma Aronson, New York City, Comprehensive Health Planning Agency. I am delighted that someone at the conference mentioned the fact that there is such a thing as comprehensive health planning and that we are supposed to be here to share our experience, our problems, and our needs with the data and statistics people.

In terms of health economics and the costs of health care, we have two groups that we have to cope with, and they are the provider and the consumer. That is the concept of the whole partnership for health. We have one group of sophisticated consumers who are trying to find out about the cost of financing health care and what we are getting for a Medicaid and Medicare dollar.

We have another group, one part of the consumers, that is made to feel that they are simply a poverty clientele getting charity. This affects the quality of care. You cannot separate the question of how the funding mechanism works, what the charges are, and the lack of knowledge on the part of the individual at the community level.

One of the big problems is that we cannot get from the State or the Federal agencies the information that we need in health planning to address ourselves to that question. We have been trying for months. Our city planning department has been negotiating and getting certain data from the State insurance department. The same thing is true for the Federal. I submit that until you begin to look at some of your health economics data from the standpoint of how they are made available to those who are engaged and concerned with planning, or concerned with the quality of care as well as the cost of care, we are not going to be able to give you the kind of assistance and knowledge which you need and which we could get from the hospital and from the community level.

I also submit that health economics has to look into some of the practices of the providers in their charges. Perhaps certain legislation, certain items, have to be re-thought and recharged. I certainly am not holding any brief for the providers, but if, for example, they feel they are going to get a certain kind of return by making a patient come back for two examinations or two tests which could be done at one time, I can tell you that this is happening all over New York City, and I am sure all over the country.

Health economics cannot be concerning itself only with the data, but must then look at what is behind the formation of that data and the formation of those payments.

DR. ALTMAN: Are there any other comments?

DR. WHITE: Kerr White from Johns Hopkins University. I have enjoyed the comments very much, and I congratulate the ladies. It does seem to me, however, that we are dealing with the overall problem from a variety of different points of view and I would suggest, in the absence of an adequate record system for Medicaid, that probably the effort might be more usefully put on survey information and particularly on small area survey information that could be related, of course, to the National Health Interview.

I would urge that among the tests, we standardize it. This can be done by inquiring about the number of days sick in the last two weeks, the number of days in bed, or the number of drugs taken, and so forth. When you do this, you then have the techniques and you get at some of the other factors.

I would urge this as one way of looking at a small area population, comparing areas within perhaps a State or between States, and looking at the impact of the existing programs on the populations.

The second point I would like to make is with respect to the overall problem of quality. I certainly share the point of view that this is a very complicated business. I am sure we are not going to get it through overall Federal legislation, but I think there are steps to be taken and I want to be certain of the introduction of hospital abstract systems for every hospital in the country.

I think this is the most certain way to get at the problem and to enable us to relate just simple elements as in the case of mortality rates and other factors. So I would think an approach to quality of care which in some way relates to the resources used is perhaps one of the most useful ways of approaching this problem. Thank you.

DR. ALTMAN: Thank you. Are there any other comments?

If not, let me personally thank the speakers and thank you for being such a cooperative audience in this frigid southern climate.

Whereupon, at 3:04 p.m. Concurrent Session "I" was concluded.

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Florida
Kansas
Kentucky
Maryland
Massachusetts
Minnesota
Nevada
New Jersey
New York
North Carolina
North Dakota
Oklahoma
Oregon
Rhode Island
South Carolina
South Dakota (excluded Curran's list)
Washington

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Illinois
Iowa
Michigan
Nebraska
New Hampshire
Pennsylvania
Tennessee

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For an example of a sophisticated approach to the development of estimates of the resources required to operate departments of radiology, see: Lindheim Roslyn. Uncoupling the Radiology System. Chicago, Illinois: Hospital Research and Educational Trust, 1971.

19. For a summary of these studies, see Korper, Samuel P., and John C. DeShaies. The Development of Multi-Variate Small Area Profiles as a Heuristic Tool for Comprehensive Health Planning (MS). A paper presented at the APHA Meeting in Minneapolis, Minnesota on October 11, 1971. New Haven, Connecticut: Census Use Study and Health Information System, October 11, 1971.

20. American Hospital Association. Guide Issue, Hospitals, 45:15, Part 2, 463 August 1, 1971.

21. For a discussion of the legislative implications of the recent Massachusetts experience with certificate of need legislation, see: Massachusetts, Commonwealth of, Joint Special Committee on Health Benefits and Health Services, Senator Daniel J. Foley, Chairman, and John F. O'Leary, Counsel. Report on 'Certificate of Need' Legislation as it Applies to certain Health Facilities in the Commonwealth (MS). Boston, Massachusetts, May 1972. In summary, this report states: The Committee is disapointed that Chapter 1080 does not appear to have brought its full potential benefits to the hard-pressed citizens of Massachusetts due to the manner in which it was administered by the Executive Department, and the fact that the comprehensive health planning capabilities of various involved agencies are somewhat uneven. The adoption of Chapter 1080 has been enormously helpful, however, in adding a practical focus to health planning activities, pointing out the wide gaps in the frame-work for decision-making, and demonstrating our acute need for a broadly-based, usable information system. The value of the mere existence of Chapter 1080 causing health facilities to re-examine their plans for expansion prior to submitting applications for determinations of need also cannot be under-estimated. (page 3).

Concurrent Session "J"

The Cooperative Federal-State-Local Health and Mental Health Statistics Systems

The purpose of this session was to bring participants up to date on progress being made by two new projects in the health statistics field and the ongoing Cooperative Federal-State-Local Mental Health Statistics System.

One of these new projects is the Cooperative Federal-State-Local Health Statistics System. Research and development leading to the Cooperative System was authorized by Congress in 1970 (Public Law 91-515, Section 210). This Act authorized the Secretary, DHEW, "To undertake research, development, demonstration, and evaluation, relating to the design and implementation of a cooperative system for producing comparable and uniform health information and statistics at the Federal, State, and local levels."

The Cooperative System is being developed by two units of HSMHA—the National Center for Health Services Research and Development and the National Center for Health Statistics. Lead responsibility for the research and development phase of the program is located in the NCHSRD—the NCHS will operate and coordinate the cooperative system when it becomes developed.

The Association of State and Territorial Health Officers (ASTHO) has a contract from the Community Health Services, HSMHA, for a project to develop and implement a uniform program reporting system for State health departments. The overall intent of the ASTHO Health Program Reporting System Project is the stimulation of more effective communication and cooperation in the health field between the Federal Government and the States by providing a comprehensive health program base created by uniform data collection procedures and an improved source of information for examining the organization, delivery and financing of health services rendered under State and local health department auspices, as well as a common program language for communication with individual State health departments about the determination of needs and the implementation of solutions. The system will provide a rapid retrieval capability of health program data by State and region and an analytical capability for identifying strengths and weaknesses of various health programs.

Contents

CONCURRENT SESSION "J"

THE COOPERATIVE FEDERAL-STATE-LOCAL HEALTH AND MENTAL HEALTH STATISTICS SYSTEMS

Presiding

Mr. Theodore R. Ervin, *Chief, Bureau of Management Services, Michigan State Department of Public Health*

I am Ted Ervin, from Michigan, and this is Session "J" on The Cooperative Federal-State-Local Health and Mental Health Statistics Systems.

To foreshadow what we are going to be doing, first we will look at the developments in the cooperative Federal State-local health system with a panel of six discussants, including representatives of the National Center for Health Statistics, the National Center for Health Research and Development, and three of the apparently funded participants in the research and development program.

The three papers at our opening session yesterday, built a pretty good framework for our consideration of the cooperative system this afternoon.

After a short period for discussion and questions, we will then hear also from the representative of the Association of Territorial and State Health Officers, who is going to discuss the uniform State health reporting project. Those of you who heard Dr. Wilson yesterday may remember that he mentioned this project and particularly cited the need for interface for systems such as this with the cooperative system. We will then conclude the afternoon with a talk on automating psychiatric records, plus some overall discussions. So we have some seven speakers, plus discussion, in a period of two hours.

To lead off, our first panelist will be Dr. Robert H. Mugge, Assistant to the Director for Federal-State Activities, National Center for Health Statistics, who will discuss progress and plans with respect to the Cooperative Federal-State-Local Health Statistics System.

PROGRESS AND PLANS IN NCHS WITH RESPECT TO THE COOPERATIVE FEDERAL-STATE-LOCAL HEALTH STATISTICS SYSTEM

Dr. Robert H. Mugge, *Assistant to the Director for Federal-State Activities, National Center for Health Statistics, Health Services and Mental Health Administration*

I agree with Ted that we had a very good introduction to the discussion of the cooperative system yesterday, especially from Dr. Wilson, also from Mr. Woolsey, and some references from Dr. White. I would like at this time to elaborate and amplify their remarks, and tell you exactly what the cooperative system is.

I am sorry to say that I cannot do it, though. I don't know what the cooperative system is going to be. This is going to have to be worked out. It is going to have to evolve over the next months and years, as a result of research and development project activities, as a result of the discussions that we have with you, your feedback, and your suggestions as to how things should go.

We already have had a series of meetings with the Executive Committee of AAVRPHS and we will continue to have such meetings as the program develops. We are planning regional meetings this summer, to which key persons from State governments in particular will be invited to discuss plans and developments in the program.

In this brief time, though, let me mention some of the primary features of the cooperative system as we see it.

In our present conception of the cooperative system, it will include collaboration on statistics at all levels—Federal, State, and local. It will include continuing communication between the Center and the appropriate health planning and administrative agencies, as well as among the various statistical centers.

Primary features include full application of quality control in all components, the optimum use of resources through maximizing efficiency and removal of duplication, decentralization of operations consistent with efficiency, use of cooperatively developed standards and concepts providing full comparability of data, rapid dissemination of findings based on automatic processing and transmission of data, mutual technical assistance for problem solving, and improving techniques plus upgrading staff capabilities through training. The system will also require Federal support of State and local statistical activities commensurate with the Federal Government's needs for data from the system.

This brief list will, I hope, give you an impression of what we think the system should be all about. Unfortunately, we need to have a long speech on each of those subjects.

Before I continue, I would like to advertise our new book, "The Cooperative Federal-State-Local Health Statistics System." We have a large supply in the back of the room. Please, everyone, take one and keep it, read it, and refer to it. It is another "State flags book," this with a white background, a companion piece for the "State flags book" published a couple of years ago on the State Centers for Health Statistics—which has a black background. Additional copies of the new book can be obtained from the Office of Information, NCHS, 5600 Fishers Lane, Rockville, Md. 20852.

The purpose of the cooperative system is to provide the baseline, general purpose health statistics needed by our governments at the various levels—Federal, State, and local—to meet the health problems of 1972 and the ensuing years. The questions which need systematic answering are, first, what are the health problems and health service needs of the people? Second, what are the knowledge, attitudes, and practices of the people relating to their health and their use of health care services? Third, what are the health service resources available in the community? These resources are of two types: skilled personnel on the one hand and treatment facilities, including buildings and equipment, on the other.

Fourth, what are the utilization and costs of these health services? That is to say, who is getting what kinds of health services, under what circumstances, and at what cost? We can subdivide these general areas of treatment into hospital inpatient care; outpatient clinics, including emergency clinics, of course; physician services, at home and office; nursing homes and convalescent hospitals, and the new and growing program of home health care.

A fifth major question is what are the hazards to health in our community and our environment?

Finally, since all the things I have mentioned are numerator data that have to be placed in context—in proper perspective, what is the population base, and what are the character, distribution, and changes in that population?

As we see it, there are various major types of data sources through which these kinds of information can be effectively obtained. We have had varying amounts of experience with these different components of health statistics. We get information on health problems and needs through health interview surveys, health examination surveys, and vital statistics. Another source is the disease surveillance program of the Center for Disease Control. Information on health knowledge, attitudes, and practice would come mainly through health interview surveys, data on facilities and manpower are developed in inventories based on licensing programs, through special surveys, and so on. We have hospital discharge surveys, ambulatory care reporting, and long-term care reports and surveys, surveillance programs of health hazards, (which is something we in NCHS are not now involved in, and finally, census and vital statistics are sources for data on the population base.

Then for each of these areas, too, we have supplementary and partial data sources, including the various statistical programs in each of the health programs' statistics activities. We have Medicaid, Medicare, and so on. Some of the components which serve as primary sources for baseline data of one type can also be used as secondary sources in other areas.

This represents our general view of where we believe we must start in this program.

We have listed seven components which I hope many or all of you have seen listed in the request for R&D Proposals that went out from NCHSRD November 1, 1971: hospital discharge, ambulatory care, long-term care, health interview surveys, facilities, manpower, and vital statistics. It is in these areas that we have been soliciting proposals for our R&D program, and Warren Schonfeld will discuss them further.

We hope to move into an implementation phase, at least in a small way, in fiscal 1973.

We are optimistically looking for at least a small appropriation that will allow us to do this. We are hoping to write contracts with States on a selective basis, at least this first year, for the provision of machine readable data, meeting certain standards. We hope we can give you substantial financial support in return for providing these data for us.

Under the implementation program, we expect to begin in the area of vital statistics and move gradually into other statistical components as research and development proceeds to the point where we feel that we know well enough what needs to be done in these areas. After vital statistics we hope to begin implementation on facilities, manpower surveys and inventories, and, hospital care components and so on. Those will probably be the first four.

I mentioned the regional meetings coming up. The two Centers will also provide direct technical assistance to you on request in relation to the two phases of this program. We like to travel up to a point, and we solicit your invitations.

The Division of Health Resources Statistics asked me to mention that they have a display here at which they are inviting you to call for consultations with them on various health resource statistics components, which constitute five of the seven components. So you should see them and make appointments for this week, if you are interested in furthering these discussions at this time.

We are very excited about the program, and hope you are too. I'm sorry I don't have time now to talk about it a lot more. Thank you.

MR. ERVIN: Thank you very much, Bob.

Apart from the substantive areas, the words that seem to stand out in this presentation, to some of us at least are collaboration, decentralization, uniformity, and timeliness.

Now we will move along to the research and development phase and ask Warren Schonfeld to tell us what is going on in The National Center for Health Statistics Research and Development.

Warren, where is all that money?

THE COOPERATIVE SYSTEM RESEARCH AND DEVELOPMENT PROGRAM

Mr. Warren Schonfeld, *Staff Director, Federal-State-Local, National Center for Health Services Research and Development Health Services and Mental Health Administration*

As far as the money is concerned, when I saw the decor of this room, I suggested to someone that perhaps I should have come in wearing a Roman toga, and he indicated that I should distribute gold coins around in certain directions. But that isn't the case at this particular moment, and I want to discuss not the funding of the cooperative system, but merely the research and development phase.

Dr. Mugge and others, in earlier sessions, have described adequately the background and functions of the cooperative system, so I will not concentrate on these two aspects of the system, except to say merely that the cooperative Federal-State-Local Health Statistics System is being developed in response to a long-standing recognition of the need for health statistics.

The National Center for Health Statistics recognized some of these problems and proposed a method of correcting them in the State Center for Health Statistics.

Legislation was passed in 1970, authorizing the Secretary of Health, Education, and Welfare to conduct research and development toward establishing a uniform system of health statistics.

The National Center for Health Services Research and Development has been designated as the lead agency in the research and development phase, and to work cooperatively with the National Center for Health Statistics, which will have responsibility for implementing the system.

I won't speak in detail about the goals of the cooperative system, but will merely outline them very briefly because the R&D program must be aimed at some conception of the cooperative system.

The cooperative system involves a network of statistical centers. Data checking and processing is thought to be best conducted as a decentralized activity. Other concepts are involved in the cooperative system, and Ted Ervin mentioned some of them, such as development of comparable high quality data, development of data which will be used for planning and making the health system work. After all, we are designing a health system to be responsive to needs that exist today. Our aim is to help develop a better health care delivery system with the ultimate purpose of helping improve the health of the Nation.

Prior to a major investment in the implementation phase of the cooperative system, we are beginning a research and development phase.

Dr. Mugge indicated that he does not really know what the cooperative system is, what it will look like, and what must evolve. But we do have some general ideas of the range of possibility that we feel would be successful.

It is precisely the function of the R&D phase to ask questions about the available alternative strategies and get answers to help design a cooperative system.

There are critical phases of the R&D program. Unfortunately, I will not have time to discuss them in detail, but I would at least list them and give you some notion of what I have in mind.

First among these is research and development into the appropriate organizational arrangements and responsibilities for conducting a cooperative system. This really involves the structure of the system. Perhaps the concept of State centers for health statistics is in fact a viable mechanism to serve a central role in the system. But there are other alternatives which must be considered, and undoubtedly there are other possibilities and other programs which may be involved in the cooperative system.

There are users of data, such as newly developed experimental delivery systems. What are the appropriate relationships in the collection, processing, and utilization of data? This is what I mean by this phase of the research and development program.

Secondly, we need research and development in the concept of the system. When we talk about data, we have in mind the concept of minimum data sets which might be useful for a variety of purposes if not for all purposes, and we talk about developing definitions, developing standards. So we must, in the research and development stage, aim not only at the structure but at the content of the system.

Thirdly, research and development in the function of the system are required. Data are not to be developed merely for the sake of data development. Rather, we are interested in developing data in response to needs. Therefore, the use of data for various purposes is a key aspect of the research and development program.

There are two other items that I would like to mention briefly which also bear on the research and development phase. One of these is the issue of confidentiality. Through the cooperative system we will be exploring areas of data transmission which involve the movement of data from local to State to Federal levels. This may create new problems in the area of confidentiality, and these must be addressed.

A final area, relating to the cooperative system, in which considerable research and development are required is to develop appropriate resources necessary to sustain the system after the R&D program is completed. In order for a program which depends on the usage of data, to be successful, there must be strong support at the local and State levels. Sources of support in terms of finances, in terms of manpower, must be developed. Part of the R&D phase must address the question of what are the necessary resources and what are the appropriate shares of support that should go into the system at the Federal, State, and local levels.

I have talked somewhat about the purposes of the R&D programs. I should now give you an indication of the approach which is being taken. In fact, there is a two-fold effort.

The overall administration, direction, and policy development is being handled at the Federal level, mostly through staff of the NCHSRD and by working cooperatively with other Federal agencies which have a State and Federal investment and have done prior work in the area. Along these lines substantive areas of work involve phrasing the questions which arise in all of the five R&D areas that I mentioned and proposing some alternative answers to the questions. In particular, guidelines are being developed for each of the data component areas mentioned.

A second major thrust of the R&D development involves working with State and local areas, and the bulk of the funds available will be awarded to support grants to test and demonstrate various aspects of the cooperative system. After all, it would be inappropriate for a Federal-State-local system to be dictated solely from the Federal level, and the purpose of the research and development phase is to involve State and local areas in the definition of the cooperative system itself. To accomplish this, grants are being awarded to enable the participation of States and local areas in research and development. There will be Federal guidelines and technical assistance, as well, and we hope to encourage the exchange of ideas in forums such as this, and also in workshops, with the programs which are funded.

As to the current status of the research and development program we are currently nearing the end of our first round of application review awards and will have approximately eight awards made by the end of the fiscal year. We are preparing to manage these projects as we enter fiscal year 1973, so that the findings of research and development will improve the cooperative system. We are in the process of planning the next round of application review awards which will begin later this summer.

I see that I am almost nearing the end of my allotted 10 minute period, and I had wanted to give some indication of the transition between the research and development phase and the eventual operational phase. I will limit my remarks so that they will be brief.

Successful R&D programs, it is hoped, will contribute to the cooperative system in at least two ways. First, they will provide answers to questions concerning the structure, content, and functions of the system, so that successful concepts, procedures, and data components can be transferred elsewhere. Secondly, successful projects which receive the necessary State and local support can become a part of the structure and move into the operational phase.

The operational phase will relate to the research and development phase in that a range of acceptable contents, standards, and methodology will be defined for implementation. Then, contracts can be developed based on this experience to enable State and local areas to become part of the data collection system. The Federal Government will thus provide some support for the system, but the bulk of the system must rest upon its viability at State and local levels.

So I have given you some indication of three areas—the goals of the research and development phase; the approaches which are being taken; and very briefly, the relationship between the research and development phase and the eventual implementation of the cooperative system.

We will be very happy to address any specific questions that you may have after the presentations are completed. Thank you.

MR. ERVIN: Thank you very much, Warren.

With that much in the way of framework and general discussion, we will turn to look at a sample of the R&D grants, the hopeful R&D grants, I guess we'd better say at this point, since the gold coins were not awarded this afternoon.

We will first hear from Massachusetts, then Arkansas, and then Tucson, Arizona.

Let's turn first to Regina Herzlinger, Assistant Secretary of Human Services of the State of Massachusetts, and Associate with the Massachusetts Department of Health. Dick Seder will share in making the first presentation.

DESCRIPTIONS OF THREE PROJECTS FUNDED UNDER THE R&D PHASE OF THE COOPERATIVE SYSTEM PROGRAM

Dr. Regina Herzlinger, *Assistant Secretary of Human Services, State of Massachusetts and Associate, Massachusetts Department of Health, and Dr. Richard H. Seder, Director, Office of Planning, Massachusetts Department of Public Health*

DR. HERZLINGER: The Executive Office of Human Services (EOHS) of the Commonwealth of Massachusetts has received tentative approval of funding for the following three components in the Cooperative Federal-State-Local Health Statistics System: facilities, long-term care, and an overall Human Services component.

Dr. Seder from Massachusetts will describe the facilities and long-term care components and I will describe the human services component.

Let me begin by describing the history and organizational structure of the Office of Human Services. It was established in the summer of 1971, and is an umbrella agency. Roughly 60 percent of its budget, or $600 million, is spent in financing and regulating and delivering health services through the Office's Departments of Public Welfare, Public Health, and Mental Health. In addition the Comprehensive Health Planning agency is a formal part of our office.

Given this organizational structure and budgetary allocation, the development of a cohesive and equitable health policy is a top priority in the EOHS. We have been hampered from fully developing and implementing this policy in part because of the absence of a data base of the sort envisioned in our proposal.

Specifically, the EOHS envisions performing the following functions: (1) coordinating the Departments of Mental Health and Public Health in their individual efforts in order to insure uniformity of definitions and minimization of duplicative efforts; (2) establishing a core analytic staff which will assist those responsible for health policy setting and administration. Among the specific policy analyses which this staff will perform are the delineation of a facilities plan for the Commonwealth, of specific mechanisms for linking the rate-setting process with that of health program statistics, and of a plan for increasing the community orientation of the Commonwealth's own mental and public health hospitals. These analyses will be based on the data collection efforts which Dr. Seder will describe; (3) exploring the feasibility and desirability of alternative administrative structures for the Commonwealth's health statistics efforts, including that of a State center for health statistics; (4) improving access to statistical data and analyses, whether they are collected by the Federal Government, by agencies of the Commonwealth, by local sources, or by providers of health services; (5) evaluating the effectiveness and the efficiency of the system through case studies which delineate the impact of the components on decisionmaking, indepth analysis of one area in the Commonwealth, and monitoring of our progress, or lack of it, in implementation.

In order to accomplish these tasks, the Executive Office of Human Services will be technically advised by a committee which consists of the research officials of the Commonwealth's own agencies, the Comprehensive Health Planning A&B agencies, the Blues, the Hospital Association, and so on. It will also be advised by a number of committees representing the providers of the data.

These committees will also assist in insuring that the statistics we collect are, indeed, useful to these providers. We consider these committees essential in providing a truly cooperative system.

Table 1. Blood Utilization in Massachusetts
October 1972 - December 1972

Recommended Standards				0-10%		0-5%		60-80%		20-30%
Group	Grouped by units transfused	Number of blood banks reporting	Available Units			Transfusions			On hand at start of month	Inventory as a % of transfusions
			Received	% Transfused	% Outdated	Units	% Sngl units	% Pked red cells		
I	1500+	8	26,484	82.75	4.30	21,917	1.62	34.34	7,534	34.37
II	900-1499	6	7,624	92.41	5.37	7,046	3.51	41.30	1,573	22.32
III	600-899	9	7,506	83.38	9.48	6,259	5.25	39.67	2,065	32.99
IV	300-599	31	17,177	79.72	9.86	13,695	6.32	44.22	4,863	35.50
V	150-299	30	9,325	70.34	14.38	6,560	6.21	46.69	2,346	35.76
VI	75-149	24	3,709	65.65	16.17	2,435	7.63	47.67	7,754	318.43
VII	0-74	49	2,643	54.67	20.80	1,445	13.63	51.48	616	42.62
Total all banks		157	74,468	79.70	8.65	59,357	4.36	40.34	26,751	45.06

FACILITY #2002
FACILITY NAME
GROUP #V

OCTOBER	114	87.71	2.63	100	4.00	35.00	29	29.00
NOVEMBER	71	87.32	12.67	62	0.00	32.25	25	40.32
DECEMBER	63	76.19	14.28	48	10.41	45.83	25	52.08
TOTAL	248	84.67	8.46	210	4.28	36.66	79	37.61

Now let me turn to Dr. Seder who will describe the long-term care and facilities components. Thank you.

DR. SEDER: The Massachusetts Department of Public Health began to develop a facilities inventory retrieval maintenance system (FIRM) in 1969, with the initial purpose of automating its files of licensure data on approximately 1,300 providers of hospital, nursing home, clinic, and ambulance services.

Since that time, the automated file—partly on line and partly off—has grown to include much more detail for a few specific services, such as blood banks and radiology equipment. Where such detail is available, the Department has used it both for carrying out quality control functions and for determining area needs for further service development.

The accompanying Table 1 illustrates the type of analysis now possible for blood banks. The upper half of the page provides statistics, by frequency of blood use, on blood wastage, single unit transfusions, packed cell transfusions, and inventory size and turnover.

The bottom table on the page shows the experience of one facility (the name is blocked out) for comparison with others in its class and with recommended standards. Such comparisons are highly instructive for the facilities themselves, and immediately useful if regulatory actions are deemed appropriate in a given situation.

We have proposed to add equally detailed and useful data on many other services, such as ambulatory, emergency, ambulance, home, and other forms of health care onto the FIRM system, with a sharp focus on specific functional capacities rather than aggregated facility data which do not allow the analyses urgently required for determinations of need and resource allocations.

Many of these data are already reported to one agency or another, and the main feature of our work will be to bring together information available from other sources into a master file.

The types and sources of data envisioned include those on: (1) service type, capacity, and volume from the annual reports to the Department, from the American Hospital Association materials, and from the Joint Commission on the Accreditation of Hospitals; (2) service staffing from annual reports to the Department, and from the Joint Commission; (3) the cost of producing services, from data now submitted to the Massachusetts Rate Setting Commission, an agency outside of the Human Services Secretariat; (4) compliance and deficiencies in relation to standards and regulations, from inspections carried out by the Department staff; (5) the geographic origin of patients served, from quinquennial patient origin studies, patient rosters, discharge abstracts, and encounter logs, as proposed in our project.

Now I will turn to the long-term care component.

The Department began also in 1969 to study the health needs and disability status of all patients in nursing homes. New regulations defining four levels of care developed out of these studies, as did a monthly reporting system, through which each home informs the Department about patient admissions and discharges.

Assignment of each home to one or more levels followed, depending on actual patient characteristics. Most recently a well-trained Department nurse-surveyor has begun to assess independently the status of a sample of patients, and the Department compares her findings with facility reports.

Table 2 demonstrates something of current Department capabilities for displaying chronic patient profiles by geographic area of residents or of care needs. The levels listed on the table refer to patient disability levels, rather than to nursing home levels. The disability index itself is a composite score reflecting functional capacities of each patient and the extent of physician-ordered medications.

We will now expand this information system on longterm patients by obtaining and inputting: (1) reports on significant changes of status of patients within nursing homes, as well as admissions and discharges; (2) similar reporting from all chronic disease hospitals, including those operated by the Departments of Public

Table 2. Patients in Nursing Homes as of December 31, 1970
Information Breakdown by Area

Region Number	Area Number	Total of Patients	Level 5		Level 4		Level 3		Level 2		Avg. D.I.
			Number	Percent	Number	Percent	Number	Percent	Number	Percent	
1	1	1,320	125	9.47	305	23.11	288	21.82	602	45.61	7.72
1	2	869	81	9.32	187	21.52	197	22.67	404	46.49	7.79
1	3	802	101	12.59	152	18.95	172	21.45	377	47.01	7.56
1	4	1,301	134	10.30	343	26.36	275	21.14	549	42.20	7.14
2	1	483	55	11.39	112	23.19	109	22.57	207	42.86	7.42
2	2	741	75	10.12	169	22.81	176	23.75	321	43.32	7.52
2	3	2,485	238	9.58	671	27.00	638	25.67	938	37.75	6.52
2	4	553	36	6.51	109	19.71	107	19.35	301	54.43	8.90
2	5	736	124	16.85	184	25.00	160	21.74	268	36.41	6.44
3	2	304	21	6.91	61	20.07	85	27.96	137	45.07	7.90
3	3	625	65	10.40	122	19.52	137	21.92	301	48.16	7.70
3	4	788	73	9.26	177	22.46	217	27.54	321	40.74	6.76
3	5	924	128	13.85	257	27.81	212	22.94	327	35.39	6.06
4	3	1,206	190	15.75	258	21.39	264	21.89	494	40.96	6.77
4	4	701	112	15.98	149	21.26	159	22.68	281	40.09	6.75
4	5	858	107	12.47	241	28.09	194	22.61	316	36.83	6.34
4	6	1,015	130	12.81	225	22.17	210	20.69	450	44.33	7.29
5	1	1,057	96	9.08	242	22.89	239	22.61	480	45.41	7.48
5	2	637	114	17.90	106	16.64	152	23.86	265	41.60	7.13
5	3	632	108	17.09	159	25.16	147	23.26	218	34.49	6.03
5	4	1,888	245	12.98	414	21.93	437	23.15	792	41.95	7.30
6	1	6,167	686	11.12	1,595	25.86	1,567	25.41	2,319	37.60	6.50
7	1	325	26	8.00	87	26.77	74	22.77	138	42.46	7.21
7	2	1,498	235	15.69	405	27.04	300	20.03	558	37.25	6.35
7	3	461	61	13.23	129	27.98	106	22.99	165	35.79	6.10
7	4	516	69	13.37	107	20.74	136	26.36	204	39.53	6.70
7	5	1,113	103	9.25	336	30.19	219	19.68	455	40.88	6.99
7	6	1,088	151	13.88	320	29.41	247	22.70	370	34.01	6.25
7	7	688	70	10.17	175	25.44	163	23.69	280	40.70	7.10
8	1	1,177	138	11.72	321	27.27	264	22.43	454	38.57	6.52
8	2	960	95	9.90	264	27.50	216	22.50	385	40.10	6.84
8	3	1,055	135	12.80	276	26.16	242	22.94	402	38.10	6.46
TOTALS		34,973	4,127	11.80	8,658	24.76	8,109	23.19	14,079	40.26	6.86

Health and Mental Health; (3) aggregate reports from providers of home health services on the characteristics and diagnoses of persons served, and types of care delivered.

Given the addresses or census tract of all persons receiving one mode or another of care, we will develop small area rates and costs of treated chronic illness. Mortality data allocated to the same small areas will, we hope, allow development of indicators of unmet service need which do not depend on household surveys for regular updating.

For both components a key staff element will be the field coordinator and community coordinators team, which will work closely with advisory groups from the various classes of service and data providers as well as with persons technically expert in data collection and analysis.

The same project staff will edit incoming reports, will work out difficulties with data providers, and will return to the data sources to explain and discuss the findings and implications.

We believe this approach will facilitate our obtaining accurate, timely data and will expedite their utilization by providers, as well as by regulatory, planning, and service development agencies.

MR. ERVIN: Thank you, Dr. Seder and Dr. Herzlinger. Our next speaker is Dr. McCoy, Little Rock, Arkansas.

PROJECT FUNDED UNDER THE R&D PHASE OF THE COOPERATIVE SYSTEM PROGRAM

Dr. John F. McCoy, *Chief, Southern Research Support Center, Little Rock Arkansas*

Our components are not nearly so well developed as those you just heard about. I will be talking about what *will* be done. I would like to make some general remarks about the situation in Arkansas. Think with me in terms of primarily a State Center with the understanding that we are talking about the State level of the cooperative system. This is because our needs at the State level are acute, and we intend to try to meet those first, at least fundamentally, before we begin to extend, especially in the Federal direction.

Perhaps a few remarks about our strategy would be appropriate. Almost half of Arkansas' two million people live in rural settings, using the census definition that they live in towns with less than 2,500 population. This characteristic, the dispersion of the population, immediately confronts anyone who tries to conceptualize overall systems for the delivery of health care. It is a persistent problem in Arkansas as well as in other rural States.

We think that the political climate in Arkansas is favorable for a State Center, or the extension of the cooperative system into Arkansas at this time. The State Government has recently been reorganized to give substantially more power to the Executive Branch. The current Governor is very interested in improving health care. In fact, our application was submitted through his office. We also think he is going to be elected for another term. (Laughter)

There is a new State Health Officer who we expect to be very interested in innovation on a statewide basis. This will have considerable bearing on the State Health Department utilizing our statistics and also on the expected cooperation of the Bureau of Vital Statistics there.

Any program which raises a high level of anticipation, as this Conference leads me to believe the cooperative system has, had better be concerned about early visibility and results. We have heard much discussion throughout the Conference about the good that was going to be done, but I only recall one or two remarks about the hard work and great amount of time this system will require.

While attempting to obtain implementation money, we need to do something noticeable and worthwhile. This is the basic consideration during the R&D phase. That is, we want early impact of a visible and more or less objective nature. With this is mind—in considering the weight of our grant—we think it may be reduced if it is awarded.

We have attempted to look at the market climate, that is, the potential markets for the statistical products. In particular, we are looking for that segment of the market which is accessible, profitable, and where we can have the greatest impact. I think we have identified an appropriate market which is large enough to keep us busy.

Let me name the group, or define this market segment for you, and then mention the characteristics which are common to these agencies. The group is composed of four primary agencies. They are the Comprehensive Health Planning (a) and (b) agencies, the Arkansas Regional Medical Program, and the Arkansas Health Systems Foundation. The main common characteristic is that they are all involved in evaluation and planning of something with regard to the health system. Another common factor, aside from their being involved in assessing the situation in some way, is that they need statistical data.

They also understand very well that many people who need statistics don't realize that they do.

These agencies have been forced in some way or another to work on statistical data that they felt insecure about. They need more sophisticated data, and they would like for someone else to do it. They were among the most active groups in the preparation of the request, because they felt the need so acutely. Since all four have statewide responsibility, State statistics are immediately useful to these groups. The exception is that the Comprehensive Health Planning (b) agencies are concerned with large regions, but that is fairly close to the State level. I believe Arkansas was the first State and may be the only one to have complete coverage by Comprehensive Health Planning Regions.

Another mundane but practical consideration is that all but the (b) agencies are located in the same office building. So with the strategy of trying to get our product into planning, evaluation, and management, we expect to be dealing with people in the same building who have primarily the State as their geographical area of responsibility.

It is partly to satisfy them, and to adopt things they have tried to begin on their own, that we selected the component activities that we have for the Center to begin work on. One is a Health Interview Survey for the assessment of health needs and perhaps determination of some of the problems in health systems throughout the State.

Arkansas Health Systems Foundation, having the responsibility of conducting a Statewide health survey, has formulated a sampling plan which I helped prepare. We will also be involved in the data processing for this survey. Because this is a joint effort, we believe it will satisfy our survey component requirements, making it unnecessary for us to be duplicative by doing another survey. However, the details have not been worked out.

The second and third components, Mortality Studies and Manpower Assessments, were selected because the Arkansas Regional Medical Program has already begun preliminary work in these areas. They are willing, and in fact, anxious to give us their computer programs and data files for the mortality and manpower surveys.

We have selected Long-Term Care as the fourth component for a couple of reasons. First, Arkansas has something of an influx of retirees and older people into the northern part of the state. The second factor is that our Congressman, David Pryor, has gained national attention for his inquiry into the quality of nursing home care. We would like to reflect his interest. It seems practical to do so.

In summary, our strategy is that of working closely with those planning and evaluation agencies which have statewide or at least district responsibility and a definite need for statistical data. We think that establishing good relations there and gaining a reputation for providing good services are the best ways to firmly establish the state model of the state and federal cooperative system. Thank you.

MR. ERVIN: Thank you very much, John. We will move further west and hear about the project in Arizona from Dr. Alan Humphrey, who is an Associate Professor, Family and Community Medicine, University of Arizona.

Alan, you kindly said you would not need the slides, we are trying to gain a little time.

PROJECTS FUNDED UNDER THE R&D PHASE OF THE COOPERATIVE SYSTEM PROGRAM

Dr. Alan Humphrey, *Associate Professor, Family and Community Medicine, University of Arizona, Tucson, Arizona*

As you are probably aware, our project is one in which the primary emphasis is at the local or county level, with expansion and development to the State.

What I will do is briefly describe to you two things; first of all, what the political climate is in Tucson, and Arizona as a whole, and then give you some idea of how we plan to attack our particular project.

We have taken only two components of the local, State, and Federal system. You notice I turned those around? I think sometimes localitie's interest, may be better served if the priorities at the localities are met first.

This program includes the hospital discharge abstract and ambulatory patient care. The plan is to start in Tucson, develop both of these data gathering activities, and expand them Statewide in succeeding years.

Arizona, as most of you are probably aware, is one of the smaller States in the country populationwise. It has only about 81.8 million people, and there are only 300,000 of those located in the southern part of Arizona in the Tucson area.

In Tucson we have a Model Cities program, a Health Planning Council, and a medical school, with which I am affiliated, and part of my affiliation through that medical school is with the Arizona medical program.

The Arizona Regional Medical Program has been trying to develop, with the Comprehensive Health Planning Authority for the State of Arizona, a State Center for Health Statistics. We prefer not to call it a statistics center, but rather a health information center. In other words, it is not envisioned as being a computer facility with a lot of computer programmers, but rather a true information system.

In developing our overall goal strategy to determine what types of data we need in order to evaluate and plan for various types of health programs, we found we had information from vital statistics, from various inventories of facilities in the State, and from manpower.

We are in fairly good shape, then, so far as the providers of health care are concerned, but when it came to residents, we were lacking. Consequently, we have been attempting to get two programs underway in Arizona. One of these is a takeoff on the Michigan Health Survey that they helped us get started and which we are trying to breathe new life into, now that we have additional funds from another source. This gets at the issue of what people perceive as their problems the housing conditions and basic demographic data, etc.

On the other hand, we need to find out the actual problems relating to the people who got into the system, who they are, how they were treated, and so on.

Consequently, for this particular project we need to get data on the prevelance and incidence of the particular diseases, the cost utilization of the medical facilities, and social demographic characteristics of these people, length of stay, and so on.

In addition to that, we need to get information on the professionals or the providers of health care in the places where the services are provided, the types of specialties providing these services, the procedures that were utilized, and so forth. I am sure you are all aware of those other categories.

One of the things that we feel needs to be done in order to evaluate many of the programs that have been started in the Tucson area, and also those that have been started throughout the State, is to take not only the data from the hospital discharge abstract, the physician encounter form, and from the vital statistics, but to bring these all together and provide what we hope will be a first step towards what was talked about yesterday morning—intelligence on the health delivery system. That is our third goal.

Our fourth goal is to involve as many of the local people and their data gathering activities in bringing their data—such as those from transportation, the police records, housing, occupations, and so on—bringing these all together so that we have a total community information system.

The method that we plan to use in order to do that involves two basic tools. First of all is the formation of a work group which will include those people who are not only involved in the collection of the data, but are also now involved in the interpretation and the utilization of that data.

This work group will then be split into three subgroups. The hospital discharge abstract group will devote its attention to that data gathering activity. The physician encounter group will be similar. The third work group will probably be the most important, and that is the systems design and analysis group.

Secondly is the common reference file development that will allow for merging data.

Steps have already been taken in that much of the data that are collected for city planning and for countrywide planning, and are being processed through the census Addmatch system. Tucson Arizona, is one of the areas in the country that has a DIME operating and being updated on a continuing basis. That is one of the reasons why the City of Tucson is interested in cooperating with us in this project. They see that the best method of updating that DIME System is through utilization.

How far have we gotten towards developing the hospital discharge abstract and physician encounter form? The hospitals in Tucson, some 13 of them, are currently very involved in trying to computerize their record-keeping activities. We have tried to tell them that the computerization of their records, and so on, is one of the last steps that they ought to get involved in.

First, they ought to look at cleaning up the medical records and cleaning up some of the other mechanisms within it. As an example, we took the hospital discharge abstracts and surveyed hospitals in Tucson to see what data elements they had in common throughout the city. There are only four: discharge date, principal diagnosis, principal procedures, and disposition (whether they were discharged alive or dead). And that at present is the state of affairs in Tucson. Thank you.

MR. ERVIN: Thank you, Alan.

PANEL DISCUSSION: REGISTRANT QUESTIONS

Chairman and Speakers

MR. ERVIN: I think we have time now for a few questions that could be directed to any one of our panelists, or as a group, and if you would like to use the center aisle mike, we could have some discussion at this point.

Yes.

MR. LOWELL: Anthony Lowell, Chief Statistical Services Unit, CDC, Atlanta.

Very little has been said about such items as patient management, and the consequences of patient management. The question is, how do you plan to evaluate and measure your ongoing operation in whatever program you undertake? I have not heard anything here that suggests that in your system, you have any type of plan built into this type of operation.

I looked around the room. There are possibly 250 people here, and on an actual area basis, I must assume there are a quarter of a million years of experience in the field. You don't have to conduct extensive surveys in order to get the answers to some of the questions.

For example, an hour and 15 minutes ago, I spoke to one of the members of the panel, and the member of the panel was unaware that there ia an available system working in, let us say, tuberculosis, which is a patient management and a statistical tool, and which would be essential as a component in the type of thing you are trying to propose. I would suggest that you ask long-time operators in this and really find out what we need. It is very fine for the National Center to say something nationally, but it is the States, the communities in which it is important.

MR. ERVIN: These are good questions.

Bob Mugge, do you want to try a response?

DR. MUGGE: It is a big question, very difficult.

No, we don't expect to have a full-blown statistical program in the extremely near future that is going to answer all of these questions. We hope that the system that will be developed by us, including the States and local areas, will make possible various kinds of review, analysis, evaluations. Actually, though, I think that our main business here is in the search for baseline general purpose statistics to answer these big questions, and I think there are limitations to any statistical program. There are limitations in the uses to which they can be put. Also, there are many other kinds of information that have to be fed into decisionmaking, but as the speakers said so well yesterday, the important decision should not be made in the absence of good statistics that can be made available. In certain particular areas under control, such perhaps as the TB program, it might be feasible at the present date to have a patient management, patient information system that will feed off general purpose statistics for this particular special group.

But we do not see the feasibility in the current situation of medical care in this country of suddenly tying it all together in a patient management system that will provide us with all of the answers.

I think that is why we have to go with sample surveys. There is a feasible way that statisticians have developed to get big important answers for the community. Our ability to feed the general purpose statistics off of the total medical sector and patient information is a bit down the pike, and I think probably has to wait until we have a national health insurance program.

MR. ERVIN: Anybody else on the panel like to respond? Warren?

MR. SCHONFELD: Yes, I would like to try to respond to the two questions which were raised—one, regarding patient management, and the second, really regarding how various specialized programs for statistical reporting, which may envolve, fit into the cooperative system, and the benefits those working on the cooperative system can obtain from asking and finding out about already existing systems.

First of all, the emphasis of the cooperative system certainly is not on vital statistics and is not on the collection of data to accumulate information. As I indicated, we are vitally concerned with data usage, we are vitally concerned with obtaining information that can be related to answering questions of service of all kinds.

However, it is not appropriate for the Federal Government, in its role in the system, to have the prime responsibility for patient management in Tucson, Arizona, or in Massachusetts, or in Arkansas. These are appropriately functions of the State and local levels.

I agree that the ultimate viability of the system will depend on whether or not the data are useful for those purposes. This is certainly a question which we are addressing, and I would like to correct any impressions that I might have given that we are trying to develop a system solely for a national purpose. This is not true.

Secondly, there is a problem trying to relate many of the ongoing statistical systems which do exist for specialized cases with the cooperative system. One of the problems that exists today is that there are so many specialized systems which may have been established for one purpose or another, and if you look at them for their own purposes, they provided adequate information. But when you try to get an overall picture of what the situation is, if you ask a simple question like how many individuals see a physician during a certain time period, generally you cannot get an answer to that.

It is this kind of question that the cooperative system is designed to address. We do hope to use and to learn from existing systems, and tie into patient management systems.

MR. ERVIN: We have time for about two more questions.

DR. POLLACK: I would like to follow up on that last point and ask Dr. Seder a question. You mentioned that in Massachusetts you hope to deal with the long-term chronic care hospitals to obtain information across them, including the psychiatric hospitals, and this is a case in point. Where a system has already been established for a specific purpose, do you have any magic formula for dealing with this problem? How do you go about bringing these together?
these together?

DR. SEDER: Actually, the Multi-State Information System (MSIS) that you will be talking about later is used in Massachusetts. Also there is a new statutory requirement for the Mental Health Department to assess the status of patients at certain time intervals after admission. We hope to build on that. The accommodations that we will be getting are quite limited. Most is already present on the MSIS itself. We have had one experience in the State where one of our "B" agencies Louis Freedman, who is a research director there) has worked off of three different tapes of hospital abstracts quite successfully, so we are hoping to work from that experience in getting together the MSIS with the chronic disease report.

MR. ERVIN: We will now move along to the next presentation. Several years ago the States got together with the Federal Government and rolled up a number of the categorial grants into a block grant, 314(d) and the other titles in the Public Health Service Act. Then many in the States sat back and waited for the money to begin to flow in. And it didn't flow. Instead, allegedly the question came from Congress, what in the world is block grant disease? We began to look at what we were trying to say to Congress, and realized that we were stuttering in red, white, and blue systems. Under the wing of the Association of State and Territorial Officers (ASTHO) we went to work to see if we could find some remedy to this situation.

Here with us this afternoon to talk about this system work that was started is my associate on the Management Committee of ASTHO, Red Davis of Georgia, who is Director of the Office of Evaluation and Research of the Georgia Department of Human Resources. Red.

THE ASTHO REPORTING PROJECT —A SUMMARY OF STATUS AND POTENTIALS

Mr. Rufus F. Davis, *Director, Office of Evaluation and Research, Georgia Department of Human Resources*

This project, as many of the other undertakings you have heard described today, was born of a need for better information and a dissatisfaction with the status quo—the inability to describe health in meaningful terms. We have attempted to fill the void of an almost total absence of meaningful information on what's happening in the basic public health programs in this country.

The keyword in describing the ASTHO Project is program, i.e. programs of health services. Somewhat distinct from the programs you have heard described today and of the information systems which have been designed and operated by the States and Federal health agencies in the past, this project seeks to find a reasonable and rational basis to describe the health problems, the health activities and the programs of services (both community and individual) which are operated by, or under the auspices of, State and local health agencies.

There has never been a very good understanding by the Congress, by the State Legislatures or county or city appropriating bodies of just what "public health" is all about—of what its real purpose is, of what its contributions are, or are likely to be, given the degree of financial support that is really necessary in this area.

We have tended to be very meek in asserting our views. We have failed in many respects to tell the story of public health in the dramatic way necessary to command the attention and respect of the "guys with the bucks." Only in the exceptional case— usually a narrow categorical area—have we bothered to "put it all together," to adequately describe the problem to the point where it created enough interest to attract substantial support.

The "Partnership for Health Act" was designed to bring about a revolutionary change in concept and practice in the field of public health. A grand design which held that the States and the Federal government should join forces to unstintingly support the prevention of disease, the amelioration of human suffering and the improvement of the quality of life in this country. The "Partnership" is, and has been from the very first, in total bankruptcy. And I sincerely believe that the absence of a reasonably good mechanism for describing what it was we planned to deal with, how we intended to approach the task, and how we planned to account for our failures and successes is very largely responsible for this demise. We simply failed to convince anyone that we were going about a serious business of helping people.

Well, we decided to try—and trying we are.

The Association, with what I believe to be an unparalleled degree of enthusiasm and support from the States, together with the financial support of the Federal Government, has set about the task of developing a national system for the "collection, analysis and exchange of uniform data on health programs and related activities of the Federal, State and local governments and of private or voluntary agencies" in the public sector of the health field—to provide comprehensive, comparable and sumable health program data to all who might require such—to Federal, State and local governments, to voluntary health and social service agencies, to teaching and research organizations, to health planners and to other providers of health care.

It is important to note that the system is not intended to overlap or duplicate other health information systems such as the baseline demographic, disease surveillance, health manpower, health facilities, or other data now being collected and utilized on a national basis—although there will be a very concerted attempt made to interface the health program data with these systems so as to maximize the value of each through integration and analysis.

There are at least two main purposes to be served by the system—both completely selfish and both completely valid.

(1) First, we need "to know of what we speak." We need to make better and more timely decisions about our health programs, we need to allocate our very scarce resources to the most pressing problems of health, we need to speak with the authority and conviction in health affairs which can be done only with good information, and we need to know whether the plans we made and the services we provided really made any difference in the health status of our community; and in a larger sense, the health status of this country.

(2) Secondly, we want hard, "no nonsense" information about our affairs which is so dramatically convincing to the Congress, to State Legislatures and to other appropriating bodies as to command their attention and to convince them of the need of support programs and services which prevent disease, improve our total well-being and, in the long run, reduce the price we pay for neglect.

The project is now concluding its second year of operation, and in spite of the usual difficulties experienced in such a complex endeavor, has made some significant gains:

(1) The basic systems model has been developed and tested and with some continuing modification is expected to be workable over the next few years.

(2) Two pilot surveys have been conducted, the first in four States—the second in fourteen States, to evaluate data availability in several selected program areas—namely, general medical care, rubella, venereal disease, air pollution control and potable water.

(3) After modification of the survey instruments as a result of the pilot surveys a nationwide field trial was conducted—very successful I might add—with good returns from 55 of 56 States and Territories. Reports on this field trial containing individualized State and comparable summary national data have been prepared and distributed to each State health officer and to the Federal agency. A number of States have already reported a variety of uses made of the data in program planning, evaluation and budget justification. National summary data on rubella and venereal disease were tabulated for and used by the ASTHO in the recent Congressional hearings on communicable disease control.

(4) Concurrent with the nationwide field trial an inventory of health programs—State by State—was conducted which for the first time in many, many years gave us some idea of the various organizational structures used by States in the public health service delivery system. This inventory can and will be used by the ASTHO and others in the development of experimental service and organizational models and by individual States in organizational planning.

I believe that whatever success we have had or will have has depended very heavily upon the fact that the system was conceived and is being designed and operated by health professionals who are both knowledgeable and active in the field—where the action is. And I believe that with the continued support of the Federal Government and the sustained interest of the States we will be able to develop, for the first time, a reasonably good informational system on public health services in this country. If we don't, we will be in permanent bankruptcy and health services will continue to be poorly planned and executed, fragmented and maldistributed and we may be remembered as the people who were involved in public health before the HMO's, the Model Cities Projects, the Neighborhood Health Centers and the teaching hospitals assumed our responsibilities.

PANEL DISCUSSION: REGISTRANT QUESTIONS

Chairman and Speakers

MR. ERVIN: Red, Thank you very much.

We do have some time for questions and some discussion of this new reporting system.

Yes?

MR. WILLIAMS: I would like to make a little clarification more than ask a question. I am Jim Williams from the Comprehensive Health Planning Service.

I sense in the comments about bankruptcy and so forth some confusion, and it has come about in this way. The Comprehensive Health Planning Partnership for Health legislation had five principle sections. A, B, and C had to do with planning; D and E had to do with block grants, and hopefully large amounts of money.

They put this all in one pocket to administer, and the whole thing got confused for a couple of years. At the end of that time, they separated the first three parts and gave them to us, and gave the last two parts to the Community Health Service. So there has not been any connection for several years, and there really should not have been in the beginning. It led to very peculiar expectations. We are in the planning part of it, and we have not been quite as bankrupt. I am not sure whether our funds increased 25 or 50 percent last year. Anyway, it was about all we could stand with the development of our manpower and our concepts.

We are not entirely blameless, because it is only in the last few months that we have convened a national group of 30 people to explore what the expectations of comprehensive health planning are. This is kind of a five years delay, but you should find from this committee what the expectations of comprehensive health planning are very shortly. I hope it does clarify and does encourage you to determine and match your own expectations and comprehensive health planning against what this national committee is finding. Thank you.

MR. ERVIN: Thank you.

I think the term "bankruptcy" in its use by Mr. Davis this afternoon probably reflects the situation in which the 314 (d) funds, which were supposed to be the partnership funds for health service, represent something like five percent of the expenditures for which 314(d) funds are eligible. So the Federal Government is going in as a five percent partner, and this is close to the bankruptcy line in the way we look at it. Are there any other questions? Discussions? Members of the panel? Everybody happy with the way the system has interphased?

With that we are moving just about on schedule. I would like to go to the final speaker on the panel this afternoon.

Many of us are pleased with the inclusion of mental health in this Conference as one of our partners, because we think it may signify that the time is at last past when we need to think quite so categorically, and maybe we can be a little more comprehensive.

Here to share some thinking with us is Dr. Earl Pollack, Assistant Chief, Biometry Branch, Office of Program Planning and Evaluation, National Institute of Mental Health, who will present a discussion of multi-State information systems for automated psychiatric records.

Earl.

A MULTI-STATE INFORMATION SYSTEM FOR AUTOMATED PSYCHIATRIC RECORDS

Dr. Earl S. Pollack, *Assistant Chief, Biometry Branch, Office of Program Planning and Evaluation, National Institute of Mental Health*

We have heard a lot of talk, as Ted mentioned, about cooperation, and so on. Another word that has come up a number of times is "umbrella" which has been used in many States to include all human services. I would like to come out of the rain under this umbrella for a few minutes and talk about cooperation within the mental health field.

As a background for discussing this automated system, we can begin to think of ways in which the needs for information across all human services are beginning to come together.

In the mental health field, a cooperative Federal-State statistical system has been in operation for over 20 years. Prior to 1948, reporting on patients coming under care in State mental hospitals and other inpatient facilities which cared for the mentally ill was carried out by the Bureau of the Census.

In 1951, the Model Reporting Area for Mental Hospital Statistics was established with the purpose of producing statistics on mental hospital patients based on uniform definitions which would be comparable from State to State and which could be aggregated to produce uniform national data.

This effort began with the 11 States which already had some form of systematic data processing system on their mental hospital populations, and which were prepared to agree on uniform definitions and to produce standard tabulations annually.

This was expanded to 35 States by 1964, fostered in part by these annual meetings. At that time representatives of each of the other 15 States were invited into the annual meetings to foster their participation in this nationwide effort.

Concurrently with this, similar efforts were being carried out to produce uniform data on patients coming under care in outpatient psychiatric clinics. This led to a nationwide reporting system on a State by State basis.

Thus, by the early 1960's, at least a minimal amount of reasonably uniform data on patients coming under care in State mental hospitals and outpatient psychiatric clinics was available nationally.

To round out the national picture, detailed data were added on private mental hospitals, Veterans Administration psychiatric hospitals, and psychiatric services of general hospitals.

With the passage of the Community Mental Health Centers Act in 1963, increasing emphasis was given to the trend already taking place to deliver mental health services to individuals in need of them in local communities closer to their homes, with the hope of reducing long-term chronicity in mental hospitals and increasing the ability of those afflicted with these disorders to resume normal functioning more quickly.

This development led to the need for more systematic data at the local level, the need for local data at the State level to permit more systematic planning for the distribution of mental health services, and for more detailed local and State data nationally to plan, implement, and monitor the national service delivery program.

Against this background, the National Institute of Mental Health funded a project in 1967, through a special grant, aimed at establishing the capability of producing uniform data across several States on a more highly current basis in a way that would be more directly useful at the individual facility and at local community, State, and national levels.

Several parts of an automated system for a mental hospital had already been developed at Rockland State Hospital in Orangeburg, New York. The aim of the project was to extend the system to other aspects of patient information and implement it in several States. This was to begin initially with the State mental hospitals in the participating States, and extend eventually to the community facilities.

The original participants were New York and five of the six New England States. Since that time two of the New England States have withdrawn, and another joined the system, as did two mental health centers in the District of Columbia.

Without tracing the history of the project since its inception, let me describe it as of its current stage of development.

Basically, two systems are in operation: (1) a clinically oriented patient movement system in the New England States and the District of Columbia operating by remote terminals through a central computer at Rockland State Hospital, and (2) a central statistical system in New York State for its State hospitals and some 450 local psychiatric facilities, operating by mail through another computer in Albany.

The two systems are compatible in that, for the most part, they are using identical forms. Most of the description which follows pertains to the multi-State aspects of the system operating through computer at Rockland State Hospital. It might be well to keep in mind during the course of the discussion that this part of the system was established as a clinical information system which has the ability to produce statistics as a by-product.

A folder is available containing a brief overview of the system, a set of forms used as input, and a number of examples of output.

The extent to which the facilities are using all aspects of the system varies. All of them are using the basic patient movement system, consisting of admission, change of status, and termination forms.

Other elements of the system are: The patient progress subsystem, which consists of the Mental Status Examination Record, the Periodic Evaluation Record, the Problem Appraisal Scales, and the Psychiatric Anamnestic Record; the drug Subsystem, which serves as a mechanism for ordering psychotropic drugs for individual patients, as a record of patient drug therapy, to produce listings of patients on particular drugs, and to provide drug histories for individual patients; and the direct patient services subsystem, which records information on each service provided to the patient, the individual providing the service, the amount of time spent, et cetera.

The system provides basically four kinds of output and examples of these can be found in the folder. These are as follow: (1) individual patient record information. This consists of formatted display of the information contained on each individual form, including the translation of some of the information into narrative statements. This forms the basis for part of the patient's case record. (2) listings of patients who have specific characteristics in common where the listings can contain specified items for each individual. (3) a set of standard reports, such as an error analysis, which permits the user to correct information submitted into the system, patient movement data, census reports, et cetera. (4) statistical tabulations. This includes cross tabulations of items contained on the input forms, where the user specifies which variables he wishes to tabulate.

The output is obtained in several ways. Narrative and formatted output on individual patient forms comes back automatically following submission of the information through the terminal, as does an error analysis, which permits the user to correct the information he has submitted.

Census reports, reports of patient movement, and other similar routine reports are obtained upon request by the user through the terminal.

The listing of patients who meet criteria specified according to variables contained on the forms are obtained through the generalized alphabetic listing subsystem, otherwise known as GALS, by submission on some simple control cards on which the user specifies the criteria to be satisfied and the information to be printed out for each patient listed.

The Statistical Report Generator Subsystem, otherwise known as STARGEN, permits the user to obtain detailed cross tabulations according to variables in the system, also through the use of simple control cards.

These two subsystems represent powerful tools for the user to obtain both individual patient and statistical information from the system quickly without computer programming.

I think most of you have probably seen a package called cross-tabs, which does require some manipulations. The project has done some programming on the front end of this so that the user can simply specify which variables he wants cross-tabbed by which.

As for the uses of the data, aside from the individual patient reports and the information on patient movement, listings, et cetera, mentioned earlier, the information in the system is now being used more extensively. At the State level it is being used to produce the data which satisfy the requests from the National Institute of Mental Health for patient data on the participating psychiatric facilities, as part of the national picture. In addition, the States are beginning to use the data for planning and monitoring the delivery of services to local communities.

At the local level a greater impetus has come from the community mental health centers which are tied directly into the system. They are particularly interested in analyzing the types of services they are delivering to the clients they serve and assessing the utilization of services by geographic subareas of their catchment area populations.

These centers are also participating in an NIMH study aimed at assessing the extent to which centers are accessible to the populations they serve, provide services equitably to the various socioeconomic and ethnic subgroups of the population, but assure continuity of care, and act to reduce long-term hospitalization among residents of their catchment areas.

During the coming year, those data in the system bearing on these issues will be analyzed. In this way the data are being used to meet both local and national needs.

As you can well imagine, a system of this kind cannot be implemented without encountering a number of serious problems. The major problems have been: (1) assuring confidentiality of the information in the system, (2) flexibility of the system in terms of meeting some of the information requirements which are unique for a given participant, (3) obtaining agreement on forms to be included in the system, and (4) facilitating optimal use of the information in the system.

The issue of confidentiality has not been a major hurdle. The system operates in a way that insures that only that facility which submits information into the computer can obtain individual patient information.

This was accomplished by having the computer poll each terminal, rather than having the terminal request information from the computer. In this way there is no question to whom particular information is being given.

Furthermore, computer programs in the system prevent personnel from one of the participating facilities from querying the record file for another.

A second issue related to confidentiality has to do with the protection of records submitted by the various States and stored in a computer located in New York State.

To deal with this problem, the project drafted some legislation which protects these records against subpoena by the courts in New York State. This legislation was recently passed by the New York State Legislature.

As far as providing flexibility for individual participants is concerned, the forms permit a minimal amount of unique input and, of course, the user can specify his own output within the limits of the information contained within the system.

To increase flexibility, however, a "general applications system" will be available in a few weeks, which will permit the user to input additional data and relate it to data already in the system.

As many of you well know, after long, hard experience, the computer cannot solve the problem of interstate agreement on definitions, forms, and uniform tabulations, nor can it alone get the program administrator to ask the statistician for specific data in relation to problems he faces.

The need still exists for the statistician to interact with the administrator in a way that will enable the statistician to perceive the needs for data so that he can then obtain the required information.

A computerized system of the kind described here can facilitate these processes, however, by reducing the time delay in providing information. An example of this is the completion by a mental health center of an annual statistical report for the fiscal year ending June 30, 1971, by the 23rd day of the following month.

Similarly, in the area of obtaining uniform definitions, categorizations, et cetera, the computerized system provides a sense of urgency to get the job done as evidenced by the speed with which the participating centers have moved to agree on a direct patient services form, and most recently, on a way of measuring indirect services, such as consultation and education within the community.

There are several possible implications of this system for other psychiatric facilities throughout the country. For example, other facilities could be added into the existing system either through terminals, or by mail.

The identical system, including all of the software which has been developed, could be installed in other locations on a national, State, or local basis. Identical or similar forms could be adopted elsewhere to achieve comparable data, but they might be processed through a different system.

The first two alternatives mentioned have already been accomplished in some locations.

Additional facilities have been added to the central system after it has been rather fully developed, and the capacity exists for accepting a considerable number of additional facilities.

The system has been installed in a central computer in Hawaii to serve all of its State psychiatric facilities, and has been in operation for several months.

Computerized systems of this type are expensive but the benefits to be derived from them appear to be worth the expenditure.

The role of the National Institute of Mental Health in the extension of such systems is not yet clear. A study is now beginning under contract from the NIMH to review the work now going on in the area of automation of medical records in the mental health field to assess their utility in meeting the demands for information at local, State, and national levels. We hope that we will then be better able to decide which direction these efforts should take in the future.

If there are any questions on the project, there are a number of people here from the project who can answer some of the technical questions that I certainly would not be able to answer. Thank you.

REGISTRANT QUESTIONS AND COMMENTS

Chairman and Speakers

MR. ERVIN: We now are open for questions and/or discussion of Earl's paper, or any of the other comments on the cooperative system or the projects that we have had this afternoon.

MR. CHUY: My name is Chuy. I would like to propose another system for discussion. I feel that this might be a prerequisite for the Federal, State, and local system. I would like to call this system the Federal Interagency Cooperative System. If you look at the history of the local and State governments and the recording system here, it is really the by-product of the Federal funding, categorical funding mechanisms, and the different categories and reporting systems over the last 10, 15 years. I wonder if there is a movement toward the Federal agency trying to get some sort of cooperation among the Federal, in a different agency. Sort of a Federal-State-local cooperation.

MR. ERVIN: You mean we might have the audacity to say that there might be compatibility in systems at the Federal level?

MR. CHUY: Right.

DR. RIGGS: I am Margaret Riggs, Department of Health and Welfare, Concord, New Hampshire.

I wonder whether any of the panelists have considered integration with the kind of information required by welfare under what are sometimes known as 4-A funds? In our State, many of the mental health programs are now starting to utilize 4-A money, and one of the requirements is that we provide data to welfare according to their data needs.

DR. SEDER: I might comment very briefly that the reporting forms which Dr. Davis talked about in some way fit in with the program, service reporting for 4-A, but we have not worked up the details yet.

MR. FRAZIER: I am Todd Frazier, Assistant Director, Harvard Center for Community Health and Medical Care.

As to your relationship to the ASTHO program and the format Bob Mugge has prepared that describes some of the elements of the Federal, State, and local program, Mr. Davis, I wonder if, using this document, you could pick out for us some of the areas in which you think the Department might interface with the Federal, State, and local cooperative program.

MR. DAVIS: I really have not had an opportunity to review the chart, Todd, so I am not prepared to comment on it.

I think in general that we have got to find a way for several groups to sit down in the next few months and decide that there is no point in all of us going in separate directions.

We had, I thought, a very constructive meeting last Friday with officials of the Health Services and Mental Health Administration on this very point, and there will be contact made within the next week or so with the staff of the project and Dr. Wilson's staff. We hope to do justice in dealing with these sorts of problems, where obviously there are likely to be overlaps unless we very carefully avoid them. We also hope for payoff in the area of trying to develop some sort of uniform terminology and classification between the programs utilizating these data.

Again, I cannot comment without studying the chart, but in general I think that is the direction that we have to take.

DR. MUGGE: We feel that it is very fortuitous that the two programs are coming along at the same time.

We think they complement each other effectively. We do not see them going off in two different directions, unless you consider them as parallel directions with interlinking, as you go along, like a couple of railroad tracks with the ties in between. They do need to be interrelated. They do need to have common statistical standards, definitions, and so on.

We are talking to one another. We are developing guidelines and statistical standards with respect to these various statistical activities that will be uniform in the two systems.

MR. ERVIN: Any other questions?

DR. RAY: I am Tom Ray, Department of Health & Rehabilitative Services, Tallahassee, Florida.

On the same subject, we have been into this already and are now trying to consolidate the data requirements to secure entitlement, individual by individual, for Social Security funding with Title 4-A and 16; What we find is that we are having to adopt the standards of the welfare operations in securing individual data to some extent, and it is beginning to get to some of the people who are concerned with clinical issues, because, for example, in most States, the welfare recipients are often seen as low class types who need to be made honest by inquiring into their financial affairs rather closely.

For example, you need to find out not only their income, and the income of individuals in a family, but also what kind of life insurance policy, what kind of property holdings they have, and various other types of information, in order to be sure that there are no people on welfare rolls who are not entitled.

When you get into a uniform data structure, and you begin to think of health and mental health recipients in these same terms, as people who are not really holding up their end of society's needs, and so forth, it begins to upset mental health people to have to get this kind of information about those to whom we render services.

These are issues which you will all run into when you begin to use these kinds of funds, because the welfare services encompass a much greater base.

Also, there are issues of confidentiality in the exchange of information under umbrella agencies, like those in Florida and several other States. You are bringing together mental health, health, welfare, retardation, and other human service agencies, and they are talking about the need to exchange information between these agencies, which in some cases have widely different philosophies of confidentiality and concern over individual human well being. These are all raising very interesting questions and problems for us.

MR. ERVIN: I think Dr. Wilson once said that some incompatibility is by design, and I think what you said is true.

Any other questions?

DR. LIPWORTH: Leslie Lipworth from Massachusetts.

I have not seen your data form yet. If I am talking about something that you have already discussed, then please stop me. What we are interested in in Massachusetts, and I think the whole United States, are the physical probelms of mental patients. I think it would be useful if there were checks of data on mental hospital patients who get transferred to hospitals for physical conditions, the data to be supplied by the mental hospital. Who should follow up these patients? What was the diagnosis? And what happened to the patient? Did he come out of it alive, or did he go back to the mental hospital, or what?

FROM THE FLOOR: Let me just say a little bit about this. I mentioned a study that is now going on in the mental health area—the four mental health studies that are tied into the multi-State system.

One of the issues they are addressing is an attempt to measure the extent to which they are maintaining continuity of care. One of the aspects is the transfer of patients to hospitals for general medical care where it is required, obtaining information to insure that the patients are in fact getting the kind of care they need, and that they follow up with the patient after the general medical care and get him back into the psychiatric program to continue his care. So work is now going on to develop the kind of data instruments that would get at this kind of question.

In addition, this is the kind of information that will be included in the general application system that we are talking about, which permits the user to put in additional information on the patient, aside from what goes into the ordinary psychiatric record.

MR. ERVIN: With that, I think we have exhausted our time. I would like to thank our panelists and I would like to make one last comment.

Somebody mentioned that we seem to be in sort of a rut with some of these things. We are talking about the same kind of things that we were talking about seven or eight years ago, and I suppose that is true. Yet there are some things that are different.

We have an authorization for a cooperative health information system, and that is different. We have the first money for that system, and that is different. We have more money on the way, and that is a whole lot of money, and we have the State health officers backing a uniform reporting system, and that is different, too.

We have a mental health system that seems to have real potential. I am enthusiastic, and I know you are enthusiastic.

Thank you very much.

Whereupon, at 3:40 p.m., the Concurrent Session "J" was concluded.

Concurrent Session "K"

Local Area Surveys

This program presented two papers describing health data needs (one at the State level and one at the county level) which may be met by interview surveys. Three HSMHA survey programs designed to obtain local area health data were described in terms of methods of collection and data produced. This was followed by a discussion of the advantages and limitations of each in meeting local data needs.

Contents

CONCURRENT SESSION 'K'

LOCAL AREA SURVEYS

PRESIDING

Dr. Kinzo Yamamoto, *Deputy Director for Planning and Evaluation, National Medical Association Foundation, Inc.*

Good afternoon and welcome to Session K. Can you hear me back there? If you want to feel more cozy you could step forward. We are trying to see if the panelists outnumber the audience anyway. My name is Kinzo Yamamoto. I work at the National Medical Association Foundation. I would like to give you just a few words on how this session is to be conducted.

Initially we will have two speakers who will present papers on local or county and State health surveys. There will be a question and answer period for about 15 minutes, then we will take a five-minute break, and after that we will have three papers from representatives from the Health Services and Mental Health Administration. Each speaker will be allowed 15 minutes. At the end of each of the two periods, we will have a question and answer period.

I am taking kind of a chairman's prerogative and would like you to do a little calisthenics by raising your hands to tell our panelists who you are. I am going to ask about half a dozen questions. If they apply to you, would you raise your hand.

How many of you have ever conducted a health survey excepting the Feds there? (Show of hands) Would you keep your hands raised, please, because my second question is related to how many of you were supported Federally? (Show of hands) Four. All right, thank you.

How many of you folks are health planners? (Show of hand) One. How about that? How many of you are considered to be decision makers if you were to receive health planning data? (Show of hands) You are decisionmakers. We have two decisionmakers.

How many of you planners or decisionmakers have used survey data? (Show of hands) You have. You have. Two people. And I have related to that how many of you two who have used the data have found the data useful? That is a judgmental question. (Show of hands) Sometimes the data come in forms that are not as useful.

My last question is how many of you folks are associated, because it is a joint conference, with the mental health program? (Show of hands) Three? All right. Thus endeth my portion of the program.

Our first of two speakers on the local and State health surveys is Dr. Mildred K. Kaufman. She is currently the Director of Vital Statistics at the St. Louis County Health Department. She is the Assistant Clinical Professor of Community Medicine at St. Louis University, School of Medicine. She is a member of the Standing Committee of the Public Health Conference on Records and Statistics, 1968 through 1972.

Her paper will be a discussion of county health data needs, illustrated by a study of the demands for health services in a suburban county.

Local Users: Panel Presentations

COUNTY HEALTH DATA NEEDS

Dr. Mildred K. Kaufman, *Director of Vital Statistics, St. Louis County Health Department, St. Louis Missouri*

The purpose of the project* which I am going to describe was to determine the perceived health needs of different socioeconomic and racial groups in a suburban metropolitan county, the actual medical care they receive, and the health facilities they use.

I am going very briefly to describe the project and I would like to give you some illustrations of how various groups are using some of the data which we gathered.

The three areas of St. Louis County were selected for study. They were fairly small areas because we wanted to study them intensively, and also because we wanted to organize in each area a community group which would make recommendations for improvements in the delivery of health services to its area.

The areas include white and nonwhite populations which vary widely in socioeconomic status and other social and demographic characteristics. The areas vary in their location in the suburban county. They vary in the accessibility to the residents of various types of health facilities. They vary in their length of development; newly developed areas were included in the study as well as old stable areas.

The bases for the selection of the areas for study were census data characteristics. I won't go into detail here, but we used census tracts because there was a wealth of information available for them which we could use as a background for our study. Also our study was to begin in 1970, very shortly after the census was taken, so we have the benefit of some longitudinal data for each of the study areas.

With regard to the sampling, each study area was treated as a unit for sampling purposes and we selected a random sample of households in each area. We didn't have listings of the households available so we used a modification of an area sampling technique where one can take listings of intersections and then, by a random method, select random intersections and then random households.[1] This method does not provide equal opportunity for selection of each household when the densities of the dwelling units vary on the intersecting streets, but it does provide equal opportunity for selection of any street intersection in each area. The procedure is simple and inexpensive.

There was one exception to the sampling procedure and that was a deliberate oversampling of the black populations in two of the census tracts. We make no attempt to generalize the findings of the project beyond the study areas. However, we feel the findings might have some application in areas with social and geographic conditions similar to ours.

The preferred respondent for the household interview was the wife, or the female head of the household. If this respondent was not available, then a responsible and knowledgeable adult over 18 years of age was taken as the respondent. If there was more than one of these, a random choice was made.

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*The research reported here was performed by Mildren K. Kaufman, Ph.D., and Robert M. Taylor, M.S., Co-Principal Investigators, pursuant to Contract No. PH 108-69-59 with the National Center for Health Services Research and Development, Health Services and Mental Health Administration, U.S. Department of Health, Education, and Welfare.

We selected the wife or female head of the household as the preferred respondent, because we felt that there was a greater probability that she would know more about the health and medical behavior of the members of the household, particularly the children, than would any other respondent.

The method of data collection was a household interview which was approximately one hour in duration. It was developed, pretested, and approved by the Bureau of the Budget before we went out into the field.

We collected approximately 300 interviews in each of the study areas.

The content of the interview included household information about the entire household: the relationship of each person to the head, information about sex, age, color, marital status, years of school completed, occupation, employment. We also collected information about general health status. We asked the respondent to rate the health status of each member of the household and to report for each person information about a list of behavior symptoms and physical and mental problems.

Then we focused on the utilization of various types of health facilities in the past 12 months. We limited ourselves this way because we felt that if the time period was shorter, the household members might not have had an opportunity to use some of the facilities they ordinarily would use, and if it was longer, the respondents might not remember very accurately.

The utilizations reported on included inpatient hospital, nursing home, emergency room, outpatient hospital, and clinics. We also asked about physician utilization, home care, utilization of ambulances, and utilization of nursing care. Then we asked if any member of the household had discussed health problems with a druggist, a teacher, lawyer, clergyman, social worker, marriage counselor, or psychologist.

We asked about discussion of health problems with chiropractors, faith healers, herbalists, astrologers, palmists, soothsayers, bartenders, policemen, and barbers, and we also asked if they had solicited any advice or information about health problems from relatives, friends, neighbors, co-workers, or employers.

We asked who was the utilizer of this health information, what was the condition for which the information was sought, how many utilizations of a particular facility or person were made, and the identification—that is, the name and address of either the facility or the health professional. We asked the service cost and whether or not there was insurance coverage.

Then we asked if there had been any problems with the utilization and if so, what they were. Further, we went on to ask if any member of the household had needed a particular type of health service but had not received it.

We asked if anyone had had any tests or treatments during the past 12 months and if any prescribed medicines or medical appliances had been used besides what we had already had reported to us.

Then we collected information, in addition, on disability days, dental utilizations, and particular utilizations related to pregnancy. We also had a question about whether or not a special diet had been prescribed for anybody in the household by a physician.

We included information on whether or not the family had what they called a family doctor, or doctors, whom they saw regularly, and we included some general attitude items in the schedule. We wanted to know if people knew about community resources, if they felt confident about knowing where they could go for an array of health problems which we mentioned to them, and if the family had health insurance, then what type and who was covered by it.

We also asked for information about the residential mobility of the family, whether they had moved in the past five years, and if they had plans to move.

Information was requested concerning the total family income and religion and church attendance.

We concluded with a series of open ended questions which turned out to be very important to us. These were: (1) Are there any health services not available which you think would help your family or the community? (2) Does your family or community have any health problems which I have not asked you about? (3) Was there anything which happened during last year which seemed to really affect the family's health, any events which made the illness of anyone in the household more of a problem? (4) Have you any medical expenses for anyone who is not in your household?

How have some of our survey data been utilized? First of all, we had a charge to actually make up community groups and have them develop recommendations for the modification of existing health care delivery systems in order to provide more comprehensive efficient and effective health care. The groups met three times during a one year period and concluded with a workshop at which they presented their recommendations to representatives of various governmental, medical, and community organizations.

We feel that we did arouse interest in the planning of health services on the part of residents and representatives of various health and health-related facilities in the three areas studied. Because I think we are running a little short of time, I won't go into how we organized the consumer adviser committees. But if you want to know, we can cover that in the question period.

In two of the three areas there are groups, which evolved out of our consumer committees, actually at work trying to develop and get some of the improvements which were recommended. The researchers are not actively sitting on those committees, but we get calls for some of our information for use at some of their committee meetings. So we feel that we certainly did arouse consumer interest in health planning.

In one area there are several groups working to obtain some of the modifications of the health services delivery system which were recommended by the area consumer committee.

What kinds of projects are these committees considering? One group is considering setting up a screening program for adults and children. They have actually set up a children's clinic for school-age children offering physical examinations, immunizations, and well-baby clinic services. A second group is trying to set up a community center which would integrate health and other community services into a central location. A third group has organized a discussion series on child development and parent-child relations.

In the other area, we have stimulated a group of community representatives to meet with representatives of a clinic which is located in the area. They have been discussing ways in which the delivery of health services can be improved in the community—changing clinic hours to increase availability of services, expanding eligibility for clinic services to include residents who were not previously included, getting services such as dental care and sickle cell counseling, which had previously not been available.

A second group in this area is setting up a child development society and their major aim is attempting to set up a day care center in the area. A third group has been exploring the need for a meals-on-wheels program, for which information came directly from some of our interview questions, e.g., those questions concerning need for home care services and the number of permanently ill and disabled residents in the area in relation to information about household composition.

Another illustration of the use of some of our questions comes from the area of nutrition. Questions on special diet were: During the past 12 months has the doctor told anyone in the house about the food he should or should not eat? Who was this? Why did he need a special diet? Were there any problems following the doctor's advice about the diet?

The Director of the Nutrition Division at the Health Department was a consultant to our study. She is using these data to support the following activities. First she is planning sessions with the St. Louis Heart Association's Nutrition Committee to illustrate the need for counseling patients with heart disease. We have compared patients with heart disease who did not report that they had a special diet with the group who reported that they did have a special diet, and the question of whether all patients with heart disease should have special diets is being discussed.

The nutritionist is also using some of the information in training programs with dietetic interns to make them aware of the kinds of problems people have in following diets.

Another use of our data is illustrated by the dental utilization data. The Director of the Dental Division is planning to use some of our data to justify proposed plans for setting up additional clinics in the county.

A final illustration of the use of our data comes from the economic sector. We can be credited with one doctoral dissertation, a study of family medical care expenditures which was just completed this year.[2] The economist who worked with us to develop the questions on the costs of medical care has referred another colleague who is interested in continuing analyses of these data.

In closing, I would like to say that we told the consumer groups that in return for their deliberations with us over data which we presented to them, we would be willing to search through our data to try to answer questions which they might have concerning health services and to support their endeavors to improve the delivery of health services to their communities. Thank you.

DR. YAMAMOTO: Thank you very much, Dr. Kaufman.

I see our ranks have swelled a little bit back there. Glad to have you aboard. As we mentioned, if you have any questions, please save them until after our next speaker, who is Dr. William Gaffey. He was formerly the Associate Director of the Human Population Laboratory at the California State Department of Public Health, that is up to two weeks ago. Now he is Director of Biostatistics with the Tabershaw-Cooper Associates at Berkeley. He has his doctorate in mathematical statistics and he was formerly chief of the Bureau of Statistical Services, California Health Department.

He will talk to you at a State level—the significance of health surveys and the need for comparability among local area surveys, so as to better measure the rare event.

Dr. Gaffey.

COUNTY HEALTH DATA NEEDS

Dr. William R. Gaffey, *Director of Biostatistics, Tabershaw-Cooper Associates at Berkeley.*

I am delighted that the audience has swelled, although a non-trivial portion of it consists of staff. (Laughter) So I think it is still appropriate to say what I planned to say: We few, we happy few, we band of brothers.

The point I want to make is a very simple one, but I will pirouette awhile before I come down on it. At both the county and State levels, health data information is needed as a basis essentially for resource allocation, for deciding which groups or which geographical areas should get greater service or greater facilities.

The obvious difference between the two levels, I think, is—to somewhat oversimplify—that the State tends to be more interested in allocation on a long-term basis—what might be termed long-term action—and perhaps in the allocation of resources which for reasons of logic or economy must serve more than one area.

For example, a county may be curious about the incidence of hepatitis because it is debating whether or not to institute an educational program in a given year. The State, on the other hand may have an interest in this incidence as a basis for going to the legislature and getting more epidemiologists in the Bureau of Communicable Diseases—a difference between Statewide resources and local ones.

This is an obvious difference between State and local interests. A less obvious difference—not difference, really, but a sort of paradox—is that what many of the people are interested in at a local level are health events which are rare. It turns out, sort of paradoxically, then that the precise events in which a county is interested, because those events determine how it uses its resources, are rare enough so that for practical purposes they can only be measured at a State level.

Let's consider two kinds of rare events. One example would be a pedestrian being hit by an automobile. Obviously any community will have enough of this particular event occurring so that it has to have some sort of medical facility to take care of it, but the probability that any given individual will be hit by a car in one year is very small. If we take a sample from a local area and try to look at the occurrence of this event, we will find that it doesn't happen to very many people in our sample. If we try to measure the difference in risk by age, race, sex, et cetera, it becomes a very difficult job.

This is a rare event in that it happens seldom, but it could happen to anyone.

There is a second type of rare event which is equally inconvenient. That is the one which is common but occurs in a group which itself is a very small percentage of the community. Again, to take a possible but not quite realistic example, if we had a definition of a condition called gross dental neglect, this would probably be a reasonably rare occurrence in many communities. The way in which it would be rare is that it would be relatively common in one very small subgroup in the community. In both cases we have a situation in which there is a rare event. We want very much to measure the risk of this event as a basis for planning facilities, but it happens so seldom that the county which needs the information cannot very often take a sample large enough to get a measure of risk.

This can be gotten only at the State level. A little more about this later.

Just to have something a little more formal to talk about, what do we mean by health data? Dr. Kaufman ran through essentially the same sorts of categories that I am going to talk about.

It seems to me that when we are collecting something called health data, the information falls into one of three categories. First is personal health status, which we usually turn into the need for health services or facilities or personnel. The second category is the availability of health services and facilities, either real availability or perceived availability. I mean availability in a very wide sense. If facilities are available at a distance and people don't have cars, then they are unavailable. If facilities are available close at hand but people feel they are going to be turned away, these things are not available. They perceive them to be unavailable.

The third category is utilization of health services and facilities. Not to go on at too great a length, I think it is clear that it is very difficult to find out about any of these things without taking some sort of survey of the people who use the facilities. Unfortunately for people who take local area surveys—if we get back to this business of the rare event—it is a fact of life that the precision with which we can estimate from a sample is almost entirely a function of the sample size, and hardly at all a function of the population size. As we look at progressively smaller and smaller populations, we have got to take almost the same size sample if we want the same precision. So the smaller the area, the more burdensome is the process of taking a sample.

I can give you one example from the Human Population Laboratory with which I was associated. We operated in what is a fairly large county with a population of about one million people. We took a sample and, as part of our measurement of health status, we gave people the usual checklist of chronic diseases and asked: In the last 12 months have you suffered from any of these things?

This worked well enough until one of our staff members made the mistake of looking at the National Health Survey and constructing a synthetic estimate for our county. It turned out that our county was either extraordinarily healthy or we had missed some of the real disease that was occurring. Obviously we had missed it because we asked people to recall over a year. The National Survey asked them to recall over two weeks and asked the questions every two weeks.

What could we do, even in this large county, to get a reasonable picture of health status if by health status we mean among other things the prevalence of chronic conditions? We would have to take a survey every two weeks, a task beyond the resources of even a large county.

Another example is perhaps more to the point. In Northern California, a Model Cities program which covered a total area of approximately 5,000 people was very interested in taking a sample survey to find out something about infant mortality. Suppose they had taken 100 percent of their population? How many births would there have been in a year, 100 or 150? At most. How many deaths? Somewhere between 2.5 and 4.7. So if they had seven deaths, what would they learn? Nominally that there was a 50 percent increase in mortality, but in fact a datum which is of no use at all.

These people would have been completely unable, on the basis of a sample, to learn anything about risk.

What are the implications then? It seems to me that the obvious implication for these rare events— and many of the things we want to look at are rare, such as the occurrence of health crises, the utilization of various types of health services—is that they can only be measured accurately (especially if you want them by age, race, sex, income, and so on) at the State level, by taking aggregations of county surveys, if you will.

If we lived in a wonderful State in which every county and every city had a survey, we might have a prayer of measuring these things by aggregating these data on a State basis.

This implies, however, that if we were going to do this we would need comparability among whatever local surveys might be going on in a given State. When I say comparability, I don't mean that the sample should be taken in the same way. It doesn't much matter whether county A takes a systematic sample and county B takes a multistage cluster sample. That makes life a little bit inconvenient but it isn't crucial. What is crucial is that if they are looking for information about the same phenomenon, they should use exactly the same questions.

I suggest in that case, the only practical way to get measures of risk of these rare events on a small area basis is to look at rates calculated on a Statewide basis—on a specific basis: age, race, sex, income specific rates of being hit by an automobile if you will—and then apply these specific rates to the age, race, sex distribution of the county to get synthetic rates, in exactly the same way that National Health Survey data have been used to get synthetic rates for the States.

Actually, if anything, this is a more important process at State to county level than it is at the Federal to State level. I think the National Health Survey synthetic estimates may have been a bad thing for California, for example, because we have a large State. If these estimates had not been available, we might have gotten into action and taken our own sample, which we could well have done. However, for the smaller States, synthetic estimates are the only answer.

Similarly, for really small areas—and most areas are really small when you talk about counties—the only way to get any reasonable measure of risk of rare events, which we must have as a basis for planning, is to aggregate information from different surveys, hopefully comparable ones, at the State level and go through the same exercise that the Federal people have done in constructing synthetic estimates which are applicable to small areas.

End of story.

DR. YAMAMOTO: Thank you, Bill.

PANEL DISCUSSION: REGISTRANT QUESTIONS

Chairman and Speakers

Now we have a few minutes for some questions and hopefully some answers. Does anybody want to start it out?

MR. SPILLENKOTHEN: I am curious how large the study areas were, in St. Louis, how they related to census tracts or other neighborhood boundaries, and that sort of thing.

DR. YAMAMOTO: The question was directed to Mildred. By the way, if you have a question, would you, for the record, give your name and organization

DR. KAUFMAN: At the time we made our decisions about the tracts, the 1970 census data were not yet available. We actually made our decisions on the basis of the 1960 census data, which were terribly out of date, and our own knowledge. We went out and drove around the areas we thought we were going to select to reassure ourselves that we were getting what we thought we were getting in terms of the change phenomena occurring in these areas.

The study areas included six tracts. Let me just run down the population size: one 11,203, another 5,111, one 13,603, one 6,178, another 3,248, and one that had 4,779 total population.

We had a total of 3,273 people for whom we had information on a household basis for all three areas.

MR. SPILLENKOTHEN: So essentially you used tracts as a unit of sampling?

DR. KAUFMAN: No. We used study areas which were combinations of tracts as the unit of sampling. We don't have an equal representation of persons in each tract. We do have a random sample of intersections. What we wanted really was not so much an exact percentage representation of the tracts, but a general picture of people's demands for health services. We have area samples. Households were selected at random, but as I said, because of the limitations that we had in the nonavailability of household listings and our funds being so limited that we couldn't go out and do the listings required for a random household sample, we did make some compromises in our methodology.

DR. YAMAMOTO: Are there any other questions?

Bob.

MR. FUCHSBERG: Robert Fuchsberg, NCHS. You asked people about a family doctor. What proportion of the population indicated they had a family doctor, roughly?

DR. KAUFMAN: I don't have that information as yet. I can't tell you the proportion at the present time because we haven't analyzed that particular question. On the basis of my knowledge about the coding, there were difficulties with phrasing the question that way. I wouldn't recommend the question, because people today really don't have what you call a family doctor. They have a pediatrician; they have an internist. The phrase "family doctor" is not a good one for this type of survey.

MR. SPILLENKOTHEN: I would like to ask Dr. Gaffey a question. When you were in the State of California and were aware of the problem of the rare event, what did the State do to work with the counties to make some kind of reconciliation—just what kinds of things were done?

DR. GAFFEY: Nothing. (Laughter) I would like to expand on that very briefly if I may. My answer applied to the period when I was with the State. They are now in the process of doing something about it. There has been a rash of local county surveys of which we at the State level don't really have an inventory, as we ought to have, and of which we frequently become aware several weeks after the sample has been out in the field.

What we would like to do, of course, is exactly what I said—we would like to keep tab of what is going on and be able to encourage some kind of uniformity in core questions. The organization that I was with has taken this on as one of its jobs for the coming years, but at this moment hasn't done anything.

Fortunately there is an evolution, because most people who take surveys at the county level start out by taking a look at the state of the art, so their questions tend to look like National Health Survey questions. So there is a movement towards uniformity, at least in certain core questions, although not as much as we would like. We haven't really been able to do very much, as of this instant—specific encouragement, coercion, or what have you.

DR. YAMAMOTO: I thought I would save a question for myself to either of the two panelists.

The general tenor of the several speakers yesterday and this morning has been "who uses data of any kind?" That is health survey and biostatistical data. There seems to be, at the very origin of health surveys, perhaps two political modus operandi: those kinds of surveys that can be commissioned—that is somebody wants to know something and they are willing to pay for it—and the others which are done ad hoc and you have to somehow muscle the data back to decision makers.

Would you like to comment on the advantages and disadvantages of these two modus operandi? (Laughter)

DR. KAUFMAN: Ladies first.

In part we started out by having a question asked of us which stimulated our survey. The question was: Is there a shortage of physicians? Our survey originated out of the Bureau of Health Manpower Education.

We know there are people who claim that they can't get medical care. Why is it? What are the factors involved? That was the beginning point. Our response, in terms of what we did, obviously was that we felt surveys had to do more then just answer this kind of question.

At the present time, people are beginning to resent the survey taker. They say, "What, another survey?" We are in a community where we have to live and work with the people. We hope they will use our health services, and that they will cooperate with us when we do need information. So we decided that we would give back information to the people. We then formulated the consumer groups, and we said to them, "We are going to provide you with information in return for participating with us in the survey."

I think in some cases it really is a two-way street. I think it should be a two-way street wherever possible.

DR. GAFFEY: I hate to keep doing this, but I have a non-answer. (Laughter) The survey with which I was involved was not directed towards operational purposes of the Health Department. It was an attempt to find a relationship between health and something called ways of living as measured by the usual demographic variables plus measures of social isolation, perceived childhood stress, and so on.

Of the things we found out, some are very interesting and are of interest to behavioral scientists and health educators, but they don't relate to anything very specific in the Health Department program.

We took one survey in 1965 and were able seven years later to do a death clearance and calculate mortality by the answers to our questions. We found out that happily divorced people are healthier than unhappily married people, for example, which is hardly astounding. (Laughter) We found out that if you want to predict mortality, one way to do so is to ask people about health status: Do you suffer from this or that chronic disease or impairment or symptom?

Another way to do it is by asking them about good health practices: Do they smoke? Do they drink? Do they eat breakfast? Do they snack between meals? Do they get the right amount of sleep? This predicts health much better than health status—rather surprising.

DR YAMAMOTO: I could entertain another question or two. Are there any?

Thank you both for the fine presentations.

Apparently if we are to have some kind of symbiosis between the data gatherer and the data user, somebody ought to come up with a bunch of money and have a crash course on how to intelligently train the data user.

If we have any takers at the Federal level, where the money is, I am sure there would be a lot of people who would try out for grants. Sophistication in the researcher apparently sometimes is not met with sophistication in the user and that is what somebody else said earlier this morning.

Nobody is allowed to leave, of course, now that you are here. Would you kindly take a five or 10 minute break in place, and we will get back together in a few minutes.

(A short recess was taken.)

HSMHA Surveys: Panel Presentations

DR. YAMAMOTO: The second half of this program has been reserved for HSMHA presentations. There will be three.

The first speaker is Mr. Roy Spillenkothen. He is Chief of the Systems Development Branch, Bureau of Community Environmental Management at the Health Services and Mental Health Administration. It sounds like a DOD title. He has a Masters in architecture from Washington University, St. Louis, and also an MS in engineering from the same institution. He is currently working on his doctorate in public administration at George Washington University. He is going to start off by talking about the NEEDS program. It is a description of a Neighborhood Environmental Evaluation and Decision System.

Roy.

NEIGHBORHOOD ENVIRONMENTAL EVALUATION AND DECISION SYSTEMS

Mr. Roy Spillenkothen, *Assistant Chief for Systems Design and Analysis, Bureau of Community Environmental Management, Health Services and Mental Health Administration*

Before beginning, I would like to make a comment. I am not a statistician nor do I intend to be. If that doesn't avoid some difficult questions. I will try something else later.

My presentation is going to be essentially a description of a program called the NEEDS program.

The acronym "NEEDS" stands for the Neighborhood Environmental Evaluation and Decision System. I would like, before beginning, to give a brief background, sort of the roots of the program. Our Bureau of Community Environmental Management was a part of the Environmental Control Administration of Health, Education, and Welfare before it was removed and placed into the Environmental Protection Agency (EPA).

The interest that NEEDS has is to build a base of information from which local governments can begin to make decisions relative to health, health services, and environmental health services. I think you will notice a slightly different emphasis in this data collection effort, a broadening to include some of the environmental problems that include health status.

So NEEDS, first of all, is designed to help diverse kinds of local government agencies begin to build information concerning conditions, health status, and other factors that affect residents of local communities. It is a small area mechanism; it is not a metropolitan or citywide data collection mechanism. It is further characterized by the fact it is a joint venture between our agency and the local community, periodically including State or other regional agencies. Thirdly, it is only implemented at the request of local communities. We, in fact, provide a kind of technical assistance service for local governments. Lastly, the program itself is built into, rather than on top of, local agencies in existence. Typically this turns out to be the Health Department, Comprehensive Health Planning agency, or others with which you are familiar.

The program has essentially four phases or four stages and we prefer to look on it, rather than as a data collection technique, as a program leading toward decisionmaking.

The first phase of the program is designed to build a base of information about the urban area from which the local community can begin to make decisions about where to focus attention for a more intensive survey—an interior household survey regarding health and health status and health service utilization.

The first phase is characterized by the collection of data concerning the physical and social environment in the area. There are 73 or 75 variables collected. They deal with things like air and noise pollution, sanitation conditions, population density, crowding, and a host of other variables. So we build a body of information from which priorities can be set and decisions made about where to go in greater detail, where presumably the conditions are more acute or there are some other interests. Frequently the first phase, data base, is amplified by inclusion of other existent data sources, such as census, R. L. Polk Company directories and that sort of thing, crime statistics, accidents, and the like.

The second phase of the program is the collection of information at the household level through an interior interview. We do this in selected fewer areas of the cities or neighborhoods. The sampling unit is the neighborhood.

We use the existent definitions: neighborhoods that prevail in the city. If there are none we have guidelines for the development of neighborhood boundaries.

This, as you are probably well aware, is the problem with which sociologists and behavioralists have been wrestling for some time—what is a neighborhood? We sort of, I suppose, skirt the issue and use that which exists. Typically, these are 4,000 to 8,000 people in size and are similar to the census tract. Frequently they are exactly one or two census tracts.

In the second stage we again do a random sample out of a selected few neighborhoods in which we are attempting to pick up these five or six kinds of information via the household interview—socioeconomic characteristics, family composition, size, et cetera, attitudes of the population toward the living conditions that prevail in their area, public services and that sort of thing, and health status by stage in the life cycle, zero to five years, five to 15, 15 to 65, and 65 and above.

As to accessibility and use of public services, primarily these are health services, but they also include what we refer to as environmental health services as well as other kinds of commercial or transportation services.

Second to the last, we pick up information again on the quality of the neighborhood environment. We again do a survey using environmental evaluators, typically people out of the local health department, to assess the physical conditions in the area.

Lastly, we do a detailed indepth evaluation of the interior housing conditions. Again, we are looking for things relating to health, questions of safety, things that lead to injury and so forth.

Having done the first and second stages of the program, we enter into what we refer to as the third stage, which is really a stage of analysis. This is a cooperative analysis where we support the local community in the analysis of both stages of the data base and the comparison and correlation of stage one and stage two data. We have developed a number of analytical techniques to serve community needs. They range from sort of very essential single variable kinds of tabulations up through more sophisticated multi-variable cluster analysis techniques. We find a great deal of diversity of interests and willingness to use increasingly sophisticated techniques for analysis.

The fourth stage is a kind of cooperative and joint venture wherein we encourage the community to actually do something to act upon the data that are developed, the data base.

So summarizing, we are looking at demographic, social conditions that prevail in the neighborhood; the kind of environmental conditions that affect public health services; access to public services and housing quality, presumably based on its relationship to health status of the population.

Briefly describing the process, if it is a city area and you have neighborhoods, stage one is all inclusive. Two environmental forms, one at the block and one at the premise level or housing unit level, are done on a random sampling basis throughout the city. Every neighborhood is done.

Having accomplished that, selected areas are gone to and the stage two interviews are conducted in those areas, picking up those conditions we are talking about.

What we do then is begin, on a sort of cyclical basis, to aid the community in doing studies of issues where health and environmental and attitudinal problems seem to be related. Examples of these are the childhood lead poisoning problem. It has a behavioral component, environmental component attitudinal, and health component.

Out of those we begin to help the community to search for Federal assistance and other resources and other skills to begin to deal with the problem. We in the Bureau have a limited capacity to provide health educator training and other forms of technical assistance to deal with the problems. I think it is interesting that NEEDS is being used not only by city departments or city agencies, but also by larger metropolitan area unified county and city governments, as in Indianapolis, Indiana, and also in regional approaches, as in the Tidewater region around the Norfolk area.

The program has also found utilization in some non-urban areas, very rural areas. This is kind of a side issue. We have two projects going, one in the Appalachian region, to test the instruments for applicability there and for problems with the methods we use, and one in the Arctic region.

We have experienced a great deal of diversity regarding the question of use, in terms of the kinds of agencies and the quality and character of use at the local level.

Predominantly, however, as I mentioned, health, education, and welfare agencies seem to be interested in the program. Comprehensive health planning agencies are interested. Also, as in the case of Indianapolis, the Indianapolis UNIGOF, unified planning program on a city-wide basis, is beginning to build a decisionmaking system for the city under the mayor, based on the assessment of health and human needs deriving from the NEEDS program.

What does it cost local government? Essentially the costs to local government are periodic involvement of administration, project manager, project staff, the environmental evaluators to do the stage one evaluation, the stage two interviewers (who are, by the way, selected from the community and trained by our staff for over a period of about two weeks), staff salaries, transportation, and space.

We, in turn, provide the R&D costs, data collection instruments for both stages, data processing, training, and most of the analytical and other support services required to conduct the program.

How does local government obtain the program? Through the regional office and by meeting some of the selection criteria that we have established. Presently we are in only 22 areas, but there is a great deal of sort of national interest in the program which we can't hope to meet, so we are not going to be moving very readily into additional communities.

That is all I have to say about the program on this point and I have beat my time.

I would like to talk a little bit about the fourth stage of the program and some of the uses to which the data have been put, but only in a very general way.

We have found that the information derived from the program has been used in very specialized fashions to reorient special health services and educational services and to reroute transportation and pickup of solid wastes and cope with other sanitary problems.

We have also found that there is an interest in using this kind of broad instrument in the development of comprehensive human service centers or human service units. Two examples are Indianapolis and the projects in Morgantown, West Virginia.

It is a very difficult thing—and I would like, if possible, to raise this point and perhaps get some discussion later—it is very difficult to assess how data are really used and whether or not, in fact, the presence of data is a prerequisite for making a decision to act upon something, to change the quality of health care, to deal with different health conditions, et cetera. It is very difficult to assess whether or not, in fact, data had anything to do with a decision or contributed to action.

One of the things we face continually is the question of, well, all right, so you did some data collection; did it really lead to decisions being made? I don't know how one evaluates that. I suspect if one tried to do a rigorous evaluation, it would be very costly and probably more so than the collection of the data in the first place. I hope that toward the end of the discussion period, we can try to look at that question.

One of the limitations on our program, since that was supposed to be the topic for discussion, is that we don't feel it is applicable to communities of less than about 50,000 population. That is largely due to the fact that the communities of less than 50,000 are not likely to have the apparatus—decisionmaking apparatus, planning departments, health departments, et cetera—to do anything about problems.

Another limitation of the program is that at the present time, as I mentioned, we are under economic constraints against spreading our resources further. We are not doing any more cities in the next few years.

One of the analytical problems we face is the one that Dr. Gaffey has brought up; that is the question of the rare event. We have tried to build multi-variant analytical scales and frankly have found utilization thereof to be less than we had expected. Also we found a good deal of problems in dealing with this question of the rare event.

Many of the things that are of great interest to a health planner or health decisionmaker turn out not to occur very frequently at a neighborhood level. I would like, if possible, to continue that discussion informally or formally. Thank you.

DR. YAMAMOTO: Thank you, Roy.

When he said that communities of less than 50,000 need not apply to him, I winced, because

I am a small town boy. But, indeed, this is a great service that NEEDS is providing and if you would permit a bastardation of John F. Kennedy's famous saying, Think not what you can do for yourself, but what you can get from NEEDS. (Laughter) Pretty bad. As a matter of fact, if I were some of you folks who were interested in this program, I would get his address and phone number.

MR. SPILLENKOTHEN: There is information up front here for those interested—background survey instruments and other data.

DR. YAMAMOTO: Our next speaker is Elijah L. White who is the Director of the Division of Health Interview Statistics at the National Center for Health Statistics. I have known Elijah for a long time. As a matter of fact, when I came to work at Health, Education, and Welfare, there he was. He is still there and he is improving the Health Interview Survey. He spent five years directing the local community surveys in Kansas City, Missouri, and in 1957 came to the National Center—it wasn't called The National Center at that time, but contained the rudimentaries of the National Center—to help establish the Health Examination Survey. He was transferred to the Health Interview Survey in 1960 as Assistant Chief, and has been its Director since 1966.

His subject is the role of the Health Interview Survey in providing technical assistance and consultations to areas planning household surveys.

Elijah.

THE PACKAGE HEALTH SURVEY

Mr. Elijah L White, *Director, Division of Health Interview Statistics, National Center for Health Statistics, Health Services and Mental Health Administration*

I am sure that all of you are equally aware of the increasing demands for survey data which have proliferated since the establishment of the Regional Medical Programs and Comprehensive Health Planning programs which, in turn, have created many new positions in health planning and evaluation. These have led to an explosive demand for health data at all levels—Federal, State, and local. Thus many of us feel new pressures for data, whether we are producers or consumers of statistical data.

Historically, and thus budgetwise, the national Health Interview Survey was created to produce mostly national data and a very few smaller-area statistics for regional and standard metropolitan statistical areas. This has obviously meant that State and local areas would need to produce their own statistics of health services utilization, measures of disability, incidence of acute conditions and injuries, and coverage by health insurance programs, to name a few of the items necessary to get by interview if one wants data for the general population and not just those being served in our institutions.

Given the needs and demands for these data, the Health Interview Survey programming has sought means to help others in filling this information gap. One of these is our effort toward creating a "package survey"—"package survey" in quotes.

In a real sense, the name is a misnomer. Let me make clear what I mean by this statement. In the initial stage we were looking for a relatively fixed content survey which might serve the needs for survey data at either the local, State, or Federal level. However, it soon became quite obvious to us that there was not a single efficient set of items which would serve the needs of multiple health programs at all levels.

Thus the "package survey" or "everyman's survey" objective came to be an ideal type or concept which was too bulky, too inefficient, and too counter-cost-effective to be pursued in this form.

Still it was only too obvious that many surveys would be conducted and unless some conscious efforts were made to achieve a degree of commonality and comparability, much data would be collected without the ability to compare findings from one area with those from other areas.

Realizing the great benefits of comparability, the Division of Health Interview Statistics is trying to make available, wherever it is appropriate and desired, experience gained in collecting data at the national level, including the concepts, definitions, questionnaires, instructions to interviewers, code instructions, and tabulation plans, which might encourage the creation of a more comparable set of data from area to area.

Unfortunately this may sound as if we have all the right answers, but we do not believe that. In fact, we expect to change or add items in our surveys, to establish better procedures and comparabilities, when we learn from the cooperative experiences at all levels.

Our concept of what the package survey might look at includes the following. One is a set of core items which, ideally, would be adopted by each survey. Such items might include questions on health services, utilization, selective measures of health status, disability coverage by health insurance, and the obviously needed social, personal, and economic characteristics of the population. You will recognize a similarity to some of the things which have been presented by the previous speakers, of course.

The second inclusion in such a package survey will be a selection of other modules of tested sets of data covering topics used in past surveys, whether Federal, State or local. An example might be a module on family planning services or cost of physician visits. The selection of these items would necessarily depend upon whether they met objectives of any particular survey being planned.

Thirdly, the package survey would involve a design and testing of new modules or topic areas where survey objectives must be met.

Experience with findings from the new investigations hopefully will provide benchmark data for future surveys with similar data needs.

We have actually prepared a prototype of what such a survey might include. Although this is in existence, we have distributed these data selectively since they are not formally printed for distribution. Nevertheless, in response to many past requests we have tried to provide parts of these survey elements for the guidance of those who are entering upon this task of making new surveys.

In recent months, more and more attention has been focused upon the need for the Health Services and Mental Health Administration to coordinate its plans and recommendations for community health surveys, especially those designed to provide baseline data which will be used for planning, administration, and evaluation of health programs and delivery systems. Indeed, this is also an urgent interest at the clearance level in the Office of Management and Budget as well.

Hopefully the convergence of these pressures with our interests in promoting the scientific values of comparability, and the accumulation of survey findings will avoid an endless collection of survey data of little utility and value which are collected at a very dear cost.

Although the National Center for Health Statistics is not prepared to collect data systematically at local areas, there are several ways we may be of value to those planning household surveys. I mentioned previously the availability of technical survey materials and data based on our experience at the national level.

In addition, we have been active in providing technical assistance and consultation for several States and local areas which are undertaking surveys. Now we are collaborating with our colleagues in the National Center for Health Services Research and Development hopefully to make the survey findings on the experimental health services delivery systems more productive. We have had recent experience in consulting with the Office of Economic Opportunity and Community Health Services on their Neighborhood Health Centers, where they are producing baseline surveys. Further experience is immediately at hand with two or three house surveys now being planned under the research and development phase of the Federal-State-local cooperative system.

We are charged with the task of increasing our staff and capabilities to provide more technical assistance in consultation on health interview surveys. Undoubtedly we can be of most value in the very early stages of planning and watching these efforts.

It is our intention to be very responsive, of course, (we always have to add, within our means and staff) to any requests coming from areas wishing to enter into health interview surveys—that is, areas where our experience is relevant.

I have prepared for distribution, after we adjourn here, a small package of material, two or three pages, which is an attempt to set forth our concept of what a package survey might consist of. (Appendix II)

We do not have, as I tried to make clear, a particular survey instrument, although it would be possible for us to create one. But we feel we cannot possibly anticipate all the needs and objectives that people at the State and local area might have. Therefore, we are turning more and more to the notion that each of these certainly has a particular phase something peculiar to them and their objectives, which requires some custom designing. Nevertheless, we feel that we should put our best efforts forward in trying to achieve a higher state of comparability among these surveys—very much as Dr. Gaffey was saying earlier. These very expensive efforts inevitably will continue throughout the country, especially as more money is available, and distributed to the State and local areas. Our efforts are directed so that these areas, in the long run, will help us all in making better interpretation of our findings and in administering better health services delivery programs.

DR. YAMAMOTO: Everybody is staying within their 15 minutes' time limit. Thank you, Elijah.

Here is another instance where the Health Services and Mental Health Administration, and in this case the National Center for Health Statistics, is providing and, as a matter of fact, has been providing assistance for a long time. Some of you know not only Elijah White but are privileged to know Bob Fuchsberg, his able deputy, and have found that if you call on them, they usually are there to give you first-hand and customized assistance.

Our last speaker is Mrs. Bonnie L. Owen, who is the Project Manager, Health Services Systems Branch, for the National Center for Health Services Research and Development at HSMHA. She is currently in charge of R&D projects related to the development of a health services data system. A social psychologist by training. She has done research on health attitudes and behavior.

Her paper deals with household surveys as part of a total health services data system designed to manage health services delivery at the local level.

Bonnie.

THE HOUSEHOLD SURVEY OF THE HEALTH SERVICES DATA SYSTEM

Mrs. Bonnie L. Owen, *Project Manager, Health Services Systems Branch, National Center for Health Services Research and Development, Health Services and Mental Health Administration*

As many of you may know, the National Center for Health Services Research and Development is a relatively new organization. We are just four years old and are charged with the responsibility of developing methods for delivering, improving and evaluating health care. During the last two years we have invested in a research and development program to create what we have called a health services data system.

This program is based on the premise that decisionmaking on policy which will ultimately affect health care delivery at all levels must rest on an adequate supply of data from every segment of the health care system.

The data system being developed and tested is based on the assumption that health services data should be collected at the local level. Data collection efforts should provide demographic data on the population in the area, determine whether or not care is being received for health problems, determine the cost for various services, and ultimately determine the quality of care being provided.

In developing the total data system which we envision, we saw many models in existence around the country. There were good models which described segments of the health care system, but were designed to manage at the institutional level. Other good models were designed to evaluate specific projects or programs.

Possibly one of the reasons we didn't see any of the total data systems in operation is the fragmentation of the health care system as we know it today. In health care there is no single authority or no management structure responsible for the delivery of all health services. However, we are beginning to see the emergence of a new kind of power and authority locally. One example is the increasing authority of the Comprehensive Health Planning Agencies. We also see around the country the development of what are called "health authorities"—modeled after public utilities. These quasi-public bodies probably represent the health care management system of the future. Another example is the program that Elijah was just talking about, the Experimental Health Services Delivery System program, a HSMHA sponsored program in which people at the local level, usually a city or a State, have elected to join together to form a corporate body charged with the responsibility for improving the delivery of health care in their communities.

Our R&D efforts in health services data are directed toward designing a data system which would meet the needs of these new kinds of organizations. We felt that such a data system must be one which describes what is going on in the health care system. It must describe the needs and utilization patterns of the population; it must say something about the inpatient care being delivered on a community or Statewide basis; and finally it must say something about ambulatory care whether it is delivered in the private practitioners office, outpatient department, or neighborhood health center. In addition it ultimately must say something about the money being spent, the cost of care, the dollars flowing through the health care system.

This kind of data system is seen as a management tool which is flexible and dynamic, and responsive to management needs. In such a system, data would be collected routinely and the data base sampled periodically for specific purpose or to help solve a particular problem.

In this context, the household survey serves a number of functions. Putting a total data system into operation in a community is a long, time consuming process. Before data can be collected in a systematic way on all ambulatory and inpatient visits there must be a way to obtain estimates on services being provided. The household survey is seen as a tool to provide this basic information. It is designed to be a useful tool before the other components of the data system can be put into place.

The survey is also seen as a baseline measure which would provide gross estimates that could be used in priority planning, objective setting, and initial decisionmaking by a group charged with the responsibility for delivering health services in a community setting.

The survey attempts to provide basic utilization data before other data collection techniques are employed and it can be used ultimately to evaluate programs or particular approaches to delivering health care. It is meant to provide estimates for an entire geographic area and not for specific population groups. Nor does the survey attempt to identify any specific kinds of health problems or conditions.

Ultimately and ideally, as part of a total data system, we see the household survey as a minimal instrument which only provides supplementary information which cannot be obtained by other data collection techniques.

We began our R&D efforts on a survey of this type in the summer of 1970. The survey was designed to be minimal and we were concerned with its cost. We felt since we were attempting to build a more extensive data system, that the household survey could not contribute greatly to the cost of the total system. We were looking for gross indicators such as measures of need, measures of utilization, measures of access to care and so forth.

Mr. White described his survey as a core survey. Ours can probably best be described as a subset of this core.

I have a sample copy of the survey here.* This is not in a final form at this time, but it will give you an idea of what we were trying to accomplish. Basically the survey attempts to define need for medical services and then to relate this need to actual utilization.

Our survey was initially field tested where it was part of a larger survey in the State of Rhode Island. It has been used twice in a small community in California. We currently have five similar surveys in the field, in the States of Colorado, Nebraska, and Rhode Island, in a four-county area of Virginia, and in a four-county area surrounding Stockton, California.

The National Center for Health Services Research and Development has the responsibility for evaluating the Experimental Health Services Delivery System Program. This survey along with other components of the data system will be used in this evaluation. In the EHSDS sites the same survey will be conducted in each of twelve communities sometime this summer. These communities as part of their contractual agreement with HSMHA are required to ask a series of about 20 questions. They can add additional questions which are relevant to their particular communities if they desire. Latitude is allowed in sampling. Our concern is primarily for comparable questions and definitions. We want each community to design the kind of survey which is most appropriate for its own particular use.

This survey is designed to be conducted over the telephone. This has raised considerable criticism. The reason for advocating the telephone mode is primarily one of cost. Our experience to date has shown that the telephone survey is about half as costly as a household survey and that the telephone method works well for this type of survey, where the interview is relatively short and the questions straight forward.

Our R&D program in health services data and the household survey is evolutionary and is expected to undergo a great deal of change as communities gain more experience in its use. We intent to direct our future efforts to increasing the survey's efficiency and usefulness at the local level while hopefully reducing its costs.

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*Copies of the survey forms may be obtained from the R&D Division, National Center for Health Services Research and Development, Parklawn Building, Rockville, Maryland 20852.

We are also in the process of developing supplemental questions that could be used for particular local problems. We are beginning to see that there are some areas where the same kinds of questions are being raised. We expect to draw heavily from Elijah's work in this area.

As part of a total data system, we are doing work in the linkage of the household survey with other components of the data system.

Lastly, we are supporting research in outcome measures attempting to determine the quality of care. Our survey at this point deals primarily with health services. We have deliberately not attempted to measure health status because of the state of the art. Ultimately we hope to get into this area.

DR. YAMAMOTO: Thank you, Bonnie.

PANEL DISCUSSION OF WAYS IN WHICH SURVEY MECHANISMS CAN OR CANNOT MEET SPECIFIC HEALTH DATA NEEDS: REGISTRANT QUESTIONS

Chairman and Speakers

Now our panelists are prepared to throw the meeting open for questions.

I know there are at least several mental health people here, so let me start off with a question that might be on their minds. I would like to know what is the state of the art of getting mental health status in the health survey and what kind of development have you folks been working on?

MR. WHITE: For the last 15 years we have been looking for two psychiatrists who would agree on a definition—(Laughter)—of any facet of mental health status which we could then try to get some measurement for, and we haven't found those two yet. So it is a little sad. Nothing yet.

DR. YAMAMOTO: I knew that was going to be part of the answer (Laughter). It is a sadness that that area has been—not neglected, it's not for lack of trying, but certainly the track record for getting local health survey data, all models, has been very difficult at best.

Yes, back there.

MR. BROCKERT: Could I ask the last speaker if she would give some idea of just what is included in her health services survey? Since you are doing it over the telephone, I am very curious as to just what it is you are getting.

MRS. OWEN: Let me give you the general content areas. Two-week disabilities, those are the standard questions; one-year disability, again standard. Utilization—and that is utilization of a physician's services within the last year—how many times during the last year? Utilization also attempts to find out whether there was any time when the person wanted to see a doctor but couldn't. What we called "the usual source of care," where does a person get care, in terms of private physician, clinic, hospital, and so forth. Then some very gross questions on health insurance: How people pay for their care, whether it is a public source, private insurance, or out of pocket. Hospitalization, again just number of times in the hospital. And then very basic demographic information.

DR. LEAVERTON: As to Mr. White's point—redundancy of surveys around the country, need for constancy of formulation so we can make comparison—couldn't some of these issues, attacked by the household health surveys data system, be tacked on and incorporated into the regular health survey?

I would ask Mr. White.

MR. WHITE: Some of these areas of which Mrs. Owen is speaking? Yes, they are quite similar and they are now making an attempt to be comparable with a selected number of specific areas, asking virtually the same questions on some of these points. They are not getting the same coverage always, but where they are touching the same topics, they are using the same questions. I don't know if that is responsive to your question or not.

DR. LEAVERTON: Would that imply the only difference might be one is a household door-to-door survey and the other one is over-the-telephone? (Laughter)

MR. WHITE: We are going to have to await the outcome. We have quite a few debates on how comparable the results will be later. One of the fundamental problems is that the R&D people are trying to develop an index, or sort of a management tool, something for evaluation. This is really the experimental part, I think, and we don't know how that is going to turn out yet. But maybe Bonnie should speak for herself.

MRS. OWEN: Elijah still attempts to be an "everyman's survey," used for many, many purposes where there is not such a total data system as we describe or which we are attempting to develop. The questions are comparable in any one section. Ours would end at question two; his would go on to questions four and five, indepth coverage of any item. Essentially they are very comparable surveys.

MR. BROCKERT: I am sure you have dealt with this question a hundred times, but I have never had the opportunity to ask—don't you feel a telephone survey is likely to result in your missing the lower socioeconomic status?

MRS. OWEN: Yes. I should have indicated that anyone using that method should then use the personal interview to pick up some of the mobile population and the lower socioeconomic population where they know there is a problem in this area.

MR. WHITE: We are one of their critics on the telephone survey. (Laughter)

DR. YAMAMOTO: Yes, Bill. Question?

DR. GAFFEY: This is not a question. I want to give you some comfort in the telephone business.

MRS. OWEN: Go ahead. We get comfort in the status of your business.

DR. GAFFEY: Some work has been done to show, in some very large areas comparability between personal interview and telephone, if you attempt to follow up the nonrespondents.

DR. YAMAMOTO: Do we have any other questions?

Yes, sir.

DR. HEMPHILL: Fay Hemphill, School of Public Health at Houston. Does your survey center primarily on physicians and other practitioners of the healing arts, and not cover preventive aspects to health service programs?

MRS. OWEN: Yes, we cover mainly physician services. We feel that the add-ons in that area are those of local concern because these vary tremendously across the country and they vary according to people's needs.

DR. HEMPHILL: But doesn't the other vary? Is variation just the reason you shouldn't cover?

MRS. OWEN: If we attempted to create an "everyman's survey" that could be used across the country, we would have a ridiculously long survey. We would defeat our purpose in having a survey that is designed for primarily local management purposes.

If we forced everybody into situations that are unique to the south or to the west, or so forth, we would feel this would be a very costly kind of procedure. So at this time we deal primarily with basic utilization. As R&D procedures in the preventive areas are explored a little better, we probably will get into that. But I think that is a ways off.

DR. YAMAMOTO: Do I see any more hands?

MS. SCHWEER: Jean Schweer, School of Nursing, Indiana University, Indianapolis.

I have a question for the future and any of you can address yourselves to it.

Is there any thought being given to looking at the school health program, evaluating and testing out and checking on the adequacy of school health programs or, any given area, anything that has to do with children getting adequate health from the school systems?

DR. YAMAMOTO: Elijah?

MR. WHITE: I don't think we have addressed ourselves to that specific question at all.

MS. SCHWEER: Are you going to?

MR. WHITE: We don't have any plans to. (Laughter)

DR. YAMAMOTO: Maybe somebody in the audience would have another comment on that school health examination. Would you introduce yourself, please.

DR. LEAVERTON: Paul Leaverton, University of Iowa. I have a question of Mr. White. I am curious about the investigation of respondents versus nonrespondents. Is there a difference in the data when you follow up nonrespondents versus respondents?

MR. WHITE: Yes, we have done some methodoligical research in this area. We find that it is absolutely necessary to have a high effort to decrease that nonresponse, because the people who aren't available easily, we know, have different characteristics.

For example, if you want to measure the difference in hospitalization, this is one that is pretty easy to measure. But you will find there are a lot more nonrespondents who are in the hospital, or away from home due to health reasons. The general characteristics of the nonrespondents are such that it is necessary to pay that high cost to follow up and keep a low nonresponse rate or else you get a high bias in your data.

DR. YAMAMOTO: I think we can entertain another question or two. Right there; would you introduce yourself, please.

MR. GREENE: Jerome Greene, University of Cincinnati.

With urban health departments and projects such as NEEDS working in the inner cities, what is being done to, you might say, regionalize rural areas that may not have populations that meet the 50,000 that you are talking about?

You may have to take a number of counties in a rural area to match that 50,000. However, they may not really come under the umbrella of the State health departments, because of their autonomous nature. What is being done to coordinate the activities of these rural regions so that you can regionalize some health services that are involved?

DR. YAMAMOTO: Roy.

MR. SPILLENKOTHEN: I will try to answer that only in regard to our program. We are doing two studies in rural, very rural areas. Both of them are being done under contract or under the direct auspices of our program. One is in the Appalachian region around Morgantown, West Virginia, and in fact does encompass 11 county jurisdictions. In that case, we are attempting to study the use of the instruments we now have and the processes we now have for their applicability in that area.

I am sure in looking at the survey instruments, there are things that present troubles methodologically—from getting samples, down to the questions themselves. We are using that for evaluative study in terms of modifying the instruments for rural use.

We are also working in the Indian area, in the Arctic region. There we are going from this evidence, modified for very specific purposes, using similar methods, similar approaches.

That is our program. We have only limited capacity to meet those needs. I do, understand however, there is some interest in the subject you have pointed out—that is, rural comprehensive health services—in the Secretary's office. Specifically, this is in regard to some new legislation that is forthcoming in the not too distant future regarding allied health services, comprehensive health services. They have identified some regions or areas they are referring to as targets of opportunity, a number of which are very rural areas. They are working to find ways to assess health needs and health status and health services in those areas.

DR. YAMAMOTO: Yes, sir. Would you identify yourself, please sir.

DR. HEMPHILL: I am Fay Hemphill, University of Texas, School of Public Health, in Houston.

I wonder if in your studies of methods so far you have entertained any idea of getting into the methods of utilization of what it is you have collected? That is, what method would you advise whoever is going to use it—might go about using it.

DR. YAMAMOTO: I knew we were going to come back to the theme again. Anybody on the panel?

MRS. OWEN: As I mentioned, our survey was designed first and foremost for the local management authority as we viewed it. This is kind of a unique thing that exists primarily in experimental version only. Our emphasis is to try to place use of the data at this level instead of the national level. We feel the data should be collected one time, at the institutional level, and then assembled up at a regional-State level, and then ultimately nationally where only a few gross statistics are collected.

Our concern, primarily, is in finding out what kinds of things are most useful, how decision making is done. In this case we are talking primarily about allocation of resources and this sort of thing, in large geographic areas—how planning decisions are made and evaluation decisions are made.

DR. HEMPHILL: May I speak on behalf of downtown Houston for just a moment? National data, or even citywide data, aren't very useful. I am just hoping that in your research you get down to help us out.

MRS. OWEN: Yes. I think in terms of the concept of a total data system. We see gross statistics collected on a Statewide level. Roughly we see an ideal and this is kind of a policy. We wish it were a million population, where gross statistics are collected. These are uniform definitions, comparable, so you can compare data collected from one place to the other. But then you get into the problem of downtown Houston, specific neighborhoods in Houston. We feel this is an area of special study where you see there is a problem, where management or those responsible for policy making, decision making, need to make the decision that one collects more data on that particular population group on that particular problem, but it is not part of an ongoing thing. In this respect, that data system is seen as a tool, management tool, a guiding kind of thing just to lead into problems and a little clearer thinking.

DR. HEMPHILL: In brief, you have not addressed yourself to my problem.

MRS. OWEN. That is right. It is your problem to address that, yes. That has been left to you. We can suggest ways and so forth, but ultimately it is a local problem.

DR. YAMAMOTO: Just one more comment, Roy.

MR. SPILLENKOTHEN: I would like to make a comment on your point. This area is perhaps one wherein the program for which Bonnie works and the one for which I work differ in the greatest way. Our program doesn't purport to be a national data collection mechanism. We go into a city to work for the city and with the city to collect data usable for its own purposes. We try to engage the different agencies early in the game before the data are even collected, in identifying uses or modification to the instruments to be more applicable to their needs.

On the other hand, we get the reverse question asked of us all the time, particularly by people in the Office of Program Planning and Evaluation in HSMHA—so what good is it? It doesn't help us. We are having to plan national programs.

I don't know where one sort of reaches the medium here, the happy middle. I suspect the work of the various task forces in getting comparability methodologically and by questions, and so on, will yield something that will help us both out.

DR. HEMPHILL: Please don't take my question as being in opposition to what you are doing. I just was trying to push toward some end results we can work toward.

MR. WHITE: Perhaps you can tell us what would help you.

DR. HEMPHILL: Come down to Houston and work with me.

MR. WHITE: Good enough. Good enough. (Laughter)

DR. YAMAMOTO: Unless there is a burning question—

MR. GREEN: My problem is I always hear that in the inner cities and the cities we have got the expertise and the managerial expertise, et cetera, there. NEEDS is going in to supplement this already existing expertise. However, in the rural areas, nothing is being done. This is a frustrating situation. I am just using you as a scapegoat here, however,—(laughter)— but with this type of expertise, why not bring it to the rural areas where they don't have the managerial skills?

DR. YAMAMOTO: Well, I think our time is running out. (Laughter)

We are in the second generation. I think most of you people know that if you have something like the National Health Survey, then you will demand its application to the local area, and the gentleman is right. I have been frustrated with Elijah White for a long time for the same reasons.

But consider the fact that it is there, and the thrust of all these papers means that somebody topside has advised everybody who is in the national survey business to get down to the nitty-gritty in the local level. I suppose that in the next, or in the Fifteenth Annual Meeting, you will probably see applied papers, or nearly applied papers, presented by the same people who are here.

So if we are patient, by the third generation in the development of the health survey business, perhaps—in due tiem—we will be able to get local packages. I am not speaking for the Federal Government, this is just my hope.

Now that our time is up, I would like to thank the panel for their presentations. May I remind you that there are things of interest that you might pick up here. Thank you very much.

Whereupon, at 3:15 p.m., Session "K" was adjourned.

REFERENCES

1. The method used is a modification of the area sampling procedure described by Serfling et. al. in Polio Packet, 1959, An Aid to Health Departments in Planning Local Poliomyetitis Vaccination Programs.

2. Liner, Charles D., A Study of Family Medical Expenditures. A dissertation presented to the Graduate School of Arts and Sciences of Washington University in Partial fulfillment of the requirements for the degree of Doctor of Philosophy. Saint Louis, Mo., 1972.

Special Session:

An Afternoon with the Staff of the NCHS

The program for this session was unstructured and did not include presentation of papers. The idea for it originated from criticisms made during the 1970 National Meeting of the PHCRS, that the formal program was completely filled up with planned presentations. Many participants had come to the National Meeting with the need to ask questions and talk about ideas on records and statistics subjects other than those covered in the formal program. There was no time and place set aside for this purpose and they felt this was wrong.

This special Session was designed to help meet these needs. All conferences participants were invited to attend and participate.

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SPECIAL SESSION:

AN AFTERNOON WITH THE STAFF OF THE NCHS

PRESIDING

Mr. Theodore D. Woolsey, *Director, National Center for Health Statistics*

This is an experiment, a completely unrehearsed session, and I really mean that. None of us are prepared. The only preparation that we made was to alert a few people that we'd like them to have some questions to ask at this session just to get the ball rolling.

The idea of this session is to engender some back and forth exchange between those who are visiting us here at the Conference and the staff of the Center for Health Statistics.

There are only three rules to the game. First of all we would like to have you give your names when you ask a question, and second, we would like to have you use the microphones. We have monitors and we have two floor microphones. Please raise your hand and then one of the girls will come to you with a microphone. You may feel that you can be heard, but unless your question is heard, it lessens the interest for the rest of the audience.

And third, we would like to have the questions be those that at least would be appropriate for us to answer, whether we know the answers or not. In other words, don't ask us what's going on in Vietnam or something like that.

It reminds me of that "Grin and Bear It" cartoon. I don't know whether you see Lichty's cartoons, but Lichty is one of my favorites. He had a picture of a great big computer and all the scientists with white jackets were sitting around it. I forget what the actual caption of the cartoon was, but on the computer was a little sign saying, "Warning. Do not ask the computer what's going on in Vietnam."

I have one piece of information, however, which I would like to give you. We thought this might be an appropriate place to announce it, while you are thinking about your questions. This concerns a change that we are about to make in the Center for Health Statistics as a result of our movement into the Cooperative Federal-State-local Health Statistics System. That is, we are going to move the principal responsibility for handling technical assistance from Dr. Lunde's office in North Carolina into Dr. Mugge's office in the Parklawn Building.

We feel that a great deal of the technical assistance activities are going to be associated with the cooperative Federal-State-local Health Statistics System, and consequently we wanted to have one place within the Center where all the threads could be brought together, and this will be in Dr. Mugge's office. So from now on, when you have requests that come to the Center for Health Statistics, they should be addressed to Dr. Robert Mugge. His title is Assistant to the Director for Federal-State Activities. He and his staff will be handling requests for technical assistance.

Obviously his office will not be providing all the technical assistance. Some of it will come from the Data Processing Division, some on sampling from our Office of Statistical Methods, some will come from the Division of Vital Statistics, Registration Methods staff, and so on.

This is not to bar you from your contacts that you have always had with various people around the Center, but we would like to have one funnel through which these requests for technical assistance come, so we can keep track of them and coordinate them and make sure we have mobilized the resources of the Center, and from now on that will be Dr. Robert Mugge.

That's all I have to say of a substantive nature, except to attempt to answer your questions. With that, we will simply open the floor for questions and the four of us here behind the table, and also members of the Senior Staff of the Center sitting in the front row—I will buck the questions to one or the other of them. Just try to give me ones I don't have to answer myself.

Who is going to start?

DR. WHITE: Kerr White, School of Hygiene of Public Health, Johns Hopkins University. I've got 15 or 20 questions, but I will start with one. This applies to the National Health Survey, and secondly, to the Ninth Revision of the ICDA.

I wonder to what extent you have considered focusing much more on symptoms and problems of patients and getting measures of their urgency, severity, and rate of progress from the point of view of the patient, rather than emphasizing diagnoses and attempts to get pseudo-diagnoses as they are related to the ICDA.

I think if you were to do this you would get a much better measure of morbidity in the population and the intensity of the demands put on the health care system by segments of the population in general. Associated with that is the need for some group to prepare for the ICDA classification schemes for symptoms, problems and complaints and, I think related to that, classification schemes for urgency and severity and rate of progress of the symptoms and diseases.

Also, with respect to the ICDA, I think there is a need to draw up rules for the coding and classification of diagnoses as they relate to the reasons for hospital admissions. The present approach is based on the concept of the underlying cause of death and is unsuitable for use with hospital morbidity data. It is the method that is taught to medical students and is used by physicians in listing hospital diagnoses. I think a different set of rules for application to this level of diagnoses is needed.

MR. WOOLSEY: All right, stop there. We will give you another chance.

I am going to start with Elijah White, who is Director of the Division of Health Interview Statistics, to cover the part which deals with the plans, if any, of the Health Interview Survey for gathering information on symptoms. Then we will call on Mr. Dean Krueger, who is Acting Director of our Office of Health Statistics Analysis. It is in his office that we coordinate the activities in regard to the revision of the ICDA and formation of the U.S. position on it, and so on.

I will come to him later, but first Elijah.

MR. WHITE: We don't have specific plans for converting over to this, and one of the major obstacles, as you anticipated here, is a lack of a coding system for it.

We have talked at times of investing the effort necessary to get a better coding system for interview surveys, to be a part of the fourth digit coding that we have been using in the past, but I would say that our plans for going into this area could be made a lot simpler if we had this conversion into a new coding system. I realize that this may not be fully responsive to the question.

MR. WOOLSEY: All right. Let's turn to Dean Krueger. Dean, could you tell us about any plans that seem to be cooking for inclusion of classification of complaints, really, and also making the ICD more useful for hospital data reporting.

MR. KRUEGER: Yes, the World Health Organization is making a much more concerted effort in connection with the Ninth Revision than in connection with the Eighth to make the classification more reflective of the conditions requiring care as opposed to the more etiologic classification. We are participating in that work.

With respect to symptoms, WHO has developed a draft classification of symptoms and complaints. Whether or not this will be a separate classification or an expansion of the fifth inspection in the ICD has not yet been determined.

Of course, you are familiar with the need for the development of such a classification in connection with ambulatory medical care studies, as was discussed at the Regional Conference, and I hope that there will be some developmental efforts going on within the Health Services and Mental Health Administration in this area. I do not know what their nature might be at this time.

MR. WOOLSEY: I think Phil would like to add a point to that.

DR. LAWRENCE: It's not that I wanted to add a point, but I thought Dr. Sagen might be able to add a point since he has been close to the Coordinated International Collaborative Study. I think that study has included symptom classification, hasn't it?

MR. WOOLSEY: Kerr White could answer that.

DR. WHITE: No, we have not coded symptoms in this study. We are coding whether or not the patient had each of a series of symptom and how much each bothered him or worried him, but we are not coding general symptoms themselves.

MR. WOOLSEY: I might add one point, that in the original concept of the Health Interview Survey the notion was that we were getting principally diseases that had been treated by physicians and what we were trying to do was get the household respondent to pass on to the interviewer the diagnosis that the doctor had given them, rather than the presenting symptoms as it were. It may be that you need both types of data because, you know, we learn a good deal about the prevalence of disease from this study.

Who is next?

DR. SAGEN: I would like to call attention to the fact that this problem has recently been discussed rather widely, even in the public in the prints. There the point has been made very strongly—that people who present themselves to the primary care physician, present complaints and symptoms, but not very much else.

Until we get to the point where we can get some data and statistics on what people present themselves with, we may be pursuing a lost cause in trying to come up with a specific disease category. Too often you get the etiological diagnosis when the patient has died—and that isn't going to help us much. However, we should be able to relate the etiological diagnosis or the final diagnosis with what the individual presented to the physician thereby giving us a great deal of better knowledge on our actual health problems.

Therefore, Mr. Director it would seem advisable that the National Center for Health Statistics take some forthright action in this regard and perhaps establish a Technical Consultant Panel on this particular problem under the aegis of the U.S. National Committee on Vital and Health Statistics.

MR. WOOLSEY: I will take it under advisement.

Who is next?

DR. TENNEY: I am Jim Tenney, from Johns Hopkins. I would like to observe that one of the most consistent criticisms that I have run across, traveling around, pertaining to the National Center is the awareness that there is considerable lag or time that lapses between when data are collected and when they are reported in any publications of the Center. I know that you are concerned about this, Mr. Woolsey, but I wonder if you could tell us some of the reasons why this exists and why—what is being done to correct it.

As an example, I observed in the exhibits here that the most recent publication concerning mortality in the United States is dated for 1968.

MR. WOOLSEY: Yes, that's quite correct. This is the most serious problem that the Center has at the present time. To answer that I am going to call on Phil Lawrence to say perhaps a word about how this problem arose and some of the things that we are doing to correct it.

I might say Phil has been sort of Chief of Operations in the Center. I don't hold him responsible for this situation but I think he's in a better position perhaps than anyone else to describe some of the things that are going on to try to correct the situation.

DR. LAWRENCE: This came about in quite a variety of manners. For about five years we were pretty much limited to a level budget. We did get some additional resources for new initiatives, planned new things that were passed down to us that we really had to do, but this did not give us any opportunity to catch up with the growing volume of data coming into the Center.

Then we had a freeze on employment—not just a freeze, but a reduction—that took the nature of being able to hire only two people for every three people who left for non-Federal Government employment.

This meant that for most purposes, particularly outside of our headquarters staff, when we would lose three people, we would only be able to hire two. This really hit us in North Carolina, where our data preparation work is done, because most of those people, the clerical staff who were coding data, when they left did not go into other Federal employment because there weren't the other Federal opportunities. So the staff kept diminishing in size there. We tried for a short period of time to fill the gaps by taking vacancies from headquarters to fill them in North Carolina to do the data preparation work, but then those people would leave and we were pouring positions on sandy soil. So we finally just had to face the consequences of accumulating backlogs. There were other reasons, too, but this was one of the primary things.

The way we are attempting to resolve this question, and for details I may call on some of the other people, is first of all, we made a specific request of the Congress for additional funds and staff to try to eliminate a part of this backlog.

Part of this staff that we asked for would, we said, be temporary, and at the expiration of fiscal year '73, we would let them go—not all of them, because we want to retain enough permanent people that once we are caught up we will be able to stay caught up. So one way was asking the Congress. And they were very sympathetic about this because the Office of Management and Budget is pushing us on this problem, and other Federal agencies also.

The other method of attacking it was through contracts for getting backlogs of data preparation work done outside of the Federal establishment. This means, of course, that if we could get contracts for doing back work in, let's say, mortality demographic coding or natality coding outside of the Center, then we could use Center personnel resources to bring us up to date on other things that had fallen behind as, for example, the Health Interview Survey coding and Hospital Discharge Survey coding.

So that's about the place we are in now.

Bob Israel might mention a couple of contracts and prospective plans that we already have. They are not simply prospective in the vital statistics area.

MR. ISRAEL: I would like to respond to both the point that Phil asked me to and something additional.

The question was put in a way which indicated that the latest data that is available in the mortality area refers to 1968. I'd like everyone to understand that we are a little better off than that—not quite where we ought to be, but it should be known by most of our users, and I hope it's known, that we have a variety of ways of making data available.

The printed annual volumes in vital statistics take the longest and, even under better circumstances, they will probably be the last thing that would be available. We do use our provisional data, which come out monthly in the vital statistics report, but there is a lag of a relatively short period of time, usually 60 to 90 days, depending upon whether the information involves cause of death or not. But we also use special supplements in the monthly vital statistics report to release the final data, the final mortality data, and so on.

Once that particular issue containing final data has appeared, then we are more than happy to make available the as yet unpublished material from the file.

So in the very poor situation that we are in now, if you have a need for more current data, you might inquire because we may be able to help you.

Now, where are we going from here? This is the point that Phil asked me to respond to. As he said, we do have some contracts to get some of our data preparation work done.

For several years now I really couldn't see our way out of the situation. It seemed to be getting worse and there didn't appear to be prospects to get much better. I really feel very encouraged at the moment on the basis of our contractual arrangements. While I may be sticking my neck out, I'll stick it out and say that about a year from now, approximately one year from now, we should be more current than we have ever been since I have been with the National Center for Health Statistics, which covers about six years.

We will have available, we hope, our data on a much more current basis. So with the help of contracts to do some of our data preparation work on the outside, I can see the light at the end of the tunnel, if you will pardon an old cliche.

MR. WOOLSEY: Thank you.

Just to summarize that, we have set ourselves a target. We told Congress that we would be caught up by June 30, 1973, and we are beginning to think it will happen. The statistics that we are getting on our operations begin to show that we have turned the corner and the backlogs are just beginning to decline.

We have also done some other things. Incidentally, Alice Haywood ought to stand up and take a bow. Alice Haywood is director of our Office of Information. It is her office that is responsible for all those publications that you see and which we think make the reputation of the Center. And you know, it's very high quality work. They, too, have begun to shorten the process of getting the reports out, and we are making use of contracts in that area, too.

We have also contracted out some programming work, particularly for the multiple cause tabulations. So with this effort, plus a number of committee activities that we have undertaken, we have tackled this whole problem of the lateness of our data on a broad front, and we think we are making a good deal of progress.

I think it deserves the amount of attention we have given it because it is certainly the most serious difficulty that we have in the Center for Health Statistics. We get more criticism from this than anything else that we do, but we think we are on the way to solving it.

Who is next? Yes.

MR. AASE: Lee Aase, Director, Bureau of Health Statistics, Wisconsin. After the apologies we have just heard, I hate to raise this question However, I think it is a question that should be raised.

For quite a number of years we have struggled on a State basis with some information regarding the services of the National Center in consultant work to the State. It seems that there are a lot of problems involved. I realize that there is not a total unanimity among the States in terms of the type of services that should be available.

However, now that we are looking at Federal, State and local relationships, I think it is necessary that we look at the whole program in terms of quality of data. If we are going to update this quality, it seems as though somewhere along the line we are going to have to develop a system of consultant services to the States which, I think, would include also the technical services.

I don't know exactly how this thing will work out in view of the separation of technical services and the Applied Statistics Training Institute and the Office of State Services. However, I would like to raise this question. Will there be an expansion of consultant services to the States and if so what will be the procedures carried through here? Will there be a relationship between the technical services, ASTI, and the Office of State Services, in such a way that we could get the services that are sorely needed on a State basis?

MR. WOOLSEY: Yes, Lee, thank you. I am going to ask Bob Mugge, who has just been assigned this responsibility, to answer that question. And Andy is here, too, so if necessary he can back it up.

DR. MUGGE: I have to tell you frankly that as far as my office is concerned, we start with nil—with nothing. But we have been assured we are going to build staff. We expect to get slots. That's the big problem—getting job slots—along with the appropriation that we need. Mainly, though, my office is going to be a clearinghouse and we will refer your request for technical services to the respective specialized divisions and offices.

MR. WOOLSEY: I might add that we do have a substantial amount in the fiscal '73 budget to increase our efforts in the way of technical assistance, and this change of responsibility doesn't diminish in any way the amount of technical assistance that we are able to give at the present time. It just means that the place of contact with the Center is different. You still call on Marv Templeton when he is needed, and Loren Chancellor and his office in the vital statistics area.

We still have what we have had before, but we will be getting some additional assistance.

We did make one personnel change. We are making the decision to move the small technical assistance staff that we had down at the Health Statistics Developmental Laboratory in North Carolina, principally C. R. Council and his staff, into the ASTI program, to strengthen the ASTI program, because we have big plans to get the training institute moving on a bigger scale, too, and we are going to be using those people in that capacity.

In the more generalized types of technical assistance we will be having to bring on new staff for Dr. Mugge's office.

MR. WOOLSEY: Yes, Deane Huxtable.

MR. HUXTABLE: Deane Huxtable, State Registrar, Virginia. Along this same line, Ted, with these changes in administration, what is going to be the Regional Office involvement in all this? We had some practice in the years past and we have had some pretty sad experiences, and in some regions, we had very good experiences. I imagine there are regional people here. I think we are all interested now, with the FSL and the new ball game, in what the Regional Office involvement is going to be.

While I am here, I have a second question. In reviewing the literature on ambulatory care the physician-patient contact seems to be the key upon which we are basing this, as far as your baseline data are concerned. Now, with the wealth of information we have out there in clinic statistics and in case registries, home health, and so on, why is that not being considered in ambulatory care?

MR. WOOLSEY: I will ask Bob Mugge to respond to the first question and Sig Hoermann to talk on your second question.

DR. MUGGE: We feel it is crucial to the success of the Cooperative System to have close Regional Office involvement. Also, as our program gets more positions we will be placing people in the Regional Offices. These will be health statisticians, to give this kind of service for the first time in most of the regional offices, to be of help to the Regional Health Director and the several HSMHA programs there, and to keep in close touch with the various health statistical operations going on in the States and communities of the region, to keep the regional people and the State people informed of the developments at the National Center for Health Statistics, and to keep us at NCHS informed of developments out there. In other words, to be a vital link in the communications system of the Cooperative System.

I hope and trust that this will in no way diminish the direct relationships that we have with you people in the States, that it will in fact increase our interrelationships rather than the reverse.

Also, to facilitate our communication it will be necessary to get together more often in meetings. The series of conferences planned for this summer will be the first of this kind, and other types of special and regular meetings will be designed to bring us together and help us to work together a lot more closely in these health statistics components, in addition to the vital statistics cooperative system we have had for so many years.

MR. WOOLSEY: I might add one little bit. I met with the 10 regional health directors at their staff meeting to bring them up to date on the cooperative system development. One of the things that they asked us to do, and we are in the process of doing it now, is to prepare a paper on what we thought the role of the Regional Office was in the Cooperative System.

Sig, I think that the burden of the second question that Deane has is why is the ambulatory care survey limited to physician-patient contacts in the office? Isn't that really it, Deane?

MR. HUXTABLE: Yes.

MR. HOERMANN: As regards the whole question of the characteristics and utilization of health resources, we got a fairly good start on in-patient facilities and we were just beginning to work on the outpatient or ambulatory care facilities when we got hit by our restrictions on budget and personnel.

We were able to wheedle some funds and some personnel for the ambulatory care survey, and in developing this program we found that it was an extremely complicated program and there were many problems. To start with, we are taking only the ambulatory care characteristics of the persons who come into the physician's offices. We are hopeful that we can expand this to other areas, such as the one suggested about the records available in out-patient clinics and other out-patient facilities. But for right now, we just don't have the funds or facilities to undertake these studies. We are looking forward to the time when we will have the resources to undertake this kind of study.

MR. WOOLSEY: Now, who is next? Yes.

MR. BROCKERT: I am John Brockert, from Utah.

In spite of the Cooperative System, it seems to me that there are many States, and Utah is certainly one of them, that are barely getting out of the mechanical tab situation and going into the computer side of statistics reporting, which means quite a bit of money compared to the size of our total budget for programming expenses.

We do try to pattern our statistical reports to some extent after the national reports, and in some of the earlier meetings of this Conference the thought came to my mind that there is probably considerable software material ready in the National Center, and why couldn't that software be made available to those States, so we don't have to invent the wheel all over again?

I think it could be extremely helpful and very cost saving, and it would truly make a cooperative system.

MR. WOOLSEY: That suggestion has been made a number of times, the idea of a software library. As a matter of fact, in our long-range budget plans, we have plans along this line. But again it's a question of getting the resources to put this kind of information together.

A certain amount of technical assistance in programming activities is probably already available, but the actual bringing together of useful programs and making these available throughout the system is something we just haven't gotten to yet. But it is in our long-range plans.

That's a very good suggestion and one that we have given a good deal of attention to ourselves.

Who is next? All right.

DR. WHITE: As you know, the subcommittee of the U.S. National Committee on Vital and Health Statistics, in reviewing the uniform hospital discharge and abstract basic data set, recommended eliminating the item for total hospital charges.

It is my understanding that inclusion of this item was supported by the representatives of Blue Cross and the private insurance carriers. I can testify to having met with these two agencies and representatives of the SSA who agreed that total charges should be included. Now I understand that the U.S. National Committee on Vital and Health Statistics has agreed to the exclusion of total charges in the final recommended basic data set.

I think this is most unfortunate. The argument is that the total charges will be included in a uniform claims form that is being developed by AHA and that it is difficult to link the data from the records department with the data from the accounting department or the billing department. It is argued that the tapes can then be merged, but it is going to be a long time before they are merged in all or many hospitals before all the hospitals produce the essential data. I believe that it is extremely important if we are going to get any leverage on the costs of medical care in this country, to relate clinical data, patient data, including patients' place of residence, demographic characteristics and total charges. I would like to know what the current thinking is with respect to putting the charges back into the basic data set.

MR. WOOLSEY: This was a situation where we were in between two groups of advisors—one group that strongly recommended that this be included, and another group that says the data are worthless.

But actually we just followed along with the recommendation of the Committee.

Tell us how that came about.

MR. KRUEGER: I understand there was considerable disagreement among the people as to the feasibility and desirability of including the total charges on the uniform hospital abstract data set.

As I understand the basis for the decision in the subcommittee to drop the items, the arguments were these.

There is a mechanical problem of getting the information on total charges which is available only from the business office of the accounting department—the problem of getting that onto the abstract form as prepared in the medical records department.

In the field tests that were carried out, this was never actually done. Instead, the business office just furnished a listing of the total charges for each patient, and this, along with the abstracts, was then sent to the organization that was putting the information together, and the matching was done later.

There was a problem with the data gotten from the business office, particularly with respect to some long-stay patients on whom a partial payment of the bill had been made prior to discharge. In some of those instances it was only the balance of the total charges that was reported.

Those are the mechanical problems, and perhaps those could be solved.

There is a problem of quality of data in that total charges do not represent either the cost of the care nor the amount that is paid for the care. I personally don't have any good information on the degree of difference between these three sets of figures, but it is my impression and I have been told that total charges is really a pretty poor quality figure. It's at best a crude index.

I don't know how this question can be resolved. Certainly there is strong opinion to have at least an accrued index of the cost of care to relate to other factors, such as age, sex, diagnosis, surgery, other procedures, etc.

MR. WOOLSEY: Thank you. I might just add to that a little bit. As far as the Center for Health Statistics is concerned, the recommendations of the U.S. National Committee on Vital and Health Statistics, of which I am an ex-officio member, are advisory and we don't need to follow those recommendations if we don't want to.

I'm sure, however, that isn't what's bothering you. You are worrying about the impact that this will have upon the collection of such data in abstracting systems and other kinds of statistical systems. As far as the hospital discharge survey is concerned, we still have some question in our minds about it. My way of resolving it was sort of "Let's you and him fight."

What I was trying to do was to get Herb Klarman, who is the strongest advocate of the worthless data side, and perhaps Kerr White and some of his team who represent the other view together in a room where we could sit and listen and have them argue it out and advise us what to do. Herb Klarman, who is an outstanding medical economist, told us that the data that we were already collecting in the hospital discharge survey on charges were worthless and we shouldn't publish them. He said it was misleading information.

MR. KRUEGER: Ted, may I add one point?

MR. WOOLSEY: Yes.

MR. KRUEGER: I think there might be some advantage to having data on total charges on the national hospital discharge survey in order to examine some of these relationships, whereas it might not be worthwhile going to the effort to get it universally.

DR. WHITE: But they needed the decentralized local areas. That's where they can fight it out.

MR. KRUEGER: I don't know how this would go.

MR. WOOLSEY: Mr. Sig Hoermann, could you tell us when we are going to have some charges data out of the hospital discharge survey? I think we've got some on the way, don't we? At least some data that people can look at and then make up their own minds whether it is worthwhile having.

MR. HOERMANN: We have charges data for the years 1968, 1969, and 1970, and we discontinued collecting that kind of data last July. We expected to have some data from the 1968 survey out by June—by the end of this month—and for the other years, shortly thereafter.

MR. WOOLSEY: Thank you. What's next?

DR. REMINGTON: Richard Remington, School of Public Health, Houston, Texas. I am worried about the fact that Andy Lunde hasn't had a chance to talk here. I don't want to make a judgment for you, but he might have a chance to respond to this. We hear that the Applied Statistics Training Institute is going to be expanded. We heard reference to that today. A number of us are wondering just what the nature of that expansion, even on a very long-term basis, might be.

Does this mean, for example, that the Institute will cease to become a training institute and concentrate on education, using the distinction between training and education that was brought out at the meeting of the last statistics training program that they were trying to hold a little over a year ago?

Does it mean that? Well, just what does this expansion mean?

DR. LUNDE: Thanks. For those that passed me in the hall and didn't recognize me, thank you. Ninety-five pounds is an awful lot of weight to lose but if you are interested in the working man's diet at Duke University Medical Center, I will be glad to send you a copy.

With the respect to the movement of the technical assistance function to the Washington area, the question that Lee Aase raised, I will say a word on that first.

I think Lee raises a very important point in his question, which he has addressed to the Center before, and that is, what kind of technical assistance will the Center be able to provide under the Federal-State-local cooperative system structure? He has been concerned for some time, as have others, that the Center may not actually have been doing as much as the States might like to have them do in this direction.

Our own experience has been that our Technical Assistance Branch in North Carolina, which was something of a new venture, you know, was not able to get all the funds and staff that we thought it ought to have and that, as a matter of fact, Dr. Sagen at one time had projected.

So the Branch itself functioned largely in an advisory capacity. But what Lee is talking about is that in an expanded State relations and local relations program, it will probably be necessary for teams of people, if I understand it correctly, to go out to the States and spend some time there, maybe a week or two or three or even four weeks, to help with certain kinds of problems. This is something that we are taking up with Dr. Mugge for future consideration.

The enlarged program of technical assistance that we see should not be only advisory. What I am talking about here is something entirely new because, as Mr. Woolsey points out, we have always provided some kind of technical assistance. The Center provides technical assistance almost every day in the area of data processing and vital statistics, in routine operations.

It is the long-range stuff that provides a little difficulty because under the constraints, that we have been operating under throughout the Center in the last several years, it has been very difficult to respond fully to some State and local requests. We might, for example, in our office refer something to another division and the division director will have to say simply, "Frankly, Andy, you know, I can't go myself, and my staff can't go; we don't have the money." That's the basis of some of these semi-refusals.

However, in our office we have done one thing that I think Mr. Council can be very proud of, and his staff can be, too, and that is we have responded wholeheartedly to the request for further information and involvement in what we have called the State Center for Health Statistics. Mr. Council and his staff have, over the last two years, visited 40 States on this whole business of trying to define and establish the basis for the development of State centers.

So much for that. If I am correct, Lee, you might like to say more on this later, but I think I interpreted your question correctly and we hope to be working along these lines.

Some years ago wasn't it true that the Center had some technical staff that were able to go out and make extensive field visits?

DR. SAGEN: Yes, that's correct.

DR. LUNDE: The second question is what about the involvement of the Applied Statistics Training Institute and the Federal-State-local System? We see an expanded ASTI program being tied in very closely to the Federal-State-local development because as the program develops—presumably beginning this but certainly by next year—we will be asked to present special kinds of programs related to State and local training efforts. We will be putting on more courses, but we will be putting them on with some new focuses in mind. To develop an understanding with the State and Federal and local people as to what these new focuses might be, we have organized a Technical Consultant Panel composed of persons from the Federal and State governments, and I am proud to say that Mr. Lee Aase is a member of this particular group. We had our first meeting last month and discussed plans for an expanded ASTI program and how we might work together on the big problems of recruitment, as well as training. I think this is going to be a very fine Technical Consultant Panel and it will come up with recommendations to Mr. Woolsey and to the States and local governments regarding the ways in which we can move together.

An expanded ASTI, Dick, to come to your question now, does not mean that we are going to go beyond the limits and the concepts of a training institute, to which you refer. The ASTI program will still be largely a short-term training program. We still see one or two weeks in length for most of our courses and we consider it a training operation engaged in practical application of statistics in the public health field.

What Dick has reference to is this. We mentioned in our Technical Consultant Panel that, maybe, in this business of recruiting and training of health statistics and related personnel it might be necessary in a Federal-State-local setup to have a little more of a package. In other words, it might be necessary to extend this package to several weeks, perhaps months, but in this development we do not anticipate organizing an academic program or a school of public health where people will come in and sit down for four or five or six months, or even take anything like a summer session.

It will be primarily a program which will involve new people coming into the public health field from other fields or from college or something of that sort, and then entering upon a program that will involve some training and study and then perhaps some in-service training on their home grounds. We even talked about maybe sending a local person to a State for a couple of weeks or a month, just to get a feel for it, or perhaps having an exchange with a Federal office. Now, you understand these are all just ideas. We are just hitting about everything we can touch or think about.

What does *training* really mean? Dick, we are not in any way going to be involved in a controversy with the academic area because the Federal-State-local program also envisages, let us say, the involvement of the universities, particularly the schools of public health, in the training element. This is going to be handled somewhat separately, I believe, in Dr. Mugge's shop, but the ASTI program will continue to be an institute of practical, short-term training, which will focus on the day-by-day routine experiences of the health statistician at his work. Our hope in every class we teach is that when a person leaves our Center and goes back to work, let's say, on Monday morning, he can start using at work what he has learned at the Institute.

Our approach is entirely pragmatic. It is short-term institute training and we expect it to remain so.

Thank you.

MR. WOOLSEY: I can testify to the fact that one of the reasons we are giving that program such strong support is that it's been so successful. I have just a constant stream of letters coming across my desk from satisfied students and from their bosses about that program. But don't worry, Dick, I very much doubt that we are about to put the Department of Biostatistics of the University of Texas out of business.

DR. REMINGTON: I wasn't worried about it.

MR. WOOLSEY: Let me interrupt the proceedings and take this opportunity to introduce some of our senior staff who are sitting up here in the front row. When you see them, you will know what their responsibilities are and you may have some questions that you want to address to them.

I think you already heard from Mr. Sig Hoermann, who is sitting over here. Stand up, just a moment. He is Director of our Division of Health Resources Statistics with the Hospital Discharge Survey, the Health Manpower Data, the Family Planning Statistics, the National Ambulatory Medical Care Survey, the Master Facility Inventory, and the Surveys of Nursing Homes.

And Elijah White, who has the National Health Interview Survey in his charge and Health Interview Statistics.

You met Dr. Robert Mugge, who is Federal-State-Local Activities.

Sitting here is Mr. Edward Minty who is our Executive Officer and Director of our Office of Administrative Management and keeps us honest on the budget.

Next to him is Mrs. Gail Fisher who is Director of our Office of Program Planning and Evaluation and gets into the legislation field as well, and, of course, evaluation activities throughout the Center, including working with the HSMHA evaluation program.

Next is Bob Israel, who hardly needs any introduction, Director of the Division of Vital Statistics.

And Andy Lunde, Director of the ASTI program down in North Carolina.

And Alice Haywood, Director of our Office of Information, who, as I said earlier, is responsible for all those beautiful publications that you see.

Next is Mr. Art McDowell, who is Director of the Division of Health Examination Statistics, which runs the enormously complicated Health and Nutrition Examination Survey, the most complex survey, I believe, in terms of logistics that's ever been conducted in the United States on a national basis.

Mr. Dean Krueger, who is Acting Director of the Office of Health Statistics Analysis, filling in very capably for Dr. Moriyama, who is on two years leave of absence in Japan and the Atomic Bomb Casualty Commission.

Next, Dr. Monroe G. Sirken, who is Director of our Office of Statistical Methods where we have our stable of mathematical statisticians and quite a research program. They are also concerned with quality control surveillance in the Center for Health and Statistics.

And next, Mr. Noah Sherman, Director of our Office of International Statistical Programs, with the so-called Public Law 480 program of international research and also a training program for persons from overseas.

And then Walt Simmons, whom I think you all know who chaired a session earlier this afternoon. which I unfortunately wasn't able to attend. Walt is Assistant Director of the Center for Research and Development.

Phil Lawrence, Associate Director of the Center, who, as I said, has a lot of responsibility in connection with the operations of the Center and keeping things on an even keel throughout the Center.

And then Ossie Sagen, who is Assistant Director for Health Statistics Development. Finally, Dan McGann, sitting way in the back is Director of the Division of Data Processing down in North Carolina.

That's the staff, and if introducing them makes you think of any questions you would like to put to them, they are here for that purpose. Thank you. Who is next?

DR. LAWRENCE: Ted, in connection with the last question that was raised by Dr. Remington, nothing much has been said about institutional support for the training of statisticians. Would you have anything to say about that? I hate to be asking questions, but I think it is related somewhat to Dick's question.

MR. WOOLSEY: Yes, indeed, I think it is.

It was sort of a follow-on to something that took place a year ago this February, when we got together down at the Health Statistics Developmental Laboratory and brought there as many as we could gather together of the directors of the departments of biostatistics of the schools of public health, as well as some members of the American Association for Vital Records and Public Health Statistics. We had a two-day conference on the training of statisticians.

They left us at the end of that conference with a long list of things that they wanted to see the Center do. First of all, we pointed out that the Center for Health Statistics does not have any training grant authority for institutional support of training. My own feeling is that our chances of getting such authority are rather slim, but the group at that conference recommended that we attempt to get it and we are attempting to get it.

We have put forward in some of our long-range plans and legislative proposals that this be done.

However, in the meanwhile, what we did try to do and we have just recently distributed was a sort of a briefing, for the directors of health statistics educational programs, of the various authorities that already exist in different parts of the Public Health Service, whom to go to, and so on.

Walt Simmons was in charge of this activity. Do you want to say a word about that, Walt? Would you tell about this piece of information that we distributed? Incidentally, it would be available to others if they would like to have it.

MR. SIMMONS: The document we gave you was the best that we could assemble. We might investigate one aspect of it that isn't apparent just on the surface. There are a good many authorities in legislation which would permit the financing in universities of training that could be directed at statistical trainees.

I say legislation which would permit this, but there are many competitors for these same funds. I think it is fair to say that how the particular enabling legislation is administered is almost more important than what the legislation itself says. By this I mean that it takes drive and pressure, initiative, energy, on the part of anyone who is looking for funds in dealing with the particular people who are administering the grant authorities in order to get funds for training.

MR. WOOLSEY: I might add that Walt has been sort of our missionary to these funding authorities, helping to spread the gospel with them. Just by patient discussion and emphasis on the needs, we think we have begun to make some changes take place in priorities, for example, in the Bureau of Health Manpower Education and other places where they do have this funding authority.

As I say, we do not have the authority ourselves or the budget for it, but we do have some influence on others who do. Consequently, these missionary efforts that Walt has undertaken have, I think, helped make some progress.

I saw Mr. Huxtable's hand up.

MR. HUXTABLE: Ted, I may have said this before, but there have been plenty of precedents for an activity such as this. For example, in 314-D, you have to use 70 percent locally and the top 10 percent comes off for mental health and things like that.

One of these days you people are going to come up with some guidelines on the Federal-State-local distribution of funds.

What would be wrong with saying that the top 10 percent comes off for training?

MR. WOOLSEY: That's a very important idea that I think ought to be given consideration. I don't think that this idea has come into our thinking yet, but I might ask Bob Mugge if he has any comment to make on that.

I'd like to think about it. The only possible difficulty I can see is that the authorities that we are seeking are primarily of a contractual nature to reimburse the States for the cost of producing data that the Federal Government needs, and it might take a little doing to have a skim-off on the top to spend on training. But, by golly, the idea is very good.

Are you prepared to say anything about that, Bob, or do you think we ought to think about it a bit more?

DR. MUGGE: I agree with the concept, too. We do have this in our general plans for the use of implementation funds. We hope it will be legal or it will be worked up to be legal. We were thinking in terms of around 10 percent, yes.

We feel very strongly that there has to be an important educational element in the cooperative system. If it works as we hope, we are going to need an awful lot of trained people in this field very rapidly.

MR. WOOLSEY: Ossie reminded me that we might have given one further answer when we were discussing the question of timeliness of the Center's data. It's been underway for some time in the Center, sort of headed up by Walt Simmons, and this is a beginning to move toward making more of the data available in the form of tapes—magnetic tapes. There has been a great deal of interest in this. We have received queries from all over the place. Frankly, we found a great deal of difficulty in the early days of the Center in making data available in the form of magnetic tapes because the demand that immediately was felt upon our programming staffs and others was for advice on how to use the tapes. This was particularly true of the survey data.

In fact, we finally had to shut this off because we simply couldn't respond to the demand. Then Walt headed up a group within the Center which set down some guidelines, particularly in terms of preservation of the confidentiality which was the thing that had to be looked at very carefully, and we have actually an excellent policy statement that this group developed, which is available to you.

What's the title of it, Walt?

MR. SIMMONS: Policy Statement on the Release of Data for Elementary Units.

MR. WOOLSEY: What we have done since that time, in order to move from that policy into a program of action, has been to stimulate activity throughout the Center in getting tapes ready for release—public use tapes. The policy stated that no tape should be released unless there was thorough documentation accompanying it, and the preparation of this documentation was a very sizable task.

Incidentally, one of the things that you will see coming from our Office of Information before very long is a catalog, which I have been interested in for a long time. This will be an annotated catalog of the Center's publications, a cross indexing of the data, and so forth. I guess not in this edition, but in some future edition since this will be continuously updated—we are intending to have a listing of the tapes that are available and how you get them.

When do we expect the catalog out, Alice?

MISS HAYWOOD: Late summer.

MR. WOOLSEY: Many of you are familiar with the catalog that the Bureau of the Census has had available for many years. I think it is extremely useful and we are going to have the same kind of thing.

Who is next?

DR. SAGEN: Ted, I want to make a comment that follows up on this tape business and also deals with the timeliness issue.

Phil Lawrence explained the problem of our being behind with our data release in terms of the problems in processing data. We also have a problem that keeps coming up, namely, the one of putting out analyses of the data.

We have been criticized for not putting out enough, although as you can see from the Rainbow Series, we have put out an awful lot of stuff. So this is an area in which we are very sensitive, but also in which probably we ought to have some help. One hopeful sign might be that analysts throughout the country could take advantage of the release of tapes to do more of this department analysis that is so sorely needed in the area of health statistics.

We have so much data that all of us now, the 500 people in the center, if we were all analysts, could spend almost a lifetime just analyzing what we have already. So we've got to share the burden as well as sharing the wealth, and I hope that something can be developed along those lines as we go along.

Also, I think there is one other place where we can get help from the country at large, and that's on this area of technical consultation. We could draw on consultants from the schools and from the States, and so on, to help out on some of these problems where technical consultation is needed. We did some of that in the past, but we haven't done much recently. Hopefully we can increase the use of outside consultants on specific problems.

MR. WOOLSEY: Thank you. I might mention that Dr. Sagen heads up a committee within the Center on publication policy, which is addressing itself to the question of the timeliness of the reports and whether we shouldn't have perhaps some kind of a bulletin that would enable us to put things out more promptly.

There is an interesting kind of a management dilemma here. We are being pressed, on the one hand, to do more analytical work. At the same time, we are being pressed very hard to get the data out more quickly. The two things are somewhat in conflict and it's very hard to do both. But if we can use resources from outside the Center for this, then perhaps we can have our cake and eat it, too.

As a matter of fact, it's in the Division of Health Examination Statistics where we have made the most use of this. Art might have a word to say about how successful that program has been. He's made contracts with people to analyze data from the Health Examination Survey.

Do you want to say a word about that, Art?

MR. McDOWELL: It is a touchy subject for anybody connected with the Health Examination Survey to be commenting on this because our program, more than any other, is a long time in the making. Our probability sample is relatively small. The process of actually examining people takes time and it is about a three year period in past programs before we have actually examined all the people in the sample.

Our use of outside consultants has not been so much in connection with the timeliness problem as in connection with the expertise problem.

Although we have advisors in various disciplines, we don't have on our staff the people in every subspecialty who have the kind of expertise that is needed. We are writing on a number of subjects, so we have made contacts with people at various schools and with other experts to write along with a statistician on the staff, or perhaps independently, a particular report, analyzing the particular set of data.

We have perhaps a dozen such reports. This has worked out very successfully, primarily, as I said, because it brings to the subject matter the expertise that we don't have. There is no reason that I can see why an extension of this, where the main rationale would be improving timeliness, might also not be possible.

MR. WOOLSEY: Thank you. Have we any further questions? Yes, Dr. White, our best friend and severest critic.

DR. WHITE: A great deal has been done with respect to coordinating the problem of terms, definitions, and classifications schemes within the Health Service and Mental Health Administration, and particularly the Federal programs and the Federal-State-local programs.

My question is what can you do to make other elements of the Department of Health Education, and Welfare aware of a need for uniformity of terms?

What can you do with the Social Security Administration and the Social and Rehabilitation Service and specifically is there anything you can do to elevate the status of the Committee rather than to be just a creature of the National Center or of the Health Services and Mental Health Administration? Because I think these other groups badly need this kind of education, if not actual use of uniform terms.

MR. WOOLSEY: Yes. I think I could take a crack at that.

First of all, I think that the U.S. National Committee on Vital and Health Statistics is recognized as being advisory to the entire health community, not only to the Center for Health Statistics. It's always been clear in its charter that it was advising the Government or the whole health services system in the United States, as far as that goes.

It originally reported to the Surgeon General and now it reports to the Administrator, Dr. Vernon Wilson. Its recommendations are heard and sent to those concerned, whether within HSMHA or not.

Isn't that right, Dean Krueger?

MR. KRUEGER: Yes.

MR. WOOLSEY: In fact, we have sent recommendations over to the Bureau of the Census when they applied to them, and so on.

However, the question of bringing about more coordination and standardization, and so forth, within HEW, beyond the sphere of HSMHA alone, is something which I think we are just beginning to move toward.

Have we had an opportunity to hear at this conference about the Coordinating Committee on Health Data Systems of HSMHA? I'm not sure whether that's come up at any of the meetings as yet.

I know that we did make a brief presentation on that before the committee that's evaluating the Center for Health Statistics. This Coordinating Committee, under the chairmanship of Mrs. Beverlee A. Myers, who is the Associate Administrator for Program Planning and Evaluation, is headed up now in the office of the Administrator. Its function is to coordinate activities in the area of health statistics, including bringing about some conformity, first within HSMHA, but then hopefully extending beyond that to the other data collection activities within the Department of Health, Education, and Welfare.

Represented on that Committee now are both SRS and SSA. However, the sway of the Committee, chaired as it is within HSMHA, doesn't extend officially, to these other agencies. Consequently, it can't have as much influence with the other agencies as it can within HSMHA where, you know, the level of chairing means that what is concluded and recommended to Dr. Wilson is going to get done.

Nevertheless, I think there is some movement in that direction as well. There is some interest occurring in the Office of the Assistant Secretary for Health and Scientific Affairs in making the jurisdiction of the Committee extend to all the health agencies of the Department and perhaps even transferring the Committee, bodily to the Office of the Assistant Secretary for Health Affairs.

So this is a major effort that is going on within HSMHA to try to bring about some sense within the Federal Government.

I might mention, and I think Ossie suggested that I mention, that this is partly a result of a development which has taken place throughout the Government as a whole. This development stems really not from the report of the President's Commission on Federal Statistics but rather from the President's efforts to reorganize the executive branch of the government. Probably you have seen in the newspapers these charts of the new departments as they would be set up. The Office of Management and Budget and Division of Statistical Policy was asked to lay out a plan for the reorganization of the Federal Government's statistical activities. They did set forward a plan which did not call for a central bureau of statistics for the Government as a whole, but suggested a series of centers for statistics in different subject matter areas. It was recognized that within the Department of Health, Education, and Welfare they would need at least three—one in the area of health, one in the area of education, and one in the area of income maintenance and related subjects.

There was a letter sent to the Secretaries of the Departments of Health, Education, and Welfare, Commerce, Labor, and Agriculture last July by the then Director of the Office of Management and Budget, George Schultz, outlining this plan and asking for the Departments' reaction to this reorganization. As a result of this, the Department has been formulating its own plans for the reorganization of statistical activities within the Department. The Secretary's full reaction to the Schultz memorandum has not yet been released. It is expected later this summer. But we are beginning to see some action in this direction, which would have the kind of effect that you are talking about.

We don't know exactly what recommendations are going to come down. This idea of establishing what are in the nature of coordinating committees within the various subject matter areas is one of the things that seems to be coming to the fore.

Maybe that was a longer answer than you asked for to this question, but I thought some of the background might be interesting.

Now, it's 5:30, but if there are others who have in the meantime thought of questions, we still would be glad to take them.

Yes, one more.

DR. TENNEY: I have been very impressed with all the projects that have been alluded to in our discussion this afternoon. I think this kind of conference is an excellent idea. I would like to suggest one final question for consideration.

Suppose that the Federal Government in its wisdom increased your budget by $1 million for the next fiscal year. How would you allocate and spend this money?

MR. WOOLSEY: What would our priorities be?

DR. TENNEY: Yes.

MR. WOOLSEY: Well, you are talking about fiscal year '73?

DR. TENNEY: Yes.

MR. WOOLSEY: All right. I think it is safe enough to tell you what our priorities would be for fiscal '73 because they are already public information. I might say that priorities for years beyond that have been set down and are incorporated in a long-range plan, which, incidentally, is the responsibility of Mrs. Fisher's office, but these are not to be released at this time. They are part of the budget process and that kind of information is subject to administrative confidentiality until the President's budget is released. But for fiscal '73, I can tell you what those priorities are because they are reflected in the budget that we presented to Congress in the last hearings, and it is public knowledge.

In the first place, one of the major priorities is in the beginning implementation of the Federal-State-Local Health Statistics System, and we have put a good deal of the resources necessary to that.

A second major priority was in strengthening all of the existing mechanisms that we have for the collection of health services data. That includes at least one new project which was alluded to earlier this afternoon, and that is the getting underway of a National Ambulatory Care Survey on a small scale, but nevertheless getting started. Also the strengthening of the Hospital Discharge Survey, which I won't go into in detail but which needs a lot of beefing up.

Third, the utilization of the data from the Health Examination Survey to illuminate problems of unmet medical care needs.

Fourth, the re-establishment of surveys based upon the vital records. Particularly we are talking about surveys based upon the birth record—to go back and gather more data about health services for the mother during pregnancy, and of the small children in the first year of life, and so on. Then finally, in that same category, an effort to begin to collect some data on health knowledge, attitudes, and practices.

That is the way we described it, isn't it, Elijah?

MR. WHITE: Good enough.

MR. WOOLSEY: Because of the increasing demand for information particularly about the barriers to care that consumers were beginning to feel, in terms of distance traveled, the kind of treatment they got when they got there, and that kind of thing, this represents a new initiative in the Health Interview Survey. That was a priority—that collection of things.

Another was increasing technical assistance and training activities both, which I have referred to earlier. I am stating these roughly in order of priority, I guess. We wanted to beef up the technical assistance activities and also to do something for the Applied Statistics Training Institute program to strengthen it because it had been so successful and also because we saw the need and connection with the cooperative system development.

Finally, we had to put some additional funds into the Health Examination Survey to take care of some increased costs of laboratory work and data processing, which had been unanticipated at the time that the survey began.

Those were the things that I presented to Congress at the hearing in March, and those are the things that we are going to be trying to move ahead on, particularly during fiscal year '73. Actually, it is a couple of million dollars.

We had very strong support from HSMHA and the Department. We haven't had the Committee report, but I have to say that if our budget is approved, those are the things that we would be doing.

Are there any further questions?

I am reminded to mention that there is a special session tonight, from 7:30 to 9:00 P.M., and it is being held in this room. It is a special briefing session, "A New Look at the National Center for Health Statistics." That will be a report from members of the committee that was established to evaluate the National Center for Health Statistics, a brilliant group, and I think you will be interested in hearing from them. (Applause). This special session is now adjourned.

Special Briefing Session

A New Look at the National Center for Health Statistics

The Administrator, Health Services and Mental Health Administration, appointed an Expert Committee to evaluate the National Center for Health Statistics. The Committee was to examine the activities of NCHS and other related statistical operations in terms of their stated missions and report to the Administrator on the need for possible revision of missions in view of present and anticipated needs for health statistics. The Committee was further expected to make recommendations for improvement in the collection, processing, and publication of health statistics to serve the needs of health statistics users. It was also to examine the adequacy of training and technical assistance programs of the Center.

At this session, members of the Committee reported on their activities and findings, together with indications of preliminary recommendations. Time allowed during the session for audience participation to enable the Committee to obtain the benefit of views by persons in attendance.

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SPECIAL BRIEFING SESSION

PRESIDING

Mr. Theodore R. Ervin, *Vice Chairman, HSMHA Committee to Evaluate the National Center for Health Statistics*

I would like to welcome all of you to this new look at the National Center for Health Statistics. I am Ted Ervin and tonight I am substituting for Phil Hauser, Chairman of our Committee, who is unable to be with us.

This is a progress report of the Committee to Evaluate the National Center for Health Statistics and related functions in the Department of Health, Education, and Welfare. Our purposes are three-fold. One is informational, to share with you some of our thinking as we sort of go around the three-quarter turn in this study of the National Center.

Second, we would like your advice either here, tonight, or later on in writing to Dr. Jack Moshman. We are going to put that address on the board so you can write any suggestions, questions, queries that may occur to you after the meeting.

Third, another very significant purpose is to invite your thinking, your consideration, your future support for those recommendations of this Committee that may seem worthwhile to the health statistics industry of this country.

Committee members are Dr. Hauser who is Director of the Population Research Training Center, University of Chicago, and unable to be here tonight; Wilbur J. Cohen, Dean of the School of Education, University of Michigan; Dr. Paul M. Densen, Director of the Center for Community Health and Medical Care, Harvard Medical School, (at our left—you know Paul); Dr. Merwyn R. Greenlick, Director of the Health Services Research Center, Kaiser Foundation Hospitals, who is in Europe at this time, I believe; Hyman B. Kaitz, Chief of the Division of Statistical Research for the Bureau of Labor Statistics, Department of Labor; Irving J. Lewis, Professor of the Albert Einstein College of Medicine, who is not here; Dr. Selma J. Mushkin, Director of Public Services Laboratories, Georgetown University, here earlier; Robert E. Patton, Deputy Commissioner of Local Services, New York State Department of Mental Hygiene, (on your far right); Mrs. Dorothy P. Rice, Chief of the Health Insurance Research Branch, Social Security Administration, (to my right, your left); Mrs. Margaret D. West, Pan American Health Union, (to my immediate left), and Thomas B. Jabine, Chief, Statistical Research Division, Bureau of the Census.

The study of the Center, looking at the current operation of the Center and future needs, was commissioned by Dr. Wilson last July and is due to be completed by the end of August. I would also like to recognize before going any further, to my immediate right, Dr. Jack Moshman of Moshman Associates who has been doing a tremendous amount of detail work for the Committee under contract to the Health Services and Mental Health Administration.

Our process tonight will include five reports and discussions of some substantive areas taking about 15 minutes each and, hopefully, running to about 9:00 p.m. When you have a question, when you would like to join in the discussion, please do so. Come right in and use the microphones that are in the middle aisle. Give your name and organization so we will know who you are.

It might be appropriate at this point to recall two or three things that we reported to Dr.

Wilson in the progress report on this study toward the end of March.

Number 1, in the short time allotted for this presentation tonight, we are concentrating our remarks in those areas in which we have critical comments to make. This should not be construed to indicate that we are only critical, because the National Center for Health Statistics has many outstanding activities which if discussed would consume far more time than is available to us.

Number 2, the Committee has viewed its charter in the broadest sense considering not only how the National Center for Health Statistics is discharging its responsibility but looking critically at the mission in the light of the activities of other agencies and the needs perceived by planners and policy makers in the Department.

Number 3, the Committee has, through Moshman Associates, collected an impressive amount of material. Much of this material reflects consumer needs, which will be an important element in the Committee's final report.

Our discussion this evening, then, is going to focus on the several areas of study. First, the area of Vital Statistics and Health Status; second, Data on Manpower Facilities and Services; third, to open up an area which is of intense interest to many of us and that is the matter of Programmatic Data as against general purpose kinds of data; fourth, a look at several aspects of the proposed Federal-State-local System and related matters; and finally a look at methodology.

Now if there are no questions at this point, I think we will plow into the report because we have a lot of ground to cover. I would first like to get the evening under way by calling on Margaret West for a summary of Vital Statistics and Health Status.

VITAL STATISTICS AND HEALTH STATUS

Mrs. Margaret D. West, *Consultant to the Department of Health and Population Dynamics, Pan American Health Union, Washington, D.C.*

The last time that we made this kind of presentation, we were making it to people who we felt, rightly or wrongly, didn't know quite as much about the subject as we do. But this time we are talking to people who I suspect, in fact I know perfectly well, know a great deal more about some of these things than we do, so you should realize my tone is supposed to be very modest no matter how it comes out.

The major work of our Committee was divided into five subcommittees, two concerned with subject matter, one with methodology, one with Federal-State-local relationships, and one with users.

The first of these subcommittees, which I represent, was concerned with the vital statistics reporting system, the Health Interview Survey and the Health Examination Survey some of the proposed studies such as the Family Growth Survey, and the family planning material.

For the vital statistics, our concern was primarily with the subject matter while the subcommittee headed by Tom Jabine was concerned more with the methodology. I will consider first, then, what we see as users.

First of all—as every one of you in the past has either said or been told so many times that it's hardly worth repeating it except that it stands out so importantly—is the matter of timeliness of reports. Different people require different parts of the material included in vital statistics reporting. Right now there's great concern with fertility and fertility analysis. In general, over the period of the last two, three, or four years, for a variety of reasons, publication of material has gotten further and further behind and more and more people have been complaining about it. We are, indeed, aware of the valid efforts that are being made now to catch up. But in terms of a report from our group—and for people who have a general concern with the National Center for Health Statistics—this matter of timeliness is an overriding one.

As to the accuracy, the completeness of the NCHS data, certainly in this as in other areas the NCHS is considered a model as to the statistical elegance of its work and as to its concern with accuracy. But there are still problems, as you know, that must be looked at. One of them, we feel, is cause-of-death coding, the need for continuing evaluation of the cause-of-death coding, and the problems arising as efforts are made to supply data on underlying and multiple causes of death.

As to subject matter encompassed within the area of vital statistics, we feel quite strongly that it is too bad the Center has not yet really addressed itself to the matter of abortion reporting. At a time when this is a matter of such concern in public health as in politics, there are few jurisdictions with adequate reporting. New York City, of course, is one exception, as it has done a quite elegant job of getting together and analyzing its abortion reports. The abortion reports that come from the Center for Disease Control in Atlanta don't meet the need in that they don't relate the fact of abortion to the demographic material which is required, for better understanding of the phenomenon in the country today. I am sure that we will make a strong recommendation in that area.

The NCHS has not gone as far as, let's say, the Census Bureau in the matter of analysis of its own findings. The material within its present boundaries serves, of course, as a primary source of information for other people to make analyses in vital statistics and perhaps even more in some of the other components of the NCHS program. We believe, however, that the people who are producing the material know more about it, its strengths and its limitations, than anybody who is going to analyze it from outside, and that there is a big opportunity for the Center to do so more with the analysis of its own material.

The Center, in general, when you look at its program, has leaned to the collection and statistical purity of its material rather than to the interpretation and presentation of interrelationships. Part of this has been a matter of policy; part of it, I think, has been a matter of budget balance in that the kinds of people who could make such analyses have not been as well represented on the staff as they might.

The other two programs to which we have given major attention have been the Health Interview Survey and the Health Examination Survey. These, again, have been examples of rather elegant ways of doing things. The samples have been good, the methodology has been worked over very, very carefully, as a result the feeling of confidence in the findings has been pretty high.

The problem has been—since 1960 when the studies were begun—that we still only see material, with few exceptions, for four major areas of the United States. It seems to me that a matter of real importance is to develop methodology so that in one way or another, either by rotating the sample at each cycle or by cumulating samples over a period of years it will be possible to present more geographic detail.

As to the subject matter within the Health Interview Survey, probably the greatest shortcoming from the point of view of most of the users with whom we have been in contact has been lack of the kind of information which would be useful with respect to receipt of medical care, the cost of medical care, the circumstances, and the organizations which are providing the care: We will have recommendations, I am sure, dealing with this not only as a current matter but as a matter of lack of trend material in an area of paramount social and political importance.

In the Health Examination Survey, the greatest detail of information is splendid in one way. In another, there's been a problem—an outpouring of papers on individual components of individual findings without relating the specific findings and specific disease or system areas. One problem is that there really is no adequate system of indexing. Unless a person has been born and bred to these papers, it's very hard to have any idea how to catch yourself into the system and to find out what's available.

I have been concerned, in other contexts, with learning what kinds of things get into medical education and medical practice. It takes some years for information to travel from a scientific paper, to a textbook, to practice, and to a receiver of medical care. Information coming from the NCHS in small pamphlets that are not too well indexed or not too available, is not having a fair chance to receive maximum use. This is a great shame in view of the tremendous amount of money spent and magnificent materials that are in those studies.

Even further, in these 10 years, there has been no really comprehensive report on what has been found. For 10 years and some millions of dollars, the Center has been probing various aspects of health status and receipt of health care. If somehow, either within its own staff or through use of some outside agency, the Center were to prepare a book, *Ten Years of American Health*, a document that would cover the range of experience, a document that would be indexed, a document that would be much more generally available, this would be a tremendous contribution to knowledge in the United States.

The general picture, then, is that the Center has been doing a first-rate job in most of its work in these fields. It has an admirable reputation both for accuracy and impartiality. These are all to the good.

On the other hand, it has not quite reached out to some of the problems that are confronting the Nation today. It has vehicles which could be used better both to explore questions and to make available to a much wider audience a great wealth of material which is tucked away there someplace.

MR. ERVIN: Thank you very much, Mrs. West.

I think you could open this area for questions and discussion at this point, and we would welcome them. Yes?

DR. TENNEY: I am Dr. James B. Tenney, Assistant Professor, Department of Medical Care and Hospitals, School of Hygiene and Public

Health, The Johns Hopkins University. I would like to ask what is the principle on which it's propounded that the Center ought to be responsible for providing information or statistics that relate to any particular political problem like abortions and population care services that are distinguished from general concern with health services that are provided for the entire population? Why should there be a single categorical focus on a particular problem that the Center should respond to, as distinguished from being able to provide background kind of information for all problems?

I especially am concerned about this in relation to questions about abortions.

MRS. WEST: On the question of abortions, I would be glad to discuss that one directly and then others that you have raised. As far as the problem of abortions is concerned, although it is true that it is important as a political question today, I think that to look at the whole responsibility of the NCHS in the field of knowledge about births and deaths, which are components of population growth in the United States, one of the most striking phenomena (one which has the widest implications for health, politics, economics, ecology, and almost anything else you wanted to name today) is the change in the birth rate. The factors that are affecting the change in the birth rate are of primary importance. The phenomenon of the legalization of abortion in the United States and its implications for the change in the population in this country are of basic importance just for the field of vital statistics.

Well, since you are shaking your head, you don't think so. But the NCHS has, as a policy, been reporting fetal deaths down to, I think, 20 weeks as a general reporting period. What this does, then, is to carry that period back further.

As an aspect of medical care, abortions are a tremendous problem right now. The effect on the need for physicians, the need for health manpower, is vitally important. I don't see how you could possibly say this is not a major health area right now in which the Center is lacking when it has all the rest of the continuum.

MR. ERVIN: Further discussion?

DR. TENNEY: Can I respond?

MR. ERVIN: Certainly.

DR. TENNEY: I think there is no question about the power or importance of this particular issue, but can the Center be called on by any political group that wants to know the answer to questions in detail about their particular problem?

I think that it extends the bounds of the mission of the Center because it has not produced valid, reliable statistics on the number of ladies who have had—well—I am not going into descriptive terms about what they have had. But that seems like a particular programmatic problem of a point in time so that it is unreasonable to fault NCHS for not providing national statistics.

MRS. WEST: All I can say is I disagree with you.

DR. ERHARDT: I would like to comment to that point. The National Center's responsibility is defined as the determination of pregnancy, and any period of gestation which would include abortion, whether this abortion is spontaneous or whether it's induced, makes no difference. If the NCHS is responsible for the vital statistics program, and if the vital statistics program includes fetal death reporting, and if the United States has approved and agreed to the WHO definition, as it has, then certainly NCHS is responsible for reporting of all fetal deaths including induced abortions. It's as simple as that. It's not something imposed on the Center by present social need or present political need. It's something which is part of their obligation.

MR. ERVIN: Almost a checkmate. We can come back to this later at the end of the session if anyone gets a comment or thought you would like to make. In the meantime, thank you, Mrs. West.

When Dr. Wilson talked about the Committee about a year ago in July, he described the health options process at the national level and he said that the end result was filling several rooms with paper which wouldn't fit together. Either it was not sufficiently timely or too generic, or for one reason or another it couldn't be made to work. Those of us at the State level and the local level, for a very long time had seen the same problem emerge, so we have had an especially keen interest, as we have gone forth in this study, in looking at this whole problem of programmatic data versus general purpose data. To open this up, I would like to call on Dr. Paul Densen.

Paul?

PROGRAMMATIC DATA VERSUS GENERAL PURPOSE DATA

Dr. Paul M. Densen, *Director, Harvard Center for Community Health and Medical Care, Boston, Mass.*

I find it interesting that we consider the issue as a "problem of programmatic data versus general purpose data." I think we tend to make this dichotomy as though we had either one or the other type of data, but not both at the same time.

The Committee has been considering this matter and it has become more apparent to us that the dichotomy is artificial. One needs to think about this problem as though it existed along a continuum and consider programmatic and general purpose data as parts of a greater whole.

The Committee is charged with examining the activities of the National Center for Health Statistics and other related statistical operations in terms of their stated missions, and reporting to the Administrator on the need for possible revision of mission in view of the present and anticipated needs for health statistics.

I imagine most of you have read the statement of the mission of the National Center for Health Statistics. It makes it very clear that the Center considers its primary mission one of concern with general purpose statistics. These general purpose statistics give an overview of the mortality, the morbidity, and the disability of the population. They also tell us something about the general patterns of utilization of the health care system.

By themselves, these data provide the Administrator with only part of what he needs to know to do his job. They tell him something about the nature and magnitude of the country's problems. But he also needs to know the extent to which the programs for which he bears responsibility are coping with these problems and what it costs to cope with them.

This later type of data is derived from programmatic statistics of the operating programs and from special purpose studies of one kind or another.

Up until now there has very little systematic synthesis of general purpose and programmatic statistics at the Federal, State, or local level. As a result, the Administrator has complained that he is not provided with useful data. What he means by useful data generally are the kinds of data which help him make decisions on assigning priorities and allocating resources. What the Committee is trying to do is to address itself to that kind of problem.

Let me discuss one example of the interrelationships between programmatic statistics and general purpose statistics. The example concerns the Office of the Administrator here at HSMHA and I pose it in rather general terminology. What is the unit cost of providing services in any of the various programs for which HSMHA is responsible? I think you will find it extremely difficult to come up with such unit cost figures. The unit cost figure is a programmatic type of figure that needs to be developed. I think it is likely that it will be developed in the future because there are a number of things underway that are moving in that direction. A lot of thought is being given to that area.

Let us suppose that eventually we do come up with unit costs of a particular program. We then face the following question: Given the unit costs of a particular service in a program which is provided by the Federal Government, what is the similar cost for the same kind of service in the population in general? Now what kind of cost figure comes from general purpose statistics, the sort of data that the National Center for Health Statistics has been collecting. But if you are going to undertake to make that kind of comparison, then obviously it becomes very important that there is agreement on what you mean by cost, that the same definitions and classifications are used, and that the same general methods of collecting the data are employed.

I am sure you can come up with many other kinds of relationships between the programmatic type of information and the general population type of statistics. What you get from the programmatic type of statistics is information about those who enter the program in one way or the other. However, you know relatively little about those who do not enter the program and so there is, or should be, a natural symbiotic relationship between the general purpose statistics and the programmatic statistics.

If one is going to bring about such symbiotic relationships, then one has to have some framework in which one thinks about the problem. In the absence of such a framework you are simply going to be generating statistics for the sake of having numbers. One of the things that the Administrator complains about at the present time is that he has got a lot of statistics but very little information. It is a common complaint of administrators, and some of it is a problem of communication between the administrator's office, the programmatic office, and the general purpose statistics office. I will come back to this communication problem in just a moment.

Let me pursue the question of a framework. I think when we stop to think about the framework we come up with something which for want of labeling we would call a system of health accounts. I apologize for using words like "system of health accounts" because a system doesn't yet exist; it is just sort of a gleam in the eye at the present time. But it becomes apparent as we think about this that we need to develop some kind of system of health accounts. If you don't like this one, don't complain about it; do something about it. Come up with some other kind of approach to the problem.

Let's say we take the population in total. From general purpose statistics we know something about the utilization that that population makes of the health care delivery system. From Ted Woolsey's data in the National Center for Health Statistics, we have information on physicians and nurse utilization. We have information on hospital admissions and on the total number of hospital days utilized. We have data on the utilization of physical therapists and we may begin now to have data on the utilization of nurse practitioners.

We would also require other types of utilization data. For example, we would need to know how many laboratory tests are given in a specified period of time, how many x-rays are taken, and so forth. These kinds of data would provide measures of utilization for the population in question.

Next, we ask how much manpower is providing that level of utilization. We are beginning to get some information about that manpower. We would also want to know the kinds and quantity of facilities that are used in providing the kinds of services that are reflected in the utilization statistics. Finally we would want to know what does it cost?

Now we can take all of this and label it, if you like, as input into the system. At times we have a tendency to think as some things as output, but I think I am correct, in the economists' terms, in viewing these as inputs into the system.

Then we come to the outputs of the system. The outputs of the system would be various measures of the health status of the population. We need to do a lot more thinking about these. We have already done a lot of thinking about them, but they haven't been integrated in the general framework.

In the past we have been used to using mortality data as measures of the health status of the population. More recently we have begun to use morbidity and disability indices. There may be a number of other kinds of measures involved. We need to do a lot more work on that. Interestingly enough, you can probably make some reasonable guesses about the magnitude of the various input/output measures from data already available for the population of the United States or any of the major cities. But if you ever try to do it according to the age distribution of the population or some other major demographic breakdown you find you have a very difficult job to fill in the kind of framework I have suggested. It begins to illustrate the places where we have gaps in the information.

FIGURE 1. A PROTOTYPE FRAMEWORK FOR A SYSTEM OF HEALTH ACCOUNTS

INPUTS*

	UTILIZATION OF SERVICES									MANPOWER						
Demographic Characteristics	Physician Services		Dental Services		Nursing Visits		Hospital Admissions		Etc.	Physicians		Dentists		Nurses		Etc.
	No.	Rate	No.	Rate	No.	Rate	No.	Rate		No.	Rate	No.	Rate	No.	Rate	
Age																
Sex																
Race																
Education																
Etc.																

INPUTS*

	FACILITIES—Beds							EXPENDITURES					
Demographic Characteristics	Hospitals		Nursing Homes		Homes for Aged		Etc.	Total	Public			Private	
	No.	Rate	No.	Rate	No.	Rate			Federal	State	Local	Insurance	Out-of-Pocket
Age													
Sex													
Race													
Education													
Etc.													

OUTPUTS

	MORTALITY		MORBIDITY, by cause				DISABILITY			PERSONS WITH IMPAIRED—								
	No. of Deaths	Rate	Incidence		Prevalence		Days Lost		Etc.	Hearing		Eyesight		Mobility		Feeding Capacity		Etc.
			Cases	Rate	Cases	Rate	No.	Rate		No.	Rate	No.	Rate	No.	Rate	No.	Rate	
Age																		
Sex																		
Race																		
Education																		
Etc.																		

*Some inputs may be difficult to cross-classify against certain demographic variables. Such classification problems must be resolved in further development of the basic concept.

Source: *Health Statistics Today and Tomorrow,* The Report of the Committee to Evaluate the National Center for Health Statistics, Health Services and Mental Health Administration, Department of Health, Education and Welfare, September 1972, p. 10.

As you know, the National Center for Health Statistics is developing a Federal-State-local cooperative statistical system. If you are going to have an integrated system so that one part adds to the other parts, then you must have some kind of framework in which you gather your data. I am not saying that the framework I have outlined is the one you should use. I am simply suggesting that you need some kind of a framework. There may be other better frameworks than this one. This is only a very crude sketch and it obviously needs a great deal more work. But if you don't have that framework in the Federal-State-local cooperative system, I am afraid that what will happen is that each of these units will go its own merry way, gathering the particular set of statistics that happens to interest them at that time. Thus we may find that the data will not necessarily add up. And unless they add up, I am afraid that the whole Federal-State-local cooperative system may fall by the wayside.

If you take the initials for Federal-State-local cooperative system and leave out the word "cooperative" you have FSL, and some people refer to this as "fizzle." I don't think it's going to "fizzle" if you think about it a bit; but you have to put the thinking together in some kind of framework.

The general purpose is to put together the statistics that come from the programs and the statistics that come from the general purpose units. It is against this general purpose framework that one will examine what the meaning is of particular programmatic areas.

To do that, you must have cooperation between the people in charge of the programmatic area and those in charge of the general purpose area. Earlier I gave you an example of that in terms of the definitional problem in cost structure.

The most effective way to bring about that cooperation is for the two units concerned to recognize the symbiotic nature of this relationship and get together and do something about it. That's nice to say, but it doesn't always happen that way. In part this is because both of these units are very busy with their daily affairs and may not always see this problem, and also because the administrator may see the problem from a different point of view. That means there has to be an administrative mechanism which insures that this kind of definitional classification comes about. In turn there has to be someone in the Administrator's office who has the responsibility for coordinating that function. It doesn't necessarily mean that the person who has that responsibility cracks the whip. It merely means that when the two units themselves can't agree— and there will be areas of disagreement— they need to come to the Administrator's office and say "you have to make the decision."

Furthermore that office should have the responsibility of making the needs of the Administrator clear so that there is a communication of what kinds of information the Administrator is concerned about. To put it differently it is necessary that there be a communication of what kinds of questions the Administrator is concerned about because you can't always phrase these questions in terms of informational pieces. These have to come from the two sub-units, the programmatic and the general purpose units.

I am speaking about a coordination need that exists within HSMHA and is already being tackled. The same kind of need exists between HSMHA, let us say, and other units of the Federal Government which also have concern with health statistics, such as the Social Security Administration and SRS. The need for possibly a similar type of coordination operating, let us say, out of the Secretary's office has been recognized in a report of Dr. White's Committee—The Panel on Health Services Research and Development of the President's Science Advisory Committee.

Again I would point out that the best way to bring about that coordination is not through the Secretary's office. Unless it has to be done that way, the preferred way to achieve coordination would be through voluntary getting together of the two or more units which may be concerned with that particular problem.

One last point about the need for a framework. One of the major concerns of the National Center for Health Statistics and also of the Committee has been to try to get a better picture of what the users do with the statistics which are put out and also some picture of what their wants are. It is very hard to get that kind of picture or even to know how you draw a representative sample of users.

I think that Ted Woolsey once told me that one of the things he wants to turn his attention to, when he has a little time, is that whole area of how you develop users statistics. Let's suppose that you get any number of inquiries of one kind or another either because they come into the office or because you go out and seek them. You have to classify the needs reflected in those inquiries in some kind of way and it seems to me you come right back to the need for some kind of framework. If you get any large number of inquiries or responses to your questions about what people do with statistics that do not fit into the framework, I think the proper thing to do then is to question the framework.

Now your question about abortion, it seems to me, fits into this kind of a framework. The appropriate information would show up on the output side of the table. Whether you want to include that information or not is a policy decision that is the concern of the Administrator and the programmatic area. To the degree that there is a need for some picture of what the frequency of abortion is in the general population and to the extent that the Administrator and the Congress feel that there should be a program in that area, then such information belongs somewhere in the table.

The question of how high a priority you give it is an internal policy decision which is not the concern of the Committee.

MR. ERVIN: Thank you very much, Paul.

If you view the lifetime of the Committee as going from some sort of generalized concerns to at least a framework for the solutions, there are many of us who think that there are in this framework the beginning of some real solutions.

Are there any questions for discussion?

DR. WHITE: Dr. Densen refers to the problem of relating so called programmatic statistics to general purpose statistics. I believe the rest of the world no longer refers to programs but to health services. The question deals with the scheme of things, and I suspect we will have national health insurance. But apart from that, I don't quite understand how the major programmatic enterprises, SSA, SRS—if you accept the fact that they really are purchasing health services rather than maintaining income or giving welfare—are to be related to the general purpose statistics when you maintain the National Center for Health Statistics at the level of HSMHA. I wish someone would patiently explain to me how this is going to be accomplished on the basis of good will without the authority and responsibility of your most senior physicians. Either that or you should remove the first name of the title of the National Center for Health Statistics and call it the Center for Health Statistics for HSMHA. I would like to know what the reason is.

MR. ERVIN: Good question. Dr. Densen, would you like to discuss this?

So far as we have specific programs within HSMHA and so far as the National Center for Health Statistics is in HSMHA at the moment, I think you have the relationship which I tried to explain. There are other programs such as you have mentioned—the Social Security program, the SRS programs. Now they may or may not require any analysis from the standpoint of the general population. That depends on what the question happens to be. To the degree that there is a general population question and a National Center for Health Statistics has responsibility for getting general population statistics, then that responsibility should be assigned, perhaps through the Secretary's office, to the National Center for Health Statistics. As I understood it, one of the functions of the coordinator in the Secretary's office would be to see that that assignment is made in the proper place.

You have, I think, raised a question of what happens, for example, if one has a program of national health insurance. In that case I would say that the information within the framework which now comes from the separate programs ought to flow out of the operating statistics of the national health insurance program.

As an aside, I might make the point that I see nobody at the present time—speaking for myself now—taking account of the fact that we very likely will have some extension of the present insurance programs so that much more of the population will be covered. Where is the planning taking place for the kind of reporting system that that is going to require? I don't see it taking place at the present time and yet we know that it is coming down the road. I am not suggesting that the planning be done there but rather that somebody in that office see to it that the planning is done.

Suppose we do have a national health insurance program? Is there a role for the National Center for Health Statistics? I think there are several roles in this connection. One is that the National Center itself be given the responsibility for the planning and operation of the reporting system. I think that all by itself it is one huge responsibility, and I would hate to dump it on the National Center for Health Statistics and let the rest of the things go by the board. I think it would be an impossible task.

There is still a role for the National Center for Health Statistics. There will be a need for any number of special studies that will grow out of the operating statistics. Such studies will require competent technical assistance, field surveys of one kind or another, and relationships with the State and local health departments in local centers for health statistics. These will be well within the competency of the National Center for Health Statistics. In that regard I would see a substantial role for the Center.

Coming back to the present situation, I think that one of the things that is needed badly is to increase the staff of the National Center for Health Statistics so that it has a field staff, as it used to have many years ago. The purpose of such a field staff would be to help the people in the State and local situations because in many places there is a paucity of appropriately trained personnel.

There will be a need to develop training programs in those areas and the National Center for Health Statistics, it seems to me, will have a role in that capacity. It also seems to me that if we bring about a symbiotic relationship between program statistics and the general purpose statistics then there are going to be any number of special studies that need to be done to follow up the ongoing statistics. You will necessarily want to examine the variability that comes out of the ongoing statistics and to do that is going to require consultation on sampling procedures and design of the study, a whole series of things. That competency lies, at the moment, in the National Center for Health Statistics and in some of the programmatic areas. But there is so much work to be done and so few people to do it, I think, that when it moves in this direction, one must be prepared to support this kind of activity in the National Center for Health Statistics.

MR. ERVIN: Since the Committee has returned several times to that question, Dr. White, I think we will ask for some additional comment. Mrs. West?

MRS. WEST: One brief comment. We have, indeed, been back and forth over this particular point. In general, in the Department of Health, Education, and Welfare, the high policy determinations are presumably made at the Secretary's office which has an orientation which is in a large sense political, in which the appointees, the heads of offices, tend to be not the career people but people who come in under excepted appointments, so there is that part of it.

The National Center for Health Statistics is a very large organization just in terms of numbers of people and operations. To try to take a large operation, a large technical staff, out of an operating agency and put it into the Secretary's office would produce so many administrative problems it would be a thoroughly unmanageable operation. I think that the point that Dr. Densen was making, upon which we generally agree among ourselves, is that you need a strong focus at the HSMHA level which brings together the components of HSMHA. You need a focus at the Department level which brings together the interests which are beyond HSMHA.

NCHS has certainly over a period of years done a good job in working out joint problems with parts of the NIH, with other parts of HSMHA, with the Bureau of Health Manpower, more recently, and with other Federal agencies on the basis of informal consultations with whatever formal followup or treaty signing was necessary thereafter.

But I think that these policy determinations have to be kept quite separate from the operation of a very large, technical day-to-day operation.

DR. WHITE: Well, that's awfully interesting, and they are very sweet thoughts and probably very practical reflections of the realities of the situation; but if you look at what goes on in, for example, Finland, which I just visited for two or three weeks, and Sweden and many other countries where they don't have a national health center but a Board of Health Insurance, you have, absolutely, before you, the whole time, the need to coordinate the survey data and the record data, the general purpose data and the programmatic data, as we call it in this country. If you simply are going to depend upon unilateral treaties and coordination and cooperation and understanding and meetings between the people at the same level, I don't think anything is going to be accomplished.

While the coordinator in the second result may accomplish something, I think it's going to take something in the form of licensing and clout and head-knocking and direction to really pull these things together on the basis of some kind of fight. I think we are just ducking this issue completely.

MR. ERVIN: The Committee deliberated on this today. We spent some time and decided to leave it on the chart as elevating the National Center for Health Statistics within HSMHA, but this issue is open.

DR. WHITE: It's as high as it can go now.

MR. WOOLSEY: Ted Woolsey, Director, National Center for Statistics. I would like to point out a fact of bureaucratic life which is that the ability to bring about the kind of coordination that we are all talking about, which is the objective of this exercise, is not dependent upon organizational location. What really matters is the kinds of recognized authorities that the office has and what kinds of mechanisms are developed for bringing about this kind of thing. I think that this is a problem that's being faced within the Department. I think that Maggie West has stated it very clearly. This decision was made some time ago, at one point anyway. I am not saying it shouldn't be reexamined, but at the time that the Public Health Service was split up there was a good deal of discussion about where the Center for Health Statistics, which existed before that split,, should be relocated. The decision was made, I think by Phil Lee at that time, that it was not appropriate for the Center to be in the office of the Assistant Secretary for the very reasons that Maggie mentioned.

The Department didn't want a large operating agency in the office of the Secretary. But I would emphasize that it is not a prerequisite that it be located there to accomplish the things that you are talking about. I think they can be accomplished by the necessary authorities and other kinds of operating mechanisms, such as the coordinating committee which I was describing earlier today which will help—not through our own authorities, but through authorities higher than ourselves that have the clout to bring about the kind of changes that are needed, with the staff at the Center being advisory and participating in this activity. I think that we are going to be able to accomplish the sort of thing that's needed without the kind of organizational relocation that Kerr White is talking about and that his group recommended.

You know there are plans being made at the office of the Secretary's level which we haven't heard about yet and how they come out of this, I don't know. I am simply giving my own personal point of view as to what are the necessary ingredients for bringing about the change.

MR. ERVIN: Thank you, Mr. Woolsey. Let's have at least one additional comment on this from our chief of staff, Dr. Moshman.

DR. MOSHMAN: I would just like to comment on this reasoning by analogy here. I was in Finland myself about a month or six weeks ago and was taken to a room and shown a wall about the size of this chart here in which there were computer print-outs with a complete registry of every one of the five million people resident in Finland. Not only that, there is a general tendency there not to publish anything that isn't absolutely necessary because of some overriding consideration. Obviously surveys are not needed because they have the detailed records of everybody. When they need information for programmatic or service purposes, they just go to their computer data bank; everyone is there, they extract the information and use it on an ad hoc basis. It seems to work very well, but Finland is not the United States.

DR. WHITE: Excuse me. They do do surveys there. They made their whole assessment of the impact of the health insurance business through the national surveys done by the Pensions Institute. They compare them with their record data.

DR. MOSHMAN: I report what I was told there.

DR. WHITE: You have to see both of these operations, both the National Pensions Institute and the National Board of Health. You have to put things together.

MR. ERVIN: One final question, and we will have to move on.

DR. LIPWORTH: Leslie Lipworth, Director, Office of Health Research, Massachusetts Department of Public Health, Boston. Isn't the trouble one of distinguishing between giving the National Center a series of questions to answer on the one hand and on the other hand telling them what data we need which is not quite the same thing. Never mind where the National Center should be, but if the national authority would say to them, "these are the burning questions today and these are the questions we would like you to answer," they could then plan all their programs, their vital statistics, their surveys in a way which would answer these questions. It seems to me they played with certain kinds of committees which each want certain kinds of data and never the twain shall meet. I would like to know exactly how this works in the National Center. I am wondering if this isn't one of the faults.

MR. ERVIN: One of the issues the Committee has looked at in some depth is a need for a policy committee which would include users representatives. I think this question takes us from the area of programmatic and general data to the considerations of the Federal-State-local or local-State-Federal cooperatives system and related matters. I would like to ask Dr. Patton to help us look at this and include that question in his comments.

Bob.

PROPOSED FEDERAL-STATE-LOCAL SYSTEM AND RELATED MATTERS

Mr. Robert E. Patton, *Deputy Commissioner of Local Services, New York State Department of Mental Hygiene, Albany N.Y.*

Thank you. I think the question does concern the relationships between Federal and State levels. The problems of coordinating at the Federal level are horrendous—that's a good word. I think we also have a set of problems in the Federal-State-local system as well.

The partnership role with the States needs to be more clearly defined and carried out with consistency among all functions. I think Dr. Densen's matrix that he outlined is one that can be used in looking at the scope of the Federal-State-local system. The role of the National Center for Health Statistics in relationship to other categorical programmatic data systems needs clarification to avoid duplication and to insure maximum use of the data from all sources.

The States and localities need stronger representation at the policy level in shaping the work of NCHS. When we talk about a cooperative system, this—we think—means a system in which there is real sharing at least between State and local, where there is a full recognition of the needs of the States and a full recognition of the needs of the Federal. This means both sides are going to have to give up some things in order for the system to work. We feel that there has to be more emphasis on this in the development of the system.

Now in the vital statistics system (and I think this has been said many times) activities are needlessly repeated at all levels of government with no commensurate return. Federal financial support for this system at less than a nickel a record does not represent a meaningful contribution of the senior partner in the system. The Federal Government should pay for statistics essential to the carrying out of the national goals. Comparable interstate and intercommunity data on health needs, resources, and services are necessary for Federal as well as State and local purposes. Local data are national needs just as much as data pertaining to the whole country.

Another general area of concern is system compatability among program data. The Federal Government has initiated various types of data collection and statistic systems on a basis which has been capricious, arbitrary, almost frivolous: OEO, HMOs, Family Planning, CDC, Medicaid, Medicare, NCH, BD, a whole long list.

One effort to move towards standardization is a uniform health reporting system sponsored by the Association of State and Territorial Health Officers under a Federal contract. It is statistically sound and properly related to NCHS. The ASTHO project can help bring about coordination and compatability in program data systems, which are absolutely necessary.

In producing baseline data, the cooperative Federal-State-local system seems to be an economical means of doing it. The progression from research to operational status should be carried out as rapidly as possible. The basic concept of the Federal-State-local system is one that the Committee has fully accepted and endorsed. We do think that there has not been sufficient attention paid to the question of funding the system. The system, even though it may be termed economical, is still going to require substantial funding. We feel there has to be an assurance that this is going to be funded on a long-term basis with a basic support for ongoing State programs in addition to a contract method of purchasing services. Without some sort of a basic formula grant to the States to provide the underpinning of a system which can respond to the Federal system, we are not going to be able to have this partnership, and this is going to cost money.

In terms of other areas, I don't want to repeat things that have already been said. The area of technical assistance has been referred to. The Federal-State-local system will require considerable expansion of the technical assistance or mutual assistance program of NCHS in order to develop this Federal-State-local system. It's going to effect a major increase in the technical assistance capability.

We think that this is going to have to be decentralized in some way to the regions, either through the Departmental regional office or through some other regional mechanism. We think one way of doing this might be to involve it in the proposed regionalization of the ASTI program. Perhaps a combination of the training function and the mutual assistance function would provide a way of getting this kind of assistance to the States at a regional level and provide it much more intensively than at present.

The most critical need is to match NCHS emphasis on methodology with at least equal emphasis on satisfying the needs of users of data, both Federal, State, and local.

MR. ERVIN: Thank you. In view of the time, we will move along and look at the other major sets of data which have been under study by the Committee, and these are statistics on manpower facilities and services. I turn now to Dorothy Rice who has flown half-way around the world to be with us this evening.

STATISTICS ON MANPOWER FACILITIES AND SERVICES

Mrs. Dorothy P. Rice, *Chief, Health Insurance Research Branch, Office of Research and Statistics, Social Security Administration, Washington, D.C.*

Thank you. Mr. Ervin is referring to my return from vacation in Israel and Greece in time to attend this meeting.

Our subcommittee on Health Care Resources, was divided into several areas. If you examine Dr. Densen's matrix, you will find these are the same areas that we discussed in detail in our Subcommittee. We addressed the following four areas: manpower, facilities, utilization of health care services, and the economics of medical care.

Our initial investigation stimulated many problems and questions and some preliminary recommendations that haven't been approved by the full Committee as yet. The members of the Subcommittee fully recognize the significant contribution of NCHS in the area of health care resources and we commend the Center for its achievement in this area, especially in publication of the relevant data in one volume. As a matter of fact, I noted upon my return today that the health care resources volume for 1971 is now available in case you have not received your volume as yet.

The problem of timeliness that was mentioned earlier applies to each of these four major subclassifications that we discussed in our Subcommittee on Health Care Resources. We feel that a special effort should be made in this area, and those areas covered by other subcommittees, to publish the data and analyses within a short time from the date of collection. Everyone agrees this is a very important issue and needs to be improved by the publication of more timely material and data.

Looking at each of the four major subclassifications of our Subcommittee, I will briefly discuss some of the major problems and some recommendations that probably will be emerging as the result of our investigation and our discussions.

In the area of health manpower, we feel very strongly that the NCHS staff dealing with health manpower statistics needs to be augmented to include additional analysts knowledgeable in this area. The current staff is really inadequate to deal with this enormous problem of health manpower. In this connection, we feel that there should be detailed cooperative plans developed with the Bureau of Health Manpower Education for the collection, analysis, and publication of health manpower supply data to avoid duplication of effort and also to identify the gaps. It is our understanding, as described by Mr. Woolsey today, that such cooperative efforts indeed have moved forward.

In the area of health manpower, there should be a uniform set of definitions and terminologies developed with the cooperation of the Bureau of Health Manpower and other agencies in the Department of Health, Education, and Welfare that have similar concerns and interests.

An area that needs to be developed further is the unlicensed health related occupations. There is a need for the development of methodology for identifying and inventorying emerging and unlicensed health occupations. There probably is a role for NCHS in this area, too.

One of the problems concerning the Subcommittee greatly was that of quality control. Those of you using the data on health manpower produced by NCHS recognize fully that most of the data that have been produced by NCHS are now obtained from professional and trade organizations. The Subcommittee members felt so strongly about looking into the quality of these data that Moshman Associates has conducted a feasibility study in one area, and I hope that Tom Jobine will discuss this briefly.

We do feel that NCHS should develop and institute measures for evaluation of the quality of manpower data in all the subclassifications of manpower and that additional analyses of the data should be conducted by NCHS. At this point the data are simply produced with not much analyses coming from the Center.

One area that NCHS is particularly suited to do additional work in is in sample surveys. NCHS capabilities should be directed toward planning, developing and conducting sample surveys of health manpower in institutional settings: hosptials, nursing homes, group medical practices, and, of course, the emerging HMOs.

Finally, in the area of health manpower, we recognize fully the needs for local area data, at both the State and local levels. NCHS should be taking a lead role in developing methodologies for collection of State and local data on health manpower.

In the area of facilities, many of the recommendations and much of the discussion were similar to those for health manpower. Additional staff is needed in this area, too; Uniform definitions and terminologies also are very important. I would like to use the illustration of the nursing home which NCHS defines as a personal care home—I guess homes with personal care beds and or nursing beds. Medicare has extended care facilities and Medicaid has skilled nursing homes and intermediate care facilities, ECF's, skilled nursing homes and ICF'S. There is a need for a uniform set of definitions that can be used throughout.

We do recognize that there are problems because Medicare and Medicaid definitions are governed by legislation, but NCHS should take cognizance of these definitions that have been used in legislation and relate the information they are producing to the information that is required for program needs in these other areas.

There also is a need for local data on facilities. We recognize that the planning agencies need the information at the local level and NCHS should have a lead role in the development of methodologies in this area, too.

As to financial data—which I will cover in a bit more detail under economics—NCHS has really produced very little cost data for facilities. This area must be developed further and in depth by NCHS. The utilization of health care services was reviewed in combination with the economics of medical care. If you define medical economics as those aspects of medical care that deal with the determination of the quantity and prices of scarce resources devoted to this and related purposes, and with the combinations in which these resources are employed, you can see that the utilization of health care services, prices, costs, or charges for such services are interrelated, so the Subcommittee treated these together.

We feel that economists are needed by the staff of NCHS. Further, additional economic data are needed in almost all of the surveys now conducted by NCHS.

The Health Interview Survey has been collecting annual utilization data for some time, but the data on expenditures have only been collected for the 1962-63 period. Then there was a little hiatus of about eight years before the next survey on family medical expenses. There are a variety of reasons for this long gap, but I don't think we need to go into them at this point.

It is recognized by Mr. Woolsey and his staff that data on expenditures for family health care services are needed and that the NCHS should be collecting this information regularly. There are other surveys, also, that are currently being conducted by the Center to which the information on costs and charges should be added. The forthcoming ambulatory care survey, for example, is going to be limited to information on physician visits. NCHS should at a very early stage, consider adding—at least for a subsample of physicians—information on charges, once they get the ambulatory survey going.

We know full well that local area data needs are great in the area of utilization as well as in regard to costs of health care services. Again NCHS must take a lead role in the development of methodologies in this area.

Finally, we recognize that there must be a concerted effort made to identify gaps in the measurement of the use of and the charges for health care services. This investigation must be implemented very soon in order to provide information that is required for planning a national health insurance program that will be emerging in the future. NCHS has a definite role in this area.

I think that covers very briefly our investigations.

MR. ERVIN: Any questions?

DR. WHITE: I would like to emphasize the importance of including charges in the basic data set for hospital discharge abstracts which I believe was omitted by the subcommittee headed by a representative of the Social Security Administration.

MRS. RICE: I believe you made that comment earlier today.

MR. ERVIN: If there are no other questions, we will try to keep within our time limits and turn to the final subcommittee report on methodology, Tom Jabine.

METHODOLOGY

Mr. Thomas B. Jabine, *Chief, Statistical Research Division, Bureau of the Census, Washington, D.C.*

I feel somewhat hesitant speaking before this group on the methodology of health statistics because as one of the earlier speakers said the experts are not here in the audience. Be that as it may, I will try to tell you something about the work of the Committee in this area and give you at least some preliminary idea of our recommendations. I will try to be brief because I know you have all had a long day.

The major areas that we have reviewed are three. First a fairly thorough review was made of the research, development, and evaluation activities of the Center. The staff work on this was done by Jerry Cornfield (as a part time staff member of Moshman Associates) and we have a number of recommendations resulting from that study.

Secondly, a review was made of the data processing facilities and activities of the Center, covering both the internal data preparation and computer work and the external services, use of outside facilities, and provision of data to users in machine readable form.

Thirdly, we did some intensive studies of selected programs. Here it appeared, at the beginning, that it would be impossible to review intensively the methodology of each of the major programs. So, based on our own discussions and those with the staff of the Center, we picked out four areas: Vital statistics, Health Interview Survey, Health Examination Survey, and health manpower statistics. For the first three of these programs, the Committee's staff made a detailed review from start to finish of the procedures used to collect and process and tabulate and publish the data. These studies have been reviewed by the subcommittee, and on that basis, we have produced recommendations concerning the methodology of those programs.

In the fourth area, that is the health manpower statistics, as Dorothy Rice has already mentioned, we took a somewhat different approach. We were concerned about the use of secondary sources and the fact that we knew of no real evaluations of the quality of data being obtained from these sources. So arrangements were made to do a small scale feasibility study for techniques to carry out this type of evaluation. In this particular case, the system reviewed was the physician records system maintained by the AMA. Arrangements were made for members of the Committee's staff to visit four selected counties to obtain independently information on physicians located in those counties and then compare these lists with those maintained by the AMA.

Those results will be included in the report. While this was a very small test and shouldn't be regarded as a full-scale evaluation, I will say that the system came out extremely well in terms of completeness and nearly as well in terms of the current location of physicians.

These are the three major areas that we have looked at. Now I want to give you some of the impressions that we have gotten from these studies, maybe starting out on the credit side. I think we all have been convinced, as earlier speakers have said, that the data which the Center is producing are generally of very high quality, that the Center is using sound survey designs, exercising careful quality control over the collection and processing of data, and that their publications describe in detail the sampling errors and other limitations to which the data are subject.

I would like to say, secondly, that we have been very impressed with the work that has been done over the years in developing new measurement techniques for obtaining health data, particularly in such vehicles as the Health Interview Survey, the Health Examination Survey, and the Hospital Discharge Survey, in which new approaches were developed which have added tremendously to the store of data available. These techniques have been widely adopted by State and local groups in this country and have been imitated in many other countries.

On the other side of the ledger, as with all the other people here, we are impressed with the problem of timeliness. While there are some exceptions—the counts of vital events come out very quickly; some of the basic data from HIS are issued very rapidly—there is throughout virtually all of the programs this condition of delay between the collection of the data and its availability to users.

The second problem we observed was a decline in the resources devoted to research and development activities. I didn't copy the figures from our report, but I think that about 15 percent of the budget was being devoted to R&D in the first two or three years of the Center as compared with something on the order of 5 percent more recently.

One of the consequences is that fewer resources are available for the development of some of these new measurement tools that are now urgently needed to collect data on topics such as the use and charges for health care services, user satisfaction with the services, nutrition and food consumption recently put into HES) , as well as data on abortions that have been alluded to earlier.

This lack of resources can lead to one of two results: either some surveys in some of these fields become operational without adequate testing, or urgently needed information on some of these subjects is not made available as quickly as it should be to meet the needs.

Finally, I think there has been some slowness in certain cases to apply the results of some of the R&D findings, or the evaluation studies that have been made, and feed these back into the survey operations.

I might give just one example of this from the Health Interview Survey. It's been quite evident from a number of studies and sources for some time that certain kinds of data are not reported as completely when you use proxy respondents, that is, if each person does not report for himself. This is and has been well known but I think the Center has been somewhat slow in facing up to the implications of this knowledge in its survey applications.

I think these comments will allow you to anticipate some of the kinds of recommendations that we will be making. One certainly will be, as indicated, some expansion of the resources available for R&D activities. By and large I think the Committee would leave to the judgment of the experts in the Center just where those resources should be applied, with what priorities. However, we have recommended a couple of specific areas. One of these is a continuation of the evaluation or the quality of manpower data from secondary sources as was tested out in the feasability study which I described.

The second one would be to make a fairly intensive effort to determine the quality of cause of death information reported on the certificates. There have been a number of studies in this area in the past but they have been somewhat restricted either geographically or to particular causes, and we think it's very important in evaluating this system to have a more general knowledge of the quality.

In the area of timeliness, we have no magic solution to offer. In fact, while we have been making this review, I think the Center has taken a number of important steps to try and overcome some of the problems. However, we are tentatively thinking of recommendations in several areas that may affect this question.

One, of course has to do with working with the States through the cooperative system to eliminate the duplication in the processing of vital statistics and to pursue even more intensively than has been done already the programs to acquire the data on tapes from the States. Also, to put more resources into the development of machine-readable certificates. We are also suggesting some further attention to the use of new data key-entry techniques which may eliminate some of the extensive recycling that is necessary to make corrections in the data as originally keyed and prepare tapes that are suitable for tabulations.

Another area is to consider further use of sampling in the vital statistics area. I don't want to cover this in detail, but I might just illustrate the problem by a question: is it really necessary to tabulate on a 100 percent basis every year things like birth weight and period of gestation?

There are many other recommendations still in the development stage. I want to close by saying that there's a great deal of hard work involved between the time at which the need for certain kinds of data is perceived and the development of measurement techniques that can be applied operationally to collect these data.

The Center has proved in many areas that it can do this kind of job, and I hope that it will get the resources that it needs to develop the new measurement systems that are so urgently needed.

MR. ERVIN: Thank you very much. We have appreciated this opportunity to come before you with some of our preliminary thinking. It has been sort of a short view of what we hope will be a new look at the National Center for Health Statistics. I would emphasize that whether or not it is a new look and whether or not anything happens as a result of that look will depend not alone on the reports we produce, because unless there are a lot of people like yourselves who are willing to work on the implementation of reports they won't be worth the paper they are written on.

We will look forward to having your collaboration, when the report comes out in late August and from that point onward, working on the various points we have come up with in these last several months. I would add that some of these recommendations, many of them in fact, were re-enforced by the extensive inquiry which was carried out among some 369 users and producers of health statistics in the country. The Committee has endeavored not only to carry out its study work in a rather unique setting, staffed in a unique way, but has also attempted to go to the mouth of the lion and listen to the roar. We appreciate this opportunity to bring our thinking to you tonight, and we look forward to coming back when the report is concluded.

The special session is now adjourned at 8:20 p.m.

THIRD PLENARY SESSION
Wednesday, June 14

Role of Statistics in Improving the Mental Health Care System

Statistical information is one of several factors which enters into the program director's decisionmaking process. In mental health our goal has been to develop data systems which are increasingly responsive to the information needs of administrators. The three speakers—representing the local, State and national viewpoints—discussed the role of statistics in planning and evaluating mental health programs, and the relationship between statistical information and other factors which determine program decisions. In addition, they pointed to specific contributions of statistical information and suggested some future directions for mental health statistics programs.

Contents

CALL TO ORDER

Dr. Philip S. Lawrence, *Associate Director, National Center for Health Statistics*

We ask that you be seated, ladies and gentlemen. We are in the third day of our Conference. I hope that last night all of you who live in the Washington area got home to your spouses, your children, your families, despite the heavy rain, and that those of you who are here from out of town had an enjoyable evening which was not damaged by the weather.

When I arrived home, I found my son and daughter-in-law there with their four year old daughter and their two year old twin girls. Just as supper was about to go on the table, my daughter arrived with her one and a half year old and said, "Mom, what's for dinner?" Later she broached the subject as to whether we could keep the little boy all night, and said, "Incidentally, Mom, if you have time to put these three loads of laundry through the washer and dryer, I'd appreciate it."

This confirms my suspicion that mental ill health is a hereditary disease that parents inherit from their children. (Laughter)

One could say that mental ill health begins at home, and perhaps we should have some statistical studies along this line, since we are going to be talking about statistics that relate to the mental illness in the community.

We have a distinguished panel this morning that will be chaired by Dr. Morton Kramer. Dr. Kramer received his Doctor of Science degree at Johns Hopkins at about the same time that I did. He has had a great deal of experience at all governmental levels, and you will be particularly interested to know that he has had a tremendous experience in local settings. He was a statistician in the New York State Health Department. I believe Mr. Woolsey mentioned the other day that they worked together there in New York State quite a number of years ago. He has also worked in the Department of Health in Puerto Rico and in the State of Ohio, in fact, in a county tuberculosis office in that State.

Mort has also been active in the international health field. He is a member of the Expert Panel on Health Statistics for the World Health Organization, and he serves as a consultant to that same organization.

He is a fellow of five different statistical and psychiatric associations and has written verv extensively in the field, as most of you know, because I am sure you have read much of his writings.

Mort, we are very pleased that at this year's Conference we, in the Health Services and Mental Health Administration, could join you and your staff in having a successful meeting.

PRESIDING

Dr. Morton Kramer, *Chief, Biometry Branch, Office of Program Planning and Evaluation, National Institute of Mental Health*

Thank you very much for your very kind comments. It is a pleasure for the mental healthers to be involved with the rest of the world of human services. Indeed, we always have been, but I suspect many of you never realized the extent of our involvement, nor, I presume did many of the people who have been working in the mental health field understand the impact that other health services are having on mental health, and vice versa.

Bringing these groups together is a very auspicious start for the long road ahead in the development of national statistical data systems, to interact in a way that produces types of data that Dr. Fuentes is talking about in going from vital statistics to statistics of human services.

I would like to express my appreciation to Dr. Lunde, Dr. Lawrence, and Ted Woolsey for working closely with us. We have worked closely with them over the years and hope that this interchange continues, not only at the national level. We do hope that the mental health people will participate in a very meaningful way in the development of Federal-State-local data systems. I assure you that at the Federal level, we will keep after Ted about this, and vice versa, and I hope that you all do the same thing at the local level.

Since some points have been raised earlier in the meeting about the need to take broader perspectives by looking not only at medical services but the whole area of human services, I thought I might just take a few moments, if I may, to indicate the long involvement the mental health field has had in looking at the social scene in which people have lived.

If one goes back to the very early reports of some very sophisticated mental hospital administrators in Europe and the United States in the early 1800's, you would find they were most concerned about the social matrix in which people live and the problems which they may cause. In fact, some of the observations that you may still find of interest in health statistics, were first noticed in the mental health area. For example, around 1820, there was a French physician working in one of the famous asylums in Paris, who was trying to develop a classification of mental disorders. In those days physicians considered physical causes as well as moral causes of mental disorder. It was determined that the four leading causes of admission for males were abuse of alcoholic drinks, reverse of fortune, domestic troubles, loss of friends. For females, the four leading admission diagnoses were domestic troubles, loss of friends, reverse of fortunes, and abuse of alcoholic drinks.

Other psychiatrists in the early 1800's in France, England, and the United States also came up with similar pronouncements. I may say that if those of you who are planning mental health services today were to look at some of our social problems, you might find that the problems we are dealing with in planning for services were not too different from those that the French encountered in 1800.

The Bureau of the Census also has played an important role in developing statistics on various aspects of society that went beyond health and mortality statistics. There is a very fascinating report on the defective, dependent, and delinquent classes in the United States in 1880. This was a classic report, really. I urge you all to read it because it is an important historical landmark in demonstrating early efforts to pool data dealing with important social problems—data on the insane (both inside and outside of institutions), idiots, the blind, deaf mutes, homeless children, paupers in alms houses, prisoners and juvenile delinquents in reformatories. This is a part of the social scene that has become increasingly important over the years.

Some of the early observations that were made in the 1880's we may find to be very humorous now, but I think you must look at them against the tenor of the times. For example, in criminal statistics of the time, there is a tabulation of statistics by sex and the kinds of crimes attributed to men and women for which they were locked up. The paragraph goes like this:

> "The crimes charged against men and boys numbered 49,845 against women and girls 4,324. The men outnumber the women very nearly 12 to one. This is partly because women are better than men and partly because they are more timorous and less aggressive."
>
> "If a wicked woman wants a crime committed, she can usually get a man to do it for her." (Laughter)
>
> "Partly, too, the smaller proportion of women who are prisoners is due to the leniency of the office of the law in dealing with them."

Then there is an interesting compilation of crime statistics by type of offenses, by State in which the crime was committed.

> "The largest number of forgers was found in prison in Pennsylvania; of counterfeiters in New York; of mail robbers in Texas; of illicit distillers in North Carolina and Tennessee; of liquor sellers in Maine and Massachusetts; of drunkards in New York, Massachusetts, and Pennsylvania; of disorderly persons in New York; of vagrants in Pennsylvania; of murderers in Texas and California."
>
> "Much the largest amount of imprisonment for offenses against chastity is in Massachusetts." (Laughter)
>
> "It amounts to one-fifth of all the cases reported in the United States and in proportion to the population of the state, the number is so great as to excite astonishment."

One other little tidbit, in terms of other kinds of behavior. We keep lists of all kinds of service oriented facilities, but there is one service oriented facility for which we haven't established an inventory but they did in 1880. This was the houses of prostitution in the United States. They numbered about 4,067 and were reported in 185 towns. Then it was found that a number of towns—74—claimed that there were no such establishments within their limits. At the head of this list stands the City of Brooklyn, where the Chief of Police says the statement must be accepted as literally and absolutely correct.

Following the listing of other cities which reported they had no such houses, this comment is made: "If these towns are as virtuous as they claim to be, they are indeed fortunate; if not, the police are blind."

Anyway, we have had a long involvement in the whole area of behavior of people, how it affects both their behavior in society and medical problems, and a variety of other things. We have also dealt with institutional data for a long time.

In fact, the series of morbidity statistics of the mentally ill in institutions in the U.S. is perhaps the oldest time series of morbidity data in the U.S.

It is in dealing with problems of institutional morbidity where, I think, the National Institute of Mental Health and the statisticians in the mental health field have considerable expertise. I think they can forewarn those of you who are now beginning to develop extensive data concerning the patterns of use of general hospitals, outpatient services, etc., of the kinds of headaches you are going to have in interpreting them.

There are going to be plenty of headaches trying to get uniformity and in interpreting the data. One of the things you must realize is that no matter how much uniformity you achieve in definitions, there is an extraordinary lack of uniformity in the organizational structure of a community, the programs available and the factors that determine utilization of services. There is lack of uniformity in how people utilize the various services, the behavioral factors that bring people into treatment, why they are referred to a specific service, why they do what they do, and, when patients return home, what interactions they have with the family—as Dr. Lawrence said last night when he got the shock of coming home after, a good party here and finding he had to deal with some problems of children.

Now there is going to be a lot of disordered behavior in households simply because more mentally ill are being kept at home. With the further emphasis on ambulatory care, more and more of the disabled are also staying at home.

This brings us to the problem we are dealing with today.

Starting about 1963, mental health programs changed very rapidly. That was the year in which the famous message on mental illness and mental retardation in the United States was delivered by the late President Kennedy. Subsequent to that, there was developed the community mental health centers legislation, which set into motion a type of program that so many of you are now developing in other health areas—population based services.

To develop the notion of population based mental health services, 1,500 catchment areas were established within the United States. These provided a population base against which one could develop statistics on patterns of use of mental health services. However, we still do not have a measure of the prevalence of mental disorders in the noninstitutional population. Developing such statistics presents many knotty and complicated issues. There will be some reports on that tomorrow. In an attempt to resolve problems surrounding this issue, NIMH has worked with the National Center for Health Statistics. We invited a number of experts to address this problem and their papers are published in the volume "Definition and Measurement of Mental Health."

Let us return now to the notion of community mental health services available to the inhabitants of a community. Planning for these services and evaluating them—getting some notion of what impact these services have—are the kinds of problems that face the mental health planner, the mental health evaluator, and the person working in the local mental service. In addition, there is tremendous impetus to get mental health services more closely interlocked with general health services, and vice versa.

So I assure you there are some interesting and frustrating times ahead, to solve these very difficult and yet most important problems.

The panel that we have here today consists of a very interesting group of persons who are drawn from different levels of operation of mental health programs. We have Dr. Jepson, who comes from a county mental health center. Bob Patton comes from a State Department of Mental Hygiene, where they have an unusual set of problems. Then we have Dr. Cain, who looks at many of these problems from the Federal level.

The first participant, the first panel member, is Dr. William W. Jepson, who got his A.B. at Swarthmore, his M.D. at Cornell Medical College, interned at Yale New Haven Hospital and then the Cincinnati General Hospital, where he was a resident in psychiatry. He has been in the United States Navy where he was a medical officer in psychiatry and then returned to Cincinnati General Hospital, as chief resident.

In Cincinnati he came under the influence and experience of Dr. M. Levine, who used to be a member of our National Advisory Council and who did so much to introduce psychiatry into general practice. Dr. Jepson has been on the faculty of the University of Minnesota Medical School, where he was instructor, assistant professor, and is now an associate professor.

He is a member of the American Board of Psychiatry and presently he is the Chief of the Psychiatry Service for the Hennepin County General Hospital. Dr. Jepson has participated in publications of the Joint Information Service of the American Psychiatric Association, dealing with partial hospitalization for the mentally ill. He has written a chapter in Henry Groom Brown's *Community Psychiatry on Metropolitan Problems*, and published articles on *Social and Community Psychiatry and its Effects on the Family*, and *Cost Finding and Rate Setting for Community Mental Health Centers*.

As you will see, Dr. Jepson's background is quite different than that of our other two participants. This will provide you with some perspective on the different backgrounds of professionals involved in programs for the delivery of community mental health services. Thank you.

Dr. Jepson.

OPERATIONAL STATISTICS: APPLICATION IN A COMMUNITY MENTAL HEALTH PROGRAM

Dr. William W. Jepson, *Director, Hennepin County Mental Health Center, Minneapolis, Minnesota*

The purpose of this discussion is to review the role of statistics or facts in the improvement and augmentation of our mental health care system. Much of this Conference so far has been devoted to population statistics, to surveys, trends, and demographic information. In my remarks I will depart from this and focus on operational statistics.

I believe there is a great need for statistical information about ongoing programs, about facilities, about their input, output, outcomes, costs, efficiency, and effectiveness. This is particularly important because if we are to improve and increase the mental health delivery system, we will be called upon more and more to justify the huge expenditures entailed.

From my experience of over 10 years as a clinician administrator in a rather large and rapidly growing community mental health program in a county hospital, our success in program expansion has resulted more from justification of the existing program and from arguments for expansion, based on costs and projected benefits, than on the basis of surveys of population at risk or community needs.

Indeed, I have heard many long discussions about the determination of community needs and I have heard pleas for more funding of facilities based on estimates of incidence or prevalence of the mentally ill, the poor, the drug abusers, crime rates, school problems, etc. I have found that the guardians of the public weal are only sporadically responsive to such imploring.

Over the past decade, at Hennepin County we have submitted numerous narrative descriptions of our program, telling of the wonderful things we are doing for children and for schizophrenics, the suicidal, and the unwanted. Such perennial tuggings at the humanitarian heartstrings of commissioners and board members usually fall on deaf ears at budget time or result in the standard 5 percent increase, if that.

In the typical budget hearing, questions such as this are common: "How many people do you cure over there?" In fact, I give credit for much of our statistical system to an alderman who kept asking "How many people do you cure over there?"

Another question came at budget time when a county commissioner asked, "How do you know you need two new social workers?" I retorted, "How would one know whether Minnesota needed two new pastors?" A rather difficult administrator who described our program as "loose permissive programs of confusion", wondered "Are you getting enough mileage out of your psychologists?"

At first I regarded such questions as a kind of numerical rhetoric, motivated by the desire of these board members and administrators to find a rationale to veto new funding.

I still think it is used this way, but I am becoming increasingly impressed with the fact that most legislators or commissioners and administrators are a very hard-headed bunch. They are hesitant to dispense large amounts of public monies without sound fiscal accountability and solid estimations of the efficiency and even of the efficacy of programs.

This year our county administrator put all department heads on notice that budget presentations must be accompanied by a clear description of goals and objectives. Furthermore, measures of achievement or outcome were required. For example, to justify the sheriff's budget, the crime rate is supposed to go down. He commented that without such measures one should not anticipate a positive response from the commissioners at the budget hearings. Thus, not only the quantity of the program output but the quality or outcome must be described in terms of measurable objectives. That is to say, in operational terms or in terms of output targets, rates, indices, correlations, loads, costs, etc.

Basically what this means is that we need two descriptions of our program: one in English, a typical narrative, describing all those fine things we do, and another one in Arabic, the numerical description.

What are the purposes of a numerical description of the program? There are several, and I'd like to list some of them. First of all, simply, is the purpose of describing the nature of the program, its quantity and its magnitude. It would, of course, be possible to describe the structure of the Grand Canyon without numerical remarks, but questions as to its depth or width or age are begged. Nor could we describe the function of a baseball player or a team without a large amount of statistics.

A mental health program or facility cannot be seen. A site visitor or a funder may see the building, may see some of the staff, a few of the patients, and even a sample of the activities, but there is no way for him to see the program. And it is the program that he wishes to comprehend, the structure, the processes, and the performances of it. As a matter of fact, a site visitor will frequently inquire in terms of numbers of staff, numbers of visits, average length of stay, percent of transfers to State hospitals, per diem costs, proportions of direct as contrasted to community services, staff-patient ratios, and the like. While statistics should, of course, be used primarily for decisionmaking purposes, nevertheless for description alone they are valuable.

A second important purpose is accountability for the existing programs. This is not assured simply by auditing expenditures, nor will descriptions of those fine things we are doing, those benevolent activities, suffice. It will require measures of client load, staff effort, the amounts of time devoted to various activities such as patient care, teaching, community consultation, indices of efficiency, and amounts of service rendered as measures of output. At the present time there is increasing desire for some standards of comparison among programs, among modes of intervention or some measures of performance. Some time ago, it was said that Community Mental Health Programs being so new and innovative should not have standard operating procedure or fixed indices of performance for fear of impeding discovery and development. We now need standards for comparisons, but they are apallingly soft or lacking in these ephemeral mental health programs. Presently it is a waste of time and effort to try to compare one program with another in terms of dollar input or patient load or number of visits because it's become so apparent that we are never counting such things in a comparable fashion and we don't use a common language. I think the Southern Regional Educational Board has made a major contribution in finding a useful common language and we are beginning to employ it throughout our system.

Another purpose is for management of staffing patterns. In our program when I started, there were about five staff not counting ward nurses. We now have about 80 professionals and 100 staff (including nurses). In a typical mental health enterprise, 80 to 90 percent of the total expenditures are for expensive professional personnel, which interact with a large number of mixed clientele, all bunched in varying ways. They transact with one another in a variety of activity modes and organizational structures. Management decisions with respect to the optimum organizational structure, the best deployment of professionals, the best mix of professional disciplines, should all be made on as rational a basis as possible, and this requires hard or even soft data. We must discover what is the most efficient or balanced allocation of staff time and effort to staff activities.

A survey of mental health centers showed that about 55 percent of staff effort was devoted to direct clinical service. That leaves a large chunk of things that are unaccounted for. Some of that is community service programs; some of it is training; much of it is "other." In private institutions, which rely so heavily on billings, one might expect that staff effort devoted to direct clinical services is closer to 90 percent. If possible, we must also determine which organizational units or treatment modes are found to be the most effective. This is one of our greater challenges.

Fifth, with respect to budgets, statistics are essential to the new planned program systems budgeting which allocates portions of budgets to subprograms and relates these to measures of performance. Such were not needed for the old fashioned and inflexible line-item budgets. Furthermore, there is a trend towards delegation of expenditure responsibilities to the directors of the subprogram elements. Responsibility budgeting calls for better management data.

An extremely important purpose of these information systems is the facilitation of garnering funds. Sources of revenue for mental health programs are often multiple and often categorical. If we are to maximize our income opportunities, it is essential that we make a very careful fiscal analysis of any program. Some monies are subvented in block grants with a matching ratio between Federal, State, or local government. Many grants are categorical. For example, funds for alcoholism programs or drug programs or Head Start; other examples are stipends and teaching costs for psychiatric training. These are in grave jeopardy at the moment. Another important source of revenue, which is not fully tapped is third party fee reimbursement such as Medicare or Title IV social service funding, or private insurance.

Recently, when we were trying to look at the amount of Title IV money we could get for our program, it became apparent that we had to tabulate the actual amount of direct non-medical services. Much to our surprise, our data information system, though, had the capability of accomplishing the task.

Funding contracts are characteristic of some mental health programs. For example, in San Francisco, in the West Metropolitan Consortium, funds are passed from the State to the health department and then to the Consortium. Then the amounts of money are allocated and distributed to the various hospitals and various care centers, based on amounts of service rendered.

It is becoming increasingly difficult to draw the cost of training out of the per diem charge for a bed, and the rates for third party payers must exclude them. The cost of indirect services such as community consultation and education cannot derive from patient fees and funding, for it may need to be based on a contract which carefully defines the hours of service rendered. Cross charges between different departments within government must be carefully related to costs at the clinical level in mental health programs, the schools, courts, welfare, mental health and health may all be making substantial contributions or absorbing expenditures. If they are to work together and cooperatively, it is essential that none of the budgets is being disproportionately burdened. All of the above, third party fee reimbursements, contracts, cross charges, categorical grants, etc., will require careful cost finding. This would be impossible to develop if we didn't have accurate management information systems.

Last but not least is the matter of program evaluation, not only of the efficiency, but also of the effectiveness of the program as well. There is probably no need for me to persuade this group of the enormous importance of this in order to avoid expenditure of manpower and money on traditional methods which have not been proved of value. We must determine which methodologies are effective. I am not concerned exclusively with cost effectiveness, though this is an administrative concern of great importance. As a clinician, though, it is of even greater importance to determine what is effective in resolving the patient's problem. Regardless of cost, it is most inappropriate clinically to have a patient subject to an ineffective treatment.

The time has come when professionals must no longer be allowed simply to "do their own thing." We are not running a sheltered workshop for mental health professionals at public expense. This is unfair to the patients and it is an unconscionable expenditure of large amounts of public funds. Psychiatrists and other mental health professionals all too long have used as a standard the amount of input—another hour, another hour, another hour, another visit, a few more days in the hospital.

I would like now to summarize very briefly, the rather complex data collection system that is either in present use or being developed in our Hennepin County program. We won't have time to discuss any of these in detail.

First of all, the county is developing a *planned program budget system*. Last year it resulted in a beautiful document which got away from the old line-item budget but confused everybody—the commissioners and the staff and everybody else. That's the first go-round. I'm sure it will improve. One of my objections was that the program terminology used at the higher level of the County was not congruent with that which we were using within our organization, but that too can be improved. This summer we participated in a *cost finding* and rate setting study, and gave a dry run, so to speak, to the methodology that was developed by Dr. Sorenson and Dr. Phipps of the University of Colorado, which is described in a recent publication "Cost-Finding and Rate-Setting in Community Mental Health Centers."

Another essential ingredient in our system is the regular *staff allocation*. Staff are our major resource, and their time must be allocated to the various organizational units and to the various clinical and program activities. This, of course, is our input. These are made in order to make adjustments in the position schedule with the comings and goings of individual professionals and their reassignment to different program areas. We make a frequent determination of staff activity accomplished in two fashions. One is by the usual self-reporting of staff effort, describing percentages of effort to various pursuits and to this is added a *random moment study* which it is hoped will more accurately and easily give us a continuing assessment of the efforts of individual staff members to various clinical, training, and community activities.

Next we use *goal attainment scaling* methods. Some of you may have heard about this in the context of our program evaluation project directed by Dr. Thomas Kiresuk. This is utilized in two major ways. One use is the setting of management objectives for the overall program, and for each organizational unit of program contract as well. The outcome measures are declared in advance in order that we can make a judgment as to whether or not they are attained. Similarly, with respect to patients, not all but a large portion of the patients who come in, have set down, at the time of entry, a series of goals or objectives that are individualized for them—their own special personal goals. Some of those patients are randomly assigned to different treatment modalities and subsequently followed up to find out whether or not those outcomes, described in measurable terms, have actually been achieved. This will enable us to compare one treatment modality against another, and even compare the effectiveness of individual therapist.

Essential to this whole system, is a computerized *visit record system* which has been designed by our biostatistician, Dr. Robert Sherman. Basically it records the patient and several of his characteristics. Many correlations can be made for administrative or clinical purposes. This visit record system enables us to routinely tabulate all the patient visits, and the type of service rendered, and it permits us to identify the staff who provided it.

Lastly, we are utilizing the problem-oriented record system. The medical records are departing from the old traditional narrative the doctors have used so long. Now there is a cataloging of all the problems that the patient presents, a listing which is kept current. Problem resolution is our goal with patients. The terminology utilized for most all of the above is that developed by the Southern Regional Educational Board. This is an effort to provide an internally consistent language within this program which, if adopted by other program elements of the County, will enable us to make comparisons between and among the program elements.

Each of the parts of this data system was designed more or less separately for its own specific purposes, but they do complement each other and they should become increasingly synergistic. We are currently working to assure that the elements interlock compatibly.

I would like to quote from Dr. Sorenson's book on cross-finding:

> "Deficiencies in one or more elements of the management information system do not have isolated effects. An unclear organizational structure, coupled with an inadequate statistical subsystem and a weak accounting subsystem, will seriously impair the cost finding operation."

Let me now attempt to demonstrate how some of these pieces fit together. First of all, from the admission sheets, characteristics about patients are obtained along sixteen dimensions, including age, sex, race, marital status, pay status, diagnosis, census tract, and others. These are put in a computer file. This provides the capability of making at least a couple hundred or so cross-tabulations with respect to such things as race and census tract, census tract and pay status, family structure and age, diagnosis by age, diagnosis by sex, source of referral or race, and many other correlations. Dr. Sherman has also developed a map, a computer program map, which enables us to locate these with respect to parts of our catchment area.

Aside from the patient characteristic, we also file information related to the patient visits. From this we can discover which types of patients tend to receive certain treatment modalities or amounts of various services, i.e., whether they receive inpatient care, crisis visits, medication maintenance, group therapy or individual therapy. This information is recorded on a transaction slip. Every clinical event is tabulated. It is stamped with the patient's name and number and it records which professional performed the service and which type of service was rendered, such as intake, group therapy visit, a day on the inpatient unit, prescription for medication, etc. In this fashion we tabulate all the direct services rendered within the entire program by type, by frequency, and by total amount; who gives it and who receives it. A copy of this is also sent to the billing office for posting and billing. This tabulation of services rendered is essential to a method of determining the costs and rates for charges because they are the output which divides into the total cost of staff input.

These data are also important to the program evaluation project which determines efficacy because after the follow-up which determines whether the patient's goals were obtained, it is of interest to know what types of clinical services were involved in bringing about that result. The transaction slip serves another very important purpose, aside from the record of services rendered. It enables us to tabulate the staff activity by individuals and by organizational units. From a management standpoint, this is of great interest. With 103 employees of whom 59 are professional, and with about 30 trainees as well, we have a measure of how the staff spend their time.

Each person in staff has a service code. All his services, clinical or in the community are recorded. This enables us to determine the amount of output produced by the organizational units, which is of interest to the unit managers. It also records the amount of output of an individual staff member or the portion of his activities devoted to one type of service or another. This latter becomes a complicated management issue in a large mental health center because not all staff members stay in one unit. For example, the nurses work 100 percent time on the inpatient ward while others, such as a psychiatrist or psychologist, may give portions of their time to community consultation, to the inpatient service, to crisis intervention, to training effort, or to administration and planning. The transaction tabulations enable us to tabulate the direct service activities.

There are two other methods for ascertaining the staff effort. One is the traditional subjective reporting which is done on a periodic basis. Staff are asked to determine the amount of staff time allocated to the various organizational units, and by their breakdown we ask them to describe the portion of time devoted to such things as direct service, training, consultation, administration and planning, etc.

As a further check on this, we have devised a random moment method. The purpose of this random moment is not to spy on the staff, but rather to provide an easy and continuous method of keeping track in a manner which consumes little staff time. Other mental health centers ask staff to tabulate the amount of time they have devoted to this effort or that on a daily basis. Even to do this on a periodic spot check is rather laborious and staff resist it. From the random moment method the computer designates random times when a clerk can inquire of an individual what he is actually doing at that time. There is a list of about 100 possible types of activities which includes such things as psychotherapy interview, telephone calls, record keeping, group therapy, conferences, and, of course, a great many people are out to lunch—in both senses. Needless to say, for this to develop any accuracy a large number of bits of information are required, especially for these types of activities which are less frequently occuring. It should be pointed out that 70 of these "activity codes" are identical with the "direct service codes", so that this provides a check of one against the other. This careful determination of the allocation of staff by professional disciplines to organizational units is required for budgeting for cost finding and for proper management.

By carrying it a step further, in ascertaining the time spent in various activities, we can get a measure of how much effort is devoted to community consultation or training for the purpose of making cross charges or grants and agreements with another county department or with the university for teaching costs. By ascertaining carefully the allocation of staff time to direct clinical service activities which is, of course, our major output, we can have a method of determining the cost of professional input to the actual service rendered and thereby give to third party payers and patients a rate or charge which truly reflects the actual costs.

With respect to training, which has been supported by some imaginative quid pro quo for several years and which is now under threat of being eliminated, a careful determination of hidden costs and gains of training programs—in order to determine their actual worth and in order to seek funds—will be a most important task.

The careful determination of staff input by various activities should be related to measures of output and efficacy. We use the method of goal-attainment-scaling.

Permit me then, as a psychiatrist and therefore a dreamer, to tell you one of my grandiose fantasies. If we can determine the amount and cost of staff input, and if we can allocate this accurately to the various subprogram elements and clinical modalities, and if we can, through goal attainment methods, determine the degree of efficacy of our diverse intervention techniques, we should be able to relate the cost of the input to measures of not only the quantity of output but the effectiveness of the output, and thereby achieve the long sought cost benefit model. In psychiatry, of all places. (This, of course, will not be a measure of our impact on the community, nor of our value to it, but it will enable us to determine the costs and types of input required to achieve stated objectives for individuals in the aggregate, and by aggregating to the program elements and the total program as well.)

I would like to say that none of the above would have been possible if we had not had on our staff a very competent biostatistician who knows statistics and systems. I feel there is great value in having such a person immediately within the direct service delivery facility.

The kinds of operational information that I have attempted to describe will become of increasing importance, not only from a descriptive and management standpoint, but will become a standard requirement for providing accountability for our highly expensive public programs and in determining their effectiveness. Without such information, we cannot expect funders and administrators to support the mental health care system which is so clearly in need of expansion. Thank you.

DR. KRAMER: Thank you, Dr. Jepson, for your stimulating presentation and demonstration of what psychiatry has been able to accomplish at the local level. Hopefully, such programs will have much to contribute to the Federal-State-local activities that will be going on in various States of our Nation.

The next presentation will be made by a person who is very well known in the public health statistics field, the Public Health Conference on Records and Statistics, and to the mental health field. This is Bob Patton, who is now the Deputy Commissioner for Local Services in the New York State Department of Mental Hygiene.

Bob received his A.B. in mathematics at the New York State College for Teachers at Albany, then went on to an M.A. at the University of Michigan in mathematical statistics, and to his M.P.H. at the University of Michigan School of Public Health.

He served as an assistant professor in naval science and tactics at the University of North Carolina and as an instructor of mathematics at Tufts. He was a sampling assistant in the Survey Research Center at Ann Arbor. He was a biostatistician in the New York State Department of Health. Bob was an Assistant Director of Statistical Services for the New York State Department of Mental Hygiene.

I think Bob is one of the first people to leave general public health statistics for a position in the mental health statistics at an early date.

He was Director of Statistical Services of the New York State Department of Mental Hygiene, and then became an Associate Commissioner for Program Planning and Coordination, and then subsequently a Deputy Commissioner of the Division of Local Services for the State Department of Mental Hygiene.

He is an Associate Editor of the *Psychiatric Quarterly* and has been a visiting professor in health statistics at the Yale School of Public Health. He has written widely on problems in the health field, on sampling theory, and on various changes that have been taking place in the mental health system of the State of New York.

Bob has the great advantage of having come from the mathematics-biostatistics area of public health and mental health. He is in an unusual position to understand the problems of generating appropriate data, and in utilizing these data in the work of the New York State Department of Mental Hygiene.

Bob.

THE ROLE OF STATISTICS IN THE ADMINISTRATION OF MENTAL HEALTH PROGRAMS

Mr. Robert E. Patton, *Second Deputy Commissioner for Local Services, New York State Department of Mental Hygiene*

We often hear that health or mental health programs are set up and operated on an emotional basis; that they are not administered in a businesslike way; that health or mental health administrators never had to meet a payroll. The accusation (expressed in many ways) is that we are not businesslike or not utilizing modern management techniques in the development and operation of our programs. Statistical methods are a foundation of these modern management techniques. In the health field we often are not able to provide the needed data and sometimes we claim that if we only had the data available we could apply new management techniques and modernize the health industry.

There is a common cliche that the health industry is the largest or second largest industry in the country. This statement is justified on the basis that a larger percent of the Gross National Product of this country is spent for health purposes than for any other, say, automobiles or telephones. Therefore the health industry is bigger than General Motors or American Telephone & Telegraph. The dollars are correct, but is this a useful statement or a misleading one? I think we have to look at what we mean by the concept of an industry and also by what we make of the concept. The usual use made of the concept is that if health is a big industry it needs all of the management capabilities and techniques that we associate with a major modern corporation.

Let us look at what an industry is. The dictionary defines an industry as "the aggregate of manufacturing or technically productive enterprises in a particular field, often named after its principal product." Let me focus on aggregate. The automobile industry besides including General Motors, Ford, and American Motors includes some thousands of other manufacturers and service organizations. It includes the little independent service station near my home where I get my gas. To get statistics about the automobile industry, we have to aggregate data from all elements of the industry. If we want to know a simple datum such as how many automobiles were built last month, we need only ask a handful of manufacturers. If, on the other hand, we want to know the average age of all employees in the automobile industry, we would have a major statistical job on our hands because this would include the people pumping gas in thousands of independent service stations.

The health industry is even more fragmented than the automobile industry. There aren't a handful of major firms; there are a multiplicity of providers of health services scattered all over the land. There are very few facts about the health industry that are easy to come by.

We can consider health as an industry, but if we do, in a management or data sense, we have to be careful of our use of the analogy and not impute data or management capabilities to the automobile industry when we are really talking about the data or management capabilities of a single firm in the industry.

This has been a long and what may look like a devious introduction to my topic, "The Role of Statistics in the Administration of Mental Health Programs". I do want to use some analogies with corporate use of statistics, but I do want to try and make them clearly, and also to make an effort to separately consider some of the problems involving statistics needed for program operation from problems involving statistics needed for other purposes, principally research and development.

Mental health programs cover a wide range of services. They include preventive programs, treatment programs, and rehabilitation programs. They include programs for children, for adolescents, for adults, and for older citizens. They include programs for the mentally ill, the mentally retarded, the developmentally disabled, the alcoholic and the drug addict or drug abuser. It is very difficult to identify the common elements in them. The range I believe is as wide as the range of all other health programs. Government has many roles in mental health programs. It is involved as a planner, as a monitor, as an encourager and developer, as a financial contributor and as an operator. The main difference between the mental health field and the health field in general is that government plays a much larger role as an operator of mental health programs than it does in the health field in general. In New York State, for example, the Department of Mental Hygiene has a direct operational budget of $612 million for the delivery of services rendered by 52,000 State employees. This includes a large inpatient institutional program plus an increasing noninpatient program of services in the community. In addition the Department provides State financial assistance to a $180 million program carried out by local government and by contract with voluntary agencies. Thus in New York State we have a total governmental program of nearly $800 million a year.

Let me talk first about statistical needs in relation to thi*r* kind of an operating program. Our relation to this program is quite different than the relationship between a public health department and the health providers in a community. The health department has the same responsibility to maintain the general health of a community that a mental health department has to maintain the mental health of a community, but it rarely employs a majority of the health providers in the community. The mental health agency needs the same kind of monitoring data a public health agency needs but in addition has to have operational data on the services it is providing as well.

These are really two quite distinct kinds of data; i.e. that needed for monitoring purposes and that needed for operational purposes. What often gets confusing is that to measure the effectiveness of an operating program we need monitoring data (incidence and prevalence of a condition) since the usual objective of a service program is to effect a change in the incidence or prevalence of a condition in the population. A mental health program needs a way of getting basic measures of incidence and prevalence of the conditions with which it is concerned within the population it has responsibility for. Saying that a mental health program needs these data doesn't mean that it has them. In fact I know of only a very few programs that can obtain such data. A suicide prevention center can get data on the incidence of suicides in its areas from the vital statistics system. In general most mental conditions are very difficult to measure in the general population. There is a session scheduled this afternoon which I am sure will highlight some of these measurement problems. The usual solution to this measurement problem is to take something we can measure and use that. For example, if we can't count the number of schizophrenics in a population by a survey or census, why, we can count the number of schizophrenics entering an institution or a clinic and say that that count is just as useful. If nobody comes up with a better idea, then it's used. Problems of measurement and definition are of major importance in considering how statistics are used in mental health programs. They have greatly restricted our ability to look at outcome and to measure effectiveness.

Operational statistics have thus taken on a greater role. We can count what we are doing and how we are doing it. Operational statistics needed and used in mental health programs would include many things. Let me try to categorize them briefly:

(1) Numbers and kinds of facilities
(2) Numbers and kinds of personnel
(3) Numbers and kinds of clients
(4) Numbers and kinds of services for clients
(5) Amounts of money expended and collected

By interrelating these five kinds of data and by assigning them to the population served, it is possible to measure the efficiency of a given program. If a sixth element, that of a follow-up or outcome nature, can be added then a good stab at measuring effectiveness can be made.

Let me try to take an example from each of these categories and briefly comment on how it has been or can be used and perhaps indicate problem areas.

First, numbers and kinds of facilities. The Federal Government has a program which provides part of the funds needed to construct Community Mental Health Centers. These were to be, at the time the program started, a new kind of facility which did not exist then but was to be an amalgam of services presently existing in other facilities or newly developed. The National Institute of Mental Health has measured the growth of this program in terms of the numbers of such facilities constructed and operated compared to the numbers originally projected. This is a fine measure in a limited way in measuring the success of one segment of the industry achieving its goal, but since community mental health centers that meet the Federal standards are only a small proportion of the mental health industry, we must be careful not to base industry-wide conclusions on data from this fraction.

Personnel data in the mental health field, as in the health field, are particularly crucial. Very little in the way of health services can be rendered without the bringing together of a provider and a consumer of services. A major limitation on the development of programs is the availability of trained personnel to deliver the services. A crucial question that needs answering is, "How many of what kind of personnel are needed to operate a given program?" Obviously the answer will have to partially depend on the size of the population the program is serving. For example, a clinic serving a population of 100,000 would need a larger staff than a clinic serving 50,000. Other factors may be just as important, however. If there are several psychiatrists in private practice in the 100,000 population area and none in the 50,000 area, then you might not need a larger clinic staff in the 100,000 population area than in the 50,000. The availability of other resources in the mental health field and in related social and health fields always have an effect on needs.

The third category of data in a mental health program is that about clients. This is the kind we usually think of first. We think of patients admitted, patients on the books, patients in residence when we think of mental health statistics. There is a long history of collecting data about mental patients coming to treatment facilities. Annual reports of the mental hospitals or insane asylums of the middle of the 19th century had extensive tables on the characteristics of the patients admitted. These included tabulations by sex, age, marital condition, precipitating condition, personality type, and many others. In reading these reports and much of the literature throughout the next century it is apparent that these were not collected or used for operational purposes but attempts were made to use them for research purposes into such things as the causes of mental illness. For many years "admitted to mental hospital" was deemed equivalent to and a substitute for "became mentally ill."

Data about patients in all kinds of facilities are needed and can be used for aiding in making administrative decisions. A ready example is the planning and building of facilities. Trends in the use of present facilities are one obvious base for projecting needs into the future.

Data about numbers and kinds of services are even more crucial for making administrative or operational decisions. It is more important in an operational sense to know how much time a staff member spends with a client than how old the client is. Unfortunately most statistical systems spend more time and effort on collecting demographic data about patients than they do on collecting service data. This is I believe an example of bad judgment in allocating statistical resources. It is difficult to get staff to report what they do; it is difficult to develop a system that maintains a balance between too much and too little detail. I think we all tend to retreat from these kinds of problems to the process of collecting the data that are easiest to collect rather than what are most needed. When I say "most needed" I am talking within the framework of a program administrator, not a research scientist. I am talking about the needs of an administrator who has to make decisions about resource allocations and be able to defend budgets to legislative bodies. I am happy to say that in New York State, Abbott Weinstein and the Office of Statistical and Clinical Information Systems have been able to make significant improvements in the last few years in collecting this kind of data and making it available to administrators.

The fifth category of data is financial. I think it is a fair criticism that both health and mental health statisticians as a group have been chary of collecting expenditure or fee data. However, the core problem for any administrator is to get the most mileage out of his funds. We need to find ways of relating all of the other kinds of data to the dollars. In the mental health field the use of statistical data on facilities, personnel, clients, and services have been extensively used in many State budget presentations for the operation of State facilities. Statisticians do have to learn to think and talk in fiscal terms in order to relate to the financial administration.

These kinds of data I have been talking about are essentially service data or activity data. We continue to face the problems of getting these kinds of data in a standardized way covering all providers of service. But even if we solved all the problems inherent in that proposal and were able to describe all of the activities of all the service providers in a meaningful way, we would still not be able to measure effectiveness.

To measure effectiveness, to evaluate the program, we need to know something about outcome. As the result of the activity, what happened to the individual, what happened to the population? Did rehabilitation occur, did the client go back to work, did the youngster get into a regular school classroom and make progress, has the incidence of depression been reduced?

These kinds of data cannot come as a by-product of an operating program. We can't add a question to a claim form and get what we need. It is easy to say that every operating agency should follow its clients and it is true that they should. But collecting outcome or follow-up data, I believe, is going to have to be carried out independently of the kind of a data system that is based largely on utilizing operating reports. It is relatively cheap to get statistical data if it can be a by-product as it can be in the Medicare statistical system but it is very expensive when we have to set up a separate statistical system such as the Health Interview Survey. Follow-up or outcome data need this kind of separate system. In the mental health field, as in the health field, we are going to have to balance carefully the resources made available to us so that we recognize the differing kinds of needs and strike the right balance between them. In this way we as statisticians will provide the data that will be most useful to administrators.

In conclusion let me say that one definition of an administrator is that he is someone who makes decisions without having all the needed data. A good administrator tries to insure that he has a statistical system that will provide him with as much of the needed data as possible. I was pleased to hear Dr. Wilson on Monday morning address himself to this issue. I believe I heard him speak as one who was dedicated to seeing that real and significant improvements in the health and mental health statistics system occur in this country. If we as statisticians can get this kind of support from administrators, I think we can do the job.

DR. KRAMER: Thanks very much, Bob, for that very lucid and meaningful presentation on the way in which you have been utilizing data in New York State and the problems you envisage in getting improvements in these areas.

Our next participant is Dr. Harry Cain, who will talk to us on Non-Statistical Notes on the Use of Statistics in Planning National Programs.

Dr. Cain is the Director of the Office of Program Planning and Evaluation of NIMH and also the Assistant Director of our Institute for Planning and Evaluation. Dr. Cain has had quite a long history in the Institute of Mental Health, preceded by his education at Stanford in political science, where he took an A.B. He received his M.A. at the University of Washington in political theory and American government, and then later a Ph.D. at Brandeis University in social policy planning research and related issues.

Dr. Cain first came to the National Institutes of Health in 1962 as a management intern. With progressive promotions and appointments because of his unique attributes in the areas in which he was working and his unique abilities to apply his knowledge of political science to health problems, he became a Special Assistant to the Chief of the Community Mental Health Facilities Branch. Then he became Assistant Chief, and following that, Chief of the Center for Studies of Metropolitan Problems.

He went on to Brandeis to get additional training. Upon his return, he became the Director of the Office of Program Planning and Evaluation of the Institute of Mental Health.

Dr. Cain has done some interesting research for his doctoral dissertation. I would like some day to get a good look at some of the things he must have discovered during his studies of the operation of Presidential Task Forces, especially the confidential variety which operated during the Johnson administration.

He is very much attuned to the kinds of problems going on at high levels in government.

The Biometry Branch of NIMH is part of the office of program planning and evaluation of which Dr. Cain is chief. I wish to say for myself and our staff that it has been a great pleasure working with Harry because he has been so supportive of our work, so understanding of the things we are trying to do. He works with us in many ways to improve communication between the planners, the statisticians, and the other members of NIMH.

We talk about coordination of activities in the Federal-State-local areas. There is also considerable coordination to accomplish in a single institute like NIMH, which is quite unique in the whole HSMHA operation. NIMH program includes intramural and extramural research, training, and services.

The extramural grants program includes grants for research and training. The Division of Mental Health Services administers the community mental health centers program. The NIMH also includes the National Institute on Alcohol Abuse and Alcoholism and a Division of Narcotic Addiction and Drug Abuse, which will, I believe, on December 31, 1972, become another national institute.

You can see the vast scope of Dr. Cain's activities. He must deal also with staff at the HSMHA level and at the HEW level.

Harry, it is a pleasure to have you here.

NON-STATISTICAL NOTES ON THE USE OF STATISTICS IN PLANNING NATIONAL PROGRAMS

Dr. Harry P. Cain, II, *Assistant Director for Planning and Evaluation, National Institute of Mental Health*

I enjoyed and applaud the remarks of the other two speakers. Please presume that I support what they had to say, though I do not intend to focus in the same area.

In the following set of comments, I will try to establish two points. First, that the opportunity for statistics in the health and mental health fields to actually influence national policy and program decisions is increasing at a rapid rate and I will try to tell you why that's the case. And second, to a substantial degree, whether or not we take advantage of that opportunity will depend upon how successfully and flexibly the statisticians among us can shape their products to fit the audience of policy and program decision makers.

Before I continue, I would like to say how glad I am that Dr. Kramer is chairing this session. Yesterday he saw an advance copy of these comments and we had a chance to talk about them before this session started. It turns out, not surprisingly, that while he and I share very similar views, we do come at them from very separate paths and are conscious of very different audiences. I'm sure the discussion period will find Dr. Kramer providing another perspective on the things I have to say, particularly in the second half.

I will start with the assertion that the opportunity for statistics to become more influential is here. Parenthetically, I make that assertion primarily from my own experience at the NIMH and my knowledge of other parts of the Department of Health, Education, and Welfare. While offices and functions of program planning and evaluation have been around in Federal agencies for a long time, their actual influence on the program and policy decision process has been slight, at best. Most major decision factors have been handled by and within the purview of some combination of the financial management or budget offices and whoever has been responsible for political relations especially Congressional and other constituency relations. That decision making process has and, of course, continues to be quite complex and I will not now try to do more than assert that it has, in fact, revolved around those organizational functions of building political power and handling the funds.

In any event, it has certainly not revolved around the functions of planning and evaluation, which I will define for the moment as the process of making as *rational* as possible the *choosing* between alternative courses of action, based on making explicit the consequences of each of the various potential ways of allocating our resources. That may be what planning and evaluation involves. It has not historically been terribly germane to the process of making real decisions.

However, in the last couple of years, and especially in the process of preparing for the 1973 and '74 appropriation requests, the program planning and evaluation contribution to and responsibility for executive decisions has increased dramatically. Where in the past, as long as I have been here, the planning and budget offices have existed quite independent of each other, with budgets being in practice far more influential, they are now coming together.

One of the consequences of that shift, I might add, is that as planning offices come to understand that what they say may actually affect a decision in the appropriations process, they begin to speak more carefully. These can be very anxious times for planners. I will not try to hazard a guess as to why this shift is taking place, though I have some speculations about it. Suffice it to assert that it is happening.

Now to the function of statistics. I would argue, to exaggerate the case somewhat, that while statistics are employed in each of the three functional areas I referred to above, namely, the political, the budgetary, and planning and evaluation, they are employed in the first two areas only to support decisions already made to justify courses of action which have been chosen on the grounds of other kinds of input.

In program planning and evaluation, on the other hand, while we do not construct our proposals exclusively through the use of statistical information, we do *tend* to examine the statistics before coming to our conclusions.

Some of you may not think that's true, and I occasionally question it myself. Yet on the whole, it is the case that such offices as ours are increasingly hunting for what the statistical data have to offer the more rational processes of problem solving.

You can see, then, my point. The need for and potential use of statistics in national program planning in actual decisions is increasing because the offices in which the statistics play the most significant role are increasing their influence on the decision process.

That's not to say that in the absence of good statistics the Federal agencies will not make decisions. It's not even to say that if we have statistics, decisions will be made which the statisticians would support. It is to say that all available statistics will be considered more thoroughly and thoughtfully than they typically have in the past.

But let me temper that assertion even further. Statistics will not be considered, especially at the higher levels of authority inside of this Department—I would guess this holds true for any gigantic organization—unless they are presented in a timely, clear, concise and very pointed fashion. And to do that, we might have to sacrifice such attributes as precision, caution, and comprehensiveness.

Non-statistical staff in an office such as ours can and do go pretty far in reviewing and analyzing available statistics in all their cautious detail, but even these staffs have severe constraints of time and interest and above the PP&E staff level the constraints get much more severe.

Maybe I can get this point across best by telling of an exercise that we have undertaken in our own office. As I know all of you know, Dr. Kramer and his staff have been in the business of collecting, analyzing, and disseminating statistical information in the mental health field for a very long time, and their productivity is extremely high.

Many of you, for example, periodically receive some of the products out of Carl Taube's office called "Statistical Notes." Those notes provide data on what is happening, as far as we know it, in almost every kind of mental health facility in the country. The volume of these products is substantial, to understate it, and the information they contain is also of obvious, very real value to many professionals and scholars in the field. And I must emphasize, essentially on scientific grounds, the importance of those statistics in their most careful and extended detail. But I became persuaded at some point that the impact of those statistical products on decisions made by the head of NIMH, the head of HSMHA, the Secretary of our Department, was so subtle and indirect as to be almost imperceptible.

For that reason, under the general heading of program evaluation, we have started an attempt to put together a set of simple indicators which say something about the performance of the NIMH programs, particularly the service oriented community mental health centers program.

We are shooting for eight or nine or 10 indicators of what's happening in those programs. We want indicators which can be clearly presented on a single page and which start off with a single sentence statement of the objective of the program, and then a presentation of those comparatively few statistics which bear most directly on the performance of the program in terms of that objective.

We have several of these now in draft form. We have already distributed one of them fairly extensively, and I would like to tell you about that one.

This particular indicator, presented on a single page, states as a program objective of the community mental health centers program, "To decrease the inappropriate utilization of state mental hospitals."

I might add that there is not extensive consensus on the statement of that program objective, but we had to say it somehow and that's how we said it.

Under that objective is a table which presents just a few summary figures on the rates per 1,000 people for admission to, and residence in, State hospitals. It presents the rates for populations in catchment areas having in them operating community mental health centers, compared to rates for the country as a whole, and then it adds a nice piece of sophistication. It distinguishes between catchment areas according to how long their centers have been in operation.

The impact of these few statistics has been fairly strong, for it addresses an issue which is very prominent in the field and it indicates that what we have said would happen actually tends to happen—that the longer a community mental health center has been in operation, the fewer people from its catchment area end up in State hospitals.

Though that has been predicted, it is still somewhat surprising and quite pleasing to see some "hard" evidence that it happens. Certainly that is harder evidence than the still floating implication that community mental health programs are somehow responsible for some part of the declining population in State hospitals. I presented this statistical indicator and discussed it before the National Advisory Mental Health Council. That audience, I anticipated, would be quite sophisticated as to what the figures did and didn't say. Therefore, I asked Carl Taube to be sure I was quite prepared to handle any part of the discussion that might come up. I think he and I put together something like 10 pages of additional statistical information that I would have to have at hand if anybody started to question what the figures in that indicator stood for. In other words, that's how much information Carl had condensed in that one page.

The point of this story is that that particular, simple chart-like indicator, which on very careful examination has in it many, many ambiguities, has been *seen* and *studied* by many policymakers in this Department, up to and including the Secretary. These people have expressed to us their reaction to those figures and these are people, remember, who probably have never before really seen much, if any, of the high quality products from Dr. Kramer's operation.

Whether there is in that story a suggestion for any of you, I don't know, but presuming the State governments are not too unlike the Federal, I assume there is.

In closing, I would add two other comments. The first, close to the theme of this Conference, is that I hope that those of you who are in the mental health field are on good cooperative terms with those of you in the health fields and vice versa. Increasingly our interest in terms of policy and program decisions will be in statistical information which describes what happens when the same populations are receiving some combination of health and mental health services.

I could extend that to the social services area, but that's a subject for another paper.

The second and concluding comment is that although you will find HSMHA trying very hard to increase the resources available to you, you shouldn't count on our being totally successful in that. In fact, according to the most recent analyses of the financial prospects for all of us in the next few years, we are on the edge of some tight times. As a consequence, you may have to try to become active in all those areas that you are being asked at this Conference to become active in, with no more resources available. If that does happen, all I can say is don't feel that you are alone in such a challenging situation.

Thank you.

DR. KRAMER: Thanks very much, Harry, for your very stimulating and provocative presentation.

One of the things that we hope to accomplish in this meeting is to stimulate questions from the audience. Would anyone on the panel like to pose a question to someone else to start the ball rolling? Yes, Ted.

MR. WOOLSEY: I was especially interested in what Harry Cain had to say, although I was interested in all the papers I thought they had some excellent points. But I have one challenge I want to put to Harry Cain.

I agree completely that if the statisticians are to have their output really carry some weight with the policy makers, we do have to be pointed and concise, and I can see the need for boiling everything down to a one page statement and all that kind of thing.

I don't entirely agree about the minimal influence that the more voluminous data have. I think it sinks in a lot more than you realize over a long period of time. I have come to the conclusion that even these busy people that you speak of do absorb this information in one way or another. It influences their thinking, and I don't think you should read that off quite so quickly.

I do take some issue with you on the question of precision. You felt that perhaps for these kinds of purposes, you need to sacrifice something in the way of precision. I would ask you whether you don't really have to study that question in a scientific manner, about what kind of precision or lack of precision you can tolerate. The costs of making what is called a type two error, of stating something to be true when it's not true, could be very, very serious. I would argue that before you just casually throw out the suggestion that the data can be less precise, you ought to actually study the question of needed precision as a scientific process and not encourage people towards less precision.

DR. KRAMER: I just want to say one thing, Harry. I haven't been speaking with Ted since yesterday afternoon.

DR. CAIN: That sounded familiar. I exaggerated some of course. To comment on your two points, I think I said that the process by which the higher level policy makers are influenced by the more voluminous data is very subtle. I didn't say it doesn't happen. I just don't see it very often. Second, on the item of precision, of course we don't want to have some figures say something that is not so. Yet I am saying if it is approximately so, that's more helpful if you have it at the time that the decision has to be made than if you have it later in more extensive precision than that.

MR. WOOLSEY: You are simply saying that there is a trade-off between timeliness and precision. I would agree with that, but I think you just have to be a little careful about how you say that in front of a group of statisticians. (Laughter)

DR. KRAMER: Bob, would like to comment on that?

MR. PATTON: I would like to address myself to that, too. I think you are quite correct, Ted, it is a question of trade-off. I don't think it is solely a question of trade-off in timeliness. I think it is a trade-off in terms of use of total resources. I mean precision costs money. It is in terms of it costs money, it costs staff, it costs time. I think there has to be a balance between the amount of precision that is needed for one purpose and the amount of precision that is needed for other purposes.

I think the difference in the kind of precision that's needed is something that has to be faced. In an administrative and operational sense, I think you can tolerate greater imprecision than you can in, say, a scientific situation.

DR. KRAMER: Dr. Neyman.

DR. NEYMAN: Jerzy Neyman, Professor, Department of Statistics, University of California, Berkeley, California. I would like to ask a question, something about the nature of the statistical output in the field of mental health which would correspond roughly to the nature of information on the number of motor cars serving the Nation. That's output—the number of motor cars on the road. This is the service or the output of the motor car industry.

As far as I can see, something corresponding to that in the field of public health would be the number of mental health patients who are cured, let us say who are released from hospitals with the view that they could take care of themselves and live by themselves.

I have been in contact a little bit with a situation like this that developed in California and I think the corresponding study was called the Stockton study.

DR. KRAMER: The Total Push Study at Stockton.

DR. NEYMAN: Yes, something like that. It was some years ago.

Are there any such studies in progress, and are there any results of the studies involved in the output of mental health statistics? I think there should be.

We were asked in the laboratory to have a glance at it, to work at it.

We worked on the data, I don't know, maybe a year. I must say that it was a terrible thing—the difference which you found between doctors who examined those patients, some of them treated, some of them not treated, the assertion being that the cost of public health problems in California was on the increase.

Why? Well, someone offered the answer—because the people are taken into hospitals, kept there, locked up, but they were not treated. The suggestion was that if we start treating them, then some of them will leave the hospital and go into ordinary life.

So this study was a terrible study. I wonder if something better is going on and is not being published.

DR. KRAMER: Would anybody like to answer that?

Yes, Dr. Jepson.

DR. JEPSON: That, of course, is extremely elusive, if you can't define what mental illness is or what mental health is. I don't believe there are any general or abstract criteria for cure or what constitutes illness or health. I think all too often we have used other people as a reference point. Kiresuk says a person is mentally ill if he is a bother or a burden to others. I think the reference point, or the important reference point, is the patient himself.

I speak to the physical. Somebody goes to the doctor and wants plastic surgery. He says, "I want my nose fixed," and then he makes an agreement with the doctor. What constitutes a good result on that individual dimension? Or he has some pain. What constitutes a good result on that individual dimension?

In our goal attainment method, each individual patient has his own personal objectives that he would like to see met, and then the scores in meeting those objectives are aggregated. Maybe I am wrong, but I see that the objective of our program for those clients that are ours is to give them the outcome that they as individuals desire, individuals taken in the aggregate.

I don't know if that is at all helpful.

DR. KRAMER: I would like to take a try at the question that Professor Neyman raised.

I think you may have used the wrong analogy because the analogy you are looking at, at this point, may be the automobile repair industry, which is another issue. You can produce automobiles, but when automobiles break down, there are reasonably well established techniques for repairing them.

One of the basic problems, that Bob was referring to was something like this. There are possible genetic, environmental, and a variety of other factors which interact in some way to produce people that are mentally ill.

These are factors that go into producing new cases of mental disorder in the community over time. How many of those do we get per year—can we estimate that? Well, Bob said we can't. I would back him up 100 percent.

So cases will occur, we know that, but having occurred, then different things happen. They may get into treatment, they may not get into treatment. The proportion of that population that gets into treatment, then, is another issue.

What is the repair industry, so to speak, for the mentally ill? In this instance it is the treatment industry.

Many of the mental health programs which we have now developed introduced a notion of community care. Keeping people in the hospital, that is hospitalization per se, may indeed damage them. As a result, we now try to keep patients under care in the community rather than the large mental hospital, whenever this is possible.

This raises other hazards and risks. For example, not knowing what genetic factors are involved, we may be seeding a population with more cases of schizophrenia.

In addition, children may be born into families where, indeed, there may be a mentally ill person. There may be no genetic factor involved, but exposing children to the aberrant behavior patterns of one or both parents ill mentally may also be damaging.

So there are several aspects to the problem I think we must deal with—the rate at which these new cars are produced, the rate at which they may break down, what are the reasons they break down and when people break down, what can we do to rehabilitate them? For a long time the mental hospitals were stockpiling so-called broken down cases to relieve the pressure on the hospital system.

Administrators have developed programs to apply the best available knowledge for "repairing" mentally ill persons. But major problems continue to develop because we don't know the cause of the major mental disorders so we can't prevent them and frequently we don't know the best ways to treat the problems presented by the mentally ill. Even when treated, we lack information in the short-term and long-term effectiveness of our efforts to reduce the amount of disability caused by these disorders. Measuring the effectiveness of these services is not a simple matter.

DR. NEYMAN: But the answer to my question is in the negative, correct?

DR. KRAMER: It may well be at this point, except that now, in the whole repair industry there are very good examples of the controlled clinical trial designs being used in psychopharmacologic experimentation. Also a controlled study was done in Ohio in which the investigators were able to demonstrate that the use of drugs kept people out of the hospital, but in so doing created other problems.

Better experimental techniques have produced more meaningful facts.

DR. NEYMAN: There are some experiments going on?

DR. KRAMER: Oh, yes, very good ones in the community, in hospitals, and in a variety of other situations.

In fact, we've even become bold enough to do some of these things on an international basis. For example we are developing techniques to get comparable cases of schizophrenia in nine different countries. Indeed we might be able, then, to carry out comparable studies that determine the prevalence of the disorder and the effectiveness of the methods of treating this disorder in different cultures and the manner in which prevalence and outcome may be affected by various cultural factors.

These are difficult and complicated problems to deal with.

FROM THE FLOOR: It's been stated that precision costs money. I wonder if Mr. Woolsey had, say, enough money to send 10 people out to a State where he now has only one to get data that are coming in late—my question is, doesn't timeliness cost money, too? And if timeliness costs money, isn't there indeed a trade-off between timeliness and precision?

DR. KRAMER: Ted.

MR. WOOLSEY: I think the answer is clearly yes. There is definitely a trade-off between timeliness and precision.

In the economic field they have dealt with this question by the use of all kinds of preliminary data that come out more promptly and then have to be revised. As a matter of fact, with some of the major indicators, like Gross National Product and so on, they may get out a figure and they may revise it three times before they have something that's called final. Maybe we need to do something like that in our area.

In the field of vital statistics you hear how late the vital statistics are, but we can give you a preliminary figure on the birth and death rates for the month of March. We have data for March, 1972.

So we have reasonably prompt preliminary data, but it would be quite a while before we have the final data. I guess we need to do more of this kind of thing in trying to arrange these sorts of trade-offs.

DR. KRAMER: I think there is one other point that I perceived in the question, and it is a problem that we are very much concerned about.

If many of these Federal-State-local systems are going to be operative and work appropriately, there has to be more consultation from the Federal level with State people, and vice versa, but the manpower pool for doing this, at least in mental health at this point, is quite limited.

We all go out and do some of this, but there is a tremendous need to provide at least some of the consultation that you may have been talking about and emphasizing. I think this is an important need.

Yes.

FROM THE FLOOR: I'd like to persevere a moment, if I can, about the analogy between motor cars and patients.

I think that the analogy is a good one, except for the fact that it is rather easy to evaluate the performance of a motor car after you get it through the shop and out onto the road, whereas what we are hearing from the panel, I think, are the extraordinary difficulties in evaluating the performance of the patient after he goes through the shop and comes back out into society.

Dr. Cain, I think, referred to two functions jointly—those of planning and evaluation. I would say that when we count the number of people coming into an institution, this seems to me to be a proper kind of statistic to think of in terms of planning, but when we think of evaluation, we really ought to make a more serious effort to evaluate the capabilities of the patient when he comes back out.

I think that's an important distinction. That index, that measure of the capabilities of an individual once having been subjected to treatment, is a very valuable research tool for people who intend to find out more about the nature of mental illness and the effectiveness of various cures.

I would say that's an important consideration.

By the way, there are some, as you know, who are concerned with the development of the health status index which has more to do with longevity than anything else. It is a very difficult problem, but it is a tractable one. I think if mental health centers and other agencies that provide service also could think in terms of specifiable criteria, such as the number or proportion of patients who are returned to a job or who effectively relate to families, you might have something that would be tractable there.

DR. KRAMER: Yes, Dr. Jepson.

DR. JEPSON: Continuing an automobile analogy, there are some publicly stated limitations to how properly the car ought to operate in terms of brakes and lights and things of that nature, but to a great extent it is an individual matter.

I think it can continue that way. Some people are willing to go around with noisy mufflers and dented fenders. You could say that they are not fully cured, but it is not the responsibility of the delivery system either to say that they must be other than that.

I think there is some risk in using some societal criteria for cure, except within certain limitations on a limited number of people.

DR. KRAMER: Another problem that is involved is the number of automobile mechanics on release from mental hospitals, and outpatient clinics. How effectively do such mechanics repair cars? Maybe this is one of the reasons why we are having so much trouble with the car.

Yes, Dr. Neyman.

DR. NEYMAN: I am concerned with those people who stay in the mental hospital more or less for life. The effort in California was made to find out whether, by treating these people, some of them could get out. My concern is with the fact that the effort which was made was so abysmal. It was just below any level of decency, so far as the experiment was concerned. It seems to me that some effort should be made to make such experiments.

Dr. KRAMER: There have been several done. We can give you a bibliography on it.

DR. NEYMAN: There must be an effort made to have such experiments a little better organized, and here the statistician must play some role.

MR. PATTON: I think the situation has changed pretty markedly since the days when that Stockton experiment was carried out. As I recall, this must have been 20 years ago.

DR. KRAMER: It was reported on at our second conference on mental hospital statistics.

MR. PATTON: Since that time, the technology of treatment of the mentally ill has undergone major changes. The psychotrophic drugs have been introduced. There has been a whole development of community programs since then.

In New York State today the median length of stay for patients entering mental hospitals is 44 days, and within two years 95 to 97 percent of the patients have left. The concept of patients staying a lifetime in mental hospitals is just no longer in existence.

I think many of these treatment procedures have been well studied and documented and used in careful studies, and I think we are finding the benefits of these kinds of studies in the actual operations today.

DR. KRAMER: On this note I would like to call this session to a close, but before doing it, I would like to pay tributes to the individuals who helped organize this session.

Cecil Wurster, on our staff, has been spending many years organizing these meetings properly. He puts much effort into organizing the kinds of stimulating presentations that you heard today. For this meeting he worked with a committee of persons from our regional offices and from the States.

Cecil, I wish you would stand up so our colleagues from the other fields of health statistics might see you. (Applause)

DR. KRAMER: Also, Myles Cooper, along with Al Miller from Delaware, who also have been very helpful. Others who participated are: Dan Payne, Assistant Commissioner for Program Planning and Development in Richmond, Virginia, and Lucille Plummer, from the Department of Public Welfare in Harrisburg, Pennsylvania. I also want to acknowledge the assistance of the Southern Regional Educational Board, The Western Conference on Uses of Mental Health Data and the Midwestern Conference of

Mental Health Statisticians. Their support over the years is much appreciated.

I want to express my deep gratitude to these individuals and organizations who keep working so hard to develop our area of mental health statistics.

Thank you all for attending. I appreciate your interest.

MINISUMMARY AND CONCLUDING REMARKS

Dr. Anders S. Lunde and Mr. Theodore D. Woolsey, *National Center for Health Statistics*

During the planning for the 1970 Conference, it was decided that the old conference style of five solid days of plenary sessions every morning, and so on, was just too long.

Everybody seemed to be tired out by Wednesday afternoon and, furthermore, it didn't seem that we had a long enough time in years past for local and State professionals to discuss their interests.

Therefore, beginning with 1970, we split the Conference so that we had at least two or two and a half days of conference covering broad concerns and then for the last day, day and a half, we involved ourselves with topics of local interest.

The first three days here have been involved with topics of great national interest, which go across the whole field, and for the next day and a half we will break off in a sense, holding meetings in which we are going to discuss topics of interest, for example, to State registrars and topics of interest to mental health statisticians in their special fields of activity.

That's why we have a mini-summary at this time, because this is the last time most of us will be together. From now on we will be in smaller groups.

Let me just make three observations on this Conference at this point.

First, the Conference is bigger than ever, in 1964 we had 312 attendees, with about a hundred or so from registration areas and 11 from local health departments, making altogether, I guess, about 120 or 125 people in that group, with 87 persons from the Federal Government.

In 1966 we had 334 attendees and we broadened our interest during that Conference to include a number of health fields that hadn't been involved directly with the activities of the National Center for Health Statistics. We got ourselves involved in the following Conference, in 1968, with topics related to comprehensive health planning. At that time we had 426 attendees.

In 1970 we had 536 attendees, with many persons coming from local areas for the first time, as well as from other State offices.

It's now 1972, our 14th Conference, and we have over 600 registrants and attendees, with over 150 from registration, local, and other State areas. Approximately one-third of these 600 are in one way or another connected with mental health statistical activity.

We have had over these years, and particularly in this Conference, a significant increase in the number of persons from local areas, an increase in the number of persons from subject areas other than vital statistics, which characterized the interest of the group before the last two Conferences, and an increase in the number of persons from Federal offices outside the National Center for Health Statistics, and from State offices and local offices not formerly identified with the work of the National Center for Health Statistics.

I am interested in what Mort Kramer said and Harry Cain referred to that we are all one group, similarly interested in people and in health and in the measurement, analysis, and evaluation of health problems and programs. I hope that this Conference can continue to grow. While it is sponsored and, let's say, the chores are done by the National Center for Health Statistics, I hope we will continue to grow in our efforts and in the kind of people we serve.

The second point is that the Conference is more comprehensive than ever in its coverage. While not diminishing its primary interest in the basic partnership in the vital statistics registration system in the United States, the Center has broadened its commitment to public health in all its aspects.

In a sense, it is providing a forum for all health statisticians, whatever their occupational focus. I think, Mort, you referred to this in part.

There are those who think we have grown too big now. Back in 1964 I would have agreed that 600 persons would make a conference unwieldy and make intimate friendly contact impossible.

Today, in 1972, I am not so sure, because my reading is that this has been a good Conference for us all. But this is a question to be faced by the next planning committee.

Are we talking about comprehensiveness and bigness, or comprehensiveness versus bigness? I leave that for Mr. Woolsey and the planning committee, and we want your reactions to this Conference, including its size, so that we can improve the Conference as a whole.

Thirdly, the papers and addresses have been generally excellent. There are more papers that may be characterized as scientific, or certainly as professional, and the reports and the discussions are at an unusually high level.

I think we are all growing together. I think we are challenging and inspiring each other. I think that out of this Conference new ideas and directions for action will emerge, and that as the year goes on, we can study the papers and addresses when they are published in the Proceedings over and over again for stimulation and inspiration.

In closing my remarks, I want to mention two things. First, I want to thank everybody who helped us from mental health and from our own staff. We pointed out some of these people as we started, and I want to point out one group I didn't mean to overlook. That is Mr. Alan Kay and the staff of the Junior Professional Training Program, and the others who manned the microphones.

Thank you very much. (Applause)

I want to thank the audience, too. You have been very patient, even when you have been bored. You have been cheerful, even as the seats got harder and harder, and as the ladies report to me, the rooms got colder and colder. You have been very responsive. That's the real test of a conference.

I personally have never known a better audience or groups of audiences to work with, and I thank you.

To conclude our remarks, we are going to have a sort of mini-summary from our director, Mr. Theodore Woolsey.

MR. WOOLSEY: Thank you, Andy. I have a great treat for you. I am going to skip it. We are not going to have any mini-summary.

I think you have all been patient enough, and I don't really think you want to hear me talk any more. I just want to emphasize that the Conference is not over. There are two extremely interesting sessions this afternoon, and two tomorrow morning. As Andy said, this happens to be the last plenary session that will bring you all together. So it gives us an opportunity to say good-bye and hope that we will see you soon again, but don't forget that the conference is not over.

I am having great difficulty myself trying to decide whether I want to be in on problems of training, in which I am very much interested, or on the definition and measurement of mental health, which is a problem that has interested me for a long time. So I may be split this afternoon.

That's all I am going to say. Thank you all very much, and the third plenary session is over.

Concurrent Session "L"

Definition and Measurement of Mental Health

What is mental health? How do we measure mental health or mental illness? How do we use these measurements for (1) determining the mental health of a population, (2) estimating needs for mental health services, and (3) evaluating treatment outcome? These are among the questions which were addressed in this session.

Contents

CONCURRENT SESSION "L"

DEFINITION AND MEASUREMENT OF MENTAL HEALTH

PRESIDING

Mr. Ben Z. Locke, *Assistant Chief, Center for Epidemiologic Studies, Division of Extramural Research, National Institute of Mental Health*

This is the session on definition and measurement of mental health.

On Monday there was a session chaired by Mr. Goldberg, which addressed itself to statistics on unmet needs for mental health care. Someone asked about using the epidemiological approach to obtain such data. In this session the problems that confront us when we attempt to mount community surveys will be discussed. First some history, but I won't take you back as far as Dr. Kramer did earlier this morning. I will take you only to 1966, which in perspective is like yesterday, though it seems like ages ago. During that year of 1966, and I mean during the entire year, the National Center for Health Statistics organized a Symposium on Definition and Measurements of Mental Health. Ted Woolsey, the Staff of the National Center for Health Statistics, and an advisory committee, which included Mort Kramer, arranged that symposium. There were 11 speakers representing the fields of psychiatry, psychology, and sociology.

In the opening session, Forrest Linder, speaking of the difficulties in this field, said, "One explanation is undoubtedly the conflicting guidance offered by the literature in which the conceptualization of mental health is represented in a most contradictory and confusing manner. Approaches to measurement of mental health are difficult enough to plan when the acknowledged experts disagree on what it is to be measured."

"The difficulty is compounded when a search for measures produces a succession of instruments of questionable validity."

I want to point out that even if one tries to narrow the focus, there are problems. For example, in 1969 Dr. Martin Katz and the staff of the Clinical Research Branch of the National Institute of Mental Health held a workshop on the psychobiology of the depressive illnesses. One of the summarizers of that workshop, Dr. Irwin Kopin had this to say:

It was six men of medicine
  To learning much inclined
Who with rating scales and test tubes
  Prepared to study mind
And relate psychosis to chemistry
  And do it double-blind!

The first reached out for urine specs
  To see if he could see
Colored spots on filter paper
  With chromatography.
And lo, "The differences are clear;
  It can be seen in pee."

The second looked at catechols
Well known in "Fight or Flight."
Levels were surely up in some
The theory fit, all right!
Except . . . But allowances were made;
"Discrepancies are slight!"

The third measured electrolytes.
It was his cup of tea.
Total volumes were expanded
When patients were at sea.
"Although we're not sure how it fits;
The answer here will be!"

The fourth with indoles was impressed.
Data are crystal clear
With synthesis blocked and amines down
The patient lacks good cheer.
"Cure is just around the corner;
There is no need to fear!"

The fifth examined the endocrines:
Something was here amiss.
Function was gone and lumps were felt;
Subjects didn't love or kiss
"Thyroid and adrenals let be;
I'll bet it's pancreas!"

The sixth was a protein chemist:
He had a lot to say
About peptides and genetics
And transfer RNA.
"The fault's in the membrane structure;
You'll all agree someday!"

And so these men of medicine
Disputed loud and long
Each in his own opinion
Exceeding stiff and strong
Though each was partly right
And all were in the wrong.

And like blind men of Indostan
These scientists, I ween
Rail on in utter ignorance
Of what each other mean
And prate about an elephant
Not one of them has seen!

(Applause)

And so to this session, which is to tell you about the e definition and measurement of mental health. This session was organized by Cecil Wurster, who is a psychologist but claims that is not the reason why four out of five of the speakers are psychologists.

Our first speaker is Dr. Dohrenwend. Bruce Dohrenwend is Professor of Social Science, Department of Psychiatry, College of Physicians and Surgeons of Columbia University.

By the way, my introductions are going to be much shorter than the ones this morning because if I were to give you what all of these gentlemen have done, it would take the entire session. So I am very, very much condensing their backgrounds.

Dr. Dohrenwend is also a member of the Initial Review Group, the Committee which reviews grants for the Center for Epidemiologic Studies of the National Institute of Mental Health. He is the author of several books, of which I will mention a few. He and his wife published *Social Status and Psychological Disorder. A Causal Inquiry*. He is co-editor of *Urban Challenges to Psychiatry*. He is the author of inumerable articles and chapters in books.

Dr. Dohrenwend will address himself to Some Issues in the Definition and Measurement of Psychiatric Disorders in General Populations.

Dr. Dohrenwend.

SOME ISSUES IN THE DEFINITION AND MEASUREMENT OF PSYCHIATRIC DISORDERS IN GENERAL POPULATIONS

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At least 35 different investigators or teams of investigators have attempted to count untreated as well as treated cases of psychiatric disorder in 44 community studies in North America, Europe, Asia and Africa (Dohrenwend and Dohrenwend, 1969)[1]. With a few marked exceptions such as the consistent finding of the highest rates of disorder in the lowest social class, however, these studies present a picture of inconsistent results, as overall rates range from a low of under 1 percent in one community to a high of 64 percent in another. Moreover, there is no way to account for such variability on substantive grounds. Rather, the differences are due for the most part to methodological factors such as thoroughness of data collection procedures and, even more so, to contrasting conceptions of what constitutes a "case."

There are a number of reasons for this rather anarchic state of affairs. In my opinion, they center on at least four key sets of problems in the conceptualization and measurement of psychiatric disorders that have not been adequately dealt with in epidemiological research to data. Barring breakthroughs in biochemical research, solutions to these problems seem to me to be prerequisite to the development of more persuasive procedures for the assessment of psychiatric disorders in general populations. The four sets of problems involve:

(1) Subcultural differences in modes of expressing distress.

(2) Relations between symptoms of disturbance of cognition, affect and volition on the one hand and ability and disability in role functioning on the other.

(3) The situational specificity of symptomatology as opposed to its relative independence of external circumstances.

(4) Relations between physical illness and some types of psychiatric symptoms—especially those thought of as psychophysiological.

Much of what I know about these problems has been learned from my own and others' work with Langner's (1962)[2] 22 item screening instrument developed in the course of the Midtown study (Srole, Langner, Michael, Opler, and Rennie, 1962)[3]. It contains symptom items similar to those relied on in the also well known Stirling County study (D.C. Leighton, Harding, Macklin, Macmillan, and A. H. Leighton, 1963)[4] and has become what is probably the most widely used objective measure (most have been judgmental) in attempts to assess the prevalence of psychiatric disorder.

I will start with a brief history of how I became acquainted with the 22 item measure, go on to our current research program in relation to that history, and close with an overview of problems and prospects as I see them. Since time is short, I will omit discussion of the major issue of physical illness in relation to certain kinds of psychiatric symptoms (Crandell & Dohrenwend, 1967)[5].

The 1960-61 Master Sample Survey of Washington Heights, New York City*

In 1960, shortly after I came to the Department of Psychiatry at Columbia, I had a chance to participate in a large scale, collaborative study of Washington Heights in New York City. This section of Manhattan surrounds the Columbia-Presbyterian Medical Center and has had a population of between 250,000 and 300,000 people from diverse class and ethnic backgrounds. The aim of the survey was to collect demographic data from a large "Master Sample" drawn on a probability basis to represent households in Washington Heights (Elinson & Loewenstein, 1963)[6].

In addition to the demographic data, it was possible to collect a very limited amount of information from some respondents in the survey on topics of particular interest to the study groups. For me and others with whom I was working, this meant a chance to collect data on psychiatric symptomatology. Since we were forced to limit the amount of such data sharply, we found ourselves in the position shared by a number of psychiatrically oriented investigators engaged in research with general populations: we were in need of a brief screening instrument. As have at least 20 researchers both before and after us,[9] we turned to the 22 item symptom measure constructed by Langner to give an approximation of the impairment ratings made by the psychiatrists in the Midtown Study. We inserted these items into interviews being conducted with subsamples of respondents from the Master Sample households and also with groups of psychiatric patients in 1962-63.

Our analyses of these data have been reported elsewhere (e.g., Dohrenwend, 1966[10]; Crandell and Dohrenwend, 1967; Dohrenwend & Dohrenwend, 1969) and I will not repeat them in detail here. Suffice it to say for the moment that these analyses have led us to detour from the substantive questions we are interested in about the role of social factors in etiology to a detailed consideration of the four key sets of methodological problems that I just described.

1966-68 Data from Interviews by Psychiatrists with Psychiatric Patient and Nonpatient Samples from Washington Heights

Some of the psychiatric patient and nonpatient subjects from our earlier studies were carried over to our present intensive methodological study of different measures of psychiatric disorder in contrasting class and ethnic groups in Washington Heights. The over 500 subjects in this methodological research include: 67 community leaders; 257 adult heads of families (both men and women, married and single) sampled on a probability basis from the general population; 117 outpatients from various psychiatric clinics; 48 inpatients; and 24 convicts.[11]

In our earlier research, as in the Midtown Study and the Stirling County study, the interviews were conducted by interviewers who were not psychiatrists or clinical psychologists. By contrast, the leader, patient, and community sample respondents in the present study were interviewed by 15 psychiatrists. Their initial assignments were randomized, and the interviews were conducted for the most part in the homes of the respondents.

The respondents were also divided at random between two different types of interview instruments—one called the Structured Interview Schedule (SIS), and the other the Psychiatric Status Schedule (PSS). The Structured Interview Schedule is based on those used in the earlier Midtown study, the Stirling County study and our own previous research in Washington Heights, and it includes the 22 item screening instrument from the Midtown study. It is a conventional type of survey questionnaire and relies heavily on items with fixed alternative response categories.

The Psychiatric Status Schedule, which was developed by Spitzer, Endicott and Cohen, is much more like a conventional clinical interview—but with an added attempt to standardize questioning and recording procedures (Spitzer, Endicott, Fless, & Cohen, 1970)[12]. By contrast with the SIS, the PSS relies mainly on open-ended questions, the probed responses to which are coded into fixed categories descriptive of

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pathology, on the basis of the clinical judgment of the interviewer.

Toward the end of the interview with either the SIS or the PSS, the psychiatrists made a series of global clinical assessments. These included psychiatric judgments using the main rating scales developed in the Midtown and Stirling County studies as we understood them on the basis of published accounts (Srole, et al., 1962; D.C. Leighton, et al., 1963). Independent ratings from a subsample of tape recordings of 69 of these interviews indicated percents of agreement on the ratings similar to those reported by the Midtown Study and Stirling County researchers.

The four categories of the Stirling County study "caseness" scale are designated "A," "B," "C," and "D" respectively and represent the average "subjective probabilities" that the Leightons attached to their judgments that a respondent rated by them on the basis of a protocol would actually be a case if given a "full diagnostic investigation." These "subjective probabilities" were: A=.9; B=.7; C=.4 and D=.1 (D. C. Leighton, et al., 1963, p. 121).

To give you a summary idea in Table 1 of how the various types of respondents compare on this scale, I have dichotomized the ratings into A and B as more likely to be cases versus C and D as less likely to be cases. In the Stirling County study about 55 percent of the respondents were rated A or B.[13]

The Midtown impairment rating, by contrast, ranged respondents on a scale from "Well" through five degrees of severity of symptomatology: "Mild," "Moderate," "Marked," "Severe," and "Incapacitated" (Srole et al., 1962, p. 399). On this less inclusive measure than the Stirling "caseness" rating almost a quarter (23.4 percent) of the Midtown respondents were classified on the basis of their protocols into the last three categories: "Marked," "Severe," and "Incapacitated" (Srole et al., 1962, p. 138). These are referred to collectively as "impaired" and are the "cases" in the Midtown Study (Srole et al., 1962, p. 33). Of these Midtown "cases" only about a quarter reported that they had been in treatment with a member of the mental health professions (Srole et al., p. 147).

Table 1 shows the Midtown rating dichotomized into the combined "impaired" versus the combined "unimpaired" categories. As can readily be seen, respondents in the patient groups are far more likely to be judged cases on either the Stirling or the Midtown rating scale than are the community sample respondents who, in turn, tend to have larger proportions of respondents who are rated cases than the leaders. These differences hold by and large regardless of which schedule, the SIS or the PSS, was used to conduct the interview.

You will recall that the SIS included the 22 Midtown items among its questions. Table 2 shows that using a cutting point of 4 or more as recommended by Langner (1962) to approximate the impaired group, there is a curious

Table 1

Cases in Leader, Community, and Patient Groups in the 1966-68 Study as Judged by Psychiatrist-Interviewers According to Type of Interview Schedule Used (in percent)

Type of Schedule	Status of Respondent			
	Leader	Community Sample	Outpatient	Inpatient
	"Case" = A or B on Stirling Caseness Rating			
SIS	14.6	34.7	84.7	100.0
Base for %	(41)	(124)	(59)	(26)
PSS	26.9	26.3	84.5	100.0
Base for %	(26)	(133)	(58)	(22)
	"Case" = Marked, Severe, or Incapacitated on Midtown Impairment Rating			
SIS	9.7	30.6	84.7	100.0
Base for %	(41)	(124)	(59)	(26)
PSS	11.5	24.8	81.0	100.0
Base for %	(26)	(133)	(58)	(22)

Note: With the outpatients and hospital patients combined, chi-square tests show that: The probabilities are less than 0.01 that the overall results with either schedule or with either rating could have occurred by chance. Moreover, one-tailed t-tests of the difference between proportions show that all the differences between the community sample respondents and the combined patient groups are significant at beyond the 0.01 level and that all but one of the differences between the leaders and the community sample respondents are significant at the 0.05 level or better. By contrast with these strong group differences, the schedule differences are slight. Even the SIS vs. the PSS difference for community sample respondents falls short of statistical significance at the 0.10 level by chi-square test.

Table 2

Percents of Leaders, Community Sample, Psychiatric Clinic Patients, and Psychiatric Hospital Patients With Scores of Four or More on the 22 Item Screening Measure in the 1966-68 Study: SIS Respondents Only

Screening Measure	Type of Respondent			
	Leaders	Community Sample	Clinic Patients	Hospital Patients
Scores of 4 or more	14.6	34.7	81.4	66.7
Base for %	(41)	(124)	(59)	(24)

Note: One-tailed t-tests show that the difference between the leaders and the community sample and between the community sample and each of the patient groups are significant at the 0.05 level or better.

reversal of what would be expected for outpatients and inpatients. We have analyzed this elsewhere; it has to do with the relative absence of more serious symptoms from the Langner scale (Dohrenwend and Crandell, 1970)[14]. This difference in proportions showing 4 or more of the 22 symptoms is minor, however, by contrast with those between the leaders and community sample on the one hand and the psychiatric outpatients and inpatients on the other.

Thus, all three measures—the Stirling "caseness" rating, the Midtown impairment rating, and the 22 item screening measure—clearly pass what Moses, Goldfarb, Glock, Stark and Eaton (1971)[15] recently described in a study of the Stirling rating scale as a "weak" test of validity; all three measures show sharp differences between patient and nonpatient groups. Should we feel encouraged by the success of this "weak" test? Not very if our interest is in case finding. There are any one of a vast number of ways to achieve this kind of "success," as Moses and his colleagues point out in an intriguing discussion of the relation between sex and height.

Relation of Measures from Earlier to Measures from Later Studies

The product moment correlation between the Midtown and Stirling rating scales themselves is .82—considerably stronger than is either rating with the 22 item score (.65 and .64 respectively). Let us, therefore, combine the two rating scales, defining as a "case" all respondents who are rated A or B on the Stirling scale *and* are also placed in one of the impaired categories of Marked, Severe, or Incapacitated on the Midtown scale. This combination of the ratings also has the virtue for purposes of the present conference of approximating in rationale the "need for psychiatric attention" typology developed by the Leightons' through a combination of their own impairment ratings with their caseness ratings (D. C. Leighton et al., 1963, pp. 139-143)

At a cutting point of 4 or more on the 22 item measure, Langner (1962) found that it would be possible to identify 73.5 percent of the respondents who had been rated impaired in the Midtown study. In our terms, this means that his row false negatives were only 26.5 percent. As Table 3 shows, we do about as well with our combined definition of a case. Like Langner, however, we have a serious problem with column false positives. Thus, as you can see, 51.2 percent of those scoring 4 or more were not rated cases in our sample. For Langner in the Midtown study, the corresponding figure was 44.9 percent. This means, of course, that in either study, about half of those selected by the screening measure would not be judged to need treatment. Since the large majorities of our community sample and the Midtown sample scored less than 4 and were not rated cases by cases by the psychiatrists, neither Langner nor we have large percentages of row false positives or column false negatives—that is, persons not rated as cases but who score high on the 22 items and persons who score low but are rated as cases.

It may appear at first glance that we could have done better by moving the cutting point from 4 or more symptoms to 6 or more symptoms. This would decrease our column false positives from 51.2 percent to 41.4 percent. Note, however, that this would also have the effect of increasing the row false negatives from 25 percent to almost 40 percent. That is, we would miss almost 40 percent of those rated cases by the psychiatrists—hardly a satisfactory solution.

Of the 124 SIS community sample respondents, 48 were members of a subsample interviewed in 1962-63 about the 22 Midtown items. Of these, 43 had reported in the 1962-63 interviews that they had never been in treatment with members of the mental health professions.

Table 3

Relation Between Being Rated a "Case" on *Both* the Midtown and Stirling Scales and Scores on the 22 Item Screening Measure in the 1966-68 Interviews by Psychiatrists: SIS Community Sample Respondents Only (actual frequencies: n = 124)

Combined Ratings on Stirling and Midtown Scales	Scores on 22 Item Screening Instrument												
	0	1	2	3	4	5	6	7	8	9	+10	Total	Row "false negatives" (0-3 over total "cases"):
Case	3	0	3	1	3	1	5	1	1	2	8	28	7/28 = 25.0%
Not case	30	20	16	8	2	8	1	2	3	5	1	96	Row "false positives" (4 or more over total "not cases"): 22/96 = 22.9%
Total respondents	81				43							124	
Column "false negatives" ("cases" over total 0-3): 7/81 = 8.6%					Column "false positives" ("not cases" over total 4 or more): 22/43 = 51.2%								

How do their screening scores in 1962-63 relate to their clinical ratings four years later?

As Table 4 shows, 62.5 percent of those with scores of 4 or more at the earlier time would not be judged cases an average of 4 years later. Moreover, of the 18.6 percent of the sample who were judged cases in 1966-68, a similar large majority would have been missed on the basis of the earlier score.

There is a substantial correlation ot .60 between the 22 item scores in 1962-63 (to which the psychiatrists did not have access) and

Table 4

Relation Between Being Rated a "case" on *Both* the Midtown and Stirling Scales on the 1966-68 Interviews by Psychiatrists and Scores on the 22 Item Screening Measure Administered by Lay Interviewers in 1962-63: Subsample of SIS Community Sample Respondents With No Patient Histories (actual frequencies: n = 43)

Combined Ratings on Stirling and Midtown Scales	Scores on 22 Item Screening Instrument												
	0	1	2	3	4	5	6	7	8	9	+10	Total	Row "false negatives" (0-3 over total "cases"):
Case	1	3	1	0	0	1	0	2	0	0	0	8	62.5%
Not case	12	8	6	4	3	0	1	1	0	0	0	35	Row "false positives" (4 or more over total "not cases"): 14.3%
Total respondents	35				8							43	
Column "false negatives" ("cases" over total 0-3): 14.3%					Column "false positives" ("not cases" over total 4 or more): 62.5%								

the 22 item scores in 1966-68 (to which the psychiatrists did have access) for these 43 SIS respondents from the community sample. Thus we can provide both a partial replication of the SIS results in Table 4 and a stricter test of the predictive power of the 22 items by looking at the 55 PSS community sample respondents who were interviewed in 1962-63 with the 22 items and who also, at that time, reported no history of treatment with members of the mental health professions. Table 5 shows that the results are similar for the subsample of PSS respondents to those shown previously for the subsample of SIS respondents from the community group.

To summarize the implications of Tables 4 and 5: By screening, on the basis of 22 item scores in 1962-63, you would find yourself treating a group of persons almost two thirds of whom without treatment would not be cases four years later according to our psychiatrists. At the same time, you would have missed about half of those who would otherwise be cases 4 years later in the opinion of these same psychiatrists.

One possible explanation for this predictive inaccuracy is that the relationship between the 22 item screening instrument and the clinical ratings is not strong enough to provide accurate identification of cases in need of treatment concurrently much less at some future time. While the weakness of the concurrent relationship between the measures is part of the reason for our results in Tables 4 and 5, it is by no means the whole story or even the most interesting part of it. There is another set of factors involved. Beiser, for example, has analyzed the results of a study that included a follow-up over a five year period of a subsample of Stirling County study residents who were rated "A," "almost certainly a psychiatric case," in a 1962-63 survey. Over the five year period, almost half of these "A" ratings were changed to lower ratings, with fully 27% placed in the "C" and "D" categories (Beiser, 1971)[16]. Moreover, we know from our own earlier research (e.g., Dohrenwend and Dohrenwend, 1969, pp. 126-130) and even more emphatically from the work of Myers and his colleagues (e.g., Myers, Lindenthal, and Pepper 1972)[17] that symptoms such as those described in the 22 items fluctuate markedly over time with the incidence of stressful life events in samples from the general population. In addition, further analysis of our present data over time shows that the full 1966-68 scores on the 22 items for these 43 respondents correlate .77 with the full Stirling caseness rating and .48 with the full Midtown impairment rating; by contrast, when we substitute 1962-63 scores for

Table 5
Relation Between Being Rated a "Case" on *Both* the Midtown and Stirling Scales in the 1966-68 Interviews by Psychiatrists and Scores on the 22 Item Screening Measure Administered by Lay Interviewers in 1962-63: Subsample of PSS Community Sample Respondents With No Patient Histories (actual frequencies; n = 55)

Combined Ratings on Stirling and Midtown Scales	Scores on 22 Item Screening Instrument												Row "false negatives" (0-3 over total "cases"):
	0	1	2	3	4	5	6	7	8	9	+10	Total	
Case	1	2	1	0	0	2	0	2	0	0	1	9	44.4%
Not case	13	9	9	6	3	3	0	1	2	0	0	46	Row "false positives" (4 or more over total "not cases"):
Total respondents	41				14							55	19.6%
Column "false negatives" ("cases" over total 0-3) 9.8%					Column "false positives" ("not cases" over total 4 or more): 64.3%								

1966-68 scores, these correlations decrease sharply to .48 and .35 respectively. Taken together, these results strongly suggest that there is marked change in the psychiatric condition of these nonpatient respondents over time.

In Tables 4 and 5, the small minority of community sample respondents who reported psychiatric histories in 1962-63 were excluded to provide maximum contrast with our psychiatric patients. Let us now turn to the psychiatric clinic patients who answered the 22 items in 1962-63 and who were reinterviewed by psychiatrists in the 1966-68 study.

There were 74 such clinic patient respondents divided equally between the SIS and the PSS. Since the results with the two interview instruments are very similar, the patients interviewed with each are combined in Table 6. It is striking that the findings are almost diametrically opposite to those obtained for the nonpatient respondents: most of the patients start out as "cases" on the screening instrument and are judged cases according to the Midtown and Stirling ratings four years later. As some arithmetic with the results in Table 6 shows, almost three quarters (73 percent) are "cases" on *both* the 22 item measure in 1962-63 and the clinical ratings in 1966-68. Moreover, the correlation of the 1962-63 and 1966-68 scores on the 22 item measure is .76 for the SIS patients. Thus, for the patients, it appears to matter little which measure of disorder you use or which time you use it. This picture of pervasive and persistent disorder stands in sharp contrast to the picture of a stable healthy condition for the majority (about two thirds in Table 4 and 5) and a fluctuating and/or contradictory symptom picture for a substantial minority of the respondents from the general population. Since our interest is in the occurrence and distribution of psychiatric disorders in the general population, it is this latter picture with which we must somehow come to terms. What are some of the problems involved?

Overview of Problems and Prospects

One problem, as I have just emphasized, seems to be the greater change over time in the psychiatric symptomatology of our nonpatient as opposed to our patient subjects. The problem of interpreting what symptoms mean when reported by samples from the general population, however, starts but by no means ends here.

We found in earlier analyses of the 22 items that unusually high scores among both Puerto

Table 6
Relation Between Being Rated a "Case" on Both the Midtown and Stirling Scales on the 1966-68 Interviews by Psychiatrists and Scores on the 22 Item Screening Measure Administered by Lay Interviewers in 1962-63: SIS and PSS Psychiatric Clinic Patients only (actual frequencies: n = 64)

Combined Ratings on Stirling and Midtown Scales	Scores on 22 Item Screening Instrument												Row "false negatives" (0-3 over total "cases"):
	0	1	2	3	4	5	6	7	8	9	10+	Total	
Case	1	1	2	1	4	5	2	2	9	3	29	59	5/59 = 8.5%
Not case	1	1	2	3	1	0	1	1	0	3	2	15	Row "false positives" (4 or more over total "not cases"): 8/15 = 53.3%
Total respondents	12				62							74	
Column "false negatives" ("cases" over total 0-3): 5/12 = 41.7%					Column "false positives" ("not cases" over total 4 or more): 8/62 = 12.9%								

Rican patients and nonpatients reflect a subcultural difference in modes of expressing distress (Dohrenwend, 1966; Dohrenwend and Dohrenwend, 1969, pp. 79-92.) To the extent that they are based on similar data, the Midtown study and Stirling County study ratings are susceptible to influence by such cultural differences in modes of expressing distress. Let me try to show why I think the clinical ratings are affected.

Although the Midtown study included only a very small sample of Puerto Rican respondents, these were judged far sicker than respondents at the same income level in other ethnic groups (Srole et al., 290-292). We found in analyses of our 1966-68 community sample data, that the interviewing psychiatrists, like the rating psychiatrists in the Midtown study, saw far higher proportions of cases among the Puerto Ricans than among other ethnic groups when they used the SIS; when they used the PSS, however, they did not see the Puerto Ricans as sicker than other ethnic groups (Dohrenwend, Chin-Shong, Egri, Mendelsohn, & Stokes, 1970)[18]. You will remember that the SIS included the 22 Midtown items and, generally, used a fixed alternative response format for its questions as did the Midtown and Stirling County studies. The PSS, by contrast, did not include these items and used an open-ended questioning style.

As was mentioned earlier, the interviews in the Midtown study and in the Stirling County study were done by lay interviewers; psychiatrists made their clinical ratings mainly on the basis of the written records of these interviews. We have found sharp differences according to whether ratings are made face to face or on the basis of the interview score sheets for community respondents *but not for psychiatric patients*. (Dohrenwend, Egri, & Mendelsohn, 1971). The community respondents, especially those of high status interviewed with the more open-ended questioning style of the PSS, look sicker to psychiatrists on the basis of the paper record than on the basis of an actual interview. One of the main reasons for the difference, we believe, is that evidence of positive functioning appears to have been noted by the interviewing psychiatrists who accordingly discounted the importance of much of the accompanying symptomatology when they saw it (Dohrenwend, Egri, & Mendelsohn, 1971).

The psychiatrists tape recorded the large majority of the interviews they conducted, and we have had the tapes transcribed. It was therefore possible to compare the interview scoresheet with the transcript of the actual interview to get an idea of why the interviewer and reviewer ratings differed so sharply for leader and community sample respondents. Here is a case illustration, disguised to preserve anonymity, of what we found:

> Mr. B. is a middle-aged man who holds a highly responsible position and has never been a psychiatric patient. He is making a satisfactory recovery from major surgery for a serious physical illness and has only recently returned to work. The psychiatrist who interviewed Mr. B. did not judge him to be a psychiatric case on either the Midtown or the Stirling County rating scales; the psychiatrist who reviewed the interview score sheet rated Mr. B. a case on both scales.
>
> Mr. B's PSS score sheet contains a note from the interviewer as to the nature of his physical illness. The psychiatric scores show that Mr. B. is concerned about his body; eats too much; feels tired and slowed down; has at least three fears; feels anxious, restless, and depressed; is easily irritable; broods; and takes tranquilizers. Moreover, scores indicate that Mr. B's work is impaired and that he works only part-time.
>
> By contrast, the verbatim transcript of the interview indicates that Mr. B.'s "slowing down" is due to his medical condition. The items "feels anxious," "has at least three fears," and "broods" refer to the fact that he is concerned about the realistic possibility that his son faces the draft during a war that both oppose, that his daughter is threatened with indictment for political dissent, and that he himself may have a recurrence of his illness. Although he feels that his work is indeed impaired, he says that others are satisfied and that he expects to return to work full-time. The tranquilizer that he takes is a mild ataractic that he says was given to him because of a past history of hypertension.

> Mr. B. feels sympathetic, supportive, and close to both children. His relationship with his wife and family is quite satisfactory. They share a wealth of cultural, political, and personal interests.
>
> Mr. B. gives evidence of a strong capacity to enjoy life; he comments, "I am interested in everything." Despite his physical problem, he is taking steps to improve his already considerable professional skills in the near future.

What, then, should be done about this state of affairs? It seems to me that relying mainly on screening instruments such as the 22 items or ratings such as the Stirling "caseness" scale or the Midtown "impairment" scale can serve only to obscure important differences. Such measures by-pass distinctions between different types of disorder thereby implying similarity between substantial portions of the general population and groups of psychiatric patients that may well be more apparent than real. Furthermore, they not only mix nosological types of symptomatology but they mix role functioning with the scrambled nosological types.

I believe that there are a number of grounds on which more appropriate measures can be developed. If, for example, the interest is in relations between social factors and psychiatric disorder, we know from analyses of the over 40 attempts to assess "true" prevalence in community populations that different types of disorder have been found to be differently related to important social variables such as urban versus rural location (Dohrenwend & Dohrenwend, in press)[19] social class (Dohrenwend & Dohrenwend, 1969), and sex (Dohrenwend & Dohrenwend, 1969). It would be important, therefore, to develop measures of dimensions that when combined, would distinguish among these types of disorder.

Similarly, if we want to screen potential cases in the community for treatment purposes, we might attempt to locate or develop relevant scales to define the particular types of disorder that we thought could be successfully treated with particular types of therapy.

Finally, we should have learned by now something about important dimensions to include regardless of the particular nosological types we are interested in. We should be aware of the need for using contrasting methods of measurement to cross check each other against problems of differences in subcultural modes of expressing distress and related problems of response styles. We should be developing ways of assessing the situational contexts in which symptomatology occurs and alters over time. And we should be concerned with developing ways of measuring ability and disability in role functioning that are operationally independent of the particular nosological types of symptomatology in which we are interested.

With regard to the last two points especially, we are strongly reminded at this stage in our own research program of Hall and Lindsey's apt summary of Murray's view that "psychological theory is at its best in dealing with the worst of behavior" (Hall and Lindzey, 1957, p. 198)[20]. As Murray wrote: "Consequently, it is difficult to open one's professional mouth today without disparaging a fellow-being. Were an analyst to be confronted by that much heralded but still missing specimen—the normal man—he would be struck dumb, for once, through lack of appropriate ideas" (Murray, 1952, pp. 436-437)[21].

Consider this view in relation to Tyhurst's 1957 suggestion that in some circumstances the symptomatology reported in community epidemiological surveys may indicate something quite different from persistent or episodically recurrent psychopathology. From the vantage of his clinical observation and analysis of "transition states" (e.g., marriage, childbearing, promotion, retirement, migration and physical disaster), Tyhurst wrote:

> "Our tendency to regard the appearance of symptoms as invariable signs of illness, and therefore a need for psychiatric treatment, requires some revision. It would probably be more appropriate if we regarded the transition state and its accompanying disturbance as an opportunity for growth. When an impasse develops in the resolution of the 'hitch' we may speak of illness. Signs of psychological distress—somatic, emotional or intellectual—are thus not necessarily equivalent with that person being a case of mental illness . . . Thus, for example, prevalence surveys of such symptoms . . . can have little meaning for the . . . [rate] of mental illness unless the *contextual*

relevance and timing of the symptoms is determined at the same time. If symptom incidence (sic) is not close to 100 percent in such surveys, this is probably because the survey has been incomplete in some way or the memories of informants were faulty" (Tyhurst, 1957, p. 161)[22].

Taken together, I think that these comments by Murray and by Tyhurst should give you more of an idea of the importance of some of the results I have been discussing and why I have called the issues they raise or reraise key ones for further work on the definition and measurement of psychiatric disorders in general populations.

MR. LOCKE: Thank you, Dr. Dohrenwend.

Our next speaker, Dr. Jerome K. Myers, is Professor of Sociology at Yale University and Director of Graduate Studies in the Department of Sociology at Yale. He, too, is a consultant to the Epidemiological Study at the National Institute of Mental Health. Out of his many, many articles and chapters and books, let me just cite one of the recent ones, entitled "A Decade Later, a Follow-up of Social Class and Mental Illness."

Dr. Myers is going to address the subject of the use of survey instruments in measuring symptoms, a look at two longitudinal studies.

Dr. Myers.

THE USE OF SURVEY INSTRUMENTS IN MEASURING SYMPTOMS: A LOOK AT TWO LONGITUDINAL STUDIES

Dr. Jerome K. Myers, *Director of Graduate Studies, Department of Sociology, Yale University*

In the past 25 years psychiatric research has expanded beyond studies of patients in treatment to investigations of community populations as well. As a result, problems of definition and measurement of mental health and illness have become increasingly difficult but of crucial importance in our understanding of the problems being discussed at this meeting.

As long as patients were the object of study, the traditional diagnostic system could be used for definition and classification purposes. The clinician diagnosing the patient had a person with a presenting problem with which to start; he had access to a relatively large body of data collected in the institution both from the patient and from other sources; and the reliability of his diagnosis could be checked over time.

However, researchers of untreated mental illness in the community must work without the aids to diagnosis which are available in a clinical setting. Since the field worker usually has only a short time to spend with the respondent, it is generally difficult to elicit the same quality and quantity of information. Finally, while agreement upon diagnosis is difficult enough within the clinical setting, it is even more of a problem in community studies.

Because of such difficulties in applying the traditional psychiatric methods of measurement, community researchers have developed a different approach to measure psychiatric problems. Instead of trying to label a person in terms of the usual diagnostic categories, they have attempted to make judgments in a more general manner in terms of an individual's overall level of psychiatric distress. In the classical Midtown Study, for example, five degrees of severity of symptomatology were used, ranging from mild at one extreme to incapacitated at the other.

As this method of evaluating psychiatric status in community studies has grown, short screening devices have been developed to measure the severity of psychiatric problems as an alternative to the traditional clinical evaluation.

Since 1950, numerous studies have been made of community samples using such instruments, the most typical of which is the type just described by Dr. Dohrenwend in the 22 item Langer Index, but the same items keep appearing in all or most of the indices used in these community studies.

All of the studies in the last 15 or so years indicate that a significant proportion of the population, indeed, exhibits high psychiatric symptomatology. Exact rates vary according to the specific operational definitions of psychological distress, but such field studies suggest that between 15 and 20 percent of the population exhibit high symptomatology, with the proportion of mildly disturbed running as high as 80 percent.

Validity studies of such symptom inventories indicate they discriminate between groups of psychiatric patients and nonpatients living in the community, between hospitalized and nonhospitalized groups, and between persons judged by clinicians to be psychiatrically impaired and those deemed to be unimpaired.

However, as Dohrenwend and Crandell point out, in a study of psychiatric symptomatology employing patients and community groups, less serious symptoms characterize nonpatients who exhibit high levels of symptomatology when compared with patients who exhibit similarly high symptom levels. Little else is known, however, about exactly what such instruments measure, and there are few reports, with the exception of the works of Dohrenwend and his colleagues reported here today, of attempts to evaluate the same population with a variety of instruments.

Moreover, some researchers such as Tyhurst, Bruce and Barbara Dohrenwend, and Haberman have questioned the meaning of the epidemiologic findings of widespread psychiatric impairment, reasoning that a portion of the symptomatology reported in field studies may be induced by stressful events in the contemporary situation and may be temporary rather than a manifestation of basic and persistent psychological disorder as many have assumed.

Unfortunately, it has been difficult to test this proposition because longitudinal data on a relatively large and diverse population have not been available. Bruce and Barbara Dohrenwend and Haberman have conducted pioneering studies, but their panels have been small and the events they studied have been limited in number.

At the present time, we are engaged in two longitudinal studies in New Haven, which are relevant to the issues I have just discussed. Specifically I wish to share with you information relating to the two basic questions raised above, namely, (1) comparison of instruments, and (2) measurement of changes in scores and changes in life events over time.

The first project is a longitudinal study of the population of a community mental health center catchment area, hereafter referred to as the community study. The sample consists of one adult selected at random from each of 720 households in a systematic sample of a mental health catchment area of approximately 72,000 population in metropolitan New Haven. Interviews were conducted in person with each respondent in 1967-1968 and again two years later.

This research, as well as earlier studies in New Haven, employed a screening instrument, the Gurin Index, developed by MacMillan and further modified by Gurin and his associates. As a typical screening instrument, it utilizes a list of 20 psychiatric symptoms which are scored and developed into an index of mental status. Scores range from 20 maximum psychological distress or impairment, to 80 total absence of symptoms.

The second study is part of a larger project on psychiatric utilization review and evaluation. As part of that study, 132 treated schizophrenics discharged from the hospital were interviewed in the community in 1970, approximately two to three years past their discharge. These people originally had been in six different treatment agencies, which represent the gamut of type of treatment offered to schizophrenics today.

As part of the evaluation of their role performance and mental status, we administered two instruments in addition to the Gurin Mental Status Index: The New Haven Schizophrenia Index and the Psychiatric Evaluation Form, developed by Spitzer and Endicott. This form is a new and more condensed and more easily applicable version of the PSS, which Dr. Dohrenwend referred to in the previous paper.

The New Haven Schizophrenia Index is an interviewer assessment instrument noting the presence or absence of commonly seen symptoms of schizophrenia. It contains 21 items on a dichotomous yes/no scale and formalizes a clinical stereotype of what is commonly called schizophrenia for diagnostic purposes. Findings indicate that the New Haven Schizophrenia Index consistently and accurately distinguished persons in treatment diagnosed as schizophrenic from those with nonschizophrenic diagnoses.

The Psychiatric Evaluation Form is an interviewer rating instrument developed by Endicott and Spitzer to record scaled judgments of a subject's functioning during a one week period. It covers dimensions of psychopathology of traditional interest, such as depression, anxiety, and hallucinations, which bear close correspondence to a mental status examination. In addition, there is a category, "overall severity of illness," which was used to make comparisons with the Gurin score and the New Haven Schizophrenia Index score.

Now for the results. Beginning with the community sample of 720, we discovered a significant amount of psychiatric symptomatology, according to the Gurin Index, in the community as has been found in other field studies. In 1967, 18 percent of the adults interviewed were classified as having a high symptom level, 66 and less on the Gurin scale; 47 percent as medium symptom level; and 35 percent as low symptom level, or relatively symptom free. Two years later, in 1969, the corresponding percentage distributions were virtually the same.

In the schizophrenia field study, the results were significantly different. Forty-eight percent of former patients reported a high symptom level, (compared to 18 percent in the community sample); and only 9 percent reported a low symptom level (contrasted to 35 percent in the community).

Thus, the Gurin Index differentiates clearly between nonpatients and former schizophrenics. When compared with the other two indices, however, the Gurin scale systematically categorizes former schizophrenics as being more distressed psychiatrically.

If you look at Table 1, you see that while 48 percent of former patients exhibited a high symptom level on the Gurin scale, the corresponding percentages were only 23 for NHSI and 13 for PEF.

In contrast, the Gurin scale shows only 9 percent of former patients having a low symptom level, contrasted to 31 percent as measured by the schizophrenia index, and 45 percent as measured by the PEF instrument.

To further explore the relative rankings of the former schizophrenics on the three indices, we ranked scores by thirds from the highest to the lowest. Comparisons were then made as shown in Table 2. There is a tendency for the rankings of scores on these instruments to correspond, as you can see. Witness the heavy loading of highest third-highest third; middle third-middle third; and lowest third-lowest third. You just go across the diagonal and you see they are the highest percentages. However, the rankings by instrument are significantly different. For example, of the third exhibiting the highest amount of distress on the schizophrenia index, only 52 percent were in the same third for the Gurin and 77 percent for the PEF.

The percentages for the healthiest third on the schizophrenia instrument were similar; 52 percent and 71 percent respectively.

Thus, while the Gurin scale works well on a general population, it is not as discriminating in estimating the severity of symptoms among a group of former schizophrenics which exhibits an extremely higher level of symptomatology than the general population.

Since we discovered a high intercorrelation of symptom items within and among the three instruments, we performed a factor analysis on all symptom items.

Five factors emerged from the rotated analyses of 62 items, and 37 items loaded .50 or above, with no overlap across factors at that level. Table 3 presents these factors.

The first factor contains 12 Gurin and five PEF items. We have labeled it as "neurotic," since it contains mostly symptoms of anxiety, depression, and somatic illness. The second factor contains some of the severe symptoms of schizophrenia and is called a "psychotic" factor.

Table 1. Agreement on Overall Assessment of Symptomatology in 132 Schizophrenics on Follow-up with Gurin Mental Status Index, New Haven Schizophrenia Index, and Psychiatric Evaluation Form.

	Symptom Level				
	Low %	Moderate %	High %	%	N
Gurin	9	43	48	100	132
NHSI	31	46	23	100	132
PEF	45	42	13	100	132

Table 2. Comparison of Rankings by Lower, Middle and Higher Thirds on New Haven Schizophrenia Index and Mental Status Index.

	Symptom Level				
	Lowest Third %	Middle Third %	Highest Third %	%	N
Lowest Third	52	23	25	100	44
Middle Third	34	43	23	100	44
Highest Third	14	34	52	100	44

Comparison of Rankings by Lower, Middle, and Higher Thirds on New Haven Schizophrenia Index and Psychiatric Evaluation Form.

	Symptom Level				
	Lowest Third %	Middle Third %	Highest Third %	%	N
Lowest Third	71	27	2	100	44
Middle Third	25	55	21	100	44
Highest Third	5	18	77	100	44

Table 3. Factor Analysis of Symptoms with Index Scores.

		1	2	3	4	5
Percent of Communality		38.60	19.31	12.86	13.26	15.97
	NEUROTIC					
Gurin	Upset stomach	.521				
	Nervousness	.735				
	Pains-ailments	.686				
	Headaches	.590				
	Insomnia	.577				
	Ill health affects work	.717				
	Shortness of breath	.610				
	Afraid of nervous breakdown	.676				
	Hands tremble	.623				
	Spells of dizziness	.622				
	Can't take care of things	.621				
	Healthy enough to function	.548				
PEF	Agitation-excitement	.530				
	Suicide-self-mutilation	.567				
	Somatic concerns	.539				
	Anxiety	.763				
	Depression	.690				
	PSYCHOTIC					
PEF	Grandiosity		.595			
	Speech disorganization		.708			
	Inappropriate behavior		.534			
	Suspicion-persecution		.606			
NHSI	Delusions, unspecified		.694			
	Looseness of association		.659			
	Inappropriate affect		.516			
	MOTOR DISTURBANCE					
PEF	Retard/lack of emotion			-.603		
NHSI	Reduced motor activity			-.641		
	Stereotyped motor activity			-.599		
	DELUSIONS/HALLUCINATIONS					
PEF	Hallucinations				.845	
NHSI	Delusions, depressive				.550	
	Hallucinations, auditory				.727	
	Hallucinations, visual				.673	
	HEBEPHRENIC					
NHSI	Chaotic interpersonal rel.					.514
	Bizarre thinking					.597
	Derealization					.608
	Negativism					.599
	Concreteness					.627
	Mutism					.562

Factors 3, 4, and 5 are labeled "motor disturbance," "delusions/hallucinations," and "hebephrenic" and are composed exclusively of PEF and schizophrenic items.

What is more interesting is that these factors in turn are correlated differentially with total scores on the symptom indices, indicating that the three measures of mental status tap varying aspects of symptomatology.

If you will look at Table 4, you will see that the Gurin Index correlates the .967 with the neurotic factor and measures this aspect of

Table 4. Correlations of Total Scores with Factor Scores

	Neurotic	Psychiatric	Motor disturbance	Delusions/ hallucinations	Hebephrenic
	1	2	3	4	5
Gurin	.967**	.060	-.041	.098	.005
PEF	.566**	.454**	-.180*	.135	.267**
NHSI	.300**	.602**	-.288**	.276**	.502**

*significant = .05
**significant = .01

Table 5. Changes in Mental Status Between 1967 and 1969*

Point Change	%
Worse	
20+	2
10-19	4
5-9	12
3-4	10
2	7
1	5
No Change	11
Better	
1	8
2	7
3-4	10
5-9	14
10-19	8
20+	2
	100 (N = 720)

*Mental Status is measured by the 20 item Gurin Index of psychiatric symptoms.

symptomatology almost exclusively. The Psychiatric Evaluation Form, while tapping a significant amount of neurosis, also correlates highly with the psychotic factor, Factor 2.

However, it is the New Haven Schizophrenia Index, as I presume you would expect, that is most sensitive to the psychotic factor and to other aspects of psychotic symptomatology, as contrasted to neurotic symptomatology.

Thus, the high prevalence of psychiatric impairment found repeatedly in community studies, using indices like the Gurin scale or the 22 item scale mentioned in the previous paper, can be interpreted as a high prevalence of the factor which we have labeled neurotic and measures anxiety, depressive, and somatic symptoms.

The Gurin Index does not overestimate the prevalence of psychiatric symptomatology so much as it measures only one aspect of symptomatology, which seems, as Dohrenwend and Crandell have suggested, less serious.

Our findings suggest that one cannot conclude that 20 percent of the general population are so grossly impaired psychologically that they display psychotic symptomatology. When, in our study of former schizophrenics, an instrument which does tap this dimension is used, such as the Psychiatric Evaluation Form or the New Haven Schizophrenia Index, overall impairment is not as high as measured by the Gurin Index.

Changes in Gurin Scores and Changes in Life Events

Moving to the second issue, on changes in Gurin scores and changes in life events, we will report in this part of the paper on the community sample alone.

Included in the information gathered from each respondent over a two year period were life crises which had occurred during the previous year. We defined such crises or events as experiences involving a role transformation, changes in status or environment, or impositions of pain. The respondent was asked whether any of 64 such events had occurred to him in the year previous to our interview. These events ranged from a move, a child starting school, marriage, and loss of job, to divorce, serious illness, and the death of a loved one.

As reported previously, in both '67 and '69, the distribution of Gurin scores were similar. However, during this two year period, these Gurin scores remained at the same symptom level of high, medium, and low symptom for only 54 percent of the study population. Twenty-one percent became worse and 25 percent improved by one or two levels.

Table 5 shows the actual point score distribution as opposed to the category change. As can be seen, the changes were similar to those by Gurin category: 58 percent changed less than five points, 18 percent changed for the worse by five or more points, and 24 improved to a similar degree. In both years approximately 20 percent of the respondents had experienced no events, 28 percent one event, 20 percent two events, 11 percent three events, 6 percent four events, and 15 percent five or more events.

Table 6. Change in Number of Events Between 1967 and 1969

Net Increase	%
5 or more	4
4	4
3	6
2	9
1	19
No change	21
Net Decrease	
1	13
2	9
3	6
4	3
5 or more	6
	100 (N = 720)

Table 8. Change in Number of Events and Change in Mental Status, 1967-1969.

Net Changes in Events	Changes in Gurin Scores (Cumulative Percentage)								
	Worse					Better			
Increase	15+	6-14	2-5	1	0	1	2-5	6-14	15+
4 or more	15	33	62	73	77	84	99	100	100
2 or 3	1	21	52	59	72	76	87	96	100
1	2	18	38	42	50	60	84	99	100
No change	2	11	29	32	45	54	82	96	100
Decrease									
1	0	4	23	26	50	66	86	99	100
2 or 3	0	11	25	33	37	42	66	97	100
4 or more	2	9	20	22	27	29	50	85	100

Table 6 indicates the change in the number of events experienced by the study group in the two years: 21 percent experienced no change, 42 percent experienced a net increase, and 37 percent a net decrease.

The important question, however, in terms of this paper, is whether or not there is a relationship between changes in these scores and changes in the occurrence of life events.

As shown in Table 7, we find that there is indeed such a relationship. The greater the number of changes in life events, the more likely is the individual to have changed his mental status significantly. More specifically, a net increase in life events is associated with a worsening of symptomatology, a decrease with improvement.

As seen clearly in Table 7, of those persons who had a net increase of two or more life events, only 21 percent displayed an improvement in their symptomatology (over one point change in the Gurin scale), whereas for those who experienced a net decrease of two or more events, 64 percent improved. In contrast, the corresponding percentages for a symptom worsening were 56 and 23.

Table 7. Change in Number of Events and Change in Mental Status, 1967-1969.

	Change in Gurin Scores				
Net Change in Events	Better* %	Zero or 1 %	Worse* %	Total %	N
2 or more increase	21	23	56	100	159
zero or 1	41	28	31	100	387
2 or more decrease	64	13	23	100	174
					720

*2 or more points change on Gurin scale.

A more detailed picture of this relationship is seen in Table 8, and demonstrates that the greater the net change in number of events, the greater the movement on the mental health scale. This is a table of cumulative percentages, going left to right, to 100. Thus, 15 percent of those persons who had a net increase of four or more events changed 15 or more points for the worse on the Gurin scale, while the percentage was only two for those who had a net decrease of four or more events.

The difference between an increase of four or more events and a similar net decrease is seen clearly in the cumulative percentages presented in Table 4: 62 percent of the former, but only 20 percent of the latter had a two or greater point worsening of symptomatology, while the cumulative percentages which include no change or a change for the worse in psychological status were 77 and 27 respectively.

We next determined whether nine variables, which could conceivably be related to the presence of life events and mental status were accounting for the relationships we have found between changes in life events and changes in symptoms. These factors were race, sex, age, marital status, religion, social class, number of persons living in the household, number of

Table 9. Changes in Gurin Categories and Changes in Selected Life Events, 1967-1969.

	Mental Status Change (percent)				
	Improved	No change	Worse	Total %	N
Graduated from school					
Never experienced event	24	55	21	100	605
1967 but not 1969	43	45	12	100	49
1969 but not 1967	20	51	29	100	55
Changes in relations with neighbors					
Never experienced event	25	55	20	100	691
1967 but not 1969	36	55	9	100	22
1969 but not 1967	33	17	50	100	6
Finances worse					
Never experienced event	24	56	20	100	675
1967 but not 1969	52	36	12	100	25
1969 but not 1967	13	43	44	100	16

events experienced in 1967, and general symptom level in 1967.

We undertook multiple regression analyses, correlation analyses, and contingency controls. The results of all three analyses were similar and in no way negated our basic findings. Over and over again, we find the same thing—the greater the change in events, the greater the change in mental status.

To further explore the implications of these results, we studied the relationship between change in events and change in symptoms for each individual event.

Three types of statistical testing were employed: tests of significance, correlation, and regression analysis. Of 64 individual events, all but six were in the predicted direction, that is, a greater proportion of those persons who underwent the event recently, in 1969 but not in 1967 experienced a worsening of symptomatology, while those who sustained the event only in 1967 were more likely to improve.

Examples of the relationship between change in events and change in symptoms are presented in Table 9.

Events, of course, may be the results of the individual's mental status rather than its precipitant. This can certainly be true for many variables, such as divorce, job loss, or failure in school.

On the other hand, certain kinds of events are relatively independent of the individual's psychological condition, such as a major reorganization at work resulting from the merger of a local company with a national corporation, or the starting of school by a child at the usual legal age, or retirement at the usual age of retirement in your company.

Of the 64 life events analyzed in this paper, 13 can be considered independent by this method. For all 13 of these, the recency of the occurrence of an event is related to a worsening of symptomatology.

Thus, there is a relationship between changes in life events and psychiatric symptoms for those events independent of one's psychological condition as well as those which may interact with it.

In conclusion, the analysis presented in this paper demonstrates that indices like the Gurin Mental Status Index, or the 22 item index discussed in the previous paper, discriminate between known groups (a community sample, and former schizophrenics). However, its lack of sensitivity to other symptoms particularly to psychotic symptomatology, makes such an index less useful for studies in which a finer assessment of symptomatology is desired.

Studies which focus on highly specific aspects of psychiatric symptomatology require research instruments which are much more sensitive to other dimensions of behavior.

Quite clearly, I think, all the evidence that we have indicates that the usual screening device taps, and taps quite well, one dimension of psychiatric symptomatology. That particular dimension, in turn, is highly related to other aspects, but the relationship is far from perfect.

Furthermore, the Gurin Index is sensitive to situational stress in the social environment or to put it another way, the types of symptoms which people in a community exhibit, as measured by all of the instruments, are sensitive to situational stress in the social environment.

While symptomatology remained constant in slightly over half of the community sample in a two-year period, for the rest of the population, at least in metropolitan New Haven, changes in

Gurin scores were related closely to the recency of life events. Thank you.

MR. LOCKE: May I suggest that any questions you have for the speakers, you just save for the time being because the question period comes at the end of all the speakers' presentations.

Our next speaker is John Robert Newbrough. Dr. Newbrough is a Professor in the Department of Psychology at the George Peabody College for Teachers. He is also Coordinator of the Center for Community Studies, John F. Kennedy Center for Research on Education and Human Development at the George Peabody College for Teachers at Nashville, Tennessee.

Among the many articles and chapters and books that Dr. Newbrough has turned out, let me just mention one called "Community Mental Health: Individual Adjustment or Social Planning." This was done in conjunction with the U.S. National Clearinghouse for Mental Health.

Dr. Newbrough is going to discuss "Community Mental Health Epidemiology: a Collaborative Study of Depressed Mood."

Dr. Newbrough.

COMMUNITY MENTAL HEALTH EPIDEMIOLOGY: A COLLABORATIVE STUDY OF DEPRESSED MOOD

Dr. J. Robert Newbrough, *Coordinator, Center for Community Studies, George Peabody College for Teachers, Nashville, Tennessee*

I am going to offer you some change of pace. My paper was based, rather substantially, on the 1966 Conference on the Measurement of Mental Health. I attended most of those meetings and heard the discussions. They have served as important contributions to the project described in this paper.

The two previous papers have very close affinity to our inquiry, a project planning a collaborative study of depressed mood. This addresses theory and methodology and relevance to programming purposes, since there has not been a major collection of data. We wish to share our plans with you.

Imagine that you have the opportunity, working with a government agency, to design a study that would be able to provide data about the mental health of the population of the United States. How would you start? This is the general question that a group of us faced last year when we began the project that I will describe. Our short answer was, *slowly*! And, with *deliberative planning*.

The impetus for this study began in a variety of places and came together last year through an effort of the Center for Epidemiologic Studies at the National Institute of Mental Health, (NIMH), spearheaded by the director, Robert Markush. Some of the major contributors have been:

(1) The *philosophy of Adolph Meyer* who saw mental disorder as a failure of the abilities of people to get on productively in their environment (Meyer, 1957).[23] This legacy remains in the results of the Midtown Study (Srole, et al., 1962; Langner & Michael, 1963);[24] the Stirling County Study (Leighton, 1959;[25] Leighton, et al., 1963; Hughes, et al., 1960),[26] and those influenced by such people as Thomas Rennie, Alexander Leighton, and Roy Grinker.

(2) The *philosophy of Morton Kramer*, NIMH, who believes in the need for good data and who saw, more than a decade ago, the need for population laboratories to study the processes of mental health in a population in its normal setting.

(3) The *Center for Epidemiologic Studies* at NIMH which began the establishment of epidemiologic field stations. Robert Markush used the analogy of epidemic investigations as a way to study the occurrence of mental disorder and was particularly interested in the relationships between mental disorder and mortality.

These ideas came together into a collaborative study begun by the Center for Epidemiologic Studies, NIMH, in 1970.*

Collaborative Study in Community Mental Health

It was recognized by the Center for Epidemiologic Studies and the group of persons with whom it consulted that the field of mental

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*This project, Community Mental Health Epidemiology: Collaboration (MH 20681-01) is held by Newbrough as Principal Investigator. The project was developed as a planning operation for 1971-72 with a Planning Group composed of Robert Markush (Director, Center for Epidemiologic Studies, NIMH), Ben Z. Locke (Asst. Director, CES, NIMH), Roger Christenfeld (Psychiatric Epidemiology Research Unit, Columbia University, Poughkeepsie, N. Y.) and Newbrough (as chairman).

health epidemiology needed a new thrust. Research was generally being done on a piecemeal basis from project to project. There were a small number of senior investigators in the field and few young investigators coming into the field. The theories and methodologies were quite different from each other, making comparisons very difficult. What seemed needed in the field was a sustained effort which would bring together a substantial number of capable scientists and scientific staffs, and which would attempt to be integrative. The collaborative study mechanism was chosen as a means to accomplish this goal.

What to study?

There were two main purposes to the effort which had to be joined together. First, there was very strong interest in a research mechanism which would provide for descriptive efforts in epidemiology and for continuous monitoring of short-term variations of mental disorder. Second, there was also the strong need for a substantive focus. This meant a phenomena to study within a theoretical framework—so as to guide the inquiry. The two would ideally be interrelated so that each would help guide the other.

In approaching this as a population oriented study, we wished to have a phenomenon which could be found in large enough proportions to show up in samples, and perhaps would be measureable to some degree for everyone. It was clear to us that the emotional or affective experience is something that is both present in all persons and apparently related to mental disorders.[27] Furthermore, emotional behavior shows short-term changes and seems to accompany stress and strain of the person. Emotional behavior has been argued to be present in all mental health clinic clients, and is a matter which many persons seek to control—witness the substantial sales of psychological drugs (antidepressants and tranquilizers). We thought that *mood* or *psychological state* had important implications for mental disorder research. And we could see that it was relevant to concepts of *mental health* and *quality of life* as well.

How to study mood?

The approach to the study of mood was guided by our frame of reference. We took a person-in-environment or ecological approach to mood, and asserted that mood could be seen as a response to changes in the person-environment fit (French, Rodgers and Cobb, in press).[28] That is, changes in the environment will shift this fit and yield changes in the mood (conversely, changes in the mood). With this orientation, it then became important to study when mood was related to environmental changes and when it was not. And this required the selection of variables describing the person, his relevant (or immediate environments) and the general community which provides the context (and the ambience) for behavior.

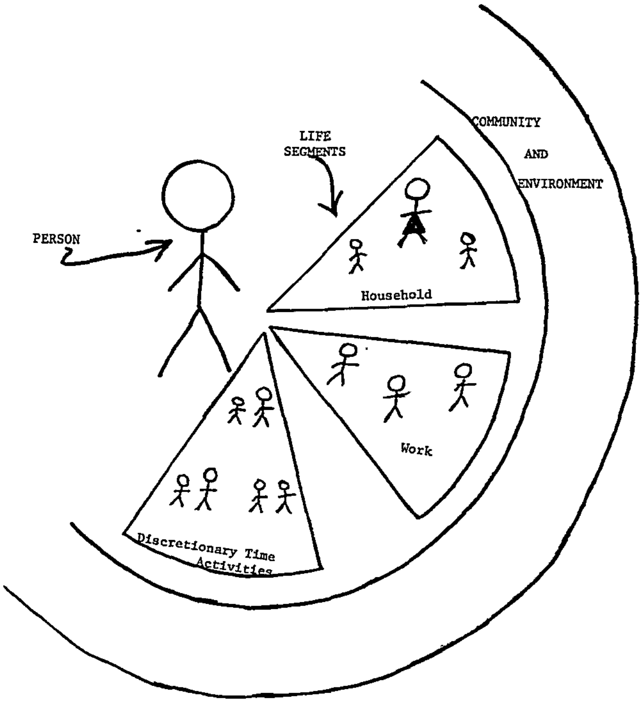
The design which emerged early in thinking about the study was that of a monitoring system which would collect information regularly from various points in the community and relate them together in time to see whether changes in one place would show up in other places, and how depressed mood related to that. In brief, then, we have designed a study which will sample the mood of this population regularly, relate to that other characteristics and experiences of the individuals, and will relate (independent of the household survey) measures of the community functions (e.g., use of various services, complaints about services, resource utilization, integration of the community, etc.). When alterations in the regular patterns appear, the study will also have the ability to study these changes—much like an epidemic or disaster research operation would.

An ecological view of mental health

The over-arching or meta-theory was noted above to be ecological (i.e., where there is a view of the person in his environment adjusting to it over time and coping with the day-to-day imbalances). (Figure 1.) We have decided to generate a view of the characteristics of the components of this process so as to try to understand what should be considered. To give a flavor of the view, some are listed on the following page:

Figure 1

A schematic representation of the person and his life spaces in the general community-environmental context



(1) *People*

(a) They feel good or bad.
(b) They perform acceptably or unacceptably.
(c) Other people like them, or dislike them.
(d) They communicate frequently with each other or are withdrawn.
(e) The words and messages have great meaning and can induce pleasant and unpleasant feelings.

(2) *Environment:*

(a) People do things in settings.
(b) Settings can be classified as to types of activities; e.g., home, work, school, church, recreation, commerce.
(c) Satisfactions are generally specific to settings; some settings are more important to the person than others.
(d) It is possible to malfunction in some but not necessarily all settings.
(e) Some settings are more stressful or supportive than others.

In this framework, problems are more inclusive than individual persons. While a person may perceive himself to be having a problem, it occurs in particular settings, at particular times with particular people being involved. This begins to explain why not everyone with the same symptoms (i.e., personal characteristics) becomes a case.

Mental health, then, can be seen to have two components—a person component and an environmental component. The environment is a way of designating a complex which includes family, friends, work space, school, etc. Thus, the person-environment fit should be seen as a complex of person-setting-other people fits and requires a research design that gathers data on the person and a variety of aspects of the environment.

What is mental disorder?

Globally within this ecological framework, mental disorder designates failures of the person to fit his environment. There are two types of such failures:

(1) Adaptive failures, where people generate behavioral styles that yield problems of fit. These are the psychotics, the criminals, etc.

(2) Coping failures, where the person at the time cannot deal with feelings, thoughts, or ideas which are reactive to something fairly immediate, and which are relatively transitory. These are more widely distributed and may involve all persons in the population at one time or another.

The person-environment unit for problem analysis provides us with a more global perspective in considering what to do about mental disorder. But it may create problems in trying to get information from currently constituted record systems, which are largely person-oriented.

What do we want to know about mental disorder?

The short answer to the question is, *for what purpose*? For this discussion, I will consider the research interest first and then turn to two perspectives which I think will be of interest to this group: (1) the clinician's perspective and (2) the administrator/planner's perspective.

The research picture. In approaching an understanding of mental disorders, one finds a lot of information about the person who has them. We seem to know the distributions of disorders by age, sex, social class, and race (Dohrenwend & Dohrenwend, 1969; Levine & Scotch, 1970).[29] And yet, when we look closely at this knowledge, one sees that it is based largely on cases in treatment. The data come from records or record systems which use the presence in treatment as a bit of hard evidence of the presence of a condition. The matters which have intrigued epidemiologists are the *real or true prevalence* and *incidence* of conditions. There have been several special studies of samples of the population to try to get estimates of the disorder. The problem that has plagued investigators is *what is a disorder*? or *what is a case*? They are different questions although they are often discussed synonymously.

The approach has typically been to study patients with clear disorders, describe their characteristics and then try to find people in the general population who have these characteristics. In order to be sure about these persons who have been identified as having characteristics, clinicians are often asked to examine these people to see whether they look like persons who are in treatment. The perplexing thing that is yielded from these investigations is the lack of stable results, and the seeming lack of correlation between cases in the population, and whether they are recognized or are in treatment, and whether they are malfunctioning socially or behaviorally. Particularly missing from many studies is the use of *inadequate functioning* as a criterion for disorder.

The other general finding is that there seems to be no consistent cause of disorders that looks to be the same. This has yielded searches for a biological cause, or a set of social circumstances which seem to yield the disorders. Correlates have been found, but not in consistent enough patterns to know that one has found a cause.

It was against this perspective that we approached the design of a study that would help to overcome some of these deficiencies.

The research questions. We wished to begin with some methods and measurements that have been used in other research so that researchers could feel reasonably sure that there were some phenomena that they recognized and could understand enough to interpret findings. So we posed:

(1) What are the fluctuations in mood levels in the population? (Frequency and amount of fluctuation)

(2) Can aspects of the person's life, like major events, be related to mood changes?

(3) Can one find general events that relate to mood level changes?

(4) How is mood related to social and behavioral dysfunction? Other symptoms?

(5) How is mood related to demands for treatment? Does the mood or the event associated with the mood determine what treatment will be sought?

These are questions directed to trying to understand characteristics of the person in relationship to some of the setting variables across time, so as to see what are normal and what are disordered variations. The epidemiological emphasis on the environment is strong here.

The clinician's perspective. The clinician functions to work with individuals to remove their complaints. Being trained within a personality theory, the clinician usually sees the problem as affecting the person and sees the solution as a change for the person. Thus, the psychiatric technology at this level is person oriented; (a) psychodiagnosis, (b) psychotherapy, and (c) psychotropic drugs. Problems are then classified by diagnosis so that the clinician can estimate what will be required to treat (i.e., change the behavior of) the client.

Clinical questions to put to us could include:

(1) Does mood fluctuation relate importantly to persons presenting for treatment?

(2) What is the nature of the correlates of
  (a) presenting for treatment,
  (b) behavioral dysfunction, and
  (c) pathological depressed mood?

(3) Are there clear sequences of events that lead to the disorder?

(4) Is there a standard course that each type of disorder follows?

(5) Can interventions change the course?

(6) What are they?

(7) When should they be applied?

(8) What are the expected, and unexpected, effects?

These are matters which could be studied directly and presumably made available to clinicians.

The administrator's perspective. The manager has responsibility for program direction based on notions of needs, resources available and means to meet the needs. Individual problems and processes have to be categorized in various ways to properly manage the organizations. The questions that might be posed here are as follows:

(1) What kinds of mental disorders are there?

(2) What are the important characteristics of the problems, e.g.:
  (a) Where do the problems occur?
    1. in the home,
    2. at work,
    3. in the neighborhood?
  (b) Who is defined as having the problem?
    1. age, sex, race, etc.
  (c) Who else is concerned with the problem?
  (d) How many people are involved?
  (e) Is the problem person central or marginal to the life space where the problem occurs?
  (f) Is this problem characteristic:
    1. of this person,
    2. of this life space,
    3. of this group of people?
  (g) What is the extent of anxiety or upset in:
    1. index person (mild, moderate, severe)?
    2. others?
  (h) Do the people want a solution or the person (problem) removed?
  (i) How long does each problem endure before a solution is achieved?

(These are questions designed to describe the problem as a situation involving a number of people in a particular place(s). It can designate the extent of the number of problems and some notion of the number of people involved.)

(3) Are the problems severe or mild?

(Designating the disruptiveness in the setting, and the need for resources to change them.)

(4) Are the problems chronic or acute?

(This amplifies the duration question and again provides information on the amount of resources required for change.)

(5) Do these problems respond to:
  (a) Brief and few consultations?
    1. with index person.
    2. with entire group.
  (b) Consultations over an extended period?
    1. with index person.
    2. with entire group.
  (c) Intensive work for few times?
    1. with index person.
    2. with entire group.
  (d) Intensive work over an extended period?
    1. with index person.
    2. with entire group.
  (e) Custodial care of (index person)?
    1. brief period.
    2. extended period.

(These questions provide some estimate of the resources needed to provide services to the problems.)

(6) Does demand for service relate in any systematic way to the distribution of problems?

(7) Can the local resources meet the demand?
  (a) Are there peaks of overload?

(b) Is there a periodic program audit? (To evaluate the efficiency and quality of programs)

(8) Are there regular ways of assessing unmet needs?

(a) Is there a periodic community audit?

These eight questions illustrate the kind of information which I would want to know as a program manager or planner. I think they would be useful in addressing issues which the planner must consider.

(1) What are the matters requiring services?
(2) What are the services we now have?
(3) What services do we need?
(4) What resources do we need?
    (a) money
    (b) service capabilities

A question to the audience is whether the current set of statistics and reports which you work with adequately address such questions as these?

The methods and measures of Community Mental Health Epidemiology

The basic design of the study includes regular collection of data at weekly intervals from a sample of the population. These persons will be followed for several weeks to serve as a panel to study weekly variation in the same people. Thus, there will be a process of interviewing new persons each week, *plus* following up subjects. See Figure 2 for a schematic diagram of the household interviewing.

Mood measurement. We have specifically chosen *depressed mood* as the construct to be studied largely because we believe it to be reactive to a range of potentially controllable circumstances,[30] and because it is an important component of the depressive syndrome. After an extensive literature review, the Center for Epidemiologic Studies has begun an application of field testing with three mood scales (Beck, 1961;[31] Lubin, 1966;[32] Zung, 1965).[33] In addition a small validation study has been done on a working population to see whether these scales (and the Crowne–Marlowe social desirability scale (1964))[34] would correlate with psychiatrists trained to judge severity of mood. This was

Figure 2. Design for CMHE

Months	1	2	3	4	5	6	7	8	9 etc.
Samples									
I	$O_{I.1}$	$OF_{I.2}$	$OF_{I.3}$	$OF_{I.4}$					
II		$O_{II.1}$	$OF_{II.2}$	$OF_{II.3}$	$OF_{II.4}$				
III			$O_{III.1}$	$OF_{III.2}$	$OF_{III.3}$	$OF_{III.4}$			
IV				$O_{IV.1}$	$OF_{IV.2}$	$OF_{IV.3}$	$OF_{IV.4}$		
V					$O_{V.1}$	$OF_{V.2}$	$OF_{V.3}$	$OF_{V.4}$	
VI						$O_{VI.1}$	$OF_{VI.2}$	$OF_{VI.3}$	$OF_{VI.4}$
etc.									

NOTE: O - refers to original interview, which is a new sample each month.
OF - refers to the follow-up observations collected by a mailed questionnaire with fewer questions.

done to begin to develop an instrument which will be sensitive to less severe levels of depressed mood than usually seen clinically.

The psychiatrists were able to agree consistently on the level of depressed mood in 83 percent of cases (for 309 *Ss*). The remainder were just one mood level (of five) apart. Ninety items were found to correlate at .55 (zero sum correlations added together). Twenty-five items were found to correlate at .64 for the entire group of *Ss*, with best predictor sets also found for male and females, three age groups and three education groups. As an overall finding, 34 percent of the 309 *Ss* showed some degree of depressed mood (with 24 percent in Category 1; 8 percent in Category 2; 2 percent in Category 3 and 0 in Category 4—the most severe).

The next steps are to attempt to replicate these findings on some other population groups, and to do other cross-validation efforts in the communities being used for the study.

Other person level measurements

As imagined, other characteristics of the person are seen as important to study. The Center for Epidemiologic Studies has a battery being field tested in Kansas City and Washington County, Maryland:

(1) Mental Health Status (Langner, 1962)
(2) Life Events (Holmes & Rahe, 1967)[35]
(3) CES mental well-being (derived from Gurin, Veroff & Feld, 1960;[36] Bradburn, 1969,[37] and Brenner, 1967)[38]
(4) Cantril's Self-Anchoring Striving Scale (Cantril, 1965)[39]
(5) Social Desirability (Crowne & Marlowe, 1964)
(6) Srole Anomie Scale (Srole, et al., 1962)
(7) Uncontrolled drinking (Mulford, 1969)[40]
(8) CES Depression Scale (available from Center for Epidemiologic Studies, NIMH)

We have not reached a final decision on which other measures to use, but these give one a sense of the variety of measures that could be used as "control factors" to get the correlations higher for particular subgroups, and to identify characteristics which might put them at higher risk.

Community and environmental variables

Community was defined by us as a political and geographical unit so that the organization of governance and human services could be studied as important to the quality of life. We were also interested in the information from the study being organized so that it would have meaning and usefulness to the community.

A theoretical formulation has been developed which construes the individual's relationship to the community to have two components (social need and individual autonomy needs) which can be construed as a kind of social contract. In order to study the matter of depressed mood in the community, we decided that it was necessary to develop a set of variables that:

(1) measured the lack of need-meeting (seen as a matter of experienced stress and morale/depressed mood. This in household survey discussed above);
(2) measured the reactions of individuals to lack of need-meeting (short-term changes in community);
(3) provide measures of the community functioning (longer-term changes);
(4) provided measures of the community structure (usually slower changes of the organization and aging of the community);
(5) provided measures of the environmental context (like weather, pollution and disasters).

These are being developed as a Community Information System where the measures are collected longitudinally and at the same intervals as the mood measurements so that one could see the relationships of variation one has with the other. (See Table 1 for a provisional list of Community Variables.)

A particularly interesting study of community variables and stress has been carried out in rural North Carolina by F. T. Miller and colleagues at The University of North Carolina.[41] A similar study in an urban setting was begun last year by the Center for Epidemiologic Studies.[42] These two will provide information about the nature of community variables and how they fluctuate. The developmental work in Washington County and Kansas City will begin to show the interrelationships between mood, other person level variables and community variables. We expect

Table 1
Measures of Functioning of Organized Community

Measures which are:

* = Community profile
______ = 5 year data set

	Indicators of reaction to stress and events (Short term changes)	Indicators of instrumental interaction (symbiotic)	Indicators of moral solidarity and shared values in the community (Commensal)
Education	attendance dropouts suspensions	pupil-teacher ratio enrollment in adult education library book circulation	average education level* # high school graduates*
Religious	attendance contributions frequency of news items on local issues	church schools and programs youth programs new building starts	# churches* # ministers*
Economic	absenteeism turnover complaints–BBB retail sales*	income unemployment* retail sales plant closings housing starts	Gini coefficient ratio: unemployment beneficiaries to number unemployed % unemployment*
Family	divorces filed juvenile court detentions rejected & dependent petitions # of domestic disturbance calls-police	juvenile court actions # families on welfare # women employed	marriages* divorces finalized* residential stability 1-person households
Political Gov't.	complaints to/about public services letters to editor # of editorials on local government issues	governmental responsiveness Metro budget changes	voting rate*
General Welfare	false alarms (fire) E.R. presentations traffic accidents complaints to agencies mental health clinic presentations crisis calls	infant mortality # arrests: juvenile, adult police functioning indices mental health admissions voluntary organization activity youth recreation programs	crime rate: person, property* discrimination complaints desegregation pattern of schools desegregation pattern of housing

NOTE: There are also two additional areas of indicators relevant, but not aspects of the organized community:
1. Population: *births & deaths**, age-sex ratios, mobility & migration.
2. Habitat: *weather,* pollution.

that it will be necessary to calibrate this to each setting where the research will take place, much like an EEG machine must be calibrated. And perhaps after three to five years of study, one should begin to get some sense of the way mood in the community operates.

Quality of life

This epidemiology project is one kind of approach to the measurement of the quality of life. The social indicators approach has been to study characteristics of the population (Sheldon & Moore, 1968)[43] or characteristics of an institution or a service system (Stanford Research Institute, 1969).[44] There has also been concern with the individuals (SRI, 1969) and with households (Miller & Roby, 1970)[45] as units to study. The individual level is clearly the appropriate place for mental health approaches to the quality of life. We see this study as an important approach to the study of individual and group (aggregate) characteristics of quality of life—and their interrelationships.

Quality of life in many ways is like program evaluation—it refers to the value attributed to life experience and circumstances. It seems to me that the major mistake conceptually has been to consider quality as a singular matter. Perhaps it would be fruitful to consider the quality of life as the way that one's daily circumstances appears and feels to a variety of persons:

(1) the person himself;
(2) his family, peers and associates;
(3) his formal helpers (doctor, minister, etc);
(4) his representatives in government;
(5) the service personnel;
(6) the planners.

Defined this way, it becomes important to understand that the standards and judgments of the various perspectives will be different, and yet may be accurate for their particular purposes. But many of us are concerned that the holders of each perspective do not get to test their views against those of others. The CMHE project will attempt to test this multiperspective view, and to compare and contrast across perspectives.

Relevance of the Community Mental Health Epidemiology Study

For the clinician. The CMHE project will emphasize the importance of the setting or the *environment* in mental health and mental disorder. The monitoring and special studies aspects of this are designed to locate and describe matters of interest in the general population. It will be specifically designed to relate to mental health service delivery and emergency services demand, so as to try to link more "natural" processes to mental health problems.

We have to be able to:

(1) Show linkages of mood to clinical problems.

(2) Show the variations of mood and other mental health related matters such as *life events*, *social functioning*, etc. across time.

(3) Show distributions of mood and other clinically relevant phenomena in subgroups of population.

I would hope to be able to emphasize the point that mental health problems are functions of the person (or persons) and the environmental setting. These problems as complexes should then have an assessment made of the entire thing with change strategies designed for maximum flexibility of interventions.

For the administrator. We hope to help the administrator get perspectives on mental health and mental disorder phenomena in community settings. We plan to show what the relationships with phenomena in the general community are—e.g., employment, events, etc. We also hope to be able to provide information on the consequences of events, stress, etc., in order to understand whether the current prognoses are accurate and whether interventions (where done) can be associated with any alteration of the basic (general) pattern.

The questions posed earlier for the administrator are those which occurred to me as ones to which the CMHE project can address itself, and are ones which I would like to know if managing or planning mental health programs. In the case of statistical systems, it seems to me that the staff could begin the job which faces all managers—and that is to help them get more efficient management information. And I would invite those interested to have some input to the CMHE project so that we design our work so as to be as responsive to program needs as possible.

Summary and Conclusions

The CMHE project is a study of individual and environmental variables as a correlational matter, with the capability for more controlled studies via cross-sectional analyses of data on the panel aspects of the design, and the capability for special studies. As part of an NIMH program of community mental health assessment, it will be possible to study the stresses of life as they ebb and flow across time, to get some notions of when risks of disorder, dysfunction and illness might be increased to get some ideas of when and under what conditions stress will yield needs for treatment and demands for services. Treatment outcome is the most difficult matter to address through this scheme. This would seem to require panel or cohort analysis of persons treated, compared with those untreated. It may be possible across time to piece together a view of this through the survey; but I suspect that a special study will have to be designed and conducted to address this aspect of the use of measurement—posed as a purpose for this session. Thank you.

MR. LOCKE: Thank you.

Our next speaker is Dr. Dupuy, who is the Psychological Advisor to the Division of Health Examination Statistics, National Center for Health Statistics.

Among various publications of his, the one that is most pertinent to today's session is called "Selected Symptoms of Psychological Distress," a publication within the National Center for Health Statistics series, Series No. 11, No. 37 in that series.

Dr. Dupuy is going to discuss "The Psychological Section of the Current Health and Nutrition Examination Survey."

Dr. Dupuy.

THE PSYCHOLOGICAL SECTION OF THE CURRENT HEALTH AND NUTRITION EXAMINATION SURVEY

Dr. Harold J. Dupuy, *Psychological Advisor, Division of Health Examination Statistics, National Center for Health Statistics*

I feel a little uneasy talking about mental health because it reminds me of a story that I heard recently. A physician, a statistician, and a psychologist had a conference with another gentleman. After it was over, this gentleman went to his supervisor to discuss how it went and that sort of thing. After a while the supervisor said, "It sounds like it went very well, but what kinds of persons were they? The gentleman giving the report thought that over a few seconds and said, "Well, two of them seemed to be fairly intelligent and well balanced and adjusted," and he said, "The third one was a psychologist."

Basically from an outline point of view, I trust you all have a copy of the presentation. I will give a brief description of the Psychological Section; a brief description of the Health and Nutrition Examination Survey; then something of a conceptual frame of reference; the General Well Being Questionnaire itself; the substantive relevance of the General Well Being Questionnaire in terms of what we are trying to address ourselves to here; and then finally, the summary.

The psychological section of the current Health and Nutrition Examination Survey (HANES) being conducted by NCHS is a self-report questionnaire containing 33 subject matter items exclusive of identifying information. It was designed to be essentially self-administered but can be used as an interview form. It is administered in the mobile examination centers to a sub-set of adults 25-74 years of age from the total HANES sample. It takes about 10 minutes to complete the form and is entitled General Well Being (GWB). (Appendix III).

The Health and Nutrition Examination Survey (HANES)

The HANES is a probability sample of the civilian, noninstitutionalized population of the U.S., ages 1-74, with oversampling of certain groups with a higher probability of nutritional deficiency. The survey began in April 1971 and is to be completed in calendar year 1973. The sample consists of approximately 30,000 persons from 65 sample areas. A sub-set of about 6,000 adults, ages 25-74, is included in a more "detailed examination" component of the survey. The information being obtained for each person in the detailed examination component includes:

(1) Basic demographic and socioeconomic characteristics
(2) Medical history data
(3) Results of examinations by a psysician, an ophthalmologist, a dermatologist, and a dentist
(4) Biochemical analysis of a urine specimen and a blood sample analysis
(5) Reported dietary intake
(6) Self-perceived health needs and practices in seeking medical care
(7) Responses to the General Well Being questionnaire

A report is in preparation which contains a detailed description of the planning, examination components, sample design, and other aspects of the survey.

A Conceptual Frame of Reference

The current orientation of the NCHS in conducting psychological examinations is to assess different aspects of psychological functioning for representative samples of the American people. The assessment of medical and dental conditions and psychological functioning is considered an inherent part of our interdisciplinary approach to obtaining information on the somatic and psychologic conditions bearing on the well being and quality of life of our citizens.

Mental health—Mental illness. Mental health can be viewed as a relatively enduring positive state wherein the person is well adjusted, has a zest for living, has developed his capacities for and is attaining self-realization. It is more than the mere absence of mental disorder. At the other end of the continuum mental illness, in turn, can be viewed as a severe disorder in adjustment, capability, or capacity affecting the individual's psychological functioning in coping with the problems and demands of life he encounters, and in attaining or maintaining his potential for self-realization. Thus to assess psychological functioning, as viewed above, our measurement methods must cover positive and negative aspects, or a low to high range, of functioning.

Measurement and Assessment. Measurement is considered here as the operation of ordering observations along some dimension, as on a scale, as present or absent, or as a condition for inclusion or exclusion in a classification. Assessment is viewed as a process leading to an evaluation of the results of observations for some purpose or purposes.

In psychology, the measurement process generally involves the observation of a sample of behavior—acts and verbal products—in a given situation which are recorded as indicators, signs, or symptoms of a potential or postulated condition. The observations are then used to infer more general dispositional properties or conditions of the individual about which an assessment leading to an evaluation is to be made depending upon his position on the ordered dimension.

Observational Methods. Some observational methods usually employed can be roughly characterized along several dimensions:

(A) Formal or informal
(B) Systematic, casual or random
(C) Trained observer, lay observer, or self-reported
(D) Measured performance or frequency counts

These methods may be used in any combination. The important distinctions are probably in terms of whether the observations are self-perceived reports or observer reports; whether or not the individual knows that his behavior is under observation, and to what extent the behavioral results are under his control.

Indicators, signs, or symptoms of psychological functioning. It is useful as an observational guide and for later analytical purposes to differentiate observational loci into several broad functional areas. These in turn can be further subdivided into finer and finer subareas. A possible schema is presented below.

(I) Intra-individual

  (A) Somatic

    (1) Self reported symptoms
    (2) Physiological measures
    (3) Biochemical analyses
    (4) Sensory acuity

  (B) Cognitive

    (1) Self-reported conditions
      (a) Content
      (b) Processes
    (2) Psychological tests
      (a) Verbal level
      (b) Rate and accuracy of performance
      (c) Memory

  (C) Psychomotor

    (1) Self-reported conditions
    (2) Fine and gross motor performance

- (3) Visuo-motor coordination
- (4) Steadiness
- (5) Reaction time

(D) Affective—mood, emotional or feeling states

- (1) Self-reports
- (2) Observer ratings
  - (a) Mannerisms
  - (b) Restlessness
  - (c) Tremor
  - (d) Voice

(II) Extra-individual

(A) Sociological

- (1) Self-reports of comparability with others
- (2) Education
- (3) Socioeconomic status
- (4) Criminal or delinquent record
- (5) Record of psychologic or psychiatric attention
- (6) Suicide attempts
- (7) Drug, alcohol use
- (8) Sex, age (?)

(B) Interpersonal

- (1) Self-reports
- (2) Other individuals' reports
- (3) Observed interactions

(C) Physical environment or appearances

- (1) Self-reports
- (2) Home facilities and conditions
- (3) Neighborhood facilities and conditions
- (4) Observed dress, cleanliness, general appearance

Note that while self-reports are listed as a potential source for some kinds of indicants in each general area, measurements, other person observations, or records can also be obtained in each general area. The schema as presented above is not meant to be exhaustive, necessary, or sufficient of all possible assessments. The functional units are not mutually exclusive, nor can they be clearly differentiated at either the conceptual or applied level for a given case. In fact they are expected to be interactive in various ways in a given case. It would also be useful if the self-reported information could be structured in terms of (1) perceptions of a situation or condition, (2) the intra-personal psychological states or reactions induced by these perceptions, and (3) the behavioral actions and consequences attendant to (1) and (2).

Criteria for evaluation or assessment. It is useful in making assessments of psychological functioning to focus attention first on the level of functioning and its implications. That is, is it high, average, or low? If it is high is it superior? If low, is it inadequate? Or if in-between, does it reflect a reasonable attainment of potential for self-realization? The second focus of attention is generally to try to determine if the primary determinants are mostly organic (somatic), sociological, or psychological and the implications thereof. Thus for organicity one might try to determine if there are neurological, biochemical, sensory, or organ properties which contribute to the excellence or deficiency of functioning. Sociologically one might try to determine if economic status or resources, subgroup values, peer relations, etc. are involved. Psychologically one might try to determine if there are learning conditions; behavioral feedbacks; opportunities or restrictions, etc. involved. Depending upon these determinations the implications would be for intervention where corrective actions could be taken at the case level, or for mounting social action programs to eliminate or reduce the dysfunction in general or possibly to improve the general level of functioning in the population at large.

The major criteria of assessing adequacy of psychological functioning generally include considerations of subjective satisfactions vs. discomfort; socially constructive vs. disruptive or bizarre behavior; and degree of effectiveness in standard performance tasks, in attaining individual goals, and in fulfilling socially expected responsibilities.

The practical problem of assessment is to determine if the observational net supports an evaluative judgment as to the probable level of functioning, the likelihood of error in this judgment, and the practical implications of the given level of functioning.

The General Well Being Questionnaire

Practical Constraints. The inclusion of a major nutritional component and assessment of health care needs in the current examination made it necessary to curtail a more extensive psychological examination as initially envisioned. The final time constraint allowed about 10 minutes for the collection of some psychological data. Since costs and work load would not justify employing a professional psychologist for each of the three mobile examination centers, only a limited amount and kind of information could be obtained. A basically self-administerable form was developed and the task of getting the form filled out properly was assigned to the dietary interviewers.

Purposes. The questions in the general well being form (GWB) were designed to obtain information which could be used for several purposes:

(1) To use as a possible "moderator variable" or control in the assessment of unmet medical needs. That is, people who are less well adjusted may have more complaints about unmet medical needs and about medical services actually rendered.

(2) To provide a basis for estimating need for psychologic services, the prevalence on use of some kinds of services, and to derive an estimate of unmet needs for psychologic services (Q.s 19-21 and 22-24).

(3) To use as an indicator of general adjustment (Q.s 1-18).

(4) To construct some differential indicators, or subscales, of adjustment:

(f) Health worry or concern. (Q.s 10, 15)

(b) Energy level (Q.s 9, 14, 17)

(a) Positive expressions of general well being. (Q.s. 6, 11)

(c) Emotional stability and control. (Q.s 3, 7, 13)

(d) Depressed vs. cheerful mood (Q.s 1, 14, 12, 18)

(e) Tension, stress, anxiety, and nervousness. (Q.s 2,5, 8, 16)

(5) To provide, as directly as possible, some indicators of the presence or absence of fairly severe personal, emotional, behavioral, or mental problems over the past year, and some indication of socio-emotional support in handling problems. These indicators are also to be used as criteria in studying the validity of the first 18 adjustment items (Q.s 19-25).

Content' and psychometric properties of the GWB. The content of the GWB questionnaire was designed to yield information on two major areas of psychological functioning with subdivisions within these areas. The first area includes six subareas of substantive content which could serve as differential indicators of adjustment and their summation as an indication of general or overall adjustment. The second area is considered as containing critical or criterial indicators of disorder in psychological functioning as self-perceived and reported in terms of personal, emotional, behavior, or mental problems, help seeking or coping behavior, and social-emotional support resources.

In order to obtain information reflecting both positive and negative aspects of adjustment six of the first 14 questions are stated in positive or neutral terms, while eight are in negative terms. Response options to six of these items are in terms of frequency, and eight are expressed in more qualitative terms. Each of the first 14 adjustment items has six response options. The next four items are 0-10 rating scales. Thus a fairly broad range of response options is provided for each item. This property should aid in the interpretation of certain computations, particularly correlation coefficients, which often is a problem in the analysis of questionnaire data. When each of the first 14 items are scored 0-5, with 5 indicating positive adjustment, plus the four 0-10 rating scales, scored with 10 indicating positive adjustment, the full scale adjustment score can range from 0-110. This large a range should allow for as fine a differentiation in adjustment as needed.

The response options of each of the first 18 items were designed to present fairly extreme statements of positive or negative adjustment. The response options were varied so that a positive or negative response option may be at the top or bottom, with the options ordered along a subjective scale of degreeness. An explicit time frame "during the past month" or "past year" is also given for each question (except Q. 25).

It is recognized that self-reported information is subject to a number of distortions due to such things as memory lapse; failure to understand or comprehend the question; personal interpretations of the question's content and response options in relation to the individual's own experiences; deliberate and subconscious biases to reflect one's self in a favorable or perhaps even in an unfavorable or deprecatory light, failure to recognize or accept deficiencies in one's self; deliberate distortion; carelessness in question reading or response; and intellectual or emotional inability to make self-diagnoses or evaluation. These and probably other factors play a part in reducing the validity of self-reported information. However, the assumption was made that in a formal professional setting most individuals will accurately represent themselves if they can understand what is wanted and if the response options permit them to reflect their condition as they see it. The GWB questionnaire was designed with this assumption explicitly in mind. Thus, the questions were carefully prepared to reflect what the study was designed to accomplish; they are presented in as straight forward and direct a form as possible without trying to mislead the examinees as to intent.

Somatic complaints were not included in the GWB because the medical history forms provide an extensive coverage of this nature; however, health concern or worry is included and will be correlated with medical history data to ascertain which somatic complaints have concomitant psychologic relationships.

Substantive Relevance of the GWB Questionnaire

Determining the mental health of the population. The GWB form provides only a very limited coverage of potential mental health issues. It was designed to provide some indications of subjective well being or discomfort or adjustment and some direct queries reflecting psychological problems. These two sets of information should provide some indication of the prevalence of fairly severe subjective distress or disturbance in the population.

Estimating needs for mental health services. The GWB was designed to provide some limited information on prevalance of use of psychologic services and the subjectively expressed or reflected need for such services.

Evaluating treatment outcome. It may be possible to order the information being obtained from the current survey to throw some light on this issue. A possible design would be to select and study the differences in adjustment scores between those who did vs. those who did not indicate a use of psychologic type services among the examinees who indicated they had severe problems during the past year.

Findings to date. The findings discussed below *are not* representative of any specified population and *are not* for publication or quotation except as provisional data illustrating some potential values the GWB form has for information gathering. These findings are based on the first 876 examinees who completed GWB forms from 20 different locations. There were 415 males and 461 females with a mean age of 49.8 for each sex. The full scale adjustment score is composed of the sum of the first 18 items in the GWB form with item responses reflected and scored so that a higher score represents better adjustment. There were no apparent trends in adjustment scores by age within sex; however, males represented themselves as better adjusted than females (means: 84.2 vs. 77.9; a difference of about one-third of the standard deviation). The distribution of cases by full scale adjustment scores for each sex is shown in Figure 1.

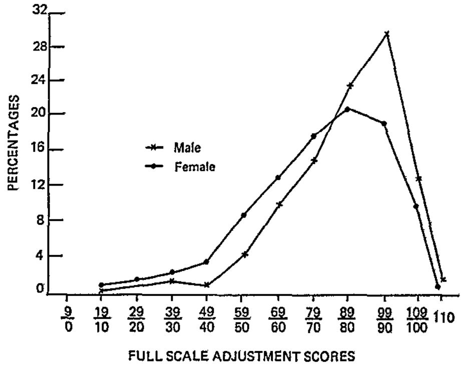


Figure 1. Distribution of examinees by sex on adjustment scale.

These distributions indicate that the examinees represented themselves, as a group, as high positive or favorable in adjustment in so far as the content and response options of the 18 items are indicative of this construct. The estimated internal consistency reliability coefficient based on the product-moment intercorrelations among the 18 items was .92. The product-moment intercorrelation coefficients among the six subscales are shown below.

Subscales of adjustment	1	2	3	4	5	6
(1) General well being		.50	.49	.60	.48	.29
(2) Energy level	.50		.41	.63	.60	.46
(3) Emotional stability and control	.49	.41		.60	.56	.34
(4) Depressed vs. cheerful mood	.60	.63	.60		.76	.46
(5) Tension, stress, anxiety, nervousness	.48	.60	.56	.76		.52
(6) Health worry or concern	.29	.46	.34	.46	.52	

These coefficients show that the depressed mood and tension subscales correlate quite highly with each other (.76) and moderately high with the other four subscales. However the lower intercorrelations among the other four subscales may indicate some differential aspects of adjustment. The responses to the critical or criterial items were used to sequentially order the examinees into subsets responding positively to the indicators of disorder in psychological functioning (1) during the past year, (2) more than a year ago.

The examinees not in (1) or (2) were subdivided by their responses to the socio-emotional support item and if they checked a few vs. no personal problems during the past year. These subsets and their full scale adjustment scores are shown in Table A. The principle of equal likelihood was used to determine a cutting score on the adjustment scale differentiating those with positive indicators of disturbance during the past year from the remainder of the examinees. The cutting score fell between 69 and 70. Sectioning the examinees by these joint indicators gives the following four-fold table.

Full scale adjustment score	Had problem during past year	Remainder	Total
70-110	94	573	667
0-69	140	69	209
Total	234	642	876

If we take the joint occurrence of a low adjustment score and having had a problem during the past year as indicative of subjective discomfort, distress, or disturbance, then 140 or 16.0 percent (140/876) of these examinees so represented themselves in terms of this kind of psychological dysfunctioning. Out of this group, 14, or 10.0 percent (14/140), reported using clinical or psychologic services; 72, or 51.4 percent (72/140), reported some contact with medical or counseling services about their problems. The remainder, 54, or 38.6 percent (54/140), did not report using any of these services.

Among 234 examinees who reported having had a problem during the past year there was no significant difference in adjustment scores between those reporting use of some services and those not so reporting.

Taking the full scale adjustment score as a dependent variable and the sequential ordering of examinees on the critical or criterial indicators as the independent variable, the obtained correlation ratio of .67 supports the concurrent validity or convergence of these two sets of observations as indicators of psychological functioning in terms of subjective well being or discomfort.

Potential value. The use of the GWB with a national probability sample of adults, 25-74 years of age, will allow the development of standardized scales which other investigators can use to compare their findings on more limited populations of interest—if they also use the GWB. With the data that will become available, it should be possible to determine if the GWB has utility as a clinical screening instrument for some kinds of assessments. It is hoped that other investigators will try the GWB on clinical cases

Table A. Adjustment Scale Scores by Criterial Indicators of Adjustment

FULL SCALE ADJUSTMENT SCORES	CURRENT CRITICAL INDICATORS (During the Past Year)											NON-CURRENT BUT PAST CRITICAL INDICATORS (More than a year ago)				NON-CRITICAL, CURRENT LIFE SITUATION INDICATORS												
	Clinical Indicators				Severe Personal Problems			Behavorial Indicators								SOCIO-EMOTIONAL SUPPORT											
	Clinical patient	Received psychologic services	Had nervous breakdown	Felt near nervous breakdown	Needed and sought professional help	Needed—did not seek help	Had problems—did not need help	Clergy, marriage counselor, social worker	Medical—G.P., neuro., nurse	Lawyer, police	Other	Clinical patient	Rec'd psychologic services	Had nevrous breakdown	Felt near nervous breakdown	Yes—but no help No—no one No—no one cares		Yes—and it helps some		No—do not care to talk about problems		Yes—and it helps a lot		No—do not have any problems		Blank	
																3-5		2		6		1		7			
																PERSONAL PROBLEMS											
																Few	None	Few	None	Few	None	Few	None	Few	None		
	1	1	1	1	1	2	3	F G H	A B C	D E	I	2	2	2	2	4	5	4	5	4	5	4	5	4	5	5	N
110							1														1		1		5		8
105-109						1		1	1					1			1	3	3	1	3	1	7	2	18		43
100-104								1	2					1				1	8	1	3	6	15	2	17		57
95-99							1	1	2	2		1	2	2	1		1	9	7	2	4	8	36	11	17		105
90-94		1				1	4		6	1			3		1	1	1	9	9	6	10	13	22	4	17		109
85-89		1	1		1	1	6	3	5	1		1	1	1	7		1	13	10	5	6	15	10	5	9		103
80-84		2		2	1		1	1	7	2		1	1	1	1	1	3	19	7	3	6	17	5	3	11	1	96
75-79				1		1	5	2	7	1	1		3	2	2	3	1	15	12	1		7	5		8		77
70-74		2			1	2	6	1	3			1	2		7		2	12	2	7		5	1	1	6		69
65-69	1	2	2	3	3	2	6	1	3			1		1	4	2	2	5	1	3		2		1	1		46
60-64	2	2	1	4	2	2	10	3	4		1			1	3	2		12	1	2	2	1	1	1	1		58
55-59		1		3	1	5	10	1	1			2	1			1			1			2	1	1	1		32
50-54		1	1	3		3	7	3	2						1				1	1	1	1	1	1			27
40-49	1	2		5		2	5	2	1											1							19
30-39		2		9	2	1	1		1									1									17
20-29				5	1		1																				7
10-19				1		1	1																				3
0-9																											
ΣN	4	16	5	36	12	22	65	20	45	7	2	7	13	8	27	10	12	99	62	33	36	82	109	32	111	1	876
$\overline{X}$	58.2	63.2	67.0	47.0	58.8	61.5	65.3	71.3	77.9	88.3	69.5	74.1	81.8	82.8	75.3	71.3	82.2	80.2	87.1	80.3	90.0	84.7	93.0	89.2	93.3	83.0	80.9

and test its validity and utility as a short assessment instrument.

Summary

In summary, I would like to cite, somewhat paraphrased, a letter I recently received pertaining to the GWB questionnaire. . . . . in the scope of your brief questionnaire I think you cover most of the essentials for general screening and epidemiologic purposes. The fact that your questions get directly at the respondent's definition of the situation is the strongest asset of the instrument. Offering the respondents clear time-frames (which are not "present time" in the narrow sense) and quite a large number of response categories are other assets which make the instrument potentially much more "sensitive" than most. The fact that it was designed for self, other, or self-and-other administration adds to its flexibility. I think the instrument has tremendous epidemiologic potential not only because you will have a large, well-chosen national sample, but also because you will have good census and physical health data on the same people. It has more "face" validity than any other instrument I have seen for survey use. Most instruments require (external) validation because they are so indirect . . . You're not so sure of what you have in the end. I thank you.

MR. LOCKE: Recently Dr. Bertram Brown, Director of the National Institute of Mental Health, won the Anchor Award. Our anchor man is Dr. Martin Katz, who has been the recipient of several scientific awards in his own right. Dr. Katz is Chief, Clinical Research Branch of the Division of Extramural Research Programs at the National Institute of Mental Health. He is a Professor in the Department of Psychology at Long Island University.

He has been on the Task Force on Classification of the American Psychological Association and on the Advisory Committee of the World Health Organization, International Pilot Project on Schizophrenia. Amongst his many articles and chapters and books, let me just say that he is co-author with others of *The Role and Methodology of Classification in Psychiatry and Psychopathology*, the *First Year Out-Mental Patients in Transition*, and co-editor of the *Recent Advances in Psychobiology of the Depressive Illness*, from which I plagiarized that poem earlier.

It is my pleasure to introduce to you Dr. Katz. He is going to speak on "Defining and Measuring Mental Health in a Multi-Ethnic Framework."

Dr. Katz.

ON DEFINING AND MEASURING MENTAL HEALTH IN A MULTI-ETHNIC FRAMEWORK

Dr. Martin M. Katz, *Chief, Clinical Research Branch, Division of Extramural Research Programs, National Institute of Mental Health*

First I want to deny having anything to do with that poem that Ben was quoting. In case anybody thinks I co-authored that, I didn't. It is a beautiful poem, though, Ben. Actually Irv Coplin wrote it. He is the head of the Biological Laboratory over at the National Institute of Mental Health.

Sometime ago we were in the process of developing a set of scales to measure adjustments, ones that you could transfer to quantitative terms. We did that by combining a number of popular notions about the concept of mental health and then developing a methodologic framework for measuring its multi-facet nature.

The framework combines the concepts of personal and social adjustment, which are by definition attitudinal or judgmental aspects of mental health, with actual objective estimates of social behavior and performance, in addition to inter-weaving the complicated clinical concept of psychopathology, which requires some index of the extent of symptoms or of abnormal behavior.

In the attitudinal facet we speak to the literal definition of personal adjustment, that is, it is a matter of how satisfied or comfortable the individual is with his present subjective state and performance. As regards "social adjustment," we are asking how satisfied or comfortable significant representatives of his immediate environment are with his behavior.

A definition is multi-faceted, but it is basically simple and it is capable of being measured. We brought together various, already demonstrated to be successful, measures of various aspects of the definition. It was then possible to produce the critical other scales and create a set of such measures which presumed to comprehensively cover this concept of adjustment or mental health.

That was done sometime back, and over the years we have been able to test this set of techniques as to such general issues as reliability, validity to collect some norms on it, and the generality of various populations, and so forth.

I won't go into how we went about measuring all these things, but we did combine several conventional methodologies and a couple which were more innovative. I will just mention those because I think they relate to the research I am going to describe.

First of all, we used the informant—that is, what we call a significant other—as our source of the description of the actual behavior and the symptoms, sympto-manifestations, of the subject.

We also do use the self-report to measure distress directly, and then we apply the discrepancy notion. That's a measure of development psychology to get at this attitudinal phase. If we get an index from somebody of the actual performance, and then we get an index of what they expected to perform, we get the discrepancy between these two. We get an index both from the environment and from the person as to how satisfied they are with this situation, and that's really what we call adjustment.

Probably the most significant aspect of all this in terms of content was that we translated symptoms, psychiatric symptoms, into everyday language, and also translated them into behavior so they could be rated by a relative or a lay person generally.

As I mentioned, we were going to apply this set of scales to many problems in clinical research, but one thing of major interest to myself is the influence of culture on symptomatology. There are certain obvious things you can say about that and certain obvious things that we found out about over the years.

One is that the importance of these various facets of adjustment will change as a function of the nature of the culture.

I like to use this example. In some cultures social adjustment—that is, satisfying the group or the social environment—is the most important of aspects of adjustment. We think of certain eastern cultures for that kind of priority ranking.

Personal adjustment, of course, takes prime rank, I think, in western cultures, where satisfying the self or enhancing the self-concept or enhancing achievement orientation, achievement motives, are prime values in our kinds of cultures.

There have been some interesting writings on that recently by a psychologist named Marcel in Hawaii on the way depression varies in different countries as related to this kind of ranking.

Then, of course, the nature of behavior itself—what is typical for a given ethnic group or cultural group—is going to differ. I don't have to cite examples of that. Of course, what is considered "healthy behavior" will vary, and that we will demonstrate soon in this research.

As purists—and I am speaking for a group of people who do this research—it is the last of these that really interests us the most. To state the question another way, we will say, "What is typical? What are the 'normal' patterns for a given community? Do they differ from community to community? And if the normal or the typical is different, does what is known as mental disorder or social deviance differ from community to community? And then how are they related?"

There is a more technical or theoretical question: "Does knowing what the normal patterns in a given group are, tell us anything really about what the patterns of behavior which represent mental disorder in that group will look like?"

In discussing these variations we have done some research on, I now focus on that kind of involved direct observation of social behavior and symptoms, reported by the informant, rather than on self-reports and social performance. I think you are more used to the self-report as a vehicle and you have heard something about that in surveys today. But our interest started with work that has to do with the influence, as I said, of culture on psychopathology. It began in Hawaii, where we started by studying psychosis in several ethnic groups. We did that by sampling all admissions to the Hawaii State Hospital over a period of several years.

We were able to piece out groups that represent five ethnic groups in Hawaii: (1) the Hawaii Japanese, which make up roughly a third of the population; (2) what are called the Hawaii Caucasians, which represent another third of the population; but (3) within that group we found a subethnic group that we called the Portuguese; and then there are (4) the part-Hawaiians, which are a more complicated group, mixture of Hawaiians and others of these ethnic groups; and then finally (5) the Filipinos, who represent a significant percentage of the population but in which the sex ratio is very far out of kilter. There are many more men than women, and there were pretty nearly only men in the hospitals.

We studied them in a very detailed way, that is, we studied them through the clinical interview and through the ratings of clinical professionals—psychiatrists and psychologists—in a standard interview situation that has come to be part of the research on culture and pathology. We looked at them from the standpoint of how they looked in the community with the method I have just described to you. We searched their social history and psychiatric history, for other interests that we have in the study.

With regard to two groups, the Hawaii Japanese and the Hawaii Caucasians, we find that depression and anxiety carry the most weight in separating them; then the factor of hostility follows; and then retardation and emotional withdrawal. It is fair to say that the Caucasian group displayed a significantly more affective psychosis, a more emotive one and the Japanese a more schizoid psychosis despite this relative equivalence in overall severity.

The Portuguese group, which I am going to describe in greater detail later, is within this

Caucasian group and contributes to even sharper terms in the affective picture.

We have controlled for such factors as social class, age, marital status, and even generation, and we are quite convinced that the phase of psychosis here in these two groups is really very different.

We do think, though, that other things might explain this, which is that there is a different kind of selectivity that goes on within the community as to whom they actually hospitalize.

I think you can understand that with such striking differences in symptom patterns, we have to now go back and look at those baselines in the normal population to see what might be contributing to this. Over the course of the several years that this research has gone on, this has been done. We are trying to answer questions as to whether these differences reflect basic differences in the personalities of the Japanese and the Portuguese, or whether they are tied only to the way psychosis is manifested.

These, of course, are all questions in the field of culture and psychopathology. But to get to that kind of thing, we went back to the community and what we did was to conduct a fairly large study.

We called this the normal study. Its aims were to provide baselines against which vastly different psychopathologic profiles could be interpreted and understood, to determine whether these ethnic groups were in fact different, even in their normal setting, and to see whether the concept of mental disorder held by the professionals and that of the specific ethnic groups were in fact the same or in what ways they would differ.

The answers to these questions bear also on epidemiologic issues, to the extent that if normal and disorder baselines are different with these groups, then the different ethnic populations will have different indices of disorder.

If the groups have different concepts of psychosis than the professionals have, it is likely that the professionals do not understand their disorders well and consequently are not likely to treat them as appropriately as we would like.

So these issues of culture and pathology play back in very important ways on some practical epidemiologic and clinical issues.

We subsequently conducted a study, then, of representative samples of the various ethnic groups in the general population of Honolulu County. This population was characterized by not ever having had contact with psychiatric facilities. We did this with one of the methods, that I used to describe psychopathology in the hospitalized group. The method was the relative rating inventory of social behavior and symptomatologies, part of this set of adjustment scales that we have. These are the kinds of items that are now being used for rating a normal person in the community. You can see there are something like 120 of these items, extending from such things as "getting angry" and "breaking things" and "getting into fights"—which is in the category of belligerence—through "worries a great deal," "jittery," through "very restless," "is always moving about," through many positive kinds of concepts, too, like "is generally cooperative in work that has to be done," and so forth.

We utilize this set in a normal population study in the State of Maryland, and we have a baseline there. The sample in Hawaii consisted of some 1,200 people, and I am going to emphasize now the findings on the Japanese and the Portuguese to illustrate how we are seeking some of the answers to the critical questions in this research.

The major differences are on the factors of nervousness, hyperactivity, suspiciousness, with smaller differences on anxiety, belligerence, and negativism. The Portuguese generally have a higher profile, indicating more expressiveness, generally. The Japanese have the most contained profile of all of the normal groups in this study. It is also noteworthy that the Japanese exceed the Portuguese only on the helplessness factor, and they demonstrate no suspiciousness whatever within this quite large sample.

The Portuguese must be described as significantly more nervous, hyperactive, aggressive, a picture which indicates a good deal of emotional expressivity, but of a certain type. I emphasize certain types because there are other groups which are emotionally expressive in this sample but are so in a very different way. For example, with more emphasis on the aggressive outgoing factors.

It's worth noting again also that these are "normal groups." There is no psychiatric contact in their history, and the nature of this behavior must be interpreted in that light. It is one of the reasons that we are very uncomfortable in using terms like "nervousness," which we carry over from our symptomatic framework. It covers items like worries a good deal, or is jittery, because these terms directly denote symptomatology which they are not in this case, an issue which may be too complex to go into right now. But emotional expressivity and symptomatology are different kinds of things that I am sure you are aware of. At any rate, let us accept these pictures now as reflecting differences in these groups at the normal level.

We had, in the early state of the research, applied the methods to large groups of hospitalized patients, in these same ethnic groups in Hawaii. We could, therefore, look at the profiles of samples of highly disturbed representatives of both these groups. The profiles, as you would expect, are highly exaggerated, much higher generally than these are, but they don't differentiate as well between the ethnic groups.

If you compare the normal and patient profiles within each ethnic group, the profiles will differ on almost all factors. That's to be expected, but for the Portuguese, the most distinctive differences are in the areas of what we call anxiety and bizarreness. By anxiety, here, we mean almost a panicky, apprehensive state, that goes along with acute stages of psychosis. And for the Japanese, who have, as you remember, a quite low, contained profile to begin with, suspiciousness is the highest peak, followed by negativism, again anxiety and again bizarreness. The differences in level are quite marked in the Japanese-Portuguese comparison, reflecting, as I mentioned, the differences in the original baselines as to normal baselines.

We call these social deviants baselines, profiles, because they reflect the community's own definition now of mental disturbance. In essence, they tell us what the community means by mental disorder.

That's a hard concept, too, to get over, but for the Japanese it is the suspiciousness which overshadows all other elements, and in the context of negativism and anxiety, characterizes a kind of disturbance which goes beyond a mere exaggeration of the normal pattern. The Portuguese profile, on the other hand, reflects in great part what appears to be an exaggeration of that highly emotive pattern that was presented by the normal sample The two peaks of the Portuguese are the anxiety and the bizarreness. Anxiety is, in fact, an extreme of the nervousness that we referred to before, that worrisomeness. It's that worrisomeness and fretting, becoming great apprehension and panic in the form of the anxiety.

If we turn this particular analysis to epidemiologic ends, we would say that for the Japanese, given an almost complete absence of suspiciousness in the normal profile, probably the best index of disturbance then for a group is that factor. And for the Portuguese, one would look for increases in the factor of anxiety.

I am giving that in a very gross way. Obviously a more precise quantitative approach can be taken to these data for epidemiologic purposes. We haven't gotten into that yet.

More telling, however, to the clinical research approach is the comparison of the clinician's perspective, along standard symptomatic and diagnostic lines, with what we call the ethnic community's behavioristic definition of the same condition. For the Portuguese, if you remember, the clinician described a severely depressed anxious state with strongly hostile and disorganized features. The community is apparently impressed with similar features, particularly the anxiety. For the Japanese, the clinician sees a primarily schizoid condition with emotional retardation and withdrawal as major features. In other words, the clinician sees a very toned down picture. The community, however, calls attention to a very strong paranoid element in these people, a markedly increased suspiciousness and a fearfulness and negativism which are quite striking. That fearfulness now is quite emotive, something very different from what we are getting from the clinical picture.

To bring these concepts together when one thinks of treatment is not easy, but it is clear that the clinician must be aware, to be helpful in intervening in this disorder, of the basic emotive pattern of the Portuguese. He must know that he is dealing with a group that is quite emotive.

With the Japanese, he must be alert to certain elements which are not as openly reflected or as obvious to the non-ethnic, and that is this emotion of anxiety and this highly paranoid quality of the illness.

These findings, which reflect the influence of culture on normal behavior and on psychopathology, impress us then with the importance of adjusting our definitions of mental health, our approaches to locating indices of mental disorder for a group, and the limitations of treatment methods in dealing with the basic multi-ethnic nature of the kinds of communities in which we live, Hawaii being a representative community in that respect.

Needless to say, we have only scratched the surface here. There are many patterns of normality, just as we have come to get used to the fact that there are many types of mental disorder, and our methods and research in this field must begin to reflect that basic fact of clinical life.

Thank you.

MR. LOCKE: That's the last of our formal presentations. Let's take a few moments for questions.

PANEL DISCUSSION: REGISTRANT QUESTIONS

Chairman and Speakers

MR. LOCKE: Does anybody have any question they want to address to any of the panelists or the panelists as a group? Please, if you have a question, identify yourself so that the Stenotypist, as well as the rest of us, will know who you are, and please use one of the microphones.

DR. NEYMAN: I am Jerzy Neyman, Professor, Dept. of Statistics, University of California, Berkeley. I would like to ask the details of the Yale Study. There were, as I understand it, interviews with people from the population and also patients. How many different doctors did this? May we have a conversation?

DR. MYERS: In the community study, an interview was conducted in the community, using a screening device. No doctor was involved. It was the Gurin 20 item screening device. In the study on former patients, three different screening devices were used. In other words, the evaluation was made on the basis of interviews with the patients through a structured interview form. They were not given a clinical examination by a psychiatrist or other clinician.

DR. NEYMAN: Was it a questionnaire?

DR. MYERS: It was an interview schedule, administered in person to the respondent. Questions were asked by the interviewer.

DR. NEYMAN: By the interviewer?

DR. MYERS: That's right.

DR. NEYMAN: Different interviewers?

DR. MYERS: Yes. There were perhaps 25 interviewers employed in the community study, in which close to 1,000 persons were originally interviewed, and there were about five different interviewers in the study of former schizophrenics.

DR. NEYMAN: Was there any attempt to check whether the individuality of the interviewers affected the outcome?

DR. MYERS: There were detailed studies in the schizophrenia follow-up study in which one of the instruments was the psychiatric evaluation form developed by Spitzer and Endicot. There was a rather extensive reliability study, particularly because of the interest of Endicot and Spitzer in that. We did further work in having clinicians also interview the former patients, and we found a high degree of reliability.

In general, clinicians tended to stray more from the exact question in making their final evaluations.

DR. NEYMAN: There was a consistency between them?

DR. MYERS: Oh, yes.

DR. NEYMAN; Thank you.

MR. LOCKE: Before I give someone on the floor a chance, let me ask this question of Jerry Myers.

In giving your experience in validating an instrument now, which would you consider a better criteria—the psychiatrist's evaluation or the life events? The conclusion of the psychiatrist's evaluation or the conclusion of the life events?

DR. MYERS: Bruce and I have just been talking here, in between the break, about this in terms of the difference between a persistent pattern of symptomatology, regardless of the types of symptoms.

Bruce, for example, was questioning whether neurotic was a good label for that in terms of the traditional clinical view of neurosis as being an inner sort of thing, as opposed to clusters of symptoms which fluctuate in terms of life situations. We really don't know exactly what we are dealing with.

I think that one of the aims of future research would be to try to determine what types of symptoms and what sorts of people remain rather constant over time and which are related more closely to the experiencing of life events. It's an unanswered question.

We were just sort of speculating here, saying that in some of the field studies being done in the Center and joint project, I think that's one of the aims—to try to look at issues of that sort in that kind of long range longitudinal work.

It's fascinating to me, I would like to be able to keep following the population—which is rather difficult under the current economic situation, which you are all too familiar with to get funding of this magnitude—to see over a period of time whether this 50 percent that doesn't change remains rather constant, or whether if you follow people over a longer period of time, within a period of a couple years, almost everybody would change.

MR. LOCKE: Are there any other questions from the floor? You all have been very kind, staying way past our original hour.

Let me ask another question of Dr. Katz this time.

I think that Dr. Katz alluded to a study in Maryland, Carroll County. I am wondering if he has looked at the results of the normal population for Caucasians in Carroll County, comparing them to Caucasians in Hawaii.

DR. KATZ: No, we haven't. I was thinking of patient groups in Maryland—Caucasian pair groups in Maryland and Caucasians in Hawaii—and the only difference we noted was a higher level of expressivity generally in Hawaii. We had originally found that the Hawaii Japanese schizophrenics had a more affective quality, a more affective variety, than were the mainland patients.

You see, all this is really relative, as you go from one culture to another, but then we found that that, too, is not distinctive. That was not distinctive for that group in Hawaii, but was really something about the Hawaiian culture that raised the level of some of these things. So, no, I can't talk of the normal data. We haven't made that connection yet.

MR. LOCKE: If there are no other questions, I want to thank the panelists and all the other participants, and close this session.

Whereupon, Concurrent Session "L" was concluded.

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Concurrent Session "M"

Organization and Training

This session was planned around the topic "Organization and Training" because it was felt that recent studies and developments related to the organization of State statistical offices and the ever-present problem of recruitment and training of statisticians are interrelated.

The first portion of the program dealt with certain organizational aspects of vital and health programs in the States. The second part dealt with the education and training of statisticians and how such programs either meet or fail to meet State manpower requirements. Summary comment and discussion focussed on how the problems indicated may be solved.

Contents

CONCURRENT SESSION "M"

ORGANIZATION AND TRAINING

PRESIDING

Dr. Richard D. Remington, *Associate Dean, The University of Texas School of Public Health, Houston, Texas*

I think we have an interesting and full session ahead of us this afternoon. As you see, we will be talking about organization and training, as if these two topics are distinct kinds of concern for this organization. Indeed, at this point in time, they are rather separate.

I would hope, however, that after we finish this afternoon, we may perceive that they are on converging paths. Many of the problems of identifying, recruiting, and training health statisticians are closely related to the way in which we do our work within these agencies and particularly to the way we pay for the work that gets done.

I am personally looking forward to the whole series of presentations. I know that our friends who will be making the presentations on organization and budgeting and management of health statistics activities will have much to say about what a modern approach to this subject can tell us.

Our first speaker needs no introduction. That is always a prelude to a long introduction, but I am not going to make a speech for Paul Shipley. He is a close friend of ours. He has been the Chief of the Bureau of Vital Statistics Registration in the California State Department of Public Health since June 1947, and has been a real tower of strength to us at these conferences, at Standing Committee meetings, and in all of the work of the American Association of Vital Records and Public Health Statistics and of this Conference. He is so involved in everything that is of concern to us in this field that I would be doing you and him a disservice to delay his presentation further.

Mr. Shipley.

1. THE STATE HEALTH DEPARTMENT: STATISTICAL ORGANIZATION, STAFFING, AND COST OF OPERATIONS

The Program Accounting and Management Information System (PAMIS)

Mr. Paul W. Shipley, *Chief, Bureau of Vital Statistics Registration, California State Department of Public Health*

Thank you, Mr. Chairman, for your kind introduction. This subject today, which is entitled "The Program Accounting and Management Information System," (PAMIS) of the California State Department of Public Health probably is on the agenda as a result of Junior Knee's visit sometime in the last year, at which time I was enthusiastic in describing to him the potentials of a new management information system that relates to accounting and that relates to the program.

We have tried to put this down on a couple of pages, and I will, in the interest of time, read two pages.

Implementation of a program accounting and management information system began in 1971-72 fiscal year on a trial basis. This system was developed to meet two needs that program managers in the Department felt were not being adequately met by the accounting and fiscal information presently available.

One need is expressed by the question, "What were expenditures and encumbrances in relation to the budget during the previous quarter?"

Program managers felt the need for this type of information on a more timely basis and in sufficient detail to assist in making management decisions during the current fiscal year.

A second need can be expressed by the question, "What does this program cost?" Most managers thought they had a pretty good idea what the direct labor costs were for their programs. Information regarding direct labor costs of various components within a program were less accessible. The costs of various operating expenses such as office space, printing, and consumable supplies were not readily available on a program basis.

Indirect costs not readily identifiable to a specific program were not allocated in any manner among the programs.

The PAMIS program utilizes a cost-center concept, the program unit. Fiscal data are accumulated in a traditional organizational unit structure and then through a process of allocation are transformed to the program structure. The system is composed of the traditional accounting subsystem TAS and the program accounting subsystem PAS.

TAS performs the traditional governmental accounting function. It maintains fund, item number, and reporting unit detail by object of expenditure. It includes edits, batch balances, detailed subledger update, general ledger update, and reporting.

Reports generated include various transaction and error listings, and general ledger and budget and expenditure reports. Additionally, TAS data from accounting transactions become one input to PAS for program accounting.

The remainder will be aimed at the PAS portion.

The purpose of the PAS portion of PAMIS is to accumulate and allocate costs and report financial and management information on a timely basis. The system is to fulfill the following goals: (1) provide department management with information to match resource consumption with the actual and projected results of operations; (2) provide timely information for management decisionmaking on a current basis; and (3) provide a management tool that facilitates control over costs within the program structure.

PAS utilizes the concept of cost accumulation on the basis of cost centers. These costs are then allocated from the service and other indirect cost centers to the functional or user areas.

Through the process of cost allocation, the organization oriented cost structure is converted to the program oriented cost structure for reporting purposes.

PAS uses an eight-digit code to identify each program unit within the program structure. The code is logically divided into two parts. The first part, a six-digit field, identifies the specific program unit while the last two digits identify the fiscal year.

The first three digits are the reporting unit number used in the traditional accounting subsystem. The last three digits are the component code.

Since reporting unit codes are usually assigned to the level of bureau, the component code is used to identify cost centers within the reporting unit.

In the remainder of this presentation we will discuss the three-digit component codes developed by the Bureau of Vital Statistics Registration to identify major cost centers and detailed costs or personnel activities within these major cost centers.

The major cost centers for the vital statistics program element are 199 costs, not otherwise classified; 299 births; 399 deaths; 499 marriages; 599 divorces; 699 ancillary records; 799 certifications, verifications, and other record utilization.

Costs not otherwise classified are prorated to the other specific cost centers on a percentage basis. Included in this cost center are those costs which cannot be easily identified with one of the more specific cost centers such as equipment, postage, rental of space, vendor contracts, and an allocation from departmental administration and support.

Many of these costs are presently identified in TAS in the budgets of other organizational units within the Department.

The next four cost centers are used to identify those costs and personnel activities most directly related to the registration and permanent maintenance of the vital statistics records. This includes specific services from other organizations, such as the data processing center, and personnel activities such as index preparation, medical coding, and microfilming.

The ancillary records cost center identifies those costs and personnel activities most directly related to the review and acceptance of affidavits and other documents that result in amendment of the certificate as originally registered. This includes such activities as review for acceptability, typing of letters and amended records, and preparation of sealed records.

The certification, verification, and other record utilization cost center identifies those personnel activities most directly related to the provision of copies of vital statistics records for a wide variety of personal, legal, business, health program, and research uses. This includes such activities as mail opening, transaction control, fee accounting, index searching, and record reproduction.

The Bureau has periodically undertaken studies to determine direct personnel activity rates for many of the detailed components in PAMIS.

PAMIS provides a framework for gathering such information on an ongoing basis. But, more importantly, for the first time PAMIS enables the program manager to have timely access to the total cost of the program, which, in the past, has been dispersed in the budgets of many different departmental organizations.

The detailed component codes presently used by the Bureau of Vital Statistics Registration, a copy of the weekly personnel activity report form used by each individual employee to report personnel time by appropriate component code, and a summary of personnel activity by major cost centers for the first nine months of 1971-72 fiscal year are shown on the following pages.

Just a minute, about those, if you will. Page 3 and, in back of that, page 4, were developed from our own knowledge of the operation and what we felt as managers of our own unit we would like to know a little bit more about on a continuing basis.

We felt there were meaningful self units within the major cost centers. Undoubtedly, these will be modified after a full year's input and output on these, which is yet ahead of us.

On page 5, the weekly personnel activity report, is a central piece of paper that is activity to the nearest half-hour of each employee for each day. It is summarized in a weekly input, and the last page, page 6, is, for example, one of the things that shows our major personnel activity by major cost centers for the first nine months of this year.

We had a feeling earlier that there was something like this going on, but we did not really know. If you look at a percentage like lost time, or look at the total personnel time, 138,518 hours, you see that about 25 percent of that is non-productive or lost time, so to speak.

Then in the footnote we see the non-productive time, which is essentially half-hour a day for each employee for a break in the morning and afternoon—it does not get the work done—and sick leave and annual leave and leave without pay.

What this tells us essentially in terms of the job that we have to do is we have to hire four people to get three people's productive work out.

I think, Mr. Chairman, that is all I have.

DR. REMINGTON: Thank you, Paul.

I think we will have both of the basic presentations first, followed by a period for comments and discussions.

We will move on to the NCHS Study of State Costs for Health Statistics.

Over the past several years in the Standing Committee of the Public Health Conference on Records and Statistics, there have been a number of occasions on which we asked: Just what does it cost to produce vital statistics from the jurisdictions that produce them?

It is an interesting question, but we have not been able to answer it.

There has been a group within the National Center for Health Statistics that has embarked upon an important study of State costs for health statistics. They have participated jointly in the preparation of the presentation that you are going to hear.

Loren Chancellor, Charles R. Council, and Marshall Evans have been involved in this activity and they will be available on the platform to answer your questions following Mr. Evans' presentation. I will then also ask Paul Shipley to join us on the platform.

Marshall Evans has had a number of important positions within the National Center. He has been Chief of Field Operations of Health Examination Statistics; he was Administrative Officer of the National Vital Statistics Division; Administrative Officer of the Administration itself, and he is now Special Assistant to the Director in the Office of State Services in the Center.

Marshall.

THE NCHS STUDY OF STATE COST FOR HEALTH STATISTICS

Mr. Marshall C. Evans, *Special Assistant to the Director, Office of State Services, National Center for Health Statistics, Health Services and Mental Health Administration*

Joined by panelists Mr. Charles R. Council, *Chief, Technical Assistance Branch, Office of State Services,* and Mr. Loren E. Chancellor, *Chief, Registration Methods Branch, Division of Vital Statistics, National Center for Health Statistics*

MR. EVANS: One of the basic concepts of the cooperative State-Federal-local Health statistics system is an equitable cost sharing program by the various levels of government participating in the system.

As each State and local program meets the standards for comparability that will be established by the National Center for Health Statistics, those organizations will be reimbursed for that share of operating costs necessary to provide data to serve Federal Government goals.

Historically, we all know, there have been some service inequities in the cost sharing operation. The classic example we have is the vital statistics operation as it exists today where we are limited by legislation to the maximum four cents per record for the purchase of vital events at the national level from State governments.

The objective of the study that we have underway is to obtain costs which will provide reliable estimates of the total cost of these programs, from which NCHS may develop a cost sharing formula in connection with reimbursing the States.

This kind of cost study has been attempted at various levels, and we have found that it is a very tricky kind of thing to achieve.

To mention a few of the problems that we have taken into account, and hope that we have coped with adequately, in connection with our data collection plans, we find in looking at State governments that in many of the States there is a different organizational structure for the various statistical activities relating to health.

We also find that the budgetary and expenditure accounting system differs with many of the States that we are interested in collecting data from. We also find that the accounting system varies.

All of these are complications in our efforts to get standardized data on health programs.

We have been working on a cooperative project with the North Carolina Board of Health in trying to develop something of a modern cost accounting system which will permit development of the kind of cost formulas that are needed, and to maintain a close awareness of the characteristics and different details of costs. That is a long range effort and the demand for data of this type is more immediate, so we are having to proceed without the benefit of that long-range system development project.

In thinking about this kind of cost data, we have considered three kinds of approaches. One is to attempt to go through the formal budgetary function in State health organizations and use that as a basis for supporting the measurement of cost. We also have considered trying to use existing cost accounting systems. We also have considered a third approach that we adopted, and that is to work with knowledgeable program people in getting their best estimates of cost.

We recognize that if we use budget approaches the budget is really geared to obtain funds from the legislature and, hence, does not reflect very precisely the kinds of detailed expenditures that are needed for major costs of vital health statistics.

In cost accounting we find the limitations that I have mentioned. We felt that if we would simply deal with program people who were knowledgeable, they in turn would draw from the budgets and the accounting system and any other source that they use, in giving us the best estimate of statistical programs in health.

We recognize that we will be estimating and providing good estimates, hopefully, rather than something that we can call the exact cost. As we remove ourselves from accounting systems, or the budget office, we are moving from possible figures to estimates.

As to the method of collection, we plan to send out data to health officers at the State level along with a set of forms, the procedures, and so on, solicit their cooperation, and ask them to designate a coordinator for the project.

Then we plan to have a team from NCHS visit each registration area to obtain cost facts, and within each registration area to visit along with the coordinator, each of the statistical activities relating to health within the scope of the study.

First, in order to get some very fast estimates of cost on a national basis, our Office of Statistical Methods has drawn a sample of 10 registration areas that we hope to visit in July and August. From the information obtained in those 10 registration areas, we will be preparing some preliminary estimates. Then we hope during the last half of this calendar year to visit the remaining registration areas so as to have information on a State-to-State basis.

The basic period that we plan to cover in this exercise is fiscal year 1971.

We have built in a mechanism within the procedures to obtain a typical cost, recurring costs not included in that fiscal year, as well as any major program changes that have taken place since fiscal 1971.

The study has been designed to include all vital and health statistics programs within the health department in the State government as well as the comprehensive health planning and mental health programs, whether they are in or outside of the health department.

The study has excluded State support of county, city and other local levels; vital health and statistics programs; and the various splinters of health statistics that may be found in various other parts of State government. Both of these areas have been excluded to make the study more manageable, because we anticipate that it is going to be complicated to achieve, even within the scope that we described.

In terms of program detail, the study will attempt to provide information that will discriminate between vital registration and statistics, and then the other broad area will be health statistics, excluding mortality and other vital statistics. A third area will be data processing support. We have broken this up within organizations within the State government to facilitate their checks.

Within the health statistics area we want to get some broad program statistics that are self-defined and will maintain their integrity.

They include environmental and occupational health, general health and morbidity, I mentioned mental health earlier, health manpower and facilities, direct health services and comprehensive health planning.

The kinds of data that we are going to get within each of these program areas are fairly detailed. We want to get information on the sources of funding, of the vital statistic and health statistics programs. We will be obtaining information on the kinds, numbers, and characteristics of manpower that are used, the cost of manpower, fringe benefits, and then other kinds of cost. We will be trying to get indirect costs such as housekeeping, administrative costs, and the like.

We recognize that in trying to get this level of detail, it will vary from State to State. Some States, for example, have all of the major areas that I mentioned. There are some that have only a few. In some States, we recognize, we may, in fact, not be able to get that kind of detail at all, but simply broad categories.

In terms of trying to decide what kinds of costs should be included, we have defined and included in the study those data collection costs that are incurred primarily for the collection of data for statistical purposes. The cost of collecting data and maintaining data primarily for management purposes, program administration purposes, and the like, will not be included in the study. For example, the maintenance of crippled children's registers would not be in and of itself a complete statistical cost, but the use of those registers for statistics would be a cost included in the scope of the study.

For statistical purposes we will be attempting to include all costs incurred—computations, various data processing costs for statistical purposes, the analysis cost incurred, as well as the cost of writing reports and the like.

We have pretested this procedure and forms in Arkansas and Tennessee, and we are now optimistic about the upcoming study. We expect to get these States under way as soon as there is approval by the Office of Management and Budget, we think perhaps even in July.

Copies of the form and draft procedures are available (Appendix IV) should any one of you be interested at the close of this session.

PANEL DISCUSSION: REGISTRANT QUESTIONS

DR. REMINGTON: I am asking Marshall to remain up here on the platform. C. R., would you join us? Loren Chancellor, come up and view this fine looking audience.

First, I wonder if C. R. and Chance want to add any comments to Marshall's presentation on the NCHS study.

MR. CHANCELLOR: I would like to comment, actually on why are we doing this and on the probable results.

We have to find out what vital and health statistics are costing the country today, at least at the State level so as to provide Federal funds toward improving and supporting the vital and health statistics in this country. We have to have a baseline some place to start, at least. We don't know what the fair share might be or what kind of a formula we might develop, but at least I am looking forward to the time when we will be putting money into the States, for the first time to improve the vital and health statistics system.

DR. REMINGTON: C. R., do you want to add anything?

MR. COUNCIL: I think that we have been referring to this over the years as many of you know. We have not done this on a national scale. Perhaps for the first time we will have information on the internal structures and the costs for vital and health statistics which include the data processing costs related thereto.

DR. REMINGTON: We have microphones set up in the aisles and I would like you, as you ask questions, to identify yourself.

DR. LUNDE: Anders S. Lunde with the National Center for Health Statistics.

The report that Mr. Evans gave is the culmination of about a year's work in this area for those of us who have been involved in thinking about it, and I think you would like to know a little bit about the background experiences that we have had.

Approximately a year ago, we asked about 20 States if we could get this information. At that time, we were thinking of a mail questionnaire. We had done a sort of quick and dirty telephone inquiry which turned out figures which were certainly inadequate. We found that out. I remember the gentleman from Virginia, who is in the audience, getting up and saying that he spent more money in his State for house statistics than this entire report indicated for the whole country, in some areas.

We have gone this way with visits to the States with knowledgeable people, because we feel only by probing can we get the information. Even then we have doubts. I remember when we talked to the Registrar from North Dakota, she began looking into the problems a little bit, and she even got the State Auditor involved. She called me on the phone one day to say that even the State Auditor could not figure things out and could not come up with a ticket.

If you think this is strange, just consider what happened last week. You may have seen the American Medical Association's criticism of a statement made by the United States Government concerning the total cost of health in this country. They said it was full of holes. Not only that, but they criticized the report on the basis that there were obvious areas of neglect in investigation, and that anybody with any sense could have found some of these failures if they only looked hard at the total health picture.

As a simple example, they found that the total package of Federal involvement in health did not include such a simple and obvious thing as the cost of the Congressional Clinic with its doctors and nurses right here in Washington, which comes to about $200,000 a year. Multiply, let us say, areas of oversight like this, you know, by about 40 or 50, and you are in the millions already, and the millions and millions. So, the AMA said that probably the figure should be enlarged by 50 or even 100 percent.

We are finding that out in the States as we go along. That is why our schedule is rather detailed and why we are asking the probers to probe beyond, you might say, the ordinary expectations of health costs in the States.

This leads me to a question that I would like to direct to Paul Shipley, as a result of looking over his fascinating account of what he calls PAMIS, and this question can be directed to other States and local people in the audience.

Paul, do you think that when we ask our questions in California, concerning the total health statistics expenses in cost, that we will be able to come up with a reasonable figure and to what extent will PAMIS help us in this investigation?

MR. SHIPLEY: I will have to qualify my answer on this certainly. First, I believe that PAMIS would help us to be in a better position on this than a year or two ago, whenever the first sample questionnaire was filled out and the first information was gathered.

On the other hand, I qualify this by saying that what I have presented here, and the detailed classifications within the program that we have developed in vital statistics registration, is a fairly limited portion of the whole health statistics endeavor. We are aware of what is there and what they are going to get out of that, but I am not familiar where the total perspective begins.

If it is as good as this one, then the answer is probably yes.

DR. REMINGTON: Who is next?

DR. GORWITZ: I am Kurt Gorwitz. I am the Director of the Michigan Center for Health Statistics. It seems to me that the effort here is virtually impossible unless the States are supplied with very detailed and very specific definitions of the terms employed.

Let me just give you several examples which would be issues for us. For example, you talked about maternal and child health. We have Medicaid programs which involve children and health services to children. Do the statistical costs for that come under maternal and child health? In Michigan, this is part of the Bureau of Maternal and Child Health. This is a separate bureau.

When you talk about vital statistics, for example, how do you separate registration from statistics? The cost of our vital statistics, vital records program would be very substantial if we had no statistics at all. The mere registration procedure, probably, I would guess, comes to 90 percent or 85 percent of what we call our total vital statistics effort. Depending on how you define statistics, that part is a relatively small cost.

In our Center for Health Statistics, we have what you might call a core program which really cannot be allocated to any specific item. I am the Director of the Center. How do you separate my salary into vital statistics, maternal and child health, environmental health?. I would say that this core program, just as a pure guess, is probably half or more of our total costs.

It seems to me that what you are going to end up with is apples, oranges, and grapefruit, because everybody is going to be providing you with his own definitions, and you are just going to go and add these, and what do you have when you get through?

DR. REMINGTON: That is quite a challenge. Who wants to respond to that?

MR. EVANS: We recognize that one of the most difficult problems we have here is one of varying organizational structures. We have attempted to cope with this to some extent. I would stress again that what we are talking about is getting the best estimates of cost rather than actual cost. In some of this, we will be relying on the State's representative, the coordinator, and the various program people to estimate their allocations of cost.

The other thing that I would mention is that where we cannot get details, then we will simply retreat to the next level of detail. In the vital statistics, we will be separating that where we can, and then we will merge the two together.

The other point is that we will be attempting to qualify this with an area to limitations of the data in terms of our data collection program.

MR. COUNCIL: This may be considered a little arbitrary, but we initially agreed that all vital registration, vital and health statistics, and data processing activities that are centralized in one section would be justifiable for inclusion in this health study. It is only when we get outside this framework that we have to lift out the statistical costs in the various programs.

Immediately this raised some questions about including all health statistics costs outside the health departments, as well. We feel that since the only support that NCHS provides other than some technical consultative assistance to the

State, is through the vital statistics system, and this is where we stem from as far as health statistics overall is concerned, that we would be justified in including all costs for vital registrations, vital statistics, and other health statistics, done in and registration of a central statistical section. It is when we get outside of these that the difficulty arises.

MR. CHANCELLOR: One of our real hairy problems is trying to get what part of—for example, registers, is data collection—what part of that is really a statistical cost. The T.B. register, and so forth. It is a very difficult thing to try to come up with an actual figure. We realize this, but we have tried to define in other words, collection costs, are not to be included as cost in this project except when data are being obtained primarily for statistical purposes. We have some sort of bag of worms here that we have to sort out, and we know it is not going to be perfect. At least, when we get through, we will feel that we will have more than when we started. We don't have anything now as to what are the costs.

MR. HUXTABLE: Dean Huxtable. There are a lot of questions about detail. However, it all goes back to the Chancellor answer as to why this cost study. I would assume from your answer that this is going to take the Federal-State-local money that will become available in the future and scrub the present contracts as to a fixed amount for sending copies of the records. Is that true so far?

The reason for the cost study is to find out how much money goes into the States for a fair fiscal share. I don't understand the rationalization for why we are going into a record of the vital statistic systems, and you are willing to include that in the cost to be reviewed. You will include the registration part, and then the vital statistics itself, and yet draw back when we get into the other components of health statistics, using crippled children as an example, as Marshall did. The cost for gathering those data, in order to establish a crippled children's registry, in order to establish our clinic's statistics and our home-health program, and a basis of tuberculosis and the whole bit—apparently there is no thought given to what we are going through to establish statistics in those areas.

We are talking about what is the Federal share of the statistics, whether the gathering size is still a problem.

MR. EVANS: I agree that it is an inconsistency in the strict sense of the word.

The reason that we are including the cost of data collection by statistics is because the vital statistics system is today and in the past traditionally has been the source of information for the major programs in the National Center for Health Statistics.

We recognize that as the NCHS moves into the area of using State data in other areas of health statistics, such as the ones that you have mentioned, that we will be getting in the area to support those costs. But, as a Federal-State-local system develops, this is not going to happen overnight. It is going to happen over years. The initial baseline is what the programs are today, and in the future as NCHS utilizes those State activities. I would guess that in the future, as NCHS becomes more involved with using State data and other health statistics programs, we would need to revise this.

Another reason we have not included it is the enormity of the size in cost of those activities in relation to funds that will be available.

MR. COUNCIL: We have heard from several States—through inventories that were made of the types of health data existing in some of the States. I think ideally we might get the total cost of all health statistics in each of the States. To do so would be very costly and time-consuming, however. In one of the States, for example, an inventory was made of all of the health information prepared. Over twelve hundred questionnaires were sent out. Over 500 agencies reported that they compiled some type of information—so, I would like to point out that we have had to confine our study to the health department, which always includes everything done in the organized vital and health statistics units, plus other health statistics information in the health department, plus mental health statistics and statistics done by comprehensive health agencies outside the health department.

MR. CHANCELLOR: Do you know that the first thing that we would probably be willing and capable of implementing statistics would be in the field of vital statistics? The Federal-State-local cooperative program has some seven components but the only one that is ready for implementation is vital statistics.

So, in going along with what Marshall said, that this cost will necessarily have to be updated within a year or two, when the other components of the program will be ready for implementation, they will be out of the research and development phase and readied for implementation, and we would need additional information regarding costs.

DR. REMINGTON: Next?

MR. BURDO: Harold Burdo, State Department of Health, Connecticut. I would be interested in knowing if I had to come up with a total figure, a comparability of all statistics as derived out of my Health Department, I suppose I would have to lump in the crippled children, and, you know, VD. At this point, what happens is that most of these programs are already funded by the Feds.

The statistical gathering units are so well defined inside my own Health Department that it would be impossible for us to lump it under the single raw statistics and say this is State funded and this is Federal funded. That it is Federal contributions.

So I am not sure what would be reported, how this would affect the vital registrars, the one that needs the most help at this point.

Have I made myself at all clear?

MR. CHANCELLOR: I think you have. And the answer is I don't think it would affect your vital registration if we wanted to get around to the point to enter into a contract agreement with you, say, to provide—well, take an instance where maybe you would want to and need improvement in your basic registration—if we entered into a contract with you just for that one part—providing funds for holding registrar training courses or hospital training courses—to improve the quality of the documentation.

MR. BURDO: This is a lot in line with your thinking I expect like any gigantic organization, after you have fragmented into different areas, I can see a period of time when someone is going to ask the question, how many times are we paying for the service over again and possibly shouldn't the Federals consolidate their funds into one area and say this is the health statistical gathering area?

What would happen once you made that kind of a commitment, and it goes into a central treasury, as it were, once again I can see where it would put the Federal Treasury in an awkward position.

MR. CHANCELLOR: I don't share your concern on that.

MR. COUNCIL: There was reference made earlier to a telephone survey made last year in a very short time. It is necessary to get information on the source of the funds, how much is going into the vital and health statistics program, from the Federal, from the State, and any other sources such as philanthropic organizations.

In this inquiry we learned three things that were helpful. One was that it is an arbitrary arrangement that exists in each of the different registration areas. That is, there is no proportionate amount of funds to go to the vital statistics program throughout. In one State we found that over 60 percent of the funds came from the Federal Government; whereas in another, all funds come from State appropriation, nevertheless, they were both conducting similar statistical programs.

We asked for source of funding because there will be some disparity between the two as to what the State puts in, and what portion comes from Federal sources. I don't think that would have any effect on the program *per se*. It depends on the way a fiscal man has to allocate available funds.

MR. SHIPLEY: I don't know whether it is proper for me to ask a question or not, but I cannot resist.

DR. REMINGTON: Sure.

MR. SHIPLEY: I have been concerned for quite some time over this whole business because it seems to me we have clearly left out a couple of factors that relate to vital statistics legislation that are critically important. Let's zero in on California, for example, to use the figures with which I am familiar.

In California, we have what is approaching a million vital statistics events that are being registered each year. We know that the total cost of registration is somewhere in excess of $2 million. We estimated somewhere between $2 million and $5 million for a total cost of registration of these vital statistics events.

On the other hand, the system itself is generating within about $4.3 million this year.

And about 75 percent of that is revenue for local governments and can very well support the total cost of local government, and does support the cost of local government—well, they are making about a third profit, so to speak, on the revenues generated, and the State operations are losing money on this, if you look at it closely.

Nowhere in any discussions here yet, which are preliminary discussions, is there recognition that the vital statistics registration system in the United States is costing about half a billion dollars a year and is generating about the same amount of money to support it in State and local governments. It seems to me that this has to be considered somewhere in this whole business.

MR. CHANCELLOR: I don't know what you mean, Paul. This is considered because this is part of the information that is obtained. In other words, we are finding out what it is costing, and also what fees are being collected on a State basis each year on an annual basis, so we will have this information.

I don't necessarily believe that because you have taken in the amount of fees that you have, that this should mean that the program would deduct so much money from a system if you need improvement. I am not sure that this type of information will be included in coming up with a formula.

My own concern is that it should not be, but maybe I would be overruled in this. But we are getting what it is costing, and from this, wherever we can break it down, we will know exactly what it is costing the vital registration system to operate in a State and what they are taking in in the way of fees each year.

Dr. Wilson is interested in the study and wants to arrive at a cost figure for the Nation.

I am sure that some of the tables will show detail by State personnel, and other types of cost, and what the total cost is. Whatever other detail you might ask for will, of course, have to be provided if it is included in the study. I think it will be the first time we have ever had the information in this country.

MR. SHIPLEY: My basic question is how is it going to influence the formula?

MR. CHANCELLOR: This, I don't know. We probably will not be reporting the income from fees part. What Dr. Wilson has asked for is the total cost figures. I am assuming that probably the income part will not be reported.

MR. EVANS: I would like to comment on that. First of all, we recognize that we are not getting the total cost for this country. We are getting the total cost of the vital statistics operating program and health statistics at the State level of government, which excludes the local statistical cost and registration cost.

Secondly, I should think that the amount of funds coming into the State Treasurer from certifications and the like would not be a part of the formula in deciding Federal support of these programs, because there is no consistency in how the funds come into the Treasury, whether or not they come in strictly for the support of the health department or other activities. If we were to relate the total cost to the funds that come in from certifications, we would frequently have very little left but the Federal Government to share cost.

DR. GORWITZ: May I make a point? In Maryland, where I worked, all registration was through the State. Therefore, all income for copies of certificates and the cost related to this were State costs.

In Michigan, registration is through local registrars and a very substantial proportion of the copies that are made for various reasons are made at the local level rather than at the State level.

Therefore, the cost of the vital registration system per record is very much different in Michigan that it is in Maryland, because in Maryland the copies are made directly by the State and the State bears the cost of making all of those copies.

We bear the cost of making maybe only half of the copies. So, this will make a tremendous difference just between the two States.

DR. REMINGTON: Yes?

FROM THE FLOOR: I wonder about the possibility of trying to restrict this study to vital records, registration, and traditional vital statistics, whether or not this includes population.

When you get out into the nebulous area of health statistics, there is just no beginning and no end. I think with any States you are going to get into tremendous difficulties going beyond. It is not comparably circumscribed as the area of vital registration, vital statistics.

MR. EVANS: In Michigan the cooperative vital statistics system is in environmental health, and it has attempted to find the Federal Government's fair share of all health programs. The state of those health programs varies in States. If we were to restrict the study, I think we would have short changed the entire effort.

FROM THE FLOOR: This is along the same line again. This is a major understanding. Nobody said where the money is coming from.

MR. HUXTABLE: After you get through with this major undertaking, really the question comes, what do you really have? Do you have what you need? I am not sure that you will have what you need. You are going to have a bunch of cost figures on an individual State by State basis, and you are not going to have program data. If you are trying to work up to the point where you are going to design a formula for the Federal-State-local system, you have two weeks before the implementation of the funds. Nothing has come out, and it starts in fiscal '73, which is next July.

We still know nothing about that, and what do you have for all of these cost figures? Okay. What you really need is an audit on a State by State basis of what is not going on in that State, that should be going on, to raise that State to a certain level whereby it can partake in the Federal register or Federal statistical system on whatever program you are talking about.

Some States are way above; some States have nothing. That means you go into one State and you are talking about nothing. You go into another State and find over and above what you normally would expect. If you took an audit and, indicentally, I recommend to you the book on a first go around which has an audit on a program by program basis. They have cost figures available.

Now, then, do you want to weather duplication between FSL and ASTHO—here is one already. It seems to be the audit basis, what the states should be doing, and then the Federal pay their fair share of what they should be doing participating in the national statistical system.

DR. REMINGTON: Comment on that?

MR. CHANCELLOR: To begin with, we will have a checklist for each State. That is the last part of the report. I don't know whether you have a copy or not.

But there will be attempts to check every item, every type of program, that is included in that particular Registration Area or State. The list contains some major things—vital statistics, health statistics. This category has in it such things as maternal and child health, which includes some three or four separate programs. The second item is environmental and occupational health which includes air pollution, water pollution, industrial health, sanitation. The third item is food and drug, and communicable disease. Others are mental health, manpower and facilities, population, family planning, and so forth, population and direct health, which includes laboratories, etc.

This only applies to what part of the program is statistical, and not the total program. To determine whether they have statistics in these areas, we realize is a tough job, but it is something that we have been ordered to do, so we are going to do our best.

DR. GORWITZ: The findings from your study will lead to some Federal support for the States at a future date. I think one of the things you have to recognize is that if you come to us and we use our definitions, we can give you either a high figure for statistical cost or a low figure, and the two would be very considerably different.

I think this is true of all the States. If we recognized that whatever figure we give you may result in some future Federal funding, then depending on if you are going to pay a percentage of the costs, we will give you a high figure. If you are going to supplement our program, because we have a very low figure, then we will give you a low figure.

MR. CHANCELLOR: We realize there could be padding, and we expect we will probably run into some of that. We are going to try to look at it more closely where we think there may be padding and do other investigations if we think someone is really padding on us. But we are primarily depending on the States to give us a fair shake on this.

Jim?

DR. PALMERSHEIM: Mr. Huxtable mentioned the ASTHO project. It seems to me they made a set of definitions of programs, and they plan to do some survey work. I don't know if it is a cost account, but what would be wrong with having the representative work with you in this area so we don't have to complete both surveys?

MR. EVANS: I think that would be an excellent idea. Our goal is to get the best figures, and I think that would be very good.

DR. REMINGTON: I will take two more questions.

MR. GOODRICH: Fred Goodrich, State Registrar, Olympia, Washington. These would not be padded figures. Taking into consideration vital statistics alone, I can give you a very detailed cost analysis of statistics. It depends on how you want to define them. I can say that it costs $38,000 for data processing next year, and so much for machines. However, when I take into consideration that I would have to turn to our industries using automatic data processing to begin with, how much is that, then, that amount I can attribute to statistics per se? The difference between a high and low figure is not necessarily a bogus one. It is a very different one, depending on the definition.

MR. CHANCELLOR: We wouldn't intend to include this cost.

MR. GOODRICH: This applies to the other statistics as well. Most of these areas include patient records. Patient records are designed to be just that. We have not, as a by-product, gathered statistics, so how am I going to get the cost that should be attributed to the statistical process? That is my point.

DR. REMINGTON: We have a full program, but Luther was up there. Do you want to ask a question?

MR. BOYT: Luther Boyt, Statistician-Registrar, Kansas City Health Department. I purposely say Kansas City. It is not a State Capitol which leads me to believe that local areas are being excluded. Could you have any prospects for local areas to be included and funds made available?

MR. EVANS: Our initial study is for the area I mentioned. We have taken note of the areas excluded in our procedure plans which state that we may have to do other studies. So we are planning that for the future.

DR. REMINGTON: I wonder if you would join with me in thanking the panel. (Applause.)

No doubt that they have a bear by the tail, but I gather that when Dr. Wilson asks that something be done, it is likely to be done.

I think you will find the second half of the program very worthwhile. You will hear more up-to-date information on what is going on in the training and education of health statisticians than you have heard for some time. You will be hearing some advanced reports that have not appeared before, and I think you will find some of the data that they contain most interesting. But first let's have a short break.

2. RECRUITMENT, EDUCATION, AND TRAINING OF HEALTH STATISTICIANS

DR. REMINGTON: Could you please be seated?

We have a perennial topic on the second half of the afternoon session. There has probably been some identifiable component of this topic in every biennial meeting that I have been associated with. It is an unfolding matter of concern to all of us, because those of us who are in the training industry, so to speak, are certainly concerned with what our universities are doing for you and, as you tell us sometimes, to you.

We need your input, and we value this kind of a vehicle to tell you again what we are doing and what are the kinds of activities that seem appropriate to us.

One thing which will characterize this presentation today is that we will take a much broader look at the questions of training health statisticians than we have before. We will talk not only about university programs but about the very fine set of programs that have been developed under the auspices of the National Center at the Applied Statistics Training Institute. My spies tell me we are going to hear a presentation of some gaps that may exist and maybe a little clue as to how we may go ahead and fill some of those gaps.

I am looking forward to the remarks of all of the speakers this afternoon. The first one of them is again one of those unintroducible people. He tells me that I should assure you—this *is* Dr. Anders S. Lunde and that the initial "S" does not stand for "shadow." If he keeps going the weight-watching route he has been going the last few months, however, it may.

Andy.

APPLIED STATISTICS TRAINING INSTITUTE (ASTI) PROGRAM—PRESENT AND FUTURE

Dr. Anders S. Lunde, *Director, Office of State Services, National Center for Health Statistics, Health Services and Mental Health Administration*

DR. LUNDE: Thank you, Dick.

They tell me I should write a book, "How I Did It in Ninety Days." (Laughter.)

The subject of my talk is the Applied Statistics Training Institute, present and future.

ASTI's original charge was to develop a training program to serve State and local health personnel, particularly those in the vital statistics and general health statistics fields. When we formally opened our doors in 1968, however, we did not know our audience. We knew there was a need but we were unsure of its extent. We were like the producer of a musical comedy as we asked ourselves, "Will anybody buy tickets?" "Who will they be?" and, "Will they like the show?"

What we learned in that first year was that we had a hit. The need was great, and the Center, in developing this training activity, had filled a great gap.

Another fact emerged, the span of that need was greater than we had anticipated. The hunger for facts, how best to obtain them and use them, how to analyze them, how to apply them to programs, how to evaluate them, was something not confined to any single identifiable office and any department but was a hunger felt throughout all agencies interested in the health business.

The audience consisted of vital statistics personnel at all levels, public health statisticians, and mental health statisticians, all of whom we had earlier considered as probably applicants. But, in addition, we had State program directors, hospital administrators, and State and local, city and county health officers. We had comprehensive health planners, nosologists, professors, computer analysts, nurses, physicians, psychiatrists, family planners, demographers, city planners, regional medical personnel, students from schools of public health, and researchers from the private sector. We had people from Federal agencies, from universities, as well as from State and local governments. You name it and we have had it.

As for the background of the students, we had clerks with a high school education, and we had Ph.D.'s and M.D.'s. In terms of experience, the students have ranged from the neophyte in all areas to the professional with 20-30 years experience. This demand and widerange of need raised some questions for us. Are all these people sufficiently close to the NCHS mission in health statistics to justify one spending Federal funds for their training? The answer seemed obvious to us. They are.

By and large, the students are in health statistics programs in State and local health or health statistical offices. If they do not work in offices that have a direct and well defined input into the NCHS through some mechanism like the vital statistics registration system, they have an input into health statistics in some way, or are the recipients of direct or indirect Federal funding.

We have as yet not been able to identify a student who is not primarily concerned with the health field.

The students have come from every State, from the District of Columbia, Puerto Rico, the Virgin Islands, and Guam. Besides students from our country, we have had a dozen or so from others. Most have come from Canada, others from Argentina, Guatemala, and Australia. We have even had a visit from a World Health

Organization advisor, the sometime Dean of the School of Hygiene in Athens. Our foreign visitors have enriched the training experience for both students and staff.

The third thing we learned was that the demand did not diminish but increased as our program became better known. This was not so much a matter of numbers alone as it was a continuous request for new types of courses or educational programs and for training on the home ground.

As for numbers, we have fluctuated somewhat, depending on the type and appeal of courses, but we taught 103 persons in regular courses during our first year and 300 persons in this fiscal year now ending. In addition, this year we taught some 70 persons in cause-of-death coding courses throughout the country. Altogether we have made 72 course presentations and taught some 1,112 students since 1968. We have, in other words, provided 6,396 man-days of training. We are not running out of students.

One of the handouts has a list of all of the courses we have ever given, and those that are listed in our catalog to be given, with all of the students also listed. We don't have enough to go around, but it will be included as an Appendix to the published Proceedings of this biennial meeting.

During this biennium, we had increasing requests for regional presentations, so we expanded this element last year. During this fiscal year, we gave three regular courses outside Research Triangle Park; at San Raphael, California; Denver, Colorado; and Houston, Texas; and seven cause-of-death courses at Boston, Massachusetts; Salt Lake City, Utah; Kansas City, Missouri; Albany, New York; New Orleans, Louisiana; Sacramento, California; and Kansas City, Missouri.

We keep getting letters from some States indicating that their interest in regional presentations is based on the fact that they have little funds for travel or for training. Some State officials say there are funds in some pockets somewhere, and the registrars and statisticians should dig them up. We have not been able to advise States about this as there seems no simple solution to this problem. If we could say, with the hope of having some effect, "Go to the Governor and ask him nicely, you will get the money," we would do it. If we could say that all you have to do is ask Mr. or Mrs. X to be sure you are tied in with appropriated funds, whether it be the Comprehensive Health Planning package or any other, we would do it. But we have not any door before which we can cry "Open, Sesame," and have you find riches.

Even these area requests have taken on a new dimension in terms of numbers. They now ask that we plan courses with them for a guaranteed 20 or 30 persons in their own offices.

Sometimes the requests include something to do with helping that department or agency develop their own in-service training. This latter type of task is one we have been charged with from the beginning, and we are now ready to assume a greater responsibility for such activities.

On the other point, we have had to be somewhat restrained. Center policy has been not to provide, except for cause-of-death coding courses of long-standing tradition, training for one State alone on the principle that what one State can demand, another has the right to obtain also. We are asking States to consider along with their own people, persons in adjacent States.

Under this last arrangement, we will put on a course in a city in one State but will advertise it throughout the HEW region. Suppose the instructor will take 30 to 40 persons and the city could guarantee as many as 30. We will see what the overall demand is. If 10 outside people want to sign up, we will set it up to include all applicants. If 20 outside people are interested, we will negotiate a mutually agreeable balanced number from both sources. If, on the other hand, 30 or 40 outside people are interested, we will put the course on twice. That is how we prefer to operate under the present policy.

While the audience generally liked the show, we made another important discovery. There was a need for summary, introductory, and basically explanatory courses. Take, for example, a graduate statistician aged 40 to 50. Many new developments have occurred since his college years. It is not that he lacks intelligence or curiosity but perhaps his job has been more or less routine. Suddenly, new questions about data arise. What kind of facts are required? What are the sources? What are the statistical requirements? What does anybody know about these things? Does anybody know?

So we have had to appraise all our courses in terms of the experienced person who suddenly needs to know new terms, new ways of thinking, and something about computer concepts and technology.

In addition, the new employee, or the employee who seeks upward mobility, needs to know two basic things. One is the details regarding his specialty and the second is how his specialty relates to the whole health field. We examined this new area of demand in terms of our core-course program which was designed to develop a continuum of basic courses leading off to more advanced or specialized courses. We asked our instructors to think about this. Instead of just developing "elementary" courses, they should consider such matters as orientation to the subject and also to the whole field of health with the idea that they are dealing with intelligent adults who have had no experience with or little knowledge of a particular subject.

One of the first such courses to be developed was No. 700, "Introduction to Automatic Data Processing for Health Occupation Specialists." This course showed us we were on the right track as it was not only a considerable success but it has been requested by several States. We are putting it on the road. It will go to Florida in September and Texas in October.

Another example is No. 200, "Measure and Analysis of Vital Statistics, Natality, Mortality, Marriage, and Divorce."

We shall continue this development in other course areas.

I should also report that the program was supported by the American Public Health Association Statistics Section's report on education and training of health statisticians.[1] Over 85 percent of health agencies indicated that they intended to send students to the ASTI program. Among the recommendations[2] was one which suggested that the National Center for Health Statistics get together with the schools of public health to discuss the relations of ASTI and programs of the schools.

The first meeting of this group, called the NCHS-ASTI Biostatistics Conference, took place March 15-16, 1971, and resulted in several important developments. As regards ASTI, we have found that this meeting improved our understanding of the work of the schools. It seemed also to broaden our relations with the departments of biostatistics. We have increasingly involved them in our planning and program presentation.

In this, and in other meetings we have had expressed the strong endorsement and assistance of the officials and members of the American Association of Vital Records and Public Health Statistics, which we greatly appreciate. They were the originators of the requests that started the wheels moving, and they are still the principal motive force behind the program.

So we have four years behind us now. What lies ahead?

There are two significant developments which have important implications for our program in the future. The first is that we have been notified that our program will be given more internal support through next fixcal year, beginning next month. This was originally planned by the National Center for Health Statistics for Fiscal Year '74, but to maintain a reasonable growth and satisfy your requirements for appropriate training in new directions, it was decided that the planning for growth begin immediately.

This is tied in with a second development, the training implications of a Federal-State-local cooperative health statistics system. Under the establishment of such a system, it might be possible for the Center to provide for the following: (1) travel grants for attendance at ASTI courses; (2) increase of course presentations in regional-local areas; and (3) development of a recruitment training system whereby new employees will be brought on board by States and trained by ASTI.

We were directed to look into this last item first, because we will continue to present regional courses to the extent of our resources and travel grants will depend largely upon resources provided the Center in an expanded budget. But, if States and local areas need to employ a number of new persons, then ASTI will have a role in their practical training.

To make sure we were not going off on a mad tangent, we called upon the American Association of Vital Records and Public Health Statistics and the universities to meet with us to begin thinking of these matters. The first meeting of a temporary technical consultant panel took place last month at Research Triangle Park. Present were two local statisticians, two State statistical directors, and two university professors of biostatistics. We prepared a discussion paper suggesting how recruitment and training could be linked. The draft of the report of the first meeting is now being reviewed, but the general consensus was:

(1) The idea of such training is a sound one and can be worked out if the Federal-State-local system provides financial support to the States.

(2) The time required will be something of a problem for both ASTI and the States, but can be worked out.

(3) Both States and local areas can be involved in this development.

(4) The universities can endorse this type of program and may be called upon to consider special applicants for longer term educational programs if grants for one or more years graduate schooling are provided.

While we work to lay down theoretical paths for Federal-State-local linked training developments, it must be emphasized that these matters are plans only. Implementation depends upon the Federal-State-local system growth.

I share these ideas with you at this time because some of you are already involved in these hopes and schemes. And even if all does not come true, some of it will. We will incorporate the best pieces into the program as any resources become available. We shall also take up this entire matter with the schools of public health at our second meeting with the heads of the departments of biostatistics in the spring of 1973. I might point out that the States and local areas are represented through the AAVRPHS people who attended these meetings.

More specifically, the immediate future plans include the following: (1) continued planning with States and local officials for the proper expansion of the ASTI program; and (2) increase in the regional presentations of courses.

Also we intend, (3) to enlarge the core program and to tie it in better with more advanced courses; (4) to structure the advanced program to be more than simply ad hoc presentations from which you make selections, and (5) we shall develop new courses as needs arrive.

We just had a suggestion from Oklahoma that we organize a program on "What are health information systems, theory, and experiences?" That should be a good one if we ever get around to it. We also had a request just recently for statistics needed for appropriate study of chronic conditions.

We could go a long way in many of these programs. Paul Denson sent us a big package a couple of months ago, saying "Here is a course idea for you." It was an excellent suggestion, but we could think of no one who could teach it except Paul. If he can do so, we will have another course related to records development and management. But even if this proposed course is not developed we hope that he will continue suggesting courses to us, and that you will, too, because if they seem feasible, we shall certainly plan to put them on.

Lastly, (6) we hope in the future to develop our ASTI programs so that you can have them perhaps as close to a year in advance. We have our program pinned down through June 1973 as I have just said.

We will continue to welcome comments and criticism and any ideas for the reorganization of the program or the addition of new courses.

I might say that I got a surprise last week. I was reviewing the programs on training that Dick mentioned and found that at the Tenth National Meeting a most unusual report was prepared by Bert Bailey.[3] This apparently was from a study committee on recruitment and training of vital statisticians and health statisticians. The report was rather lengthy, and it suggested to the Center the ways in which it should go to develop a training package.

In reading it, I was quite astonished, because all of the suggestions made in the Conference are echoed in our present ASTI program, and there are some ideas there that we have not even thought about or touched on yet.

I can say honestly that the work of the study committees of the past has not been in vain. Often the discussions here, for example, in this group, will emerge if not next week, perhaps in a couple of years, in reality.

So I thank you for participating in our program, all our programs, and thank you, Dick, since I asked you in the first place to take over the chore of bringing this particular session together.

DR. REMINGTON: It is entirely my pleasure. The next speaker is Dr. Jan W. Kuzma.

Jan was born in Warsaw, Poland, and got his Bachelor's Degree from Andrews University in Berrien Springs, Michigan, his M.S. Degree at

Columbia, and his Ph.D. at a school located in a small town in Eastern Michigan, the University of Michigan.

Jan is now Chairman of the Department of Biostatistics at Loma Linda School of Public Health. It is his fate, which is the very best way to describe it, to be the latest in a long succession of chairmen of a committee appointed by the APHA Statistics Section to investigate training needs for statisticians and educational qualifications for health statisticians. This Committee has surveyed the current curricula of the departments of Biostatistics in schools of public health.

Jan.

STATISTICS CURRICULA IN THE SCHOOLS OF PUBLIC HEALTH AND THE PROBLEM OF MEETING STATE NEEDS

Dr. Jan W. Kuzma, *Chairman, Department of Biostatistics, Loma Linda School of Public Health, Loma Linda, California*

It was really not a chore but a privilege to have been involved in this survey, and it is an even greater privilege to appear on this distinguished panel before this Conference.

The shortage of appropriately trained health statisticians has been the concern of many groups, as indicated earlier by the National Center for Health Statistics, various health agencies, schools of public health, and the APHA Statistics Section, which gave birth to this committee. The immediate predecessor to this committee was a Committee on Education and Training of Statisticians for Health Agencies (ETSHA),[4] which was chaired by Dr. Moriyama.

Dick has indicated that some dialogue and some conferences on this topic have occurred in the past. In order to give the setting for this partial preliminary report, I would like to summarize very briefly the concerns of the schools of the health agencies.

First, let me go to the concerns of the health agencies. The ETSHA Committee report indicates that in 1969, of the approximately 1,000 budgeted statistical positions in the 102 State, local, and Federal health agencies surveyed, there were 19 percent vacancies. Furthermore, the report states that during the period of 1960-1968, there were 330 biostatistics graduates trained by the schools of public health. One-fifth of these had gone into local, state, and Federal agencies to take positions with them.

In addition to the fact that the schools are not training enough health statisticians, agencies feel that the training is not always appropriate. Some of the comments made indicate that programs are too theoretical and that these programs do not orient graduates toward agency work.

These agencies suggest that schools incorporate more flexible curricula to make available options in their programs so that students who wish to specialize in certain areas, or obtain special training, would be able to do so. With respect to curriculum and instruction, the agencies feel that they need something different from the traditional curriculum in statistics. They feel that the curricula should be directed to dealing with statistical problems in public health, medical care and health services.

They suggest that students need less advanced mathematical statistics and probility, but a better appreciation of public health problems.

With the new type of problems the agencies are dealing with, they would like to have health statisticians obtain some specialized skills in demography, computer programming and program evaluation.

In addition to these improvements in the curriculum, they feel that the instructors should be more closely involved with the health departments so that they may have a more intimate knowledge and concern for public health problems.

Now let me go to the schools' concerns.

The schools make a distinction between education and training of statisticians. The schools consider it their primary responsibility to educate, rather than to train, statisticians—statisticians who will be capable of filling a variety of positions, be they at agencies or educational institutions or in industry or other places. The schools realize that it is not possible for them to include in their curricula all the special techniques from the diverse areas referred to above. They seek to give the students a basic foundation in the principles and in the theories of statistics, which will enable them to learn and develop special techniques in the particular areas.

In planning to provide the best education for statisticians the schools are uninterested, and possibly unqualified, in providing statistical training which would be given more appropriately on the job, or by such agencies as the Applied Statistics Training Institutes (ASTI).

With respect to supply and demand, only one-fifth of the graduates of the schools are going to various health agencies, as indicated by the ETSHA report. However, the schools wonder whether the vacancies for statisticians listed by health agencies give a correct picture of the needs. It is noted that 52 percent of the vacancies are in salary categories below $9,000 per year. And 19 percent of these are below $7,000 a year. It is suspected that the job requirement for these low salary positions is clerical rather than professional or subprofessional.

The schools point out that agencies have a problem in recruiting statisticians not only because of the inadequate salary levels, but also because the job descriptions for many of their positions appear to describe less interesting jobs. It is the opinion of the various schools that many of the jobs could be upgraded and redefined to include fewer routine tasks. If that were done, and the salaries were improved, local and State agency recruiting rates would probably be considerably better, and similar to those of the Federal agencies, where the recruiting rates are approximately twice as high.

With respect to recruitment, the schools realize that the plight of the agencies could be somewhat alleviated if more public health statisticians were trained. The ETSHA report indicates that in a survey of 133 institutions, 18 of them appeared to have programs considered suitable for preparation of public health statisticians. These 18 schools have produced 37 graduates per year during the period of the survey. However, there were 166 vacancies at these schools.

The biostatistics departments, also, face enormous recruiting problems. This is partially due to the fact that graduate programs in statistics do not have undergraduate statistics programs.

Several department chairmen from the schools have indicated that if health agencies would notify them of existing vacancies, they would pass this information to their students which should improve even further the recruitment rates.

This much for background.

Now, let me proceed to the survey conducted by our committee. We prepared a questionnaire about two years ago and sent it to 19 of the schools of public health in North America. We received replies from 18. Three schools did not participate. They were Montreal, Toronto, and the University of Michigan. Tulane University replied, but their program was modified sufficiently so that they are not included in the analysis of this report.

The curriculum could be defined in a variety of ways. The committee used a broad definition and included such items as the availability of the different kinds of programs, admission requirements, contents of the curriculum (both with respect to formal and non-course complement), the duration of the program, the type of courses, the type of courses taken outside of the department, the type of faculty, the relationship of the faculty to health agencies, the type of faculty publications, places where students are expected to find employment and at what salary levels, and characteristics of the students.

As seen from Table 1, the 15 schools included in the analysis had 10 Masters of Public Health (M.P.H.) programs in biostatistics. There were 13 other types of Masters' programs. There were six Doctor of Public Health programs and 11 Ph.D. programs. These include three Doctor of Science programs. Generally speaking, the M.P.H. program is the one most suitable for preparing the public health statistician.

Table 1 gives the admission requirements for each of the program categories. Let me focus primarily on the M.P.H. program, with respect to college algebra, nine of the programs require either a course of up to six units, with only one requiring 12 units.

With respect to calculus, four programs do not require any calculus; four programs require 5-10 units; and only one requires 12-24 units. None of the programs required mathematics beyond calculus. There was some flexibility in

Table 1. NUMBER OF PROGRAMS REQUIRING SPECIFIED ACADEMIC QUALIFICATIONS FOR ADMISSION TO DIFFERENT DEGREE PROGRAMS OF DEPARTMENTS OF BIOSTATISTICS IN 15 SCHOOLS OF PUBLIC HEALTH

Admission Requirements	Quarter Units	Degree			
		MPH(10)* No.	MA,MS**(13) No.	DrPH(6) No.	PhD(11) No.
a) College Algebra	1 Course		6	3	6
	5-6		5	2	3
	12		1	1	1
b) Calculus	0		2	0	0
	2 Courses		3	3	4
	5-10		5	1	2
	12-24	1	2	2	4
c) Math beyond Calculus	0		7	4	2
	3-10		4	2	3
	12-30		1		2
	1 yr				3
d) Can deficiencies in a, b, c be satisfied	YES	5	11	5	9
	NO	4	1	1	1
e) Minimum GPA	2.5-2.8	2	2		1
	3.0	6	9	4	7
	3.5			1	1
f) Minimum GRE Score	Not Req. or not Stated	9	11	6	8
	500-600		1		2

Note: Frequencies may not add up to the indicated total because of non-response on that item.

*Number in parenthesis indicates the number of programs
**Also includes MSPH

that individuals with deficiencies in either algebra or calculus were able, to make them up in five of the programs. The minimum GPA required for admission to two schools was 2.5-2.8, with 3.0 for the other schools.

Table 2 discusses the composition of the curriculum. One will notice that none of the M.P.H. programs required any mathematics as a part of the program. Three programs did not require any probability or mathematical statistics, five 9-20 units. All of the programs required some biostatistics courses. With respect to demography, two programs did not include it, and eight programs included 6-8 units of it.

Three programs did not have any computer programming, and six had between two and six units. All of the programs had public health course requirements, with most of them requiring seven or more units. Half of the programs require bio-medical courses

Table 3 considers some of the practical aspects of the curricula such as field or work projects. One will notice that nine of the M.P.H. programs, required such a field or work project. This was a higher percentage than for any of the other programs.

Looking at Table 4, one will see the type and frequency of courses taken in other departments. This is done typically in smaller biostatistics departments which cannot offer a wide diversity of courses. From this listing we can see which departments were involved and which non-department courses are most frequently utilized. One will notice that the most frequently used courses are mathematical statistics, demography, and computer programming.

Another question which was asked was how many courses were available and how frequently they were given. Table 5 shows that the median number of courses offered annually is 13, with a range of four, to 31 courses. The four is rather low, and I believe that is from one of the smaller programs in Puerto Rico. Of the median number of courses given every two years there was 3

Table 2. NUMBER OF PROGRAMS HAVING SPECIFIED DEGREE REQUIREMENTS BY TYPE OF DEGREE OFFERED IN DEPARTMENTS OF BIOSTATISTICS OF 15 SCHOOLS OF PUBLIC HEALTH FOR FALL 1970

Degree Requirements	Quarter Units	MPH(10) No.	MA or MS(13) No.	DrPH(6) No.	PhD(11) No.
Mathematics			7	2	4
	3-6	1	5	1	1
	7-12			2	2
	13+			1	3
Probability & Statistics	0	3		1	
	3-8	2	3	2	
	9-20	5	7	2	4
	21-30		1	1	3
	31-50		1		3
	51+				
Biostatistics	8-12	3	2		1
	14-20	5	5	1	1
	21-26	1	5	1	2
	27-32			1	
	32-38			1	2
	39+	1		2	4
Demography	0	2	4	3	3
	2-6	8	8	3	6
	7+				1
Computer Programming	0	3	2	1	3
	2-6	6	7	4	3
	7-10		2		1
	10+		1		2
Public Health	0		2		3
	3-6	1	8	1	4
	7+	9	2	5	3
Biology-Medical	0	5	5	3	3
	3-6	5	5	2	3
	7+		2	1	3
Behavioral Sciences	0	7	10	5	9
	3-6	3	2	1	1
	7+				

Table 3. NUMBER OF PROGRAMS HAVING ADDITIONAL REQUIREMENTS BY TYPE OF DEGREE OFFERED IN DEPARTMENTS OF BIOSTATISTICS OF 15 SCHOOLS OF PUBLIC HEALTH

Additional Requirements	MPH(10 No.	MA or MS(13) No.	DrPH(6) No.	PhD(11) No.
Field or work project	9	9	5	8
Consulting opportunities	1	7	3	9
Thesis	3	6	6	11
Comprehensive exam	4	6	6	10

Table 4. ADDITIONAL REQUIREMENTS

NUMBER OF COURSES TAKEN OUTSIDE BIOSTATISTICS DEPARTMENTS OF THE 15 SCHOOLS OF PUBLIC HEALTH BY TYPE OF COURSE

Type of Course	Frequency
Mathematics	
Calculus and Advanced Calculus	11
Linear Algebra	7
Differential Equations	4
Analysis	4
Misc. Math Courses	4
Statistics	
Probability and/or Math Statistics	17
Statistical Inference	8
ANOVA & Design of Exp.	7
Multivariate Analysis	4
Stochastic Processes	5
Non-Parametric, Sampling, other	6
Demography and Sociology	
Demography	10
Population Dynamics & other	9
Misc.	2
Programming	
Computer Programming	6
Advanced Programming	2
Specialty Course	5

Table 5. MEDIAN AND RANGE OF NUMBER OF COURSES OFFERED WITHIN THE 15 BIOSTATISTICS DEPARTMENTS BY FREQUENCY OF OFFERING

	Median	Range
Annually*	13	4-31
Every 2 years	3	1-6
On demand	2	1-10

*2 schools which indicated "all" are not included.

with a range of one and six courses, and the median number of courses taught on demand is 2, with a range of one to 10 courses.

Table 6 gives an indication of the duration of the programs. You will notice that six of the programs required the completion of between 36 and 48 units, which would be somewhere between nine and 12 months, and only two programs were longer than one year.

Looking at Table 7, one sees the list of schools that participated, and also the size and type of biostatistics faculty for the year 1970-71.

Table 6. NUMBER OF PROGRAMS REQUIRING SPECIFIED NUMBER OF CREDITS FOR SPECIFIC DEGREES OFFERED IN DEPARTMENTS OF BIOSTATISTICS OF 15 SCHOOLS OF PUBLIC HEALTH

Quarter Credits	MPH(10) No.	MA or MS(13) No.	DrPH(6) No.	PhD(11) No.
36-48	6	7		1
49-60	2			
61-75		3	2	1
75-90		2	1	1
91-135			2	3
136-180				2

Table 7. SIZE OF BIOSTATISTICS FACULTY AND TYPE OF APPOINTMENT FOR THE 15 SCHOOLS OF PUBLIC HEALTH, 1970-71

	Principal	Full-time Equivalent	Joint Appointment
Columbia University	5	1	0
Harvard University	5	6	1
Johns Hopkins University	10	2	9
Loma Linda University	3	1	2
University of California—Berkeley	5	.5	0
University of California—Los Angeles	6	0	4
University of Hawaii	3	.1	2
University of Minnesota	9	2	2
University of North Carolina	27	1	1
University of Oklahoma	3	1	1
University of Pittsburgh	9	2	3
University of Puerto Rico	5	0	1
University of Texas	10	0	10
University of Washington	6	0	0
Yale University	5	.5	0
	111	17.1	36

Table 8. SOURCE OF TRAINING OF PRINCIPAL FACULTY OF 15 BIOSTATISTICS DEPARTMENTS

Type	No.	%
Department of Biostatistics	47	42
Department of Statistics	39	35
Department of Mathematics	10	9
Other	15	14
	111	100

One can notice that the University of North Carolina is the largest; followed next by Johns Hopkins and the University of Texas each with 10; Pittsburgh with nine; and then the others with about five or six; and the three smallest departments each with three faculty members.

Table 8 gives some assessment of the flavor of the curriculum. One way of doing this is to see where the principal staff members were trained. One will notice that 42 percent of them received their training in the department of biostatistics, 35 percent in the department of statistics, only nine percent in the departments of mathematics, and 14 percent in other areas.

Another indication of the kinds of interests of faculty members, in an indirect way, are their publications. Of course, publications are difficult to categorize on the basis of their titles. Therefore we simply grouped them by the journal in which they were published. In summary, one can see from Table 9, that about one third of the publications have occurred in methodology type journals, such as the Journal of the American Statistical Association, Biometrics and other statistics, and computer journals. One fourth occurred in public health, behaviorial science, and general science journals. Five percent appeared in medical journals, and only five percent in theoretical journals. Three percent of the publications represent books.

Table 10 gives the response to the question where graduates are expected to find employment. One should notice that for the M.P.H. programs the schools expect them to find employment in local, State health, and Federal agencies. None of the schools expected them to find jobs in some of the other areas.

Table 11 gives the student characteristics. Let me point out the main features. Item 1 gives the number of graduates in 1970. There were 19 M.P.H. graduates, 35 enrolled students and 18 vacancies.

Item 3 indicates the source of recruitment of the fall 1970 students. Notice that there were six who came directly from a university or college, and 25 from agencies with experience.

Item 4 looks at the undergraduate major of these students. Notice that most of them, 17, were mathematics or statistical majors. Thirteen majored in life sciences and five in social sciences. Skipping down to item 5(e) we can see that there were 21 United States citizens and 13 foreign students. This seems high.

With respect to support, only 11 of the M.P.H. students had traineeships; 19 were on agency support; and five were on self-support.

Table 9. NUMBER OF PUBLICATIONS OF PRINCIPAL BIOSTATISTICS FACULTY MEMBERS BY TYPE OF PUBLICATIONS IN 15 SCHOOLS OF PUBLIC HEALTH

Type of Publication	No.	%
Jasa	37	7
Biometrics	32	6
Sankhya & Biometrika	18	3
Math	11	2
Medical	194	35
Other Stat & Computer	114	21
Public Health	27	5
Behavioral Science	37	7
General Science	66	12
Books	15	3
Total	551	101

Table 10. FREQUENCY OF TYPE OF AGENCIES WHERE GRADUATES ARE EXPECTED TO FIND EMPLOYMENT

Type of Agencies	MPH No.	MA or MS No.	PhD or DrPH No.
Local & State health departments	8	9	6
Federal agencies	5	7	4
Teaching & research	0	0	7
Medical schools	0	3	4
Industry	0	4	3
Advanced training	0	1	0

Table 12 considers the place of employment of the 1970 graduates. One will notice that of the 19 M.P.H. graduates, 11 (64 percent), went to either State, local or Federal health agencies, including the National Institutes of Health. The percent employed by health agencies is the highest for the M.P.H. group. For the masters graduates, it was 18 percent, and for the Ph.D. graduates, 23 percent.

What does this all add up to? Let me make some concluding remarks.

The agencies felt the need to have more flexible programs, and I believe this survey indicates that there are a variety of programs that students can select from.

This survey revealed that the relationship of the faculty members with the health department is minimal, and that it needs improvement. The statement that the school programs are too theoretical and that the faculty leads students away from health agencies into teaching is hard to substantiate. This is especially apparent if one looks at the training of the teachers, which was

Table 11. CHARACTERISTICS OF STUDENTS ENROLLED IN VARIOUS BIOSTATISTICS DEGREE PROGRAMS IN 15 SCHOOLS OF PUBLIC HEALTH, 1970

	MPH No.	MA or MS No.	DrPH No.	PhD No.	Total No.
1. Biostatistics Students					
a) Number of graduates in '70	19	45		35	99
b) Total enrollment in Fall, '70	35	105	3	151	294
c) Vacancies	18	44	6	17	85
2. No. of applicants turned down in Fall '70 for:					
a) Academic reason	14	18	1	17	50
b) Financial	2	11		15	28
c) Other	4	1		3	8
3. Fall '70 students who were recruited from the following areas:					
a) Directly from a University	4	37		54	95
b) Directly from a small college	2	12		13	27
c) From an agency with experience	25	18	1	41	85
d) Other	3	12		8	23
e) Unknown	1	26	2	35	64
4. Fall '70 students who were undergraduate majors in:					
a) Mathematics or Statistics	17	55		95	167
b) Life Sciences	13	22	2	13	50
c) Social Sciences	4	11	1	6	22
d) Other	1	6		2	9
e) Unknown	0	11	0	35	46
5. Distribution of Fall '70 students having the following demographic characteristics:					
a) Race—White	30	83	3	121	237
Black	2	4		2	8
Oriental	2	14		11	27
Other	1	3		6	10
Unknown	0	1	0	11	12
b) Marital status—Single	17	58		46	121
Married	18	45	2	95	160
Other		2	1	4	7
Unknown	0	0	0	6	6
c) Sex—Male	26	60	2	115	203
Female	9	45	1	28	83
Unknown	0	0	0	8	8
d) Age—Under 25	11	52		29	92
25-29	11	28	1	71	111
30-39	12	21	2	41	76
40-49	1	3		4	8
50+				1	1
Unknown		1		5	6
e) Status—U.S. Citizen	21	68	3	117	209
Foreign Students	13	26		28	67
Unknown	1	11		6	18
f) Support—On Traineeship	11	46	2	97	156
Agency Support	19	24		12	55
Self Support	5	32	1	37	75
Unknown	0	3	0	5	8

Table 12. NUMBER OF BIOSTATISTICS GRADUATES IN 1970 BY TYPE OF DEGREE AND PLACE OF EMPLOYMENT IN 15 SCHOOLS OF PUBLIC HEALTH

	MPH No.	MA or MS No.	DrPH No.	PhD No.	Total No.
a) State & local health departments	7	4		3	14
b) National Institutes of Health	4	2		2	8
c) National Center for Health Statistics	1				1
d) Other federal agencies		2		3	5
e) University—teaching & research		6		19	25
f) University—further graduate work	2	11		1	14
g) Industry		8		3	11
h) Other	5	4		3	12
i) Unknown	—	8		1	9
Total	19	45		35	99

obtained primarily in biostatistics and statistics, rather than math departments. If one looks at the publication records one finds that only five percent of the publications occur in theoretical journals. Furthermore, the schools have an expectation that all the M.P.H. and the majority of the Masters and Ph.D. graduates find jobs in various health agencies rather than in the other agencies.

Since the large majority of the schools expect their graduates to begin with a minimum of $9,000 per year, and since 52 percent of the reported vacancies of all the agencies are below that level, agencies will no doubt have difficulty in filling them.

If 1970 is not an unusual year it appears from the following figures that things may be improving.

In the previous report, 46, or 20 percent of the graduates between 1960 and 1968 went into health agency work. For 1970, this figure is 31 percent, which is considerably larger. If one looks specifically at the M.P.H. program, it is even larger, namely 64 percent.

These more favorable recruitment rates by the agencies could possibly be improved further if a better exchange of information on vacancies were made. Perhaps a job bank could be established at some agency, such as the National Center for Health Statistics, and information passed on to the schools.

The following are some of the recommendations made by our group: (1) That a committee be organized consisting of various agency representatives, and school representatives; that this committee discuss the differences in their roles; and that they consider the job descriptions for the positions with vacancies. This group might well consider which of the graduate programs are suitable for the various kinds of available positions; (2) The specific training required by some of the jobs will best be provided by short courses offered by ASTI, or by on-the-job training; (3) The role of the schools is best fulfilled by providing students with an education, and training is best provided by agencies such as ASTI.

It is hoped that with a better understanding of this problem, necessary decisions will be taken to meet the needs for health statisticians. Thank you.

DR. REMINGTON: Thank you very much, Jan.

Introducing the next speaker, I find it very unusual that an Associate Dean has an opportunity to introduce a Dean, and I intend to take full advantage in doing so. What I would like to do is to provide Dean Greenberg, as he moves to this position, some advice. If this were a Conference two years or four years from now, and he were becoming President of the University of North Carolina, my job would be much easier. The university president, it has been said has three problems: Football for the alumni, parking for the professors, and sex for the students.

When I took over my current job, I asked Myron Wegman what an Associate Dean was. He said that's easy. An Associate Dean is a mouse learning to be a rat.

I am afraid that Dean Greenberg is going to have to find his own way in this. I can assure him that the faculty and students will all be watching him carefully, and causing him all the trouble they possibly can, but I know we are going to continue to hear great things from the University of North Carolina.

The title of Dr. Greenberg's paper today is, "Comments."

Dr. Greenberg.

COMMENTS

Dr. Bernard G. Greenberg, *Chairman, Department of Biostatistics and Dean Designate, School of Public Health, University of North Carolina*

I appreciate the words of advice. I think there are more problems for a dean than a president. At least, as a dean you have to be involved in curriculum, and that is why I am glad to be a part of this program.

I took the charge, for comments, rather liberally. I assumed it gave me permission to do some freewheeling and not limit myself strictly to a discussion of the two papers that have been presented this afternoon.

Let me turn first to the subject raised by Dr. Lunde in his paper. First of all, let me say it is very hard for me to criticize the work of ASTI, because in my view, they are doing an excellent job. They are really doing superb work. Moreover, what makes it more difficult is that they seek the advice of many consultants, including members of departments of biostatistics. So if something is wrong, we have nobody to blame but ourselves, so to speak. I might say not only do they seek the advice of many consultants, but what is even more strange is that they usually follow the advice. They not only seek advice, but they implement, as best they can, the suggestions that are rational.

There have been many suggestions made in the past, some of which have been implemented. I would like to give you a feel for the kind of suggestions that we have made, or at least that I have made, to ASTI to give you some feel for the direction that they might take in the future.

First is one that Dr. Lunde has already mentioned, and that is to expand regionalization of the program so that not all of the instructions would be done in the Research Triangle Park. Furthermore, in moving out to the State and local areas, I would also like to suggest that they try to utilize local talents whenever this is possible. In other words, don't just move the instructors from North Carolina to Denver but get some persons in Denver, or Texas, or Michigan involved in the teaching programs.

Second is to offer a wider variety of courses in statistical methods. Dr. Lunde mentioned something about chronic disease statistics, and so on. One of the suggestions was for epidemiological statistics, and it is on the program for next year. The field is almost unlimited to which statistical methods might be applied.

Third, I would like to see ASTI do more experimental work with some of the new audio visual techniques, such as self-study, program materials, and a new kind of self-study, which we in North Carolina are experimenting with, called packaging.

This is a package of materials, either a lecture or a whole course, where the person reads and proceeds at his own rate, and then periodically—once a week or once a day, whatever the course involved is—he meets with the instructor and there is interchange then between the student and the instructor. It is a combination of self-learning, or self-instruction and traditional instruction methods. It is called packaging. I would like to see ASTI experiment with this in the area of statistical methods for State and local health workers.

Fourth, I should like to see ASTI expand the extramural teaching staff by not always having the same group of instructors for the same course. After a while a course becomes identified with two or three instructors, and it gets repeated each year with each new session of students. I would like to have ASTI try for competition between various groups in the offering of these courses, so that there are three or four different teams offering Course 301. With this, maybe each will strive to outdo the other. I am not suggesting that there be cost benefit studies, but studies to consider the cost by the different teams and also their value should be undertaken.

Fifth, I would like to see ASTI contract with the American Association of Vital Records and Public Health Statistics or some of its members so that they are responsible for the instruction of some of these courses. ASTI has been in contract with individuals to provide instruction. Why not, in the area of vital statistics, contract with the AAVRPHS?

Sixth, I would like to see ASTI utilize its own staff more extensively, not necessarily the staff in the Research Triangle Park, but the reservoir of talent which the Center has in the Department in Rockville. I would like to see more courses tapping intramural health workers in the Parklawn Building. There is some of that being done, but I would like to see more.

This is the direction that I would like to suggest that ASTI adopt in the next few years.

No matter how effective ASTI is, it cannot train persons at the local and State level if the positions are unfilled. ASTI can only train persons who are already employed. Therefore, training is closely related to the problem of recruitment of new persons, and that brings me to the second paper, the paper in which Dr. Kuzma talked about the training of statisticians and their recruitment into the schools.

First of all, let me thank Dr. Kuzma for his efforts. I think we should all be extremely grateful to him and his committee for undertaking the study. It is a very thankless task, believe me, to undertake a study of this kind. Nobody really appreciates the hard work involved in developing a questionnaire, tabulating it, getting after the nonrespondents, distributing the results and, getting members of the Committee to agree that this is the report which they want to present.

It is a very thankless job, I know, having done similar studies many times in the past. Probably the greatest beneficiaries are the schools of public health, yet the schools probably resent this kind of survey more than anything because they have to fill out the questionnaires. How many students do you have? Where do the students go? and all that. As a member of a school that replied to many surveys, I know schools usually resent this kind of activity, despite the fact they are the greatest beneficiaries of it. I for one want to thank Jan for carrying out this study.

Before commenting on its contents, let me raise the question as to whether the survey fulfills completely its charge. The charge, as I understand it, to the Committee on Statistics Curricula in Schools of Public Health was to see if the curricula were meeting the needs.

The second part of the paper is a survey of what is now happening in the schools of public health. The second part does not address itself to the question of what the curriculum should be like because of need. The important question is, do the present curricula meet the needs of the field today, or in the future, as far as health statistics are concerned?

The first part of the paper gets into this somewhat, because it involves the views of the health agencies. Their views about the inadequacy of the curricula and of the schools of public health in general indicate a very serious lack of communication between the schools of public health and the health statisticians at the Federal, State, and local levels.

I might say one proof of that, of course, is that there are still dozens of positions unfilled in the various State and local levels, and yet the schools of public health have vacancies for more students.

Another piece of evidence that there is a lack of communication is to look around at the attendance of persons at this meeting during the last three or four days. I think there are only four schools of public health represented. In terms of Departments of Biostatistics, I am not counting persons like Paul Densen, who is not full-time in such a department any longer. Three of the four schools are represented right here on the platform now. When only four out of 18 schools of public health send a representative to this Conference on records and statistics to me this is appalling.

The curricula at schools of public health, I maintain in conjunction with the views expressed by the members of the health agencies queried by Dr. Kuzma, are not geared to help solve the need for manpower for compiling health statistics.

As his report indicates, most programs are too theoretical, too biometric, too mathematically oriented, and at too high a level. I am not saying we should not have those high level courses, but if that is the only program then we are not going to meet the needs for manpower for compiling health statistics. I feel that more emphasis must be placed on turning out large numbers of undergraduates at the baccalaureate level for beginning positions in public health statistics.

When you talk about positions, as Dr. Kuzma has indicated in his paper, for public health statisticians at $6,000 or $7,000, I think you are talking about persons who are at the baccalaureate level, and not Ph.D. Schools of public health, by and large, have abandoned undergraduate training, and I feel they need to return to such programs if they are to fulfill the present and the future needs.

I do not argue, incidentally, that the 18 U.S. schools of public health can have much direct impact on filling the hundreds of vacant positions at the beginning levels.

What we hope to do at the University of North Carolina, for example, is to develop undergraduate programs as prototypes that can be copied by the large numbers of schools of allied health sciences, where they have four year programs in the health field. We hope that these other schools can then turn out the large numbers of persons at the baccalaureate level who can fill these beginning positions. Thus, in the next few years, I hope my successor at the University of North Carolina will be able to develop a model curriculum for undergraduate students.

If successful, we hope that this model will be copied by many small colleges and universities in the southeast. I feel that the manpower needs are going to grow in health statistics, but not because of what schools of public health do or do not do with their curriculum. These needs, I feel, are determined by the social and policy arrangements in our society. The growth of the health services industry and the newer ways of financing these services are going to contribute to the shortage of health statisticians.

We had a study on this subject at the University of North Carolina. It was called the Chancellor's Study Commission on the Role of the School of Public Health. The study applied not only to public health statistics, but to other disciplines in public health such as environmental sciences, administration, and so forth. In carrying out this study at the School of Public Health we tried to study future manpower needs in the whole field of public health.

We had an outstanding sociologist by the name of Howard E. Freeman, Morse Professor of Urban Studies at Brandeis University, make some "guesstimates" for us as to the future needs in health manpower. He made this very same point that I am making now viz., that schools of public health had better concern themselves once more with undergraduate training, and I should like to quote from part of his report.[5]

> "If schools of public health do not undertake undergraduate education more and more they will become schools that get only the residue, the retreads from medicine, nursing, and other health professional groups, as well as a few persons who drifted into public health, and now seek legitimation."

This statement by Howard Freeman emphasizes my contention that schools of public health must develop curricula at the undergraduate level which can serve as prototypes for the many large number of universities and colleges that can turn out the persons that are needed at the local and State level. Thank you.

PANEL DISCUSSION: REGISTRANT QUESTIONS

Chairman and Speakers

DR. REMINGTON: You can see that the University of North Carolina made a fine choice for its new Dean.

I think I should introduce Dr. Kjelsberg, who is at the University of Minnesota, or will be shortly. Let me introduce Dr. Marcus Kjelsberg, newly appointed Chairman of the Department of Biostatistics at the University of Minnesota School of Public Health and Dr. Rita Zemach of the University of Michigan School of Public Health, in addition to representatives of the Public Health Schools at Loma Linda, North Carolina, and Texas, whom you have already seen.

We have a limited amount of time for questions, and I know you must have some.

Kurt, go ahead.

DR. GORWITZ: I wonder if I could make some comments about Dr. Kuzma's presentation.

First of all, how do you determine your terms? When you talk about field or work projects, and the data that you have, you would have to tell me what you mean by field or work projects. Our Center for Health Statistics in Michigan, for example, is about an hour from the University of Michigan, but we have never had any students from there. The department that I represented in Baltimore is about 10 minutes from Johns Hopkins University, and Johns Hopkins University has never had any field training or work projects.

You mentioned the fact, for example, that many of the faculties have a degree in biostatistics, but those of us who have worked at the local level in the health agencies, as you indicated, feel that much of the training in the public health schools is incorrect, is too theoretical, and not enough applied. Perhaps the fact that many of the faculty have degrees in biostatistics implies that we are perpetuating the mistakes of prior generations, that what is incorrect they are teaching to the students today.

I think it would have been better if, in looking at the faculty, you had asked them how many had worked in a public health department as biostatisticians, how many had actually had experience.

If you had thought to find out how many biostatisticians who are now working at the Federal or State level are on the faculties of the public health schools, either in giving seminars, workshops, or courses, and how many students actually right now are in field training programs, I think you would have found that Dr. Greenberg's University of North Carolina is one of the few exceptions that really does that.

DR. KUZMA: In reference to your first and last comment, we did not try to define the term field projects, and obviously, there are differences that all of us know from school to school.

I know that the North Carolina department is one where they have field training programs. We have them at Loma Linda, a school of public health. There are other schools that have them that should be looked into with detail.

There are other comments with respect to the faculty. We did not ask how many had previous experience. There were only, I believe, two schools that said they were involved regularly with the health department or some other agencies. Also one or two schools replied that the health department participated in the formal way of seminars. Statistics is an area, as I indicated in the report, that is very weak and needs strengthening.

DR. GORWITZ: May I make one more point? Our starting salaries are above the level that you mentioned, and we do have vacancies in Michigan that we cannot fill at this point.

DR. KUZMA: We have never heard that you have.

DR. GORWITZ: Nevertheless, it would be worthwhile for the schools to know where vacancies exist. Students this year came to me and I told them there are jobs, but if I had a list it would have been much more of a comfort to them.

DR. REMINGTON: Ted?

MR. WOOLSEY: Ted Woolsey.

It seems to me, in listening to the results of that very excellent study, that we look with a certain amount of perspective over time. I don't think you can expect things to change all that rapidly, but believe me, from the findings of that study, I would gather that there have been tremendous amounts of change.

I served for a number of years on the Review Committee on Epidemiology and Biostatistics when it was responsible for most of the financing of the departments of biostatistics. From the findings of that study, things have changed very significantly, and this is the kind of thing that we are looking forward to seeing.

With regard to the series of recommendations about ASTI, I would just like to make one comment. The speaker said he thought that more of the courses ought to be taught by the staff of the Center for Health Statistics. I would like to see some figures on that. Maybe Andy has them, but I would venture a guess that something like two-thirds of the courses are taught by staff from the National Center for Health Statistics. As a matter of fact, the ASTI Board of Directors has been urging Andy to go out and find his teachers somewhere else, because the drain on the staff and the commitment of the staff to this has been very heavy, and it represents a very substantial commitment.

Just one other comment. I think that the most important recommendation Bernie was making is that the schools of public health get back into the field of undergraduate training. This is the one that could be most significant. If the University of North Carolina could lead the way in this direction, it could really have a profound influence and begin to make an impact on this situation that we are trying to deal with.

The fact is that the beginning level positions, at least in our experience in the National Center for Health Statistics, can be filled by people with Bachelor's degrees. In fact, that is where the great bulk of the statisticians who now serve in the National Center for Health Statistics come from. They come to us through our training program with a minimum of six hours in statistics, or math, or sciences, or so on. Then we give them further training, plus in some instances, sending them away for more training, which we are authorized to do under the Government Employees Training Act.

I think we are developing within the Center a corps of people equipped to serve almost any place. They are coming up through the ranks now, and reaching the Branch Chief level is not unusual at this stage after the program has been going on for how many years, Walt? Eight years? Not every single one of them, since some came in with a Master's degree, but the great bulk came in with Bachelors' degrees.

I think this is a very important movement, and I hope that it will actually take place. I imagine that Bernie will run into some resistance in the effort of trying to make that kind of a change.

DR. LUNDE: I have a comment.

I might just comment briefly on the comments that have been made up here by the other people on the platform. We want to thank them for their support of the ASTI program. As you can see, they are representative of the schools of public health. We do work very closely together in developing this large program.

Jan's paper interested me very much, particularly so with the comments that he had to make on Table 1.

Jan, correct me if I am wrong, but do I see here that there were approximately 100 graduates in 1970, and of these, 14 percent found employment at State and local health departments? Then another 14 percent, a total of 28 percent, found employment in NCHS, or other Federal agencies, presumably as statisticians?

This is a little surprising to me.

As Mr. Woolsey said, it indicates a big change. I see Dr. Erhardt in the audience, who is one of the authors and perhaps the principal writer of that report on statisticians and health agencies. Carl, isn't this a little different slant than what your findings were?

DR. ERHARDT: Carl Erhardt, Chief Research Scientist, New York City. Our questionnaire, of course, went to the State and local agenices as to their students and budget problems and recruitment problems. It is not I who did the questioning of the schools of public health, so I could not really answer this.

My recollection is that these questionnaires were sent not only to schools of public health, but to other schools that had other kinds of training that could lead people into public health statistics. So it was not limited to this nature. I don't want to talk too much.

While I am here I hope that you will let me, Mr. Chairman, take this opportunity, I think on behalf of all of us, to express our great pleasure and congratulations, and our best wishes to Dr. Greenberg on his appointment. (Applause.)

DR. REMINGTON: Yes. Mr. Aase.

MR. AASE: Leland Aase, Department of Health and Social Services, Wisconsin. This is a question that maybe Jan can answer without the material in front of him, and if he cannot, maybe it is a suggestion that can be picked up when the report comes back in.

I was interested, as Carl was and Andy also, as to how many of these went to the health agencies—NIH, NCHS, and so forth.

I was thinking back to my own experience, some years ago, in which I was just temporarily in a school of public health. I went to school and then went right back to where I came from. I did not represent any kind of increment in the turning out of statisticians. It was just sort of a year, two years, out of circulation as far as my work was concerned. I was studying. I would be curious to know how many of these people were in working sites before they went into the public health school, and then went back. How much credit can we claim today for recruiting new people into public health statistics, and then have them go out into some of these operating situations?

DR. KUZMA: Helen, do you have a copy of Table 11? I don't know if that will answer your question, but it points out that there were 20, I believe 25, individuals who came directly from an agency and with experience. If you look at the rate of what proportion of these individuals go back, this is how many go into this school.

Is there a loss, and how many return? This is a bit difficult to answer, because we are working with two different groups. We are working with graduates of the previous year, and with students who have enrolled this year, and will graduate the following year, so the study would have to have some follow-up to see how many of those who came, go back, or go back after further training.

Someone pointed out, I believe it was one of the committee members, that about 63 percent return, and 75 percent come, and 64 percent return. That is two different groups, and also does not take into consideration that some of these go on for another degree, and then return.

I imagine it is fairly close. I would like to come back to a comment made earlier, and this refers to reproducing your own kind. I think it is easy for all of us to do this. However, I don't think it is strictly a problem of the schools that they teach with the kind of flavor that they do. I think it is a mutual problem between the agencies and the schools.

After finishing my graduate program and being interested in entering this area of training health statisticians, I made overtures to the State Health Department. Of course, it is next door to the School of Public Health, so we were not able to make much of a hit over there. Then we returned to the two local county health departments, and we made some progress, but they did not reciprocate to the extent that I think could have been done initially. In one of these county health departments, we were able to place one of our graduates, who is now involved in teaching, and he is involving us a little bit more in this.

I would like to plead with the agency representatives here, don't wait for the schools to approach you. I think there is more of an obligation, if you are interested in doing something about this problem, for you to approach the schools and ask what sort of relationship could be developed. I hope it would be a fruitful one.

DR. REMINGTON: The delegate from Wisconsin is approaching the microphone.

MR. AASE: I have a question and then a little comment. The question is whether there were fliers sent out of the vacancies in the last year—

DR. REMINGTON: You mean within the schools, Lee?

MR. AASE: Yes.

DR. REMINGTON: Fliers for more students?

MR. AASE: Yes.

DR. KUZMA: We asked what proportion of the students were not included because of financial or scholastic problems, and I would say that one of the reasons is that some students who apply are not academically suitable. I believe that that was the largest proportion.

Item 2, which I did not pinpoint, shows there were 14 students who were refused or turned down for academic reasons. There were two for financial reasons and four for other reasons. I don't know what they were.

MR. AASE: This poses a real problem that I think all of us have to face. It is very possible that the schools of public health may not be in position to know where the students are who may be interested.

I think that we, who are in the field, have some responsibility to do some recruitment. It is possible that they, too, may not be the type of people that you are interested in recruiting, but I think we have the responsibility to point them in that direction and, at least, have some enthusiasm for expanding the field of people who may be interested.

I am sure that the ASTI program has been filled to some extent by this interest in the field. I am wondering if we should not expand this whole area of recruitment so that all of us would know where the vacancies are and can do some pushing to get people in the field.

When vacancies occur, however, we do have a real problem, because if a vacancy is here today, we cannot wait while a person comes to fill that vacancy. If we do recruit, we have to recruit on the basis that these people may find a job some other place and that we have to fill a vacancy that exists today for the simple reason that we need the people, and also we have the funds to pay the person today.

Maybe tomorrow that vacancy will be eliminated as we fill it. Recruitment is a real problem and we should press harder to get people in the field, which in the future is going to need a lot more people than we have.

DR. REMINGTON: I think we would all say amen to that.

Dean Huxtable.

MR. HUXTABLE: I forgot one of the schools that is represented here. That is the School of Experience. I wanted to supplement Carl's remarks that I am happy to say that one of our boys made it.

I have a question for Andy. It was indicated that ASTI and the schools of public health are going to get together to develop another type of training package. This would be an on-the-job package that could be conducted in the various State offices when there is proper guidance, and so on. I was wondering whether this request has been implemented or not. While I am here, I might add that one of the measures of results of all this education that we are talking about is that we now have in Virginia a nice high paying position for a Health Systems Analyst, specifically evaluation, if anybody wants to see me about it.

DR. LUNDE: To answer Mr. Huxtable, we have approached the problem of the training that he refers to on two levels. First, within a State, or in a local area, how can we assist in developing an on-the-job training program? We had some correspondence a couple of years ago with Don Davids of Colorado, because he told us that he wanted to develop an ASTI type program for registrars. I guess these were local registrars and other people in the statistics operation and in the State. We did talk to him and advised him, but we were somewhat limited with the assistance that we did provide.

Now, we are getting more requests from States. We have one from Florida. We got another one a week ago from New Jersey, asking for assistance in putting on some kind of a program and on how to develop an on-the-job program.

We want to do more of this. This is one of the assignments that our new addition, Mr. Council, has undertaken.

As you heard yesterday, Mr. Council will be working with the ASTI program now. He is going out to the States to find out what their needs are with respect to training and the extent to which we can help a State put on its own program. We shall always try to develop regional programs with the States, and we shall, of course, continue to put on needed courses in our basic area, the Research Triangle Park.

There is a second area that we just began to discuss with States, the local departments, and the schools. This relates to a more intensive program of training which combines ASTI and on-the-job training and experience. A special ad hoc Technical Consultant Panel has been organized to present a complete training plan which will include some work in the State or local office, assignment to the ASTI program, and return to the office (in one sequence or another) that can serve to bring new people on board and orient them to vital and health statistics work. The members of this group are: States: Deane L. Huxtable, Virginia and Leland E. Aase, Wisconsin; Local Areas: Martin Donobedian, Los Angeles and Roberto Fuentes, District of Columbia; and Universities, Professor Paul Anderson, University of Oklahoma and Professor Bernard Greenberg, University of North Carolina.

Suppose there was a considerable increase in funding for State health statistics made available through the Federal-State-local office. This would imply that with these programs developing they would have to train people in health statistics, at least in the practical aspects. Could we arrange some program whereby the States would do the recruiting, and then we would work out with them some plan whereby we would provide specialized ASTI courses of one or two, or even three or four weeks at a time, or perhaps one or two weeks at one time and then back to the State office, and then back to us for a couple of weeks?

Then we had another idea. Suppose a person came from a local office. Suppose he spent a couple of weeks with us, and then went back to the State, and then came back to us, and then we sent him to a Federal office, perhaps NCHS. By this he would get a feeling for what the States do and then see what the Federal Government does. We have not worked this out yet. As I explained in the orientation period, on Sunday, this is all just an idea. Mr. Woolsey is the one who came up with this type of program for us to think about, and we have been discussing it. We have had one series of discussions on this so far, and there were many criticisms of this program by many people present.

For example, we had a position paper, a temporary one, and had a program worked out for a whole year, and I think that is what made Dick think we were going to take over the University of Texas.

DR. REMINGTON: We in Texas never worry about somebody taking over.

DR. LUNDE: That year's program was not a year's program in the academic sense. It was that maybe, at the end of the year we could find health statisticians. But it did not work out that way, as far as the Committee was concerned. They said it was too long. They also agreed that a couple of weeks was too short. So we revised this position paper for another go-around, and now we have it down to four or six months.

This is what Mr. Huxtable was leading up to. We have come to no conclusions, Mr. Huxtable. We have sent out the revised position paper along with the review of the discussion which took place in the Research Triangle Park three weeks ago. We are asking the various members of the TCP to take another long hard look at this business. Can we do it? If we don't do it this way, we have to do it some other way. That is for sure, and that is where we are now.

DR. REMINGTON: Let me ask for a show of hands.

How many of you in this room received graduate training in a department of vital statistics in a school of public health?

(Show of hands.)

DR. REMINGTON: My lightning calculator does not permit me to convert that into a percentage, but the large response is an indication.

It is nearly 3:45 p.m., which is our hour of adjournment. My thanks to the spectators and all of you for making my job as chairman easier. Let us adjourn. Thank you very much.

Whereupon, at 3:45 p.m., Concurrent Session "M" was concluded.

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Concurrent Session "N"

Recent Developments in Mental Health with Implications for Statistics Programs

Anticipation of the clinical and administrative needs for information is the statistician's responsibility. This session included brief reports on recent mental health and related program developments which have implications for the types of information to be included in the data system and which point to program questions to be answered by the analysis of statistical data.

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CONCURRENT SESSION "N"

Recent Developments in Mental Health with Implications for Statistics Programs

PRESIDING

Mr. Dan Payne, *Assistant Commissioner for Program Planning and Development, Virginia Department of Mental Hygiene and Hospitals*

The time has come. I am impressed that so many of you are here this morning. My name is Dan Payne and I am chairing this session. I am quite sure this will be an interesting session this morning, although it looks rather imposing in the program. I think it will be of interest because nothing ever stays the same. If there ever could be a statistical system that meets all of the demands made of it—an exalted state—it would never last for very long. Something always changes. There are new laws, new regulations, new operations, or new interests that always come along and demand things that you are really not equipped to meet.

The purpose of this morning's session is to share with you some recent developments that may well have implications for your programs. While the topics covered do not exhaust all of the developments in the field that are coming upon us very rapidly, they do represent an imposing array of topics that we have to cover in one morning. In order to do that, our speakers will attempt to give you their information in about 10 minutes and we will entertain a few questions from the floor. I hope that they will be questions and not commentaries from the floor. Since our speakers are here, we should take advantage of them. In the interest of time, our speakers will be introduced very simply. Rest assured that they are well qualified and, hopefully, will give you information of immediate use to you.

To begin our session, Henry Foley, Health Economist, Division of Mental Health Service Programs, will speak to you on third-party payors.

Mr. Foley.

THIRD-PARTY PAYORS FOR MENTAL HEALTH SERVICES

Mr. Henry A. Foley, *Health Economist, Division of Mental Health Service Programs, National Institute of Mental Health*

Those of you who are acquainted with Mary Stewart's fictional account of Merlin the Magician will recall that in the crystal cave, Merlin is able to crawl up inside of the cave and foresee the future. We wish that we were in the same situation, where we had a crystal cave at Parklawn or, perhaps, here in the Shoreham. We don't, but we do have several questions that we are faced with, and we are beginning to pose, at least, some tentative approaches to answering those questions.

Some specific questions, in which we are interested, relate to third-party payors. By third-party payors is meant both those in the public and in the private sector. In the private sector are the insurance companies; in the public sector are the Federal Government with Medicare and its large State-collaborative programs, like Medicaid, along with IV and Title XVI of the Social Security Act. Further, in its relationship to grant programs, the Federal Government assumes additional insurance responsibility. It is the interceder between the consumer and the provider to provide fiscal resources for the patient's treatment, care, and facility.

Usually, however, both in the public and private sector, we are talking about reimbursement for services that fall within the acute care needs of the population and, to some extent in the area of mental illness: identified serious mental illness problems, or, in some cases, chronic illness problems. By and large, the insurance programs themselves do not cover preventive types of services, and it is a problem that challenges not only government officials but also insurance agents. How are we to define what are preventive services and how are we to reimburse them?

The nuts-and-bolts insurance problem that we are facing in collaboration with statisticians and managers in the machinery of our economy, may be stated negatively. Gone are the days when the slogan applied: "Give me money and I will do good." Positively speaking, the parameters of health insurance have been narrowed to stricter reevaluation and responsibility. We must begin to consider and clearly define accountability. We must tell either the public agent or the private agent, the private third-party payor or the public third-party payor, how his money is being used, what services it is purchasing, and in fact, whether the services that are being purchased are reaching the acute care needs of the population at hand or are modifying the serious care needs of that population.

Within almost any type of community program, be it hospitals or community mental health center programs, or various other types of mental health deliveries located in communities, it will take a type of particular skill on the part of an administrator to identify those people in his population areas who are actually receiving services and, in the long run, how effective those services will be.

On the national level and, beginning now on the local level—certainly in the States and more and more so in the centers, a basic question is to what extent are our patients utilizing the insurance coverage to which they have a right? Factually, many persons who have insurance coverage are unaware of what their benefits are. Just as regrettably, many times administrators do not notify them of the care to which they are entitled.

Too often, statisticians may be faulted for lack of accountability also. They overlook the fact that populations are not receiving care in their own area. Additionally, in the overall health picture, there is not a continuity of care; there is not a tracking of what happens to patients when they have a first service. Do they receive a second, a third, a fourth? What happens to the patients over the long run? Obviously, from a point of cost and efficiency, these concerns add up to the necessity of a tracking system within the local program that follows that patient and brings together both the programmatic concerns of the administrator and the desires of the politician (concerned with how the tax dollar is spent). In short, needed is demonstrable proof or guarantee that health care is available. In a sense, the programmatic concerns of the administrator coalesce with the fiscal concerns of the third-party intermediary, be it the Federal Government or be it the private insurance company.

Despite trials, errors, and successes of past programs, those with a stake in health care are being compelled by hard economics into a type of system wherein all must work in closer collaboration and responsibility. In this direction, health statisticians assume an important role. They can help show us how fiscal and administrative data can be related and resolved in viable programs. They can provide workable data concerning specific need. They can, in fact, document those who are actively receiving services within geographic zones: catchment areas, State areas, or county political boundaries.

It is basically an issue of accountability that we all face.

In this writer's opinion, it does not seem too helpful at times to receive statistics of need which in no way correspond with the number of people who are utilizing services in a given area. Such information only raises further challenging questions. How do we begin to link to those people who are not utilizing services? Should we move actually in that direction?

To answer, perhaps we, as health experts, need a little self-examination. Are our figures of need by either race or sex or ethnic groups factually the real situation? Feasibly, could we be facing a problem of definitional constraints, rather than of programmatic concerns? That is, are we, in fact, looking at those people who are utilizing the services and finding that care is continuing for them? Further, if we find within particular geographical zones definite needs that we have identified, are we working as advocates with the administrators and the persons in the programs to find that type of third-party reimbursement that will be appropriate and will meet the needs of the population we have defined as in need?

In point of fact, we now have a broad range of third-party reimbursement in which many of our acute care needs and serious and chronic illness needs can be covered if the number of population that need it is specifically identified. More and more the third-party is requiring that the specific person or utilizer be named. There is a movement away from a general categorizing of how many people are in a catchment area whom we defined as in need. The emphasis now is on how many actually take access to services.

In that process there is, in a sense, a liberality on the part of some sectors of the third-party area, for example, in the Federal Government the relationships to IV and XVI. Many services that we have defined as preventive can be reimbursed. Many of the services we have defined as rehabilitative can be reimbursed.

The difficulty that the administrator, on the State or the local county level or at the center level faces, is to be able to identify the specific persons in his population who can avail themselves of the services. The difficulty is not self-contained, however. On the Federal level, the regional health offices are gearing up technical assistance to work with the States on the whole range of third-party payors, to give them the information so they can identify the contract needs of the third-party payor, particularly the Federal Government.

What specifically does the payor need in terms of identified need, characteristics, and utilization characteristics of a population in order to reimburse the State or the county within the State, or, for that matter, the center within the county or within the catchment area?

The answer derives, as we have suggested, from collaborative effort through precise documentation of facts. Many times the statistician, certainly in the local program, has a much better feel for which parts of the population are being served. He needs to articulate his findings to the administrator or to the program person, thereby forcing, in a sense, an advocate position so that that administrator can now look for the third-party payment that is available to him.

The administrator accountably prepared is feasibly better off than one snared in the response, "We do not have the resources."

Contrarily, many resources are available if applied for accountably and responsibly. We are just beginning to utilize them; i.e., Titles IV and XVI. The States are now just beginning to maximize the use of these particular fiscal resources. Also, numerous AFL-CIO unions are lately beginning to identify in their insurance programs, particularly in their Blue Cross-Blue Shield programs, the actual benefits to which they have right. As a result, those whom they identify or find in need of care are able to have that service reimbursed. The financial question does not serve as a barrier to their entry to service, be it in the hospital or in the mental health center or in the facility of any type of private provider.

In closing, however, we would reemphasize the strengthened factor of accountability for health resources. The third-party payor, whether particular individuals, group, or national body in the public and in the private sector, is assurably going to require very specific statistical identification of the utilizers of health services among the population.

As we stated at the outstart, a Merlin with a crystal cave might predict the future. Those in the health discipline are not magicians, however. Their caves are modern buildings, not legendary vacuums. Yelling at the walls will only bring the same questions echoing back. Realistically, if we want answers to the health problems facing this Nation, there can be no reliance on magic wands. Expertise, knowledgeable cooperation on all levels, Federal, State, and local, plus fiscal accountability are workable tools for our profession. The (mental) health results of the future will depend on how responsibly we use them.

MR. PAYNE: Thank you, Hank.

Any questions? Would you please give us your name and the place that you are from.

MR. SARFF: Floyd Sarff, Assistant Director, Iowa Mental Health Authority. In terms of standards for public and private third-party payments, do you see any trends there in terms of who the standard setting group might be? Will the government create its own standards, using the joint commissions, or will the States retain the right to set standards for facilities?

MR. FOLEY: Again I wish I were back in my crystal cave. I think we are involved in a tension that hopefully will be relieved.

I would expect the States to be more and more involved in the regulations and standard setting as their technical abilities grow across the board. There are specific States that obviously are much more capable in this area than are others. However, I think that what's happening is that knowledge and expertise are growing in almost all the States.

We are seeing, in terms of IV and XVI that the States definitely are being called on to be involved in setting the standards and regulations with HEW. However, I think we are at the beginning stage where in many ways, the standards and regulations are still in a carte blanche format. More and more we are going to see, as the costs get higher for those particular type programs, there will be pressure in both the Executive and the Congressional branches to require tighter constraints. In short, the regulations and standards will also be determined or modified in terms of fiscal budgetary concerns. This is to say that for what is actually being reimbursed, there will have to be some evidence that there is effectiveness and that the regulations and standards are relevant to both the budgetary needs and the programmatic needs.

I don't think for too long a period are we going to see all the States have carte blanche under the titles in Social Security.

We have already begun to see, in terms of Medicaid, a tightening up in both the States and the Federal Government. The States are not being excluded from that process. Actually, some States are somewhat ahead of the national Government in what should be the regulations and standards in terms of mental health programs. This argues for a more collaborative effort with those States. Certainly, the present mood of the Congress and the President is to work in that direction.

MR. PAYNE: Any more questions? All right.

Our next speaker is Dr. Frank Kalibat, Staff Psychiatrist with the National Institute of Mental Health. Dr. Kalibat will tell us about the utilization review for psychiatric facilities.

UTILIZATION REVIEW FOR PSYCHIATRIC FACILITIES

Dr. Frank Kalibat, *Staff Psychiatrist, Division of Mental Health Service Programs, National Institute of Mental Health*

I would like to begin by throwing some terms at you: utilization review, peer review, medical audit, professional review, patient care evaluation, claims review. These are some of the numerous terms that health and mental health professionals use to designate a group of functions that are aimed, in various admixtures, at three different objectives. These objectives would be determinations regarding appropriateness of care received by a patient, efficiency and effectiveness in delivery of services, and cross control.

I am not going to attempt to define or delineate the definitions of what is involved in each of these several terms, but I would like to talk to the general principle of review functions in mental health programs, particularly with regard to recent developments and requirements.

The 1966 amendments to the Medicare law call for two different types of utilization review activity. These are, I am sure, known to you all. These are extended duration reviews and what have been called up to now sample studies.

In the realm of extended duration reviews, there is very little that's new. In fact, what has been and continues to be for the most part is tiresome, tedious, chart by chart, individual case by individual case, rubber stamp review through the medium of what is nominally a utilization review committee.

What's new here is a plea, a request, an urging that the definition of the length of extended duration, which often has been arbitrary in the past, bear a close relationship to the median length of stay for the particular clinical category under consideration.

Sample studies will be receiving major emphasis in the very near future. In the forthcoming revision of the Medicare Utilization Review Regulations, the title and the description of what have hitherto been called sample studies or pattern of care studies have been changed. This required activity will now be called Medical Care Evaluation Study.

It should be perfectly clear, facetiously said, since I am talking about utilization of mental health facilities, where it says medical, re. psychiatric or re. patient, no attempt is being made here to leave out psychiatric facilities. I would recommend to you an article in the April 17 issue of the *Journal of the American Medical Association*, called "Medical Care Evaluation Studies, Utilization Review Requirements." This article is by Goldberg, Niedelman and Weinstein. While most of its examples are from the field of general medicine, it is a very easy task to make the translation from the examples given in medicine to the examples that would be, I think, relatively easy to obtain in the field of mental health.

The overall principle is that an attempt is being made to break away from the well known and tedious case by case review. Instead, the regulation calls for planned, targeted studies.

I will read some excerpts from the proposed regulations: "Medical care evaluation studies consider medical administrative aspects of patient care with recommendations aimed at making changes beneficial for patients, staff, the hospital, and the community.

"Medical care evaluation study identifies and analyzes factors related to the patient care rendered in the hospital. Their aim is to promote the most effective and efficient use of available facilities and services.

"These include, but need not be limited to, studies of admissions, durations of stay, professional services furnished, including drugs furnished, quantities and types of services rendered.

"Most importantly, a single study need not consider all of these components. They should be targeted, specific, and related to what is felt to be the major areas in program function that need attention paid to them."

"In addition, one or more of these studies must be in progress at any given time, and committee minutes should contain for each study the reasons for the study, the subject and study design, interim reports, findings, conclusions, recommendations and notations of follow-up recommendations."

This is all new and potentially exciting and opens up, I think, major areas for your input.

I would commend to you again Dr. Jepson's comments yesterday on operational statistics, or what others would call manager's information systems.

I have several reasons for expecting that the near future of utilization review will be more interesting than the immediate and distant past. These reasons have to do with the nature of recent technological advances.

Primary among them is the advent of and the need for operational statistical programs. This is coming about not because of altruistic interests in bettering patient care, but because of realistic needs for capture of third-party dollars to maintain the vital programs.

I see utilization review as a bridge between the fiscal and the programmatic concerns.

Your next speaker will talk to you about cost-finding and rate-setting. With regard to medical care evaluation studies again, it seems to me that the kinds of information needed to do effective cost-finding and rate-setting can, in some cases with minimal redesign of a statistical system, be very useful for meaningful utilization review.

The major element missing up to now has been a means of tracking the units of service provided to individuals, putting together patient profiles, putting together profiles of users of a particular service modality.

Taking this one step further, once profiles are determined, these same statistical reports can be used as screening devices for the additional function of single case review.

The other technological advance is that of a new approach to recordkeeping itself. I am talking here about the problem oriented approaches. I am not speaking of a problem oriented record system, but I am talking about attempts that are being made here and there—hopefully there will be more attempts—to re-align the traditional narrative clinical record along lines that open the record up to audit and to better visibility.

Any questions?

MR. PAYNE: Thank you very much. Any questions?

MISS SHERMAN: Rhonda Sherman, Social Security Administration. First of all, I would like to know if you think it should be required in the regulations that the Utilization Review Committee set definite regulations for extended duration by diagnosis. If a limit such as, say, a median length of stay by diagnosis were to be set, would this create too great a hardship on committees by requiring them to review too large a volume of cases?

DR. KALIBAT: Okay. Part one, what has been done so far is that the suggestion for utilization review of set periods of extended duration by diagnosis has led to an establishment of a particular length of stay for each diagnosis in the diagnostic and statistical manual.

I was at one hospital recently where they had average length of stay for each diagnosis of each patient who had been admitted to the hospital over the past year. They had charges based on two cases. In some cases, the average was one case, which is meaningless, useless information. If a more flexible or more general approach had been taken, let's say—if we must use diagnosis, say neurosis, character disorder, situational reaction, affective psychosis, schizophrenia—and length of stay would be established for this, it is potentially useful.

Once you say length of stay by diagnosis, you are hooked in. It is very easy to be hooked into a pattern that is reinforced by literal application of guidelines and regulations and moves you away from relevance of the statistics and of the procedures and away from the patient.

Can you give me the second half of your question?

MISS SHERMAN: I have another question. Because regulations are now under consideration, such as tightening up on requirements, they have not been decided at the present time.

DR. KALIBAT: I am familiar with that, and I am very happy that a strict literal requirement for extended duration by diagnosis has not been made. I think it may be more useful to have the length of stay, if we must, by program area or by program component or by clinical categories, such perhaps as age. They should be more useful.

MR. PAYNE: I hope your next question will be a brief one.

MISS SHERMAN: I would like to know if the National Institute of Mental Health has done any surveying to find out about the effectiveness of utilization review in the psychiatric institutions, rather than just having an opinion about how effective it is. Do you have any statistics available?

DR. KALIBAT: In mental health and general health, statistics by and large are not available. The only ones I know about have to do with the utilization review program in the extended care facility area.

MR. PAYNE: Thank you very much.

Your next speaker is Dr. William W. Jepson, who is Director of Hennepin County Mental Health Center.

Dr. Jepson will tell us about cost-finding and rate-setting in a mental health center.

Dr. Jepson.

COST-FINDING AND RATE-SETTING IN A MENTAL HEALTH CENTER

Dr. William W. Jepson, *Director, Hennepin County Mental Health Center, Minneapolis, Minnesota*

This Nation, as you all know, is in the midst of a massive upheaval in the medical care delivery system. The public apparently believes two things: (1) that the costs are enormously excessive and (2) that the effectiveness of medical service borders on science fiction. There is little question about the former. The latter is displayed in isolated instances and does not hold true for the overall system. What is the relationship between the high costs and the questionable benefits? Obviously to arrive at that, we must do some detailed accounting of the expenditures which go into our product.

For the last century much of mental health delivery has taken place in monolithic State institutions with large numbers of patients and relatively low indices of expenditure. They were funded and administered by the State and few people cared very much about them. In the past decade there has been a major shift. This may be accounted for by several things, including the advancement of understanding of mental and emotional disorders and the advent of the new psychotropic medications, the establishment of State community mental health centers acts with subvention of State funds, usually on a matching basis, to local administration or facility for delivery. The old theory that "If the State pays for it, they must run it" is being abandoned in favor of more local control. The Federal Government is making its contribution through mental health center grants and by a variety of categorical grants and new modes of fee reimbursement. What will be the effect of national health insurance? Surely the structure, process and magnitude of the new delivery system will relate to any new fiscal arrangements.

We hope for enormous increases in the total amount of funding for mental health programs. Higher standards of care are being demanded by more people. New modalities of service with uncertain effect may be costly. Accounting for large amounts of public funds will be a major problem. Existing methods of accountability are no longer adequate. Simply dividing the total State hospital budget by the number of patients or beds, or taking the total budget of the clinic and dividing it by the number of visits, can no longer be adequate measures of program or fiscal performance. Indeed, there is some danger that these hackneyed indices will be misused in making invidious and inappropriate comparisons if more realistic indicators of fiscal and clinical performance are not designed.

A two class system, one for the rich and one for the poor, results in no small degree from the methods of reimbursing professionals and facilities. Most of the new proposals in Congress for funding health care delivery depart from individual fee reimbursement for private practitioners and point toward some kind of corporate responsibility, often alluded to as Health Maintenance Organizations. There is a special hope that these will be financially and clinically competitive. A principal rationale for their establishment is the increase in the cost benefit ratio. It will be easier to manage and assess the performance of an organization than a number of individuals. The patients, personnel and services are now being delivered in extremely complex arrangements characterized by much fragmentation in what is often called a non-system.

Cost finding or good fiscal analysis will have several important values for these new community mental health center programs.

A. Accountability in a situation where the State or Federal Government is in effect commissioning or contracting with various programs and facilities to deliver services, which they do not administer, will have to improve.

B. Funding for the care of the mentally ill has lagged greatly behind medical services of other sorts. If we are to catch up we must seek larger proportions of new sums. We must be prepared to present special justification and we will have to make sound fiscal arguments in terms not only of our expenditures and efforts, but of our efficiency and efficacy as well. Funders will demand to know "What are we getting for all this new money?"

C. Multiple financing is a special problem for most of these new programs. Grants from State, Federal or local tax revenue with varying matching formulae are prime sources of funding. New methods of third-party payments are being utilized in a complex mix of categorical programs such as Title IV for Social Services, Medicare, Medicaid and traditional health insurance with expanded support for mental health services. Prepayment methods on a capitation basis will be used in health maintenance organizations. Various intraprogram contracts with cross charges between public agencies such as the hospital, the court or welfare, the university, will be negotiated.

D. Multiple missions with different funding sources categorically assigned to special classes of beneficiaries are characteristic of most mental health programs. (1) Direct clinical service programs have individual patients as the beneficiaries. These might be supported either by fees, prepayment, Social Security or tax subsidies. (2) Prevention programs directed towards potential patients can't be based on fees. (3) Community service programs with agencies as the beneficiary may be either given away by the Center, or contracted for, or funded through cross charges between public agencies such as the courts, welfare, or health departments. (4) Training and education efforts which have as their beneficiary either students in the mental health professions or nonprofessionals, community agency personnel or organizations, or even the population at large. Such training programs are presently in grave jeopardy because the traditional expectation of a quid pro quo between training and service no longer obtains or is justifiable. (5) Research which may advance the generalizable knowledge in the behavioral sciences may have to scratch for sources of revenue because its benefits are not often seen as immediate. (6) Other special missions may include community mental health planning and social action. For example, the kind of fiscal obfuscation which has been so traditional at large institutions with its mixed bag of service training and research will, I fear, result in reduction rather than augmentation of funds. In them it has been no small task to allocate costs of these various programmatic missions so as to justify properly the funding that is dedicated to each.

E. Third-party fee revenues are welcome new funds for direct clinical services. Whether derived from private health insurance or Federal categorical aid programs, we have been alerted that these sources will be accounted scrupulously to see to it that the charges made to them reflect only actual costs of services rendered. They will no longer tolerate traditional cost-averaging methods. Training or community consultation cannot be buried in patient service costs, nor can the many ambulatory services provided in community mental health programs be absorbed by high bed costs. Indeed, until we can give realistic accounting, no sound actuarial basis can be formed which would invite or entice any government or company to provide such third party coverage. Private health insurance has not covered ambulatory mental health services and the Federal Government is wary as well, doubtless due to apprehension that the cost would be exhorbitant and it would be impossible to keep track of what they pay for.

Having noted some of the purposes and advantages of developing more accurate cost analysis methods, let us be more specific about what it is we are trying to accomplish. We must determine the price or cost of the input effort relative to the product or units of output in order to make unit charges which reflect costs and in order to determine the cumulative price of all the services rendered by a program element. This is a "cost per product" model. I must emphasize that this is not what might be called a "value per beneift" model; not the value of the therapist nor the effect on the patient. In humanitarian enterprises like schools, libraries, police departments and mental health centers this is hardly possible. Whether or not these programs do bring about the changes in, or have the impact on the community which they purport to, is at this point pure conjecture. The effect or benefit to individual patients is also a matter of surmise. On the input side the value of a psychiatrist or a nurse cannot be determined but the cost of time can be, either by the professional himself, as in the case of the former, or by some agreement, as in the latter. An hour of psychiatric input will have the same price or cost regardless of whether he is dozing or his interpretation has been a crucial stimulus for major change in the patient's life. On the *output* side we have essentially no solid criteria for cure. We do not know whether we actually bring about the benefit or change, that is to say the cure desired by the patient. There have been only a few major efforts directed at discovering the efficacy of treatment in community mental health centers. The Hennepin County Center has been doing considerable research on this, using goal-attainment-scale methodologies.

Although a "value-benefit" or even a "cost-benefit" model may elude us at the present time, it is possible to develop a "cost per product" model. By analogy the cost of the Cadillac or the cost of the dress can be determined without belaboring the question about the benefit or the value of these products to the consumer. Actually the benefit is determined by the individual consumer. Similarly, the cost of the group therapy visit or session in milieu therapy or any other service received can be determined even if the benefit cannot.

By tracing the expenditures that go into the delivery of a particular service or product such as a group therapy visit, a day in the partial hospital, a medication prescription, or a home visit, it is possible to arrive at cost per unit of service and then to establish rates or charges which may be billed in whole or in part to the appropriate source. Accumulating all of these services rendered, whether they be direct or indirect or training or whatever; taking them all in the aggragate one can determine the cost of various subprograms and programs in which they take place. This determination of program costs can then in turn become the basis for requests for dedicated funds, especially those which are not ties to reimbursement for clinical service rendered.

Now let us address ourselves to some of the *problems* that will be encountered in trying to develop such "cost per product" determinations. In older institutions or the typical inpatient psychiatric service, the cost for the room occupancy, the meals, houskeeping, nursing care and social work services may be relatively uniform for all patients; that is to say, the cost relatively fixed and it is not too inappropriate to bill on the basis of an averaging cost per patient day. However, in a community mental health center *costs are variable*. The institution renders a large diversity of services in varying degrees ranging from 10 minutes for a medication prescription visit to an hour of psychotherapy, or sixth of an hour group therapy, or four hours of psychological testing, or two hours of psychodrama, six hours in a day hospital or 24 hours on an inpatient unit. Furthermore, in such facilities these services may be delivered by community mental health workers making $6,000 a year or a psychologist making $20,000 a year or a psychiatrist making $40,000. That is, the costs are extremely variable. No restaurant could possibly compete if it charged the same price for hamburger as for a chateaubriand steak. The fixed expenses can be averaged but the variable expenses must be identified and translated into "add on" costs.

Another problem is that most mental health centers, despite the fact that the Federal guidelines have established a decalogue of service elements, have extremely *varied organizational structures*. One center may provide partial hospitalization on the inpatient ward while another offers it in a free-standing brownstone house. One center may define aftercare as a drug dispensary attached to a State hospital while another defines it as outpatient follow-up for former patients. The distinctions between outpatient and diagnostic services and between aftercare and rehabilitation are unclear. The dimensions along which a mental health center may organize itself or its elements or units or services are multiple and unique. A common one, of course, is on the basis of the building. That is to say the east wing, the receiving ward or the clinic. Another dimension commonly used is age, particularly for child/adolescent units or geriatric services. Many attempt to organize their patients in terms of families rather than age groupings. I favor organizations which disregard disease classifications such as schizophrenia, personality disorders, or depression, but many categorical programs provide funding especially for the retarded, the drug abusers, the alcoholics or criminals. One, of course, does not have to have a special organizational unit simply because of dedicated funding. However, services must be accounted for on the basis of category. A favorite dimension commonly utilized is the team concept wherein a bunch of staff attend to the same patients regardless of whether they are in the emergency room, the inpatient station, in partial hospital or on ambulatory visits. This is designed to provide continuity of care or often relates services to a particular geographic area. As such, however, it cuts across more traditional organizational structures such as inpatient, outpatient, emergency services. Lastly, the center may endeavor to organize itself on the basis of treatment modalities such as the crisis intervention, group therapy, day hospital, or drug dispensary.

Having described a chaotic mix of organization and activities and having pointed out earlier the variety of subprograms or missions with their differing beneficiaries and sources of fundings, you might be imagining that it is impossible to develop a method which would trace costs of professional input and overhead to these various subprograms and output product (services rendered). Actually that is precisely why we need mathematicians, business managers and biostatisticians at the level of operations.

There are several requisites to establishing a cost finding methodology. Substantial contributions have been made in the past few years. First, in order to bring some order out of all this chaos, we need a *common language*—a thesaurus of synonimous terms. Happily, the Southern Regional Education Board tackled this serious problem and produced a dictionary of terms which, in my judgement, can be an invaluable starting point in most all of our activities. In our Management Information System in Hennepin County this terminology is used. If it were used within all the programs in the county and all the other programs of the Nation, it would provide us an opportunity for making comparisons in our program descriptions, our statistics and our fiscal accounting. Another requisite is a good accounting system. Guidelines for such have been developed for mental health centers and related facilities by the Western Interstate Commission for Higher Education.

An analysis of methodologies for cost-finding and rate-setting for community mental health centers has been devised by Professors James Sorenson and Phipps of Denver under contract between the National Institute of Mental Health and the Association of Mental Health Administrators. This was presented at the Southern Regional Conference on Mental Health Statistics and was published in December 1971. Doctor Sorenson defines cost-finding as "a system of allocating and reallocating costs from a point of data collection into different sets or subsets of costs." "Simply stated, cost finding is any method which attempts to charge all relevant costs—both direct and indirect—to final producing functions or activities which accountants have traditionally called 'revenue producing functions' (which for purposes of mental health centers is termed 'final producing cost center')." That is to say, it is a method of "tracing expenses of all inputs to the outputs produced."

What are the steps involved? (1) *Terminology* must be adopted between and among all subsystems to describe organization, patient characteristics, staff activities, levels of treatment, and the like. (2) The *organization* of the program or institution must be examined carefully with respect to its various divisions and departments as a basis for defining programs and subprograms. This organization must give special attention to units or line divisions which are responsible for direct patient services which generate fees, such as the inpatient unit, crisis intervention unit, child service or medication maintenance program or community services contracted for. The organization is also assessed in terms of allocation of support service or departments such as administration and facilities. Both the budget and the cost-finding system must be designed along organizational lines. Various subdivisions and departments of the organization will become cost-centers for accounting purposes. In the case of mental health centers, 80 to 90 percent of costs are embedded in personnel and they are the most variable costs. Administration and facilities and other support services are relatively fixed and can be allocated.

The next requisites are (3) *chart of accounts* and (4) the *budget* itself which should relate to program and to responsibilities.

Of greatest importance is (5) a *management information system* which has within it several subsystems for data collection, including the following:

A. With respect to clients: (1) *Patient identification data* producing information about the individuals, their demographic and clinical characteristics. (2) Case activity data or *service data* which details the number, type and frequency of services *received*, the organizational unit in which it occurred, the amounts of time involved, etc. (3) Related to this is what might be called *patient "flow" data* which follows the sequence of events of patients between and among organizational units. In each of the above, every clinical event that occurs on behalf of a particular patient must be tabulated if it is to generate a particular rate or charge. Of course, if what the patient received is averaged into some dinner menu rather than a la carte, this need not be so detailed as in the case of a half day in partial hospital or a whole day on the inpatient unit. We have developed a list of service codes for our clientele each of which is related with the organizational unit wherein they take place and are, if you will, the "output products."

B. With respect to staff allocations and activities: (1) *Staff allocate* fractions of their time between and among organizational units within varying degrees of accuracy periodically. This distributes expenses between and among cost centers. Some staff spend all of their time in one unit; others spend fractions of their time in several. (2) *Staff activity data* must be collected. Some activities will be congruent with the service codes such as individual therapy, group therapy, or home visits, while some will not, such as training, supervision, recordkeeping, telephone contacts, administration and planning. The total amount of time must be accounted for. (3) determine which professional disciplines perform which types of service. This must be in terms of time because of the varying costs of their hourly input. Thus we make a determination of where the staff is and what they are doing with respect to the organizational units, the types of activity, the amounts of time, and the discipline. This is the input data which translates into dollars.

C. While not essential for cost finding purposes, it would, of course, be valuable to have the management information system include any measures of outcome such as problem resolution or goal attainment if this is feasible, and it would also be of value to develop various indices of performance standards such as numbers of visits by pay status or race, types of treatment modality by age or disease category, etc.

There are two alternative methods for developing the staff data. A transaction form or daily log of activities throughout a given day is completed each day. Like a law firm, each person gives a detailed accounting of every hour of effort. Another approach is to use some kind of sampling technique whereby on a periodic basis the staff makes subjective judgements as to the amount of time they allocate to the various organizational units and the time they devote to types of clinical or other programmatic activities. At Hennepin County, in addition to this periodic subjective reporting, we have adopted a *random moment method* which inquires of a particular staff person which of many categories of activity he is involved in at a randomly selected moment. If this is done continuously, as the bits of information increase this should become increasingly accurate even for infrequent activities.

Another method employed especially for direct clinical services is a patient transaction slip. Every service rendered to a patient is tabulated. Since it identifies the staff as well as the patient and the amounts of time, it gives a direct measure of the staff effort devoted to services and activities. This, of course, is also useful for billing purposes.

Therefore, by tracing the time and effort and expense of staff to organizations and further to specific services rendered, it is possible to determine the cost of each service rendered. Aggragating these by organizational units, it is possible to arrive at a measure of the costs and products of a particular organizational unit.

There is one other significant problem in cost finding. It has to do with the allocation of the indirect support and facilities costs between and among the product producing divisions. Dr. Sorenson has identified four called (a) direct allocation (b) double distribution (c) the traditional step down method and (d) the use of simultaneous equations using a computer with matrix algebra capability. He defines these alternatives in detail in his recent publication. Also in that publication is a breakdown of various alternative ways of determining rates for charges for the particular services received by the various kinds of beneficiaries.

In closing let me say simply that the time has come when we will be required to develop such information not only to maintain existing programs but to provide the future development that we all feel is so necessary. Furthermore, although it has appeared to be an overwhelming task, the tools are now available to provide a detailed fiscal analysis of our input costs and relate them to the output products which are to be purchased by our various funding sources. It is my hope that we will be able to tie input costs not only to the product, that is to say the service rendered, but in time will find a means of tying it to the measures of efficacy or cure or goal attainment and thus arrive at the long sought cost benefit model as well as the cost per product model.

MR. PAYNE: Thank you very much, Dr. Jepson.

We have time for just about one brief question.

DR. BUTLER: Herbert Butler, NIH, HSMHA. Could I ask a question?

MR. PAYNE: Certainly.

DR. BUTLER: We haven't talked about this before, but one of the more difficult problems in cost benefit analysis is assessing the indirect services, consultation, education. I wonder how far have you gone in this respect and what problems do you see?

DR. JEPSON: There is a transaction slip which counts every event for every patient service rendered. We also have developed another kind that tabulates every activity that every staff member does and the kind of activity, the amounts, etc., so that we do have a method for tabulating the indirect services as well.

MR. PAYNE: Our next speaker is John Mulhearn. John is Associate Director for Research, Accreditation Council for Psychiatric Facilities, Joint Commission on Accreditation of Hospitals.

Mr. Mulhearn.

ACCREDITATION GUIDELINES FOR PSYCHIATRIC FACILITIES

Mr. John Mulhearn, *Director of Research and Education, Accreditation Council for Psychiatric Facilities, Joint Commission on Accreditation of Hospitals, Chicago, Illinois.*

Many of you will be intimately involved in the accreditation process and others will be, I'm sure, just theoretically interested in this process.

For those of you who don't know much about the Joint Commission or the Accreditation Council, I have gotten together a handout which will inform you more fully about the organizational structure and the survey process that the Accreditation Council for Psychiatric Facilities will be engaging in. (Appendix V.)

In an effort to increase the quality of services offered by psychiatric facilities, the Joint Commission has established the Accreditation Council for Psychiatric Facilities.

The Council devoted two years to a research project aimed at the systematic development of accreditation standards and survey procedures for psychiatric facilities. The project was financed by a research grant from the National Institute of Mental Health and by contributions from the Council's member organizations.

The Council will begin onsite surveys of psychiatric facilities in July, 1972. It is projected that some 200 facilities will be surveyed in the period July through December 1972, and approximately 400 facilities in 1973.

Both the standards and the survey instruments that have been designed to measure compliance with standards are equally important elements in the total survey process. Standards, however good, cannot achieve their full impact unless they are applied uniformly and with the highest possible degree of objectivity in the process of measuring the quality of health care services. The standards and research instruments so far developed are not, however, final documents. Rather, it is intended that they be living documents, subject to continual review and improvement.

The present standards and survey instruments are the first stage of what is hoped will be an evolving and maturing process in the development of standards and survey instruments for psychiatric facilities.

The Council has developed three main survey instruments designed to measure compliance with standards of psychiatric facilities seeking accreditation. First is a comprehensive questionnaire, which is completed by the facility before the onsite survey. This questionnaire is designed to measure compliance of the facility with standards covering many aspects of the organization and delivery systems of the various departments. services and programs of psychiatric facilities. This questionnaire contains some 1,200 data-points and is processed by computer at the central office. A facility "profile" is generated that comprises a series of "information messages" relating to areas of noncompliance with standards as well as an overview of the compliance of each department or service with standards.

The second survey instrument is a questionnaire completed by the surveyor during the onsite visit of the facility. This is a less comprehensive questionnaire than that completed by the facility. Essentially it comprises a series of key questions that are used by the surveyor in his assessment of the facility's compliance with standards. The surveyor's assessment is thus based on a more immediate indepth evaluation of the facility. Compliance is determined on a five-point scale, ranging from full compliance to noncompliance. This questionnaire is also processed by computer at the central office.

The third instrument is a statistical questionnaire. This is designed to elicit information relating to such variables as number of beds, daily census, staffing patterns, utilization review, distribution of services—in short, patient flow and utilization of the facility.

The Council is presently engaged in a joint project with the National Institute of Mental Health aimed at developing a mutually acceptable statistical questionnaire. Until the project is completed, the Council will be using the inventory form for psychiatric facilities now being utilized by the National Institute of Mental Health.

The data bank resulting from the processing of these survey instruments will form the basis of various kinds of continuing research activities. These activities can be divided roughly into three kinds of data analysis. The first is an analysis related to the development of statistical "norms." This analysis, based on measures of central tendency, will investigate and formulate normative characteristics of services and programs now being carried out in psychiatric facilities. These norms will be used to modify and refine the standards already developed. For example, analysis of the data is expected to reveal "normative" or optimal staffing patterns in various kinds of psychiatric facilities.

The second type of analysis will be descriptive analysis. This analysis will reveal, for example, the major categories of services and programs carried out in psychiatric facilities. Thus it will be possible to arrive at general descriptions of the distribution and type of the different programs and treatment modalities utilized by psychiatric facilities in various parts of the country.

Third will be exploratory analysis. We hope to use the latest statistical techniques now being utilized in the area of health related data to investigate relationships between such variables as structural and programmatic characteristics and the "outcomes" of various types of psychiatric illness. Such analysis, of course, would build upon work already done in this field by other organizations, such as the National Institute of Mental Health.

It is hoped that the findings resulting from these analyses will be published in journals and in monographs published by the Joint Commission itself. Such information would obviously enrich the body of knowledge in the health care field relating to psychiatric illness and constitute a fruitful source of research for other interested individuals and organizations.

Finally, I would like to close by stressing that the Joint Commission is anxious to cooperate with other organizations at the Federal and State levels in the area of data collection and analysis. Thank you.

MR. PAYNE: Thank you. Yes.

MR. SARFF: Floyd Sarff, Iowa Mental Health Authority. Is your system flexible enough that a rural State psychiatric outpatient clinic, serving multiple counties, with three staff people and one part-time psychiatrist, could meet the qualifications of this kind of a program? The only mental health resource would be people of a multi-county area.

MR. MULHEARN: Yes, the basis for accreditation is whether or not the facility is in substantial compliance with standards. If you provide a particular service—for example, psychological service—whether it is in a large State hospital or a small out-patient clinic, then you must meet certain requirements relating to that service.

The flexibility, I think, of our program, lies not only in our comprehensive data collecting techniques, but also in utilizing our onsite surveyors. The surveyors are the ones who are going to be able to assess all the relevant factors which might affect the accreditation status of a particular facility. After all, every psychiatric facility is unique; it has its own characteristics and methods of functioning. And they will be taken into account by the surveyors in writing their report and making recommendations on the facilities accreditation status. So briefly, yes, we do have built in flexibility in our accreditation program.

MR. PAYNE: One more question.

DR. HEINE: Richard Heine, Department of Mental Health, Frankfort, Kentucky. I have a question about your statement, or the statement in the paper, about the analysis of data—I believe analysis will reveal normative or optimal staffing patterns.

You really don't intend to say that those are the same things, do you? The way you read it, it sounded to me that you were saying that normative was somehow associated with optimal, and I just wanted to get that clear.

MR. MULHEARN: Of course, this definition of normative or optimal must be understood within the overall context of the functioning of the psychiatric facility.

For instance, if we find that a majority of private psychiatric hospitals over 150 beds have "X" number of activity program personnel and that the outcomes are "good," then we will assume that these are, as far as we can determine, the optimal staffing patterns. Of course, "optimal" is in itself a flexible word.

MR. PAYNE: Thank you.

Our next speaker is Susan Salasin, Assistant Director of Program Evaluation, also with the Hennepin County Mental Health Center.

GOAL ATTAINMENT SCALING—A PROGRESS REPORT

Miss Susan Salasin, *Assistant Director of Program Evaluation, Hennepin County Mental Health Center, Minneapolis, Minnesota*

Goal attainment scaling, which I will be reporting on today, is a treatment evaluation system devised by Drs. Kiersad and Sherman in 1968. In brief, this is a system whereby the therapist may specify treatment goals for patients before therapy begins on a goal attainment followup guide, stating these goals in behavioral terms ranging from the least to the most favorable anticipated outcomes of therapy, so that a later interviewer can rate the progress of the patient in meeting these goals.

The patient outcomes for the goals can be summarized in a goal attainment score, a single number, which in effect is a weighted average representing therapy progress. This is an informal progress report regarding the use of goal attainment scaling to evaluate the relative effectiveness of four outpatient treatment modes at Hennepin County Mental Health Center.

These treatment modes are individual therapy, group therapy, day center therapy, and drug therapy.

The report is informal because most of the analyses are either in progress or are still awaiting sufficient sample size to permit full or comprehensive study.

In the past two years a multidisciplinary mental health staff and students have produced over 2,100 followup guides. The guides have been constructed on a wide variety of patients, representative of the population of most public adult outpatient services. At this time more than 500 of these guides have been followed up and the Goal Attainment Scores calculated. It would appear that the method can be implemented in a mental health service.

Additional preliminary applications, both in our mental health service and a crisis unit, with children, with one community education program in administrative planning, and elsewhere in the United States, suggest the method may have general applicability.

Using the data available at this time, the Goal Attainment Scores have assumed a symmetrical distribution with a mean of approximately 50 and a standard deviation of 10, with a range of 24 to 30 points.

Reliability estimates based on a sample of 50 patients who have had guides constructed by two staff members, the intake worker and the therapist, and who in addition were followed up independently by two workers have ranged from .50 to .65, depending on the nature of the comparison and coefficient used.

At this point statistically reliable differences have been detected among the professional discipline categories, differences of borderline significance among all therapists, and no apparent difference between group and individual therapy. Since the various components of variance are not fully examined, however, these findings should be considered tentative only.

With regard to validity studies of the measure, an extensive content analysis of the actual goals listed on the follow-up guides has been conducted. The results indicate that most of the expected areas of mental health occur in the goals produced by the therapist. There is perhaps more emphasis on community oriented problems such as employment than one would anticipate.

A related finding suggests that the measure has some relationship to mental health therapy. Average difference scores, scores calculated using the patient's status before therapy compared to the patient's status after therapy, indicate an "improvement" of about 15 goal attainment values for the typical patients under study as a result of therapy.

Generally it would appear that the measure is related to conventionally defined mental health, may be related to improvement as a result of treatment, may be sensitive to treatment differences, and probably is sufficiently reliable to become a useful addition to the measurement arsenal of mental health evaluation.

The measure can be used for a number of purposes. Most interesting perhaps is the use of scores, along with the consumer satisfaction results and the follow-up guide, as feedback to the therapist himself after therapy is over.

Under the direction of the staff member, Mr. Robert Walker, an ingenious feedback model has been developed and is currently in use at the Mental Health Service.

There may be other uses for the measure such as to aid in making optimal treatment assignments, as a means of providing focus for inservice training, as a planning device, for management monitoring, or as a continuously reviewed treatment contract. Various individuals in various settings are now experimenting with some of these utilizations, and results should be available later on.

Overall progress on our own outpatient study appears to be satisfactory at about the halfway mark. Follow-ups occur at about 30 to 40 per month. With nearly 50 therapists and four treatment modes under study, we will probably need another year to complete our analyses.

There has been a related outgrowth of our activities during the course of the project. This has been a project funded by the National Institute of Mental Health and we received diffusion and utilization funds from NIMH at the outset of the project to engage quite actively with potential users of our technique and work with them in developing ways that they might use goal attainment scaling. Over the course of two years this led our project staff to a realization that there was a great need for some sort of centralized information resource about program evaluation in the field and that people charged with the responsibility of evaluating their programs in the whole spectrum of the human services—mental health, mental retardation, alcoholism, drug abuse—were really faced with very similar problems.

How can you tell if your program has worked? How can you tell if your patients improved? What helps; what doesn't? All of these, of course, are types of information brought to light by program evaluation.

So we are engaged in a new endeavor now which is the launching of a quarterly journal or magazine where we will be drawing together relevant articles produced by people engaged in program evaluation in the broad spectrum of human services.

These will be research reports, administrative reports, and will be covering evaluation activities at the Federal Government level. The first issue, for example, will contain an article by Walter Mondale about his social indicators legislation. We have an interview with HEW Secretary Elliot Richardson about the shape and direction of program evaluation at the Federal level, and we will be including a number of regular reports. I have brought along some prospectuses about the magazine. If you are interested, you can take a copy and send us back the enclosed card, which would assure you of receiving a copy of the first issue.

That's about where we are right now. I will be happy to answer any questions.

MR. PAYNE: Thank you very much, Susan. Any questions?

MR. BOUCHARD: I am Mr. Joseph Bouchard, North Carolina State Board of Health. Does your Center use the problem oriented medical record? Is that any influence on your choice of patient goal?

MISS SALASIN: The Center—and perhaps Dr. Jepson can bring you more up to date on this than I—I believe is using it. I know the hospital is using it. It was a later development, after we had started our goal attainment scaling research project, but we would like to see them tied together at some point in the future.

DR. JEPSON: The hospital has converted problem oriented records for inpatient service, and recently for outpatient services as well. I would anticipate that there will be a great deal of congruity between a list of problems and problem oriented records and the goals that are found on the goal attainment grid. I think it would interlock very nicely.

MR. PAYNE: Any others? Thank you.

Our next speaker is Herb Butler, who is a specialist in the Sheltered Care Programs in the National Institute of Mental Health.

First, though, we have one special and brief announcement. I am sure you will find it of considerable interest.

Henry.

MR. FOLEY: I failed to mention earlier that rather than go through all of the Federal programs and all of the categoricals, I have that in a prepared talk which I will have sent out. We did not have enough copies today. I will send it out to each one of the participants. It gives the interface between the Federal programs, private insurance, and about 10 categorical programs of the Federal Government. It may be of assistance to you in dealing with the complexity of that particular third party financing resource.

MR. PAYNE: Thank you. We will forge ahead with our program now.

Dr. Herb Butler, our next speaker, will present his paper, "A Study of the Relationship between Public Mental Hospitals and Mental Health Centers."

Dr. Butler.

A STUDY OF THE RELATIONSHIP BETWEEN PUBLIC MENTAL HOSPITALS AND MENTAL HEALTH CENTERS

Dr. Herbert Butler, *Specialist, Sheltered Care Programs, Division of Mental Health Service Programs, National Institute of Mental Health*

If anyone does not have the handout, it's two pages with Herb Butler's name up on the top right. Would you raise your hand. Okay, I guess we're all set (Appendix VI).

This is a contract that the National Institute of Mental Health has had with the Socio-Technical Systems Associates of Boston. It began on June 27, 1970, and ends July 31, 1972. I am the project officer for this project. At the present time the cost of the project to NIMH and the Government is $91,488.

During the first five years of its infant growth, the Community Mental Health Center program was centralized. All applications for construction and staffing support eventually came before the NIMH Review Committee and policy decisions were centralized in the Division of Mental Health Service Programs.

I was on the Community Mental Health Center Review Committee for two years. One of the most interesting and recurring problems was the relationship between the proposed Community Mental Health Center program and the public mental hospital that was responsible for the mental health care of the same population.

The Committee, as it reflected policy of NIMH, vacillated from an attitude of "The community mental health center has to do it on its own; forget the public mental hospital," to the other extreme, "The existing pattern of mental health services is long established and the community mental health center must show how it will relate to this array of services, including the public mental hospital." At one stage this was required of every application before it was approved.

As a measure of the community mental health center's impact on existing mental health services, a contract was awarded Socio-Technical Systems Associates to obtain some answers to propositions advanced by the contractor, and thus to study the community mental health center and public mental hospital relationship.

What I'd like to do is give a couple of examples of these propositions, also some responses to a survey of community mental health centers that was carried out by STSA, and tell you where the project is as of the present moment.

Proposition 7, and this is just one of the 20 propositions, indicated that more patients are admitted directly to a public mental hospital from a center's catchment area when physical or social factors impede access to the center. That's a little bit complicated in wording, but it simply means that if a patient is seeking services and there is some, either physical or social, impediment or block to entrance into the center program, then he is more likely to go to the public mental hospital.

Proposition 20 indicated that if the center and public mental hospital have similar goals—for example, wishing to consult with local schools—staff of these organizations will tend to view each other as competitors and cooperation will suffer as a result. Another example of this might be court cases, where both center and public mental hospital might be vying for services or willing to give them up as the case may be.

In all, there were 20 propositions. Support or rejection of a proposition will be determined by interpretations of data collected by the NIMH Biometry Inventory and The STSA survey of Federally funded community mental health centers that were in operation prior to September 1970.

One of the questions developed by STSA relating to Proposition 7 was Question 7. The response summary is in the handout. This is an estimate by the community mental health center director of the various ways that catchment area clients enter the public mental hospital. Note that 39 percent of the clients for whom the community mental health center was responsible were admitted to the public mental hospital with no Center contact. Court commitments accounted for 17 percent. That was another interesting bit.

Incidentally, the STSA survey form had 26 questions on 21 pages. All State statisticians and participating community mental health centers should have received, through the mail, copies of a tabular summary of the responses to the survey form. In other words, they should have received the questionnaire with the tabular responses. I have just taken pages six and twenty from those as a handout today.

Another item on the STSA survey form was Question 25. This was one of the questions relating to Proposition 20. As the handout indicates, there was an interesting order of importance assigned to these goals by the community mental health center director. It will be interesting to see the importance assigned by the public mental hospital directors to this set of goals. This information will be requested from a sampling of the several types of relationships which I will describe next.

In addition to the testing of propositions, a typology of relationships will be determined. A sampling of directors of public mental hospitals representing each type of relationship will be selected for a reciprocal perception of the relationship between the community mental health center and the public mental hospital, including the rank ordering of goals.

A third perspective will be obtained from a telephone interview that the principal STSA investigator will have with the Commissioners of Mental Health in each of the States selected as representative of the different types of relationships. In other words, for every type selected, a hospital director will be interviewed and the corresponding Commissioner of Mental Health will have a telephone interview as corroborative data. The interviews with the Commissioners will develop information on the administrative controls, integration of mental health services, exchange of information regarding clients, and the financial support patterns.

As to the current status of the study, from the data collected from the community mental health centers by STSA and the NIMH Biometry data, typologies of relationships are now being developed by STSA. Telephone interview outlines for directors of public mental hospitals and Commissioners of Mental Health in the corresponding States are being cleared by NIMH with the Office of Management and Budget. Statistical summaries of the community mental health centers questionnaire have been sent to participating Centers and State statisticians. Final reports are due at NIMH in July of 1972. The distribution of the final reports will follow the usual NIMH pattern.

MR. PAYNE: Thank you, Herb. Any questions? Okay.

Our next speaker is Mrs. Beatrice M. Rosen, of the Register Development and Studies Section of the Biometry Branch of NIMH. She will tell us about the 1970 Census Data Project.

Mrs. Rosen.

NIMH 1970 CENSUS DATA PROJECT—A STATUS REPORT

Mrs. Beatrice M. Rosen, *Register Development and Studies Section, Biometry Branch, National Institute of Mental Health*

There have been a number of papers focusing on small area data analysis during this Conference. In particular, many of you may have heard Dr. Goldsmith discuss a project using census data to describe degree of urbanization ethnicity and social rank in an area. The illustrations Dr. Goldsmith used are derived from the project I am going to discuss this morning.

As many of you are aware, the National Institute of Mental Health has been in the process of developing demographic and socioeconomic profiles of community mental health center catchment areas in terms of census tracts, minor civil divisions, and counties. The project was undertaken to provide some useful population descriptions of community mental health center catchment areas so that centers could plan and evaluate their programs more effectively. Of course, these profiles will be useful for the State programs as well.

For the benefit of those of you who are not familiar with this project, I will give a brief description of it. The project focuses primarily on social and economic indicators because such characteristics relate significantly to such phenomena as mental illness, suicide, retardation, and alcoholism, to name a few—the social problems most likely to be treated in community mental health centers. The indicators were classified under the following general categories: socioeconomic status, ethnic composition, household composition and family structure, degree of urbanization, condition of housing, and community instability.

As an example of how these indicators were developed, let's consider just one, the indicator of socioeconomic status. Three categories are included: economic status, social status, and educational status. To take this one step further, one census variable used to reflect social status is occupational status. For this variable, the actual index derived from census tapes is the percent of employed males 16 years and over in low status occupations. Of course, there are many other variables also reflecting social status. This is just one example of how the indicator is derived.

The profiles are based on second and fourth count census data. The second count data are taken from the complete population count, the fourth count from 5 percent, 15 percent, and 20 percent samples. Data will be available by county, census tract, and, for a few States, by minor civil divisions.

More complete information on how this project was developed and conceptualized, what indices are included, and how the final output will look is contained in the publication entitled "1970 Census Data Used to Indicate Areas with Different Potentials for Mental Health and Related Problems." It was prepared by Dr. Redick and Dr. Goldsmith. Many of you may have seen this already. The variables included are listed in Appendix VII.

Dr. Goldsmith developed his first "cookbook" on how you might use these data to learn more about a catchment area. He showed this to you in an earlier session of this Conference. It is entitled, "Social Areas: Identification Procedures Using 1970 Census Data." This system is particularly useful for mental health planners and evaluators because social and economic information from the Census descriptive of high risk groups is abstracted and aggregated by catchment area. Thus the need to search through volumes of Census data for such information is obviated.

We made an agreement with the State mental health agencies that if they would provide us with the necessary number of tapes, we, in turn, would provide them with both print tapes that include formatted tables, as well as some selected data tapes from which sophisticated programmers could reaggregate the areas if they were interested in doing so. That's so much for the background of the study.

The purpose of this talk today really is to give you a status report on how we are doing. I will start by saying that last week I got a letter from somebody—it was very polite, but with a slight hint of indignation. This person wrote, "Dear Mrs. Rosen: Three months ago you wrote to us and said that the second count data were about to be completed. We sent in our tapes and we haven't heard a word since."

That has been the fate, unfortunately. However, I am glad to be able to tell you that the second count tapes are just about finished.

We have just a few minor problems. There are some States that have not sent in catchment area descriptions. It is not too late, but please hurry.

Also, the States that have MCD information—that is, Minor Civil Division descriptions—will be slightly delayed because we just recently got funds to do this aspect of the project.

In terms of the fourth count, the picture isn't quite so clear. We have been told, as a matter of fact yeaterday, that the fourth count tapes that we are to get will be delayed four to six weeks. Once we get them, the processing will be very quick, but if any one of you is waiting for such information by the end of June, I am afraid you had better stop waiting.

We have some future plans for this project. We do have somebody that we are contracting with to do some analyses, primarily for the institute programs. Some of you may be interested in it. We are doing some tabulations by poverty and non-poverty funded areas. I know many people are involved in trying to develop plans to receive poverty funding. Probably by the end of the summer or a month or two later we will have that information.

Also, hopefully, we will be doing some more "cookbooks," aside from the one that Dr. Goldsmith did, to cover a wide variety of the indices that are being developed through this project.

The way to obtain these data is this. It depends upon who you are and what your affiliations are. If you are a community mental health center, or represent one, your State or your State agency is obliged to distribute the profiles to you. If you are just interested in getting them for some other purpose, the best thing to do would be to contact your State. The State mental health authority would be the appropriate source. If you don't know who the person is, you can write to me and I will give you the name of that contact.*

If you want to get information from more than one State, if it is just two or three, probably the best thing would be to write to the various States. If it is a large project and involves selecting specific areas, for example—at this point all I can say is to write to me.

We are trying to locate a university or some center in the country that will be willing to take this system when it is completely finished and to provide, at cost, tabulations for anybody that wants to have them. We have not finalized the negotiations, but hopefully we will.

I am ready for questions.

MR. PAYNE: Are there any questions?

MRS. FISHMAN: I am Roslyn Fishman, Executive Director of Comprehensive Health Planning Agency, Inc., New Haven, Connecticut. I just wondered if the State is obligated to give the information to us for our planning.

MRS. ROSEN: I am really not sure whether they are obligated, but I am sure that they will. If it is a mental health agency, I think the best thing is to contact a person in that agency. At the worst they might charge you the cost of printing it.

MR. MESHAK: I am Len Meshak, Department of Mental Health, North Carolina. Have there been any changes in the formats of profiles since last published?

MRS. ROSEN: No. The format that is in this is an example, and there are a few columns in there that are really free. In other words, you can put in any indicators that you would like to, even though in this book there are some specific ones. We haven't changed the general format at all, that I know of.

MR. PAYNE: Any other questions?

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DR. ARONSON: Norma Aronson, Comprehensive Health Planning Agency, New York City. A comprehensive health planning component that is being stressed is that we are responsible for mental health and physical. Since the mental health people are very much aware that there must be some interrelationship certainly in parts of mental health care, is there any social index provided in your profile which covers physical health, particularly in the mental retardation phase?

MRS. ROSEN: There is some vital statistics information. I am not quite sure about physical health. I know that we are going to get some data from vital statistics programs in there. These will be available by county, and will be sent after the print tapes and separate data tapes have been sent. I think the best thing would be to look in the book I mentioned earlier—by Redick, Goldsmith, and Unger—because it has every indicator spelled out in there.

DR. REDICK: I am Dr. Richard Redick from HSMHA. There is not specifically anything. Most of the indicators are based on census data. I think the only thing in there—correct me if I am wrong—is one or two indicators on employment of the handicapped or disabled persons that occurred in the census.

We do have some vital statistics, mostly on mortality and primary causes of death. They are listed in that book. Other than that, we felt that people can add data of interest to them into the system. It has flexibility. Some local data can be fed into this system to supplement the census takers, but this has to be done by the local people themselves, if they have the mechanics and computers and computer technologies to do this.

MR. PAYNE: Thank you. Any others?

Our next speaker is E. Myles Cooper. Myles is a Program Analyst, Regional Office IX in San Francisco.

Myles.

CRITERIA FOR DESIGNATION OF POVERTY AREAS

Mr. E. Myles Cooper, *Program Analyst, Department of Health, Education, and Welfare Regional Office IX, San Francisco, California*

Most, if not all of you, are aware that by law and regulation certain grants funded by the National Institute of Mental Health provide for more favorable funding for areas designated as poverty areas than for areas not so designated. Designation of such poverty areas by the Secretary of Health, Education, and Welfare is supposed to be reviewed annually.

However, the unavailability of certain 1970 census data have inhibited review, subsequent to the original designations in 1970, which perforce were based upon the 1960 census data. Availability of the 1970 census data now makes it incumbent on NIMH that it recommend early, in the coming fiscal year, that the Secretary revise the poverty area designations. Revision of the designations should occur before the fiscal 1973 appropriations become available, since it is inappropriate to continue to utilize the designations based upon the old 1960 data.

The regulations provide that the poverty guidelines established by the Office of Economic Opportunity in 1970, based upon Social Security Administration standards, will be used in determining the poverty levels in the various catchment areas. These guidelines consider only three factors: family income, family size, and farm versus non-farm residency.

Such detailed income data by census were not available from the 1960 census and, therefore, the poverty area designations based thereon will undoubtedly be significantly changed by utilization of the 1970 data.

A number of people believe that criteria in addition to those mentioned above should be taken into consideration in making the poverty area designations. However, no specific mechanistic proposal has been submitted, to my knowledge.

The existing procedure calls for each appropriate State agency to do the processing of the census data necessary to rank the catchment areas in the respective States. Some of the State authorities do not have easy access to computer resources required to carry out these procedures.

Because of the foregoing, the following recommendations have been made to the NIMH Central Office:

(1) That NIMH quickly recommend that the Secretary reiterate the policy of utilizing the above-mentioned criteria in designating poverty areas as spelled out in Section 54.102 of the regulations.

(2) That the regulations be amended to provide that should a State or an applicant believe that the above procedure results in an inequitable ranking of the State's catchment areas, the State or the applicant may submit for consideration by the Secretary other procedures for ranking of the State's catchment areas. The submission shall include, as justification, evidence which will enable the Secretary to determine whether the utilization of the suggested alternative procedures are appropriate.

(3) An applicant for a grant authorized by Title II of the Act, who wishes to serve a catchment area which was not designated as an urban or rural poverty area, may apply to the Secretary to have such area designated as a poverty area, under the provisions of Section 410 of the Act, by submission of an appeal. The appeal shall contain such evidence as would enable the Secretary to determine whether the evidence is sufficient to add the subject catchment area to the list of designated poverty areas.

(4) Any catchment area which has previously been designated as a poverty area and for which there has been an approved application

for a staffing grant should retain such designation.

It was further recommended to the NIMH Central Office that the State mental health authorities be advised that NIMH will carry out the procedures required under Section 54.102 in ranking the catchment areas in each State.

This recommendation is made in consideration of the efficiency and economy of having this procedure carried out at a central point where the resources are far more adequate than they are in many of the States.

MR. PAYNE: Thank you, Myles. Any questions?

DR. HEINE: Richard Heine, Kentucky. Has this material been made available to all the States now? Do the Commissioners know about it?

MR. COOPER: I said this was a recommendation recently made to the NIMH Central Office.

MR. PAYNE: Any other questions? Yes.

FROM THE FLOOR: Not a question, I guess, but a comment. I would like to add to the recommendation that not only NIMH but HEW make this available, not only as mental healthers, but to the Hill-Burton people who have a similar regulation and to the Office of Education which has a similar regulation. It's been making me very uneasy ever since we started this game, that in every State there are three, four, maybe 10 people sitting around ranking the State for poverty areas for their particular program, when the whole thing could be done much more economically centrally.

One more comment. For our midwest States, as the statisticians found, income is a terribly poor indicator of poverty. I hope everybody can get their Commissioners interested early to think about what might be a more equitable indicator which does not discriminate as badly against the urban poor.

MR. PAYNE: Yes, sir, another question?

FROM THE FLOOR: Since everybody is commenting, I might. I have just read Dr. Goldsmith's memo, which says that the median family income will be the main criteria for designating poverty areas for all health and mental health. I do not know whether that has the authority of law or not, but Dr. Goldsmith is here and perhaps he wants to comment on it.

DR. GOLDSMITH: I would rather not comment. You have the memo. It's dated June 1, which labels it as income. On the other hand, I am advised that they were thinking about poverty, but at this point in time I guess the median family income will be basic sort of criteria for determining areas in poverty.

MR. PAYNE: Thank you. Any other questions?

Dr. Morton Kramer, Director of NIMH, has some closing comments for us. Dr. Kramer.

CLOSING COMMENTS

Dr. Morton Kramer, *Director, National Institute of Mental Health*

This is the last of our sessions in our first meeting with the Public Health Conference on Records and Statistics. But this means also that it is the closing of the 22nd Conference of the group that has been meeting annually to develop and promote mental health statistics in a meaningful way throughout the States.

We are planning—granted that funds will be available—to have another meeting of the National Conference on Mental Health Statistics next year. I believe the Public Health Conference on Records and Statistics meets every second year.

We are going to keep our meetings going because, as you can see, there is a tremendous amount of development in this area. Also there are the additional developments that require our doing some thinking of how, in this massive effort to develop a better Federal-State-local statistical system, we can interrelate whatever data we have with those on other patterns of health and social services, and vice versa. For example, a question was raised concerning what data we have relative to physical and mental disorders within the demographic analyses that we have been doing.

The basic problem here is that we have provided good baseline data on a population based area, on a catchment area or some other meaningful population base, and these should be available to other health groups. We should make it possible for these other health groups to utilize data that we have generated to meet some of the unique needs in the mental health field.

This doesn't mean that other fields haven't had similar needs. The important point is that a development in mental health is producing data that are relevant to all health, social, and human services programs being developed within States and localities.

I would like to emphasize the Federal-State-local statistical program that has been developed and hope that the mental health people get on the ball and do whatever they can to get some of the R and D money that's going into the State and local statistical systems. When the original planning for this system came around to us, there was no mention of mental health statistics, and Cecil Wurster, others in the group, and I were quite concerned about this. We met with Dr. Cain and Dr. Brown, and Dr. Brown sent a strong memo to Dr. Wilson, urging that the mental health authorities of the States be included.

Now any project that is developed in the Federal-State-local system must come through with the approval of the State mental health authority or the appropriate State mental health agency.

Projects that are relevant to the Federal-State-local system notion can be generated by a mental health agency. There is no reason in the world why this cannot be done.

Those of you who have good starts in developing local statistical systems and want to learn more about how you interrelate these data with what may be going on at the State level, as well as with data from other kinds of systems, should certainly use your ingenuity, in developing projects that can qualify for support under this program.

These funds are coming into the National Center for Health Services Research and Development and the National Center for Health Statistics. These funds are available but one thing you must do, if you are going to have a chance at getting any of them, is to develop an application. Those of you who don't know how to proceed in this area, write to us. Others who know what to do can initiate activities in your own localities and States.

Speaking for myself, with respect to this meeting, I have been standing in front of a microphone, opening and closing meetings for many years now. I always feel that when these meetings close, it has been another milestone in the efforts that started over 125 years ago in our Nation, around 1840 or so, to begin building a base of mental health statistics and relate them to the whole realm of human service statistics that have become so important.

Without the strong support and cooperation of those of you who are working at the local and State levels, in universities and regional organizations that have been so helpful to us in promoting these programs, many of these things would not be possible. In fact, some of the things that are now eventuating remind me of the song from "Man of LaMancha"—the impossible dreams come true.

There still are a lot of seemingly impossible dreams we would like to make come true. The only way to accomplish this is to persevere in efforts to make the impossible a little more possible.

I would like to express my deep thanks to every member of the advisory group to the National Conference on Mental Health Statistics who participated with Cecil Wurster and with our Branch in developing this program. I want to express, too, my deep appreciation to all of the participants at this meeting who helped make it a very stimulating one. I have heard very favorable comments about the participation of the mental health people in this meeting and the major contribution they have made.

I think we are well established as a group and we have to keep this going.

I hope that all of you have been stimulated by this meeting and acquired new ideas which you will go home and apply. I hope also you will alert your bosses to the fact that there is an acute personnel shortage of statisticians and epidemiologists who are needed to meet the many demands that are being made for data for planning, monitoring and evaluating programs. All of us are trying to do our share in meeting these demands.

Thank you very much for coming and participating with us in this meeting.

MR. PAYNE: Thank you, all.

Whereupon, Concurrent Session "N" was concluded.

Concurrent Session "O"

Preparing for the Eighties— New Standard Certificates and "How To's" in Technical Assistance

The first part of the program began with a presentation of the NCHS Technical Assistance Program. Following that, the needs for technical assistance in health statistics programs were presented from the points of view of a State Center for Health Statistics, a local health department, and a vital registration office.

The portion of the program dealing with Standard Certificates presented a brief history of the revision process, current work plans, and a discussion on some of the lessons and experiences from the last revision activities. The audience was then asked to break up into groups of about 10 persons. These groups were asked to come up with lists of major questions, problems, or suggestions for the forthcoming revision. These were consolidated and presented with comments by the speakers to the full audience.

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CONCURRENT SESSION "O"

PREPARING FOR THE EIGHTIES— NEW STANDARD CERTIFICATES AND "HOW TO'S" IN TECHNICAL ASSISTANCE

PRESIDING

Mr. Robert A. Israel, *Director, Division of Vital Statistics, National Center for Health Statistics, Health Services and Mental Health Administration*

Good Morning. This is Concurrent Session "O," "Preparing for the Eighties–New Standard Certificates and 'How To's' in Technical Assistance." Let me move into the subject for this morning's presentations. The first part of the program is going to begin with a discussion of the NCHS Technical Assistance Program. Following that we will have some discussion on the needs for technical assistance in health statistics programs as seen from various viewpoints, more specifically, from the viewpoint of a State center for health statistics, a local health department, and a vital registration office.

After we have completed these presentations there will be an opportunity for some panel discussion or questions from the floor. You might be thinking of questions during the presentations because we would like to spend a few minutes giving you an opportunity to raise questions. Ask whatever you will. We may or may not have an answer but you will have the opportunity to ask.

When we have completed that portion of the program we'll move into another topic which is the revision of the standard certificates. There we hope to present a brief history of the revision process, what our current work plans are, and a discussion of some of the things we learned or should have learned or didn't learn from the last go-around on revising standard certificates.

We'll have an opportunity this morning, then, to ask you to do a little work. We are going to ask you to gather together in some informal groupings which will help you set up. Then we will let you, as a series of small groups, present to the panel those questions which you feel are the most burning questions in regard to the next revision of the standard certificates of birth, death, fetal death, marriage and divorce. That covers our plans for this morning.

Let's move, now, to the first presentation. I am going to ask C. R. Council–Charlie Council, of the Office of State Services, National Center for Health Statistics, and someone I'm sure most of you know, to give us a presentation regarding the NCHS Technical Assistance Program. Charlie.

THE NCHS TECHNICAL ASSISTANCE PROGRAM

Mr. Charles R. Council, *Chief, Technical Assistance Branch, Office of State Services, National Center for Health Statistics, Health Services and Mental Health Administration*

Thank you, Bob, I have chosen to outline the type of technical assistance that we have been giving from the National Center, in summary form you might say. Then if there are additional questions or comments, we have here some of our program people who can speak to a specific type of assistance. I have broken this down into four classes: the general technical assistance provided by the Center; the types of training that are offered and have already been covered here in our previous meeting; vital statistics, the kind of assistance that comes from our vital statistics activities; then data processing activities and, finally, some other types of technical assistance that we provide.

In the general category, we do provide technical assistance to the State and local areas as well as some of the Federal agencies, upon request, in the fields of vital and health statistics and the related data processing activities. The extent of assistance provided is influenced by limitations in staff and funds, both of which have been restricted in recent years, as some of you are well aware. Most requests of an original nature have been handled by the Technical Assistance Branch in the Office of State Services.

This Branch in addition to handling requests in its principle areas of assignment—mainly program reviews, development of State centers for health statistics, and general consultative advice—acts as a liaison unit by referring requests to offices and divisions with expert knowledge in the specialty fields such as survey and sampling methodology, vital statistics, health resources, data processing, and the like. Most questions of a routine nature are handled by those Center elements which deal with specific problems.

Since 1968 the Branch has worked very closely with the States on all matters of technical assistance. During this time considerable emphasis has been placed on strengthening State and local health statistics operations to raise the standards of these services and to maintain a closer Federal-State-local alignment.

Specifically, a major task assigned to the Technical Assistance Branch was to encourage the implementation of the concept of State centers for health statistics. All States were approached on this matter. More than 40 States expressed interest and more than 20 have actually moved in this direction. Unfortunately, budget restrictions and even cutbacks severely curtailed the development in most of the States. A few centers, nevertheless, have been established and so named in the States.

Reviews of the vital and health statistics programs have been conducted in several States. As a result of recommendations made some organizational changes occurred and additional trained statistical staff were added.

Consultative advice towards solving the general problems arising in the health statistical field was provided on a request basis, as mentioned. Participation in workshops, seminars, and professional meetings at the local and State levels was provided in most instances when requested.

Dr. Lunde reported on training earlier but I would like to say that even prior to the establishment of our Training Branch the Federal Government has always provided some type of training activity—training for State and local personnel, with special emphasis on training cause-of-death coders. The growing demand for more training in the burgeoning health statistics and data processing field, expressed by States individually and in conferences, encouraged the Center in 1967 to move to establish the Applied Statistics Training Institute program.

As Dr. Lunde told you yesterday, to date they have given training to more than 1,100 people—people from all the States, 25 people from foreign countries, students ranging from clerical staff all the way up to the Ph.D. and M.D. level, and so forth. Subject matter relates to all health fields including family planning, comprehensive health planning, and mental health. The program is technical assistance in a direct way—emphasis is on practical aspects of the work, "what you can use at your desk when you return to the job" and also has long-range potential considering that the knowledge and skills acquired will have a far-reaching effect in terms of manpower development.

All NCHS offices and divisions have been involved in ASTI instruction. Other instruction is provided by faculty of schools of public health, health department officials, and other Federal agency personnel.

In the vital statistics area, this Division for many years, and it dates back several decades, has fostered close relations with States and local areas to maintain the Vital Statistics Registration System of this Nation. This is a day-to-day affair and the Division of Vital Statistics provides technical assistance on all related subjects such as registration procedures and methodology, standards, model laws, model regulations, and statistical and analytical programs. For example, when a State wishes to be admitted to the National Marriage or Divorce Registration Area, DVS will send personnel to advise on the reporting procedures and the legal aspects, assist in testing to determine that conditions required for admission have been met, and then proceed with admissions as these criteria are found to be satisfactory. Outside consultants have been employed from time to time from other States to assist in improving the health statistics of the Nation.

In the data processing area, much of the routine day-to-day technical assistance work in the Center is done by the Data Preparation Branch. This Branch handles all the microfilm arriving daily from vital statistics offices of 56 registration areas. Here the States inquire about the quality of the microfilm and how to improve the mechanics of their operations, and present numerous other questions on the details of production and data.

Other types of technical assistance stem from many of our other agencies and offices. Assistance and advice in the conduct of health surveys through interview, examination, and prospective or retrospective techniques have been provided on a limited basis. Advice in the development of health facilities and health manpower inventories at the State level have been provided to some States. Consultation in the use of hospitals' patient information at the time of discharge, and statistics collected in the family planning programs are provided upon request.

In summary, most of the States have received consultative advice one or more times in the last three years and I think all but five States have been visited by one or more of the staff of the National Center on one or more occasions in this period of time.

Now, I'd like to list some of the problems in providing technical assistance for your consideration. One has already been referred to—lack of staff and funds. Both of these could be alleviated in the near future. (2) Advisory assistance involving a short visit when what is often required is a long visit of weeks or even months by technical experts, (3) on-the-job training and adequate backup staff to write technical manuals, and (4) identification of short-range versus long-range technical assistance problems and determination of adequate solutions.

As to the future I would like to say the Center's technical assistance effort will undoubtedly be strengthened by two developments anticipated in fiscal years 1973 and 1974: (1) The Federal-State-local cooperative health statistics system, which has already been explained in a concurrent session, and (2) The expanded ASTI program, which has already been discussed.

Thank you.

MR. ISRAEL: Thank you, Charlie. Now we'll move on to some presentations from the other side of the fence, so to speak, as we listen to views of the needs for technical assistance. As I asked you before, be thinking about questions to ask each of the persons up here. We'll save the questions, though, until all the presentations have been made.

First we'll turn to Dr. Frances Jean Warthen who is Director of the Maryland Center for Health Statistics of the Maryland State Department of Health and Mental Hygiene. Jean is going to talk about the needs for technical assistance by State centers for health statistics.

Jean.

NEEDS FOR TECHNICAL ASSISTANCE BY: STATE CENTERS FOR HEALTH STATISTICS

Dr. Frances Jean Warthen, *Director, Maryland Center for Health Statistics, Maryland State Department of Health and Mental Hygiene*

I'll start by telling you a little bit about how the Center developed, what it's doing now, and what we plan for the future. Then I'll tell you how we relate and have used the services of the National Center and something of how we relate to the local subdivisions and the private sector generally.

In Maryland in 1969, there was a very major reorganization of our State government and it started with our Department. I think we are a little bit unique. At this time the old Departments of Health, Mental Hygiene, and Juvenile Services were merged into one big super agency. This is under the direction of Dr. Neal Solomon.

We include at the present time the following subdivisions: Environmental Health, Mental Hygiene, Mental Retardation, Preventive Health Services, Adult Health and Chronic Disease Programs, Drug Abuse, Local Health Services, the Medical Assistance Program, General Administrative Services, the Comprehensive Health Planning Agency, and Juvenile Services, so that's quite a list.

The statistical unit was one of the first that was told to amalgamate. In the beginning what we were was the old health department statistics, the old mental hygiene statistics, and vital records. For a time we were known as the Division of Statistics and Vital Records and in 1970 we became the Maryland Center for Health Statistics.

In July of this year we are also going to pick up the Baltimore City vital records. After many, many years this is going to be merged and will be part of the Center. As of July 1, we are going to have something like 82 employees. We are budgeted for something like $700,000. We are completely funded by the State at the present time which I think is very good and perhaps a little bit unusual.

How are we divided within our own organization? We have two major components: a Division of Vital Records and a Division of Health Statistics. Within this we have sections, units, or principle areas in which we work; Vital Statistics, of course; Psychiatric Data; Mental Retardation; Medical Assistance; Maternal Child Health, including Abortion Surveillance; and a number of other smaller programs at varying stages in their development.

One thing that we are currently working on very hard is to bring about an improvement in the reporting from our chronic disease facilities. We really have no good centralized system for this at the present time.

Our principle charge, and I think it's important to know this, is, of course, to serve as the statistical arm of our own Department. My Department at the present time is, of course, interested in all of the traditional matters. We are also quite interested in moving into areas the Department would call administrative research, program planning, evaluation, materials needed for budget support, and so on. There is a great deal of interest within the Department and the region, which is a very large and a very complex one, in having us sort of look over the situation in all of the areas with respect to what data are currently collected—how good they are; are they serving a proper function; and how could they be coordinated with data from other areas. What gaps can we find? Where should we move to get new data, etc.? Some very good examples here have to do with areas like alcoholism or geriatrics, which gets us not only into psychiatric facilities but also into nursing homes and so on.

The Center generates data and we are also very often a recipient of data. We are also charged with becoming, at least in the future hopefully, some kind of repository for statistical data in the area of health. By this I mean we have plans—we have not been able to implement this yet—to become a kind of catalog for the State. Here I don't mean just the State Department of Health and Mental Hygiene but the entire State with respect to who has what; under what conditions might it be used; how good is it. On a Statewide basis we would attempt to identify that information and hopefully move toward filling the needs. We are also charged in many ways to work with the so-called private sector—the university, the general public, the private hospitals, and so on.

Some things possibly have no State governmental agencies, but because our Department is so comprehensive in make-up this job is not difficult to do. Remembering that we have this State comprehensive planning agency, you can see that anything we do with them immediately gets us into cohort with the regional planning council, the local subdivisions, and so on.

I think I'll move from this to what our relationship is to the National Center and list some of its functions and how we have worked with them. One thing that I think is very important is that the National Center take, as it has, leadership in establishing various data standards—birth certificates, generalized reporting systems, etc. We certainly make every attempt when we move into something new to find out from the Center what is currently recommended and if there are no formal recommendations what the trends are.

A second thing that we are involved in is, of course, the training programs. We make a great deal of use of these and are very happy that they are available to us.

The third is consultation, both informal and formal. We are very lucky because the Center is, in a manner of speaking, just down the road from us. It's very simple, if we need some information in an area or would like to talk about some particular problem, to simply get on the phone and run down and see someone at the Center. When our Center was being planned originally many contacts of this kind were made: what are the formal recommendations; what is going on generally; and so on.

In addition to this I am going to list a formal consultation which, as it happens, this time relates to vital records. As I mentioned, we are merging two very large systems into one so that the State of Maryland as of July the 1st will become a single registration area.

As I think you can imagine, with two longstanding systems there are many problems. Some are in getting together. Even more important, one of the conditions of the merger was that if this was going to take place maybe it would be a good time to sit back, look at what we both had, seek some good consultation, and, hopefully, try to move into the future a little bit so as to establish—at least for us—some kind of model systems that would serve the total State as well as could be done.

We have had a great deal of formal consultation. We have had program reviews. Right now we are at the stage where we have received some formal recommendations which have been very helpful, many of which we are going to adopt. We are moving into the area where we will get a different kind of continuing consultation with respect to things that we have in fact decided to do. A very simple example is that by next January 1, Maryland has to revise its birth certificate and we expect to ask help in this area.

When you talk about a consultation such as this I think you assume expertise, or at least I do. I would not have been involved in it had I not thought that these people were indeed very expert. I would like to mention something they brought to us that has been quite invaluable which I couldn't have gotten in the same time period and, certainly, for the same amount of money, which was zero. As we moved past the time of simply looking at the programs and talked about what we might do in the future, one of the outstanding things that the consultants were able to give us was an overview of what is happening in the Nation. If we consider a given problem area and say, "Oh-oh, that probably won't work," the consultants are immediately able to say, "Now, look, roughly 20 States are doing it; 10 have done it this way. This is how it worked for them. Here are their problems which you might consider." I could probably hire a dozen consultation firms and never get the same degree of expertise that I have gotten from this consultation proceeding.

I have heard a number of suggestions during the meeting of things the National Center might do and many I would go along with. One yesterday had to do with recruitment. I think if the Center could work as some sort of a clearing house for recruitment this might be very wise. We make use of the training programs. It would be very nice if some of these could be brought closer, particularly to the area, and I certainly would support this.

Now let me go down to the State level a little bit more. First of all, of course, we provide consultation inhouse to our own Department and this can be pretty tremendous right there. We also consult, upon request, with the private sector, and with local subdivisions. I can only say in that respect that what we do depends entirely on the local subdivisions.

Maryland is rather interesting. We range all the way, from rather rural communities and counties where there are practically no trained individuals. Everyone now is moving into the area of planning and evaluation with questions as general as "What do we have in our county?" Then we are asked "What do we do with it?" How can we use it for purposes of program evaluation? How can we use it to support our budget, and so on? On the other hand, we have very, very sophisticated planning groups and counties. I'd say that here we function primarily as collaborators, suppliers of data. Very often I am tempted and do on occasion ask some of these people to consult us. What we provide depends very much on the particular or local subdivisions.

The same is true in the private sector. We receive a lot of data from private facilities and we try very hard to meet their requests when they need special tabulations, special help. We sometimes even get into such things as questionnaire instruction. What we get into very often, and I'm sure you have all had the experience, is that someone within the Department or one of the other agencies comes up with a heap of questionnaires and says, "Now, help us analyze it." This is very annoying but we try to do it so as to give the Center this ability and to try to impress on others that we would like to get in on the game further.

I think with this I close and leave time for questions if there are any.

MR. ISRAEL: Thank you very much, Jean. Our next speaker will present the point of view of a local health department. Mr. Gary Knapp is Director of Research and Program Development of the Denver Department of Health and Hospitals.

Gary.

NEEDS FOR TECHNICAL ASSISTANCE BY: LOCAL HEALTH DEPARTMENT STATISTICS

Mr. Gary Knapp, *Director, Research and Program Development, Denver Department of Health and Hospitals*

Before I start, I would like to run a little survey. How many people attending the Conference are representatives from local health departments? About one percent, I see.

Initially, I would like to present a little bit of information about the background of the agency that I represent. The City and County of Denver, Department of Health and Hospitals, operates a 375 bed hospital and patient facilities serving approximately 10,000 inpatients per year at about 100,000 census days.

We also operate an outpatient facility within Denver General Hospital offering ambulatory care services in approximately 15 to 20 specialty clinics. We see approximately 250,000 outpatients per year in these clinics. We also operate a Neighborhood Health Program.

The Neighborhood Health Program is funded by 314-E monies through the Department of Health, Education, and Welfare. Within this program we operate two Neighborhood Health Centers and eight Neighborhood Health Stations. In addition, a new Health Station will be opening within a few months. The stations operate in neighborhood communities, housing projects, and throughout the various low socioeconomic areas of Denver. Our facilities provide satellite type care; the most basic level of care is offered in our Neighborhood Health Stations and then progresses to the two Neighborhood Health Centers and then finally, to Denver General Hospital for either inpatient care or specialty clinic services.

The Neighborhood Health Program and the entire agency provide care to approximately 150,000 people annually throughout the City and County of Denver. The Neighborhood Health Program also accounts for 400,000 outpatient visits per year. The agency also operates a Comprehensive Community Mental Health Program. This program is funded in conjunction with Model Cities and with assorted National Institute of Mental Health monies. We also operate the Public Health Department which offers services in environmental health such as housing inspection, air pollution control, occupational health, veterinary health, milk sanitation, etc.

The agency also operates the Visiting Nurse Service which offers services to the entire population of the City and County of Denver. We operate a Disease Control Division dealing with communicable diseases, immunizations, etc. The Health Education Service, not only offers assistance in the areas of training and ongoing education for our agency staff, but also offers such services as health education programs in public schools, etc. The agency also operates the City and County Coroner's Office and the Registrar of Vital Statistics.

The agency, therefore, offers family centered comprehensive health care for the population of the City and County of Denver. We can, theoretically, deliver a child within the agency and provide comprehensive health care throughout the remainder of his lifetime.

The agency serves approsimately 30% of Denver's population of 515,000. It is funded through the City and County General Fund, many funds supplied by the Divisions of the Department of Health, Education, and Welfare, such as the Children and Youth Project, Maternity and Infant Care, Family Planning, the National Institute of Mental Health, etc. There are approximately 20 different funding sources which support the activities of the agency.

I'd like to speak a little bit about the Division of Research and Program Evaluation. The Research Division serves as a staff function for the administrative offices of the agency. Two of the major functions that the Division provide are (1) to develop an "Urban Comprehensive Health Care Information System," and (2) provide program development and evaluation activities in support of the agency.

A few years ago we received a grant from the Carnegie Foundation to study the feasibility of establishing a computerized health information system. We obtained technical support to study the particular problems associated with such systems.

The computerized systems will provide support mainly in three areas, the first of which is patient registration, or the Computerized Master Patient Index. As patients enter the health care system and are registered, admission clerks will obtain the pertinent registration information from the patients and enter the information directly on computer terminals such as the one located outside of this room in the demonstration booth. This information is then stored within our PDP 15 Computer System. The information can be retrieved at a later time for the compilation of statistical information identifying the patient, along with pertinent information regarding his medical care. For example, if the patient is seen in the emergency room at a later time his patient number and other identifying information can be entered on the computer terminal, and pertinent medical information such as allergies to particular drugs, whether or not the patient is a diabetic, and other information can be retrieved immediately.

The second component of the Urban Comprehensive Health Care Information System is the Health Care Scheduling System. Again, we use the online computer terminals for this application. The System is very similar to that used by airlines in making reservations. As patients within the System contact the central appointment clerk for appointment times, the clerk enters this information into the computer terminal and establishes an appointment time with a particular physician in a particular location within the System.

The third component is the Patient Activity Information System. A great deal of time, with corresponding headaches, has been expended in trying to develop health care visit forms or encounter forms for ambulatory care provided throughout the agency. We found that physicians and other professional care providers seem quite reluctant to spend much of their time filling out forms.

Many of the professional care providers are unwilling to spend ten to fifteen minutes per patient in completing various required forms. They contend that they could see two to three more patients per day during this time spent. As a result of this, we have had quite a problem in designing encounter forms that will provide needed statistical information, while at the same time taking as little of the professional's time as possible. After a great deal of research, we established the types of information needed for each of the particular service areas. As a result, we have developed encounter forms for each of the service areas such as dental, social service, mental health, nutrition, general medicine, emergency room, pediatrics, and each of the major functions of services offered. This will assist the medical care provider in recording only those data he deems important to his particular area. These forms were designed not from the aspect of providing a statistical tool, but rather from the standpoint of improving patient health care via an improved health care chart. This, then, represents the third component of our Health Information System.

The second major activity of the Division of Research, again, is in the area of program evaluation, planning, and development. Some of the activities in support of what we do in the Division center around the areas, for example, of development of reports and their analysis for mortality, natality, morbidity, and agency and area utilization of services by census tract for the City and County of Denver. These data are used for locating sites for planned and projected health facilities, providing for the amelioration of health problems within the City of Denver. We have put out a variety of reports and analyses that show natality, mortality, and morbidity from our inpatient and outpatient files by census tract for the City and County of Denver.

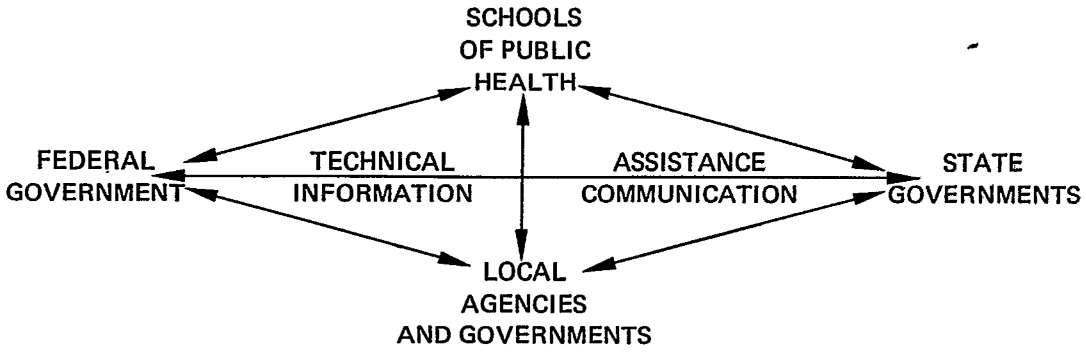

Figure 1

For example, we have developed a method utilizing rank correlation analysis in analyzing those census tracts or parts of the city, that appear to be in need of health care services. We have found that there is a high correlation between many of the variables which were studied. This information then has been most useful in establishing target areas for delineating proposed facilities and other activities throughout the agency.

More importantly, we have launched the development of general purpose statistics and programmatic statistics for program evaluation, planning, and development. Utilization statistics have been provided, as I mentioned, for the entire agency as it ranges from the Coroner's Office to health statistics to health education to each of the service areas, but more importantly, here we are talking about the provision of the two types of statistics for the Ambulatory Care Program, since it represents the largest segment of our patient contacts.

These statistics are developed for a number of reasons, Federal reporting requirements being one of them. The Division is responsible for the submission of Federal reports as a result of receiving grants from each of the twenty to twenty-five sources.

I think it's important to mention at this point that the agency, in my estimation, is well abreast of recent developments in grants available at the present time. We have a grant to develop a Health Maintenance Organization, HMO, which leads into such things as capitation rates, etc. Also, the agency is currently engaged in consolidating many of our existing smaller grants. This problem of multiple funding is probably the largest single problem in the agency as I see it right now. Hopefully, this unification and consolidation will also provide for uniform statistical reporting systems.

The night before last, Dr. Densen presented some of the statistical reporting systems that he has been developing during the past month. As I understand it, at the present time, the reports he has developed will be used as the unified reporting system for all 314-E funded Neighborhood Health Centers. The development of a unified statistical system, in my estimation, would be mandatory. For example, we receive funds from children and youth, maternity and infant care, etc., and have to submit Federal reports for each of the individual grants. This usually represents an entirely different input format for reported statistics for each different service area, and seems to be quite difficult to produce at the local level. We feel that if we could produce one set of statistical reports to meet all Federal requirements, this would enable us to spend more time at the local level in the areas of program development and evaluation.

Rather than outlining "needs for technical assistance" at the local level, I would like to think of an interchange of technical information, assistance, and communication. (Fig. 1)

Rather than talking about need at the local level for assistance from the Federal Government, I would like to think that we all have something to provide in the planning and operation of health services throughout the community.

First of all, I would like to talk about information and assistance that local agencies may provide. For example, local data analysis such as vital statistics, morbidity, and other utilization statistics by census tracts, neighborhood, or other geographical subdivisions within the local areas seems to be an important function that the local agencies may provide. For example, some of the State governments having the responsibilities for the entire State may not have the resources nor the inclination to provide area analysis for each of the local agencies within the State. We feel that local health departments seem to be closer to many of the problems associated with the delivery of health care, and further, might be able to provide a great deal of direction and planning in the development of evaluation techniques to the State, and for that matter, Federal agencies.

Secondly, local health departments can provide pragmatic research results as a point of departure for the Federal reporting requirements. For example, within the agency we are presently developing departmental reports for each of the service sections within the agency. Thus, within our diagnostic reports it is possible to analyze exactly what types of services are offered and provided to our patients. For instance, these reports will be used by each of the department heads in evaluating the mechanism for the delivery of health care services. They will enable us to correlate diagnosis with treatment in order to evaluate how effectively and efficiently we are providing health care services. As I have mentioned earlier, I feel that the Federal Government should be responsive to local health agencies in establishing Federal reporting requirements. The work developed by local agencies can be used as a point of departure, realizing that the general purpose statistics may not be used as the Federal level in their greatest detail. However, these programmatic statistics can provide a point of departure for further development of Federal reports.

Next, I'd like to talk a little bit about information and technical assistance at the schools of public health that the Federal Government and State governments should provide. I think that it's very important that we realize the need for the provision of new methods, applications, procedures, research evaluation, program planning, and development. For example, I feel that the Federal Government has done an excellent job in providing technical assistance via the Applied Statistics Training Institute. Many of my employees, including myself, have attended these courses and they have been most valuable in bridging this gap, again, not only in technical assistance, but also in communications from the Federal and local levels.

Secondly, there is need for a better understanding at the local level of the Federal organizational structure as related to statistical and research oriented systems. I feel that many people at the local level, in operational sections such as research, quite often aren't familiar with and don't realize what's going on at the national level in the development of particular health care delivery systems. I feel that if we were involved a little bit more and could rely on an interchange of information, this might help us in providing avenues to achieve our stated objective in the area of research.

In conclusion, I would like to see a system of this nature established so that we could, hopefully, in future years, depend upon an interchange of not only technical information, but also of communication.

Thank you.

MR. ISRAEL: Thank you, Gary. The next speaker is Fred King, Assistant Chief of the Section of Vital Statistics of the Minnesota State Department of Health.

Fred.

NEEDS FOR TECHNICAL ASSISTANCE BY: VITAL REGISTRATION OFFICES

Mr. Frederick L. King, *Assistant Chief, Section of Vital Statistics, Minnesota State Department of Health*

I would, first of all, like to thank the National Center for Health Statistics, particularly Dr. Lunde and his staff and Mr. Chancellor and his staff, for valuable technical assistance they have given me in my four and a half years in vital records management and I am here this morning to ask for more assistance.

We have spent a good part of the last four years studying the feasibility of microfilming our vital records. Unfortunately, we have come up with more questions than answers. Most microfilm product salesmen do not have an appreciation for the problems associated with filing birth and death certificates and they naturally lose objectivity when trying to sell you several thousand dollars worth of equipment.

We need a technical person knowledgeable in microfilm and registration. We need someone able to answer the following questions: What type of microfilm application for vital records is best—cartridge, film, roll, aperture card? Should a planetary or rotary camera be used? What type of reader/printer is most desirable? Is computer output to microfilm feasible?

I guess I'm asking for two things: a technical research person to assist in initiating a microfilm operation and a comprehensive ASTI course on microfilming and a course on microfilming vital records.

Additionally, many registration areas including mine will have a difficult time justifying the expenditure of thousands of dollars for microfilm equipment. The selling job would be made much easier if the microfilm system could be applied to other health department records. For example, our poison information center is an ideal place for application for microfilm. In conjunction with an ASTI course on microfilming I would like to see a course on the management of health department records in general, covering such topics as establishing records retention schedules, filing methods, and forms design.

In order to avoid duplication and promote efficiency there must be one person in the health department who can manage a vital statistics program and also make his kind of expertise available to aid others in effectively managing their records.

Thank you.

MR. ISRAEL: Thank you, Fred.

Now I'd like to open the discussion to any comments or reactions from either people here at the front or anyone in the audience. I would ask that if you would like to make a comment or ask a question please identify yourself so that we can get it into the notes.

Who would like to lead off? C.R., do you have any general comments about this whole area you'd like to make?

MR. COUNCIL: We have heard quite a bit in this Conference about the Federal-State-local Cooperative System. We have attempted to give some cross section of information to the attendees here as to what goes on at the three levels. I hope this will be mutually beneficial to the other two parties.

As you know, we have been limited in the amount of assistance we can render and we hope that in the future we will be able to expand this quite significantly. I do feel that lots of times one of the three hands of this partnership has not fully realized what's going on with the other two and if we can make a little more of this knowledge available and free we will have served a very useful purpose.

MR. ISRAEL: Dr. Lunde?

DR. LUNDE: I believe Mr. Woolsey's announcement the other night is relevant and I should like to repeat it for those of you who didn't hear.

For some time we have been handling the technical assistance requests from our office in North Carolina. With the development of the Federal-State-Local Cooperative Health Statistics System office under Dr. Robert H. Mugge, that office will in the future be handling all technical assistance requests. I know it is kind of kooky for people in the local and State health statistics offices to try to figure out what the Federal offices are and do, where they are located, where you should write, and all that sort of thing and we went through this about seven years ago when Dr. Sagen had the responsibility here and we took it with us down to North Carolina. Now we are asking you to change your address book again.

Well, that's how it is. Merton Saybolt called me from New Jersey last Thursday with a request we visit that State and I said we'll do it but I have an announcement, namely "You have been very patient and always bring us in on your requests and now I have to ask you to put it in a letter and give it to Dr. Mugge." He was very good about it; he laughed. In the future please send all your requests for technical assistance to Dr. Mugge, outside of the routine matters that Mr. Woolsey mentioned—for example, the use of the acquaintance you have with Mr. Israel in vital statistics. You should keep up that contact, of course, and contact with anybody else you are associated with in the Center, but when it comes to appraisal of a health statistics system, or something out of the ordinary, the person to write is Dr. Robert Mugge, and he will be with the Federal-State-Local Health Statistics Office. The Office is located in the National Center for Health Statistics, 5600 Fishers Lane, Rockville, Maryland, 20852.

I'd like to announce, too, as Mr. Woolsey indicated, Mr. Council and his staff will move into the ASTI program as of now. Mr. Council's job will be to keep in touch with the States and local offices, find out what their needs are and what they want presented by the ASTI program. Mr. Council and I will now make a greater effort to get out to your areas and talk to you about the educational program for the Center. Thank you.

MR. ISRAEL: Thank you. I, too, would like to make a few comments in this area. While all of us in the National Center for Health Statistics feel that it is sometimes confusing to people when these kinds of changes occur, we also feel it is absolutely essential that you have one name and one address and maybe one telephone number that you can hang your hat on. This is why, I'm sure, Dr. Lunde is making a special point of this.

We don't want our internal readjustments and organizational changes to be confusing to you. It's our hope, and I know we believe, that we will continue to either provide the same or better technical assistance to you in the future—hopefully better, but certainly no lessening of our effort—and, therefore, we hope you will bear with us as we adjust our arrangements for providing service to you.

Are there any questions or comments from some of you regarding technical assistance from the National Center for Health Statistics or some other aspect of technical assistance that your office provides to other parts of your agency or, as Gary described, a sort of an interrelationship between schools of public health, local health departments, other local agencies, State-Federal, and so on?

Surely there must be some comments.

MR. WILLIAMS: Yes. Jim Williams, Division of Comprehensive Health Planning, Community Health Service, HSMHA. Does this change in the base of technical assistance indicate a move by the National Center to draw all of its people and all of its elements more closely into providing technical assistance to the field than in regard to assistance that many of the planning agencies need?

MR. ISRAEL: I'll take a stab at it. I think that there has been in recent years certainly an attempt to draw more and more of the entire staff of the Center into the business of providing technical assistance when asked. The technical assistance program most likely began—I'm sure it really did begin—as an outgrowth of the old National Office of Vital Statistics consultation service. Therefore, it was and still is very heavily oriented to vital statistics and vital registration, but over the last few years under Dr. Lunde's guidance it has tried to get further into other aspects of the Center's program and Center's expertise. I think that the Federal-State-local cooperative health statistics concept is one of involving even more of the Center's activities and, therefore, I think it does reflect an additional attempt to expand the kinds of subject matter areas for which we would provide some type or assistance.

MR. ISRAEL: Mr. Brockert?

MR. BROCKERT: I have a couple of questions. I am John Brockert, Director, Bureau of Statistical Services, from Utah State Division of Health.

I would like to ask Mr. Knapp, if in the development of their programs, all their grantsmanship in Denver, if they had much contact and discussion with the State health department in the development of their programs. Then I'd like to go ahead and suggest that consultation be available on the development of grants and where there are monies available. I have the feeling that some agencies must get the inside track and know about monies that are becoming available before the rest of us, because some of us seem to find out about it just the day before the project has to be submitted. I'd like to see the Center have someone who is very knowledgeable about where monies are available. I know that a lot of it is not coming from the Center presently, but maybe in the future it will. But the Regional Medical Programs seem to be able to know when somebody is going to shake some money loose and they have always got their hand in the bucket and we'd sure like to get some of this money. If the Center could get some consultation in this area I think it would be very helpful to us.

MR. KNAPP: In answer to your first question, I'd like to say, unfortunately as the case may be, I'm not involved too extensively in grant applications. Our administrative staff seems to do an excellent job in obtaining information regarding grants, their availability, and how the agency goes about getting those grants. As I say, I am not an expert on entertaining grants but I do feel the agency does an excellent job in that particular area.

The answer to your second question is I think we do receive grants from the State government. Their grants are submitted to our agency via the State government for a number of reasons—coordination of efforts, communication of knowledge that a particular project is being carried out not only at the State level with State coordination but at a local level for program operation. I'm not too familiar with grantsmanship and how we do go about it, but I do know the agency has an excellent staff to handle these problems and obtain grants for programs we feel we need within the agency.

This helps us to provide a truly comprehensive health care program in the city and county of Denver.

MR. ISRAEL: Yes?

MR. MYERS: Bill Myers, Health Planner, Columbus Health Department, Columbus, Ohio. I have a question for Dr. Warthen concerning the State health statistics concept.

I know, at least in Ohio, some parts of Ohio, there has been a debate as to the question of for whom is the State center established. One school of thought is that the State center is established for the State and, therefore, the types of data that need to be collected can be rather broad and rather gross for Statewide planning. Another school of thought is that the State center ought to truly serve local needs and therefore, the data have to be desegregated and be very precise and relevant to local health department and local health needs.

I guess my question is to what extent has Maryland desegregated the data and what is the philosophy for your State center of statistics as to whom you serve?

DR. WARTHEN: I think there are a lot of different answers to that. From time to time, in a manner of speaking, our center just grew. I think in a way I favor this because, first of all, we had the opportunity to have a center within the State Department of Health and Mental Hygiene.

Prior to the time it was formally established there was really a lot of discussion, not just in the Department but with groups that crossed lines, as to where this center ought to be and I suppose every suggestion you can imagine has been made. One thought was that it should be an independent agency totally outside the State government. It should receive, in this case, some kind of funding or support—maybe partially grant support, but also direct funding from interested users. This is one approach that was taken. Another approach was that it might be within the State government but it might best be outside of a particular department. A third approach would have to do with where within a department of health, or department of health and mental hygiene, it should be located. All I am saying is there are pros and cons for all of these things.

My own personal opinion, in terms of what the situation was in Maryland at the time it began, is that we are probably very well placed. We were able to have a center and the Center is completely State funded. Of course one of the disabilities sometimes of being outside is perhaps over-reliance on grant funding.

I don't know if any of you have ever been involved in great tremendous grants. If you have and they ran out in five years, unless you were very, very fortunate most of you have had dire experiences of what happened thereafter. That is, you had a huge staff and suddenly the money was gone and that is it.

In Maryland, because of the particular way the Department developed, I believe that where we are is pretty good because the Department is pretty comprehensive. If I serve, as I am supposed to the needs, say, of State planning, health planning, comprehensive health planning, I automatically serve a lot of the needs for the local subdivisions, so all I can say is we do both.

As I think you might imagine, our principle city, of course, is Baltimore City and they do have their own Vital Statistics Department. We do not duplicate work that they do. Very often I am the recipient of census data of one kind or another from Baltimore City which we use with planning groups, in State planning, and so on. I'm not completely certain if this answers your questions except to say that we are involved in both kinds of things since one of the major intents in starting the Center was to cut duplication, if at all possible, and to coordinate.

At the present time we do it informally but want to do it formally. We try very hard to be a repository of information. If I'm aware that an organization has done a certain job of work, say in a small area, and if I'm fairly certain that the work was done well and the data are as valid as they can be, then I attempt to use this, to recommend this to someone.

Other times we have to move in and do it. Our Center has a great deal of psychiatric data and we do a great leal of small area analysis regarding psychiatry. We have reporting from every county in the State, public and private and so on, so I'm the chief source of small area analysis with respect to psychiatric facilities.

Does this answer what you are asking?

MR. MYERS: Yes.

MR. ISRAEL: Thank you. I think we are going to have to move on to the next part of our program now.

The existence of the standard certificates of birth, death, fetal death, marriage, and divorce is one of the most important aspects of the National Vital Statistics System as far as I am concerned, perhaps second only to the existence of the Model State Vital Statistics Act itself in the provision for sufficient uniformity and comparability in our many activities in the vital statistics area.

As most of you know, the standard certificates are revised periodically. They are revised through a cooperative effort between the Federal Government and many agencies and organizations and individuals. The primary input, of course, ourside of the Federal Government has come from the State registrars, the State public health and vital statisticians, but a great deal of advice and suggestion is solicited from as broad an area as is possible. Since this is an activity which undergoes a sort of cyclic approach we try to revise these documents once every 10 years.

It's very important that the organization of the revision is done in as efficient and proper manner as possible. It's a large task as many of you don't need to be told. For those of you who may be newcomers to the field or who are attending this meeting out of a general interest but have not had close relationships, I can assure you that the revision of these documents not only is important but is a very, very time-consuming process.

The fact that we have devoted a major part of our session to it at this time also gives you some idea of the importance that we attach to this function. We did hand out to you samples of the current standard certificates of birth, death, fetal death, marriage, and divorce. I don't think we included every version of the death certificate. The last standard certificate revision recommended two versions of the death certificate. One was a combined record for use by physicians and/or medical officers. The other option was two separate certificates—one for medical-legal certifications of death and the other for the rest of the deaths. I believe we included in the pack at this time only the combined form, not because we prefer it but because we frankly forgot to collate these things until this morning. Rather than have two extra documents to slip in the package I suggested that we only pass out one version of the death certificate. Those are for you to look at and refresh your memory in case you have some questions to ask us later on about content of the present version of the standard certificates.

What we intend to do for the rest of this morning is to have three presentations. Then we intend to have a little discussion of what you all feel should be important to us in this next revision activity. Before we get into the presentations, it might be well to indicate that we try to revise the documents on a 10-year cycle. The forms you have in your hands are the 1968 version. We are, in fact, attempting to come up with the 1978 version.

You might ask why we are doing it in 1972, and I'll tell you we are getting a late start. We are doing it in 1972, because it's going to take us every bit of that time. With all that as general background I am going to call on Dr. Lunde to give us a small talk about how we got to where we are.

REVISION OF STANDARD CERTIFICATES: HOW WE GOT TO WHERE WE ARE

Dr. Anders S. Lunde, *Director, Office of State Services, National Center for Health Statistics, Health Services and Mental Health Administration*

We are not, in the development of standards for vital statistics reporting, where Columbus was in 1492, when after three weeks at sea, if you remember, he didn't know where he was, he didn't know where he was going and he didn't know where he had been. We know where we have been and we know where we are. The challenge before us is where we are going from here. Since "the past is prologue," as it says outside the National Archives Building, we should remind ourselves of it before we venture into the unknown. I see the past in terms of three reminders.

The first is that behind us is a great tradition of evolutionary development in the search for knowledge about the human experience. Man's condition as related to his birth, marriage and divorce, and death have involved the fields of religion, philosophy, pure mathematics, and more recently a wide range of demographically focused scientific disciplines. This search does not go back only to 1880 or 1900 and our first version of the Standard Death Certificate. It antedates the record systems of 17th century Massachusetts and Sweden and Norway. It is part of the tradition which involves the very early use of religious registers and the earliest censuses known to man. There is now evidence that preliterate peoples kept records and counted births and deaths. Somewhere in man's consciousness there has always been an intuitive if not provable impression that vital events and their interpretation can shed light on his situation and help solve his problems.

So in this new start on the standard certificates we are embarked on another phase of that search directed toward adding to man's knowledge regarding health and well-being, the organization of society, and the growth of human populations.

A second reminder at this time is directed toward the modern scientific significance of vital events in their statistical comprehension. The impact of John Graunt's thinking, and he lived from 1620 to 1674, moved men's minds into entirely new means of measurement and interpretation of vital events. In *Natural and Political Observations Made Upon the Bills of Mortality*, he first combined mathematical analysis of population events and social interpretation using fairly crude figures of births and deaths in London from 1604 to 1661.

The value of the *Observations* was immediately recognized and encouraged the gathering and study of vital statistics throughout Europe, particularly in France and England.

It might be worthwhile to take a look at his *Foundations of Vital Statistics* in which Graunt points out that he has "reduced several great confused volumes (of data) into a few perspicuous tables, and abridged such observations as naturally flowed from them, into a few succinct paragraphs, without any long series of multiloquious deductions."

This is a report-writing guide for all time and for us today particularly, perhaps, for in our time we have a proliferation of data but few to understand their proper abbreviation and even fewer to analyze them and write up the findings in a "few succinct paragraphs."

I found some of the data items that John Graunt considered important and logically defended in his text. They were innovative then but are now familiar to us. Remember, the world was accepting these in some kind of form or other for the first time: live birth; sex differentials; marriage; abortion (there is one for you!); fetal death; infant death; place of occurrence—rural, urban; cause of death—medical certification and necessity; major causes; age at death; chronic disease—epidemics; seasonal variation; occupational mortality, among the socioeconomic factors.

We don't even have some of these things settled yet. He raised questions that concern us today and tried to answer them. He explained why for the future growth of England it was not necessary to establish polygamy. If you think that's kind of funny, this reminded me of Dr. Parke's report on the Population Commission. As you remember, the Commission has now agreed that zero population growth is not a bad thing and that the American public should be aware of this and be told that it's nothing to be scared of.

He also pointed out why London was growing faster than any other area and he stressed the importance and accuracy of reporting on vital events. He said that a clear knowledge of these vital events and their implications is necessary to good government. But so dangerous a knowledge is this that perhaps only the King and his chief ministers should know of it and act upon it. In these thoughts Graunt reflected his time but the point is that he had made some exciting discoveries which actually startled the world and laid the basis for the sciences of statistics and demography as we know them today.

We move in this tradition also as we consider the elements of a reporting system, the items to be recorded, and their use in analysis. As Dr. Robert D. Grove used to emphasize, it is important and necessary to be reminded that from the beginning standard certificates were not meant to be registration documents only, but in the tradition of Graunt, Shattuck, and others, to be medical and social documents for scientific research purposes.

The third reminder is that there exists in our own and immediate background a considerable wealth of experience related to the recording and analysis of vital data.

The early records of Virginia go back to 1632; vital records were established as legal documents in Massachusetts in 1639. By the end of the 18th century most cities and towns maintained records of some sort. Lemuel Shattuck in 1850 advocated a public health program based on complete registration and vital statistics. Four years earlier the American Medical Association pressed for State vital statistics laws. Beginning with its organization in 1872, the American Public Health Association advocated sanitary reform with a strong basis of vital statistics laws and regulations.

By the end of the century enough was known to move the Census Bureau to develop a standard reporting form for recording deaths. The first U.S. Standard Certificate of Death was established as of January 1, 1900. Twelve States adopted the form in full; six States and the District of Columbia adopted it in part; and 71 major cities in other States adopted it in one form or another. This was the beginning of the Death Registration Area completed in 1933.

The Birth Registration Area was formed of 10 States and the District of Columbia in 1915 and also was completed in 1933. The first Marriage Standard Certificate was introduced in 1956, and the Marriage Registration Area was established in 1957. The first Standard Divorce Certificate was issued in 1954, and the Divorce Registration Area was established in 1958. Both as yet do not cover the entire country.

Looking back, there have been nine editions of the Standard Certificates of Live Birth and Death, five editions of the Standard Certificates of Fetal Death (formerly Still-birth), and two editions of the Standard Certificates or Records of Marriage and Divorce or Annulment.

The fact that 33 of the items on the last edition (1968) of the Death Certificate were on the first edition of 1900 indicates a continuum of basic and required information. On the other hand, there are 30 items on the last edition not present in the first; this indicates changing requirements and interpretation over time.

Some of the underlying questions the modifiers of the next certificates will face are: Of all the items, which are absolutely essential for our purposes and the need-to-know of society? Which items can be dropped? What, for the good of society, should be added? For the answers to these questions the revisionists will have to look beyond themselves, their immediate requirements, their own, perhaps hasty judgements, to the interests of their country as a whole and to the needs of society for more knowledge about its social and economic behavior.

There are, of course, immediate and technical problems to be faced and these should not be downgraded. After the last revision had been settled, in 1967, I reported as follows:

> "The next revision of the U.S. standard certificates will probably be underway between 1970 and 1975. More changes in form than in content may then be required because of the limited space for the various items on the present certificate forms used by most States. If additional health data are required, the birth and fetal death certificates may become two-part documents, one part providing the 'legal' information (that is, information usually used by the State to identify the person), and the other, the statistical information (that is, data for indepth analysis of health and demography). Some States already use such forms. Also, technological developments during the next decade may require changes both in the manner of collecting and of processing vital statistics information."

However, in the end, decisions especially on content of the certificates must be made not in terms of an immediate need, perhaps exaggerated for the moment, or in terms of over-elimination of nuisance—but possibly essential—items, but in terms of the great ideas of the past and the need for items of measurement to determine the health of the people and the growth of society.

How did we get to where we are? We stand, as has been said, on the shoulders of giants and we follow great traditions. Let us hope that statisticians and demographers and health planners of the future will look back on our present work and say, "There were giants in those days, too."

MR. ISRAEL: Thank you very much, Dr. Lunde.

Now we'd like to call on a person who I feel we are most fortunate in having working with us. This is someone, again, whom many of you already know and perhaps he needs no introduction—someone who has had a foundation and background in vital statistics and has made a mark and left his influence certainly in many matters other than vital statistics in the administration of the California Department of Health. Now retired, Bob Webster, who is the Chairman of the Technical Consultant Panel on Content and Format Revision of Standard Certificates and a person who we hope will be steering us and helping us to pick our way through the next several years. Bob.

REVISIONS OF STANDARD CERTIFICATES: DESCRIPTION OF WORK PROGRAM

Mr. Robert G. Webster, *Chairman, Technical Consultant Panel on Content and Format Revision of Standard Certificates*

Robert, your introduction is very generous. We are also appreciative of Dr. Lunde's tracing of the tradition and history of the task to which we are applying ourselves. Also, I recognize as others have done; the presence in the room of Bob Grove who gave leadership to this same task roughly 10 years ago when it was carried on so competently.

I want to take just a moment to trace some of the mechanics that we plan as the Technical Consultant Panel gets underway in its work. Standard certificates, of course, are the most important documents in the collection of nationally comparable vital statistics. With 56 different registration areas now the data would be impossible to compare without them, and comparable vital statistics obviously are absolutely necessary since they are used for so many public purposes, as others have said.

While the job of revising these certificates appears to be relatively simple, actually it's a very difficult project. We must deal with a variety of medical, demographic, and public health interests. The users of the data cover a wide span of businesses and professions. The registrars must deal with literally thousands of interested agencies and persons and government officials and our major task is to make certain that all the interests are represented and have an opportunity to be heard.

Final responsibility for the new standard certificates rests with the National Center. A Technical Consultant Panel has been appointed to advise and assist the Center in this most important task. Ten individuals, most of whom are in the room at the moment, who are representative of the various aspects of registration make up this panel and they have already begun their work.

As Dr. Lunde pointed out, the first standard certificates were issued in the year 1900 and during this past 70 years there have been nine different revisions of the birth and death certificates. He also told you that many of the items appearing on the 1900 standard certificate still appear upon the standard certificate which you have before you but with many changes in the details of nomenclature.

Also there are about an equal number of new items which have been added. During the 1960's, when the last revision was made, which was given leadership by Bob Grove, there were three study groups or committees participating in the study. There was a study group on the content of the documents, another on the format of the documents, and a third on the medical-legal significance of death registration. This time it's planned that there be one technical consultant panel which will coordinate and give leadership to the entire project through four subcommittees.

The four subcommittees will have these assignments: first committee, births and fetal death certificates; second, the death certificate; third, marriage and divorce certificates; and the fourth committee, the important function of the format of the documents. These subcommittees will be made up of not only members of the panel but also others who have an interest in the individual documents. Some of these individuals will represent interested organizations or agencies.

The personnel, the make-up of these subcommittees, will be announced soon. One of the very important elements in this project is a wide and free communication of points of view. Mr. Israel has already sent to many of you a request for comments and your evaluation of items that appear on the present certificates. You will assist us immeasurably if you reply to him promptly along the lines of his request, in some detail, as this is the first of what will probably be a series of questionnaires whereby we can secure opinions from knowledgeable people concerning the certificates.

We shall indeed contact a wide cross-section of interested individuals and organizations. Another important element in the revision procedure is timing, as Mr. Israel mentioned in his introduction. The new standard certificates must be available for use, fully tested, by January 1st, 1979, the beginning of the three year decennial census period. To meet this deadline we need to have the new certificates in use in many States a year earlier, on the first of January, 1978, so that we have a year of experience with them.

We hope that the new certificates in semi-final form can be available and be a major topic of discussion at this National Conference four years from now and we hope to have draft certificates ready for discussion at the next Conference meeting which will be held two years from approximately this time in 1974. Thus the need for early action and study is obvious and we are not ahead of our schedule by any means.

A third important element in this study involves the adaptation of the form of the certificates to modern computer processing or electronic methods. The use of computers in so many aspects of life requires they be used in the processing of vital statistics in appropriate procedures. Gary earlier, in his address, mentioned the experimentation being done in Denver in the use of computers with hospital and patient records. All around us, of course, are applications of computers through the use of modern electronic methods which will make vital statistics much more useful in ways which have been impossible previously.

Certainly this will be a matter of major concern to the format subcommittee. The panel was pleased to review, at a recent meeting, the work of Glenn Fox of Georgia in this connection and he has made commendable progress. The panel and subcommittees are aware of the need to eliminate duplication where it exists and will have this need in mind as it may relate to the certificates. The panel is also in close touch with and has had a joint discussion with The Technical Consultant Panel on New Techniques for Vital Statistics Registration and Data Collection chaired by Dr. Carl L. Erhardt. You have been given a number of Working Papers (PHCRS-Doc. No. 624.10) of this group to which your attention is invited.

Another publication of the Center, dated June 1968, reviews rather completely the 1968 procedures for the revision of the certificates and this valuable background to our present task. Even during the past few days the Senate Finance Committee has approved and sent to the floor of the Senate a revision of the Social Security law. One of the provisions of this Bill, if enacted, requires that all children be assigned Social Security numbers when they enter the first grade of school.

The relationship of this requirement, if enacted, to the registration of births must be considered. So we solicit your cooperation in this most important project as to you as persons who possess the greatest interest and the greatest expertise in this area.

MR. ISRAEL: Thank you, Bob, for bringing us up-to-date on the work program on revision of standard certificates.

REVISION OF STANDARD CERTIFICATES: OBSERVATIONS FROM PAST EXPERIENCE

Mr. Robert A. Israel, *Director, Division of Vital Statistics, National Center for Health Statistics, Health Services and Mental Health Administration*

I have been asked to give the third presentation entitled, "Observations from Past Experience." I think it's obvious to most of you that my past experience is somewhat limited and there are many of you in the room who have considerably more past experience in this business than I do. I am going to have to confine my remarks to past experience relating to the 1968 revision because that's the one I had some experience with. My comments are personal views, but they reflect both State and Federal concerns because I was fortunate or unfortunate, as the case may be, to be working at the State level during the development of the current standard certificates and to be at the Federal Government level during the implementation of them so I saw some of the problems from both sides of the fence.

I'd like to point out very briefly some of the things that I think we learned during the last revision process. First was to start early, and we are trying to start early. We are trying, as Bob Webster indicated, to set out a timetable for ourselves, one which is not going to be easy to keep but one which we do think is realistic. If we keep moving right along we'll complete each of the major steps more or less on time and thus not have compressed into the last year, or year and a half, the very frantic activity of trying to get things all sorted out.

One of the things that we observed in the last revision process was that there was not sufficient time for many of the States to get either needed legislation or a change in rules and regulations or to go through the necessary budget process or perhaps just to get new forms printed in the amount of time between the target implementation date and the date when the documents were ready so a number of States had some difficulties in trying to implement on January 1, 1968, which was the target. We are trying to avoid as much of that as possible. It wasn't that we were unaware of those problems with the previous revision but certainly the job took us longer than we had anticipated.

The next point that we need to look back on in our 1968 revision experience and keep well in mind is that we need to throw out as wide a net for suggestions as we possibly can but we must not be swayed by local minority opinions. There is always, I think, in an exercise of this sort a lot of strong feeling. We do need to remember that standard certificates are nothing more than and no better than compromise documents. A compromise document to my way of thinking makes nobody perfectly happy but we do think that it's something that we all should try to live with. We will have to resist, and resist very strongly, what I expect to be a strong push by small groups of people for their own particular interests which may not be sufficiently general for us to incorporate them in the next revision.

A major observation from the last revision was that we need to build into our timetable enough time to do some field testing. That is to say, if we come up with new items which are sufficiently different from our experience in the past then we must field test. I'm not talking about minor rewordings of the way we ask the questions, but if we arrive at some new topic or some new general area we want to deal with, a format question or maybe a routing question as to how the certificate should flow from the maker of the record through the registrar to the custodian and eventually to the National Center for Health Statistics—these kinds of things we have got to field test.

We had some limited testing of items with the last revision, most notably by our colleague, Bob Hiller, (Chief, Section of Vital Statistics, Minnesota State Department of Health) who is not able to be here today. Bob Hiller in Minnesota did take some new items before they were finally adopted and tried them on the Minnesota birth certificate. His experience was most helpful to us, but we have got to do more and better in that general area.

We have to establish better communications. This is always the problem in almost any endeavor but I am thinking particularly of communications with various national groups and with various State and local groups. We did have communication breakdowns with the current revisions as they stand in that there were many instances where, for example, the State medical association was not given an opportunity to provide what it thought was enough input into the process. It's not sufficient for the National Center for Health Statistics to clear with, let us say, the American Medical Association, because we can get all the clearances you can think of and there still may be unhappy people at the level where these records have to be used or they have to be implemented. We have to look very carefully and very hard at these kinds of relationships and these kinds of inter-communications and we will be, I'm sure, making recommendations to the States as an outgrowth of the Technical Consultant Panel activities on how to go about this sort of thing.

I can't help but recall, however, that we had an excellent presentation in the mid-60's from Irvin Franzen (Director, Registration and Health Statistics) on the sorts of things that are necessary at the State and local level to get these kinds of clearances and I think if we do nothing more than dust off Irv's presentation and take a look at it we will benefit.

These are the kinds of things that I got out of my experience in dealing with the revision that we are working with now. It seems to me that there is one other thing that I should say, based on this so-called past experience, and that is the final thing that we should be doing is we ought to be praying.

Thank you.

What we want you to do now is gather into groups. What we want you to do immediately is appoint a note-taker. The person will have a very easy job because we are not asking for a whole lot. We would like each of the groups, of approximately 10 persons each, to write down a single or small number of questions or problems or suggestions that the group has for this forthcoming revision.

We are not asking you to get into a hassle as to whether or not level of education should be asked or not asked, or whether we should ask for age and/or date of birth, unless you think these are particularly burning policy issues. We really are looking more for the kinds of suggestions that you want to feed to us, to the Technical Consultant Panel, in a sort of a general way but I don't mean to exclude the more specific items. I just don't want you to think we expect you to do the work of the technical consultant panels. I am going to give you about seven minutes or so to form up in these groups, get somebody to jot down your burning issue or one or two or three comments that you may have, and then we'll collect them and we will take a moment or two to digest what you have given us. Then perhaps Dr. Lunde, Mr. Webster, myself, and maybe Bob Grove will comment on a few of these points. We'll let you know what the concensus was on burning issues.

Let's take seven minutes or so now to break and convene into groups.

RESPONSE TO QUESTIONS AND COMMENTS

Chairman and Speakers

MR. ISRAEL: If I may, I'd like to review with you now the results of the issues that you have presented to us. Before I do, for those of you who don't know who is sitting on my left, I'm very, very pleased to have sitting up here with us Bob Grove. I don't know whether we are going to attempt to answer any of your questions or not but at any rate we will ask Bob to say a few words in a few minutes.

Obviously I haven't had a chance to read through all of the material you presented us. I'll try and give you the flavor of it, though, as I look at it with you.

One question that was raised is "whose responsibility is it to clear with the State medical society? Clearly the responsibility belongs to the State. However, if the State fails then the National Center should take the responsibility. Therefore, there should be a structured format to inform the National Center just what the State is doing or has done."

That was one point. I might make a side comment on this which is that the State medical societies are going to be working a lot closer through this revision with their national society as a result of efforts that we are making at the national level. I can assure most of you that if you don't clear with your State association, your State association is going to be camped on your doorstep because of pressures from the national organization. That may eliminate some of this kind of a problem.

One suggestion that was submitted is that evaluation of the new items for 1968 should be made to determine the value of those new items. Agreed.

A specific suggestion is that signature of the informant, parents preferred, should be on the birth certificate.

Another group indicates that justification should be made for each item introduced. The uses to be made of this new item should be explained in writing and the item tested. Then they ask a question, "What evaluation has been made at the national level of the new items that were added in 1968?" The State and local people have to defend these items and they certainly will have a difficult time doing that if they don't understand or support the philosophy underlying the new items. There is a question regarding the degree of completion or non-completion of items and a question about why the check-box was discontinued.

There is a suggestion on assigning a Social Security number at time of birth. I could comment briefly on one or two of these items. You all are well aware—and if you weren't before you came to the meeting I'm sure, since you have been here, you have heard comments—of the dire straits that the National Center for Health Statistics has been in and still is, as a matter of fact, in terms of timeliness of the production of vital and health statistics data. You may or may not have heard me comment the other afternoon that for the first time over a long period I can see some point in time where we are going to be back on top of things, at least, in the vital statistics area. I have gone on record as saying by this time next year we will be as up-to-date as we ever have been or even more up-to-date than we probably ever have been. That's sticking my neck out, but it looks like it's possible at any rate.

All of that is preamble to the fact that we have hardly seen, at the national level, the data that are coming from these new items because of our terrible tardiness in being able to code and tabulate. We have every intention of having evaluations made. The data are just now really becoming available in sufficient quantity for us to make some observations about what we got, based on these new items. I'm thinking particularly about the birth certificate. The Technical Consultant Panel will be given as much information as we have and we will be having more and more of it over the next several months.

Here are comments from another group, regarding the gestational age of the newborn on birth certificates. Ask for the number of months of gestation rather than asking for the date of last menses. That's a yo-yo item. That has gone back and forth. Possibly drop this matter altogether is another approach. How is gestational age used in vital statistics? Also, as to the hour of birth, is it standard time, mountain time, et cetera? Somebody's draft eligibility in terms of this hour of birth might make a crucial item. On this latter point I think I might—maybe Chancellor will shake his head now and tell me I'm making a mistake—but I could refer you to handbooks that the National Center for Health Statistics did prepare in support of the standard certificates of 1968. These handbooks were intended to be guidelines for you. You could either use them as they were or modify them or adapt them to your own particular need, but I think that point is covered. Am I right. Chanc?

MR. CHANCELLOR: That's right.

MR. ISRAEL: We did try and give some guidance for that. The question of gestational age, whether it's calculated from the last normal menstrual period of the mother, if the information is available, or asked as a direct question as to a number of weeks, is a long involved question. I'm sure that the Technical Consultant Panel will be looking at it again, but in spite of the drawbacks that there are in asking for last normal menstrual period my tendency at the moment is to think that we do get better data—when we get information—than by the old method. But it's a wide open issue and I'm glad someone has raised it.

Another group has asked for what I imagine is an item for the divorce record, "Who got the custody of the children in a divorce action?" They ask for a definition of race. They suggest the possibility of including veteran status on the death certificate. They ask for more emphasis to be placed on the medical examiner's certificate.

Another group has asked for consideration for leaving space on the birth record for a Social Security number. We had that suggestion already. Also, how to handle a "no-fault" marriage dissolution and I believe this is an emerging problem that really didn't exist quite so much in the old days, did it, bob? Dr. Grove?

DR. GROVE: You are talking about the divorce record? I guess that probably derives from the California law where they have recognized that there can be a divorce without any one person necessarily being at fault.

MR. ISRAEL: Another general problem that while miniscule in size is annoying at least, perhaps because we don't have good guidelines, is the question of marriage between two consenting adults of the same sex. This question has been raised a few times at any rate.

Quickly, now, we have a couple more. On the death certificate, one group is suggesting consideration of eliminating the approximate interval between onset and death. I guess we would have to consider how often that information is useful and used in assigning the underlying cause of death or whether it has other legal implications as well. There is a question as to the value of the education item on all the certificates and why it hasn't been used. It doesn't appear on the death certificate. It appears on the birth and fetal death certificates. It is on the divorce certificate. The main reason you haven't seen a lot of data on it is the timeliness problem, as I said. I think we are about ready to get the data but up to now it has been impossible really to produce very much in the way of analysis. This group also questions the quality of data being collected in items 18, 19a and 19b, and items 22 thru 25. We hope to be doing some surveys to test the quality of some of these items and we'll be making that data available to the people who are looking for this sort of revision.

For marriage and divorce certificates this group is questioning the inclusion of the items on "inside city limits" and inclusion of the father's name, mother's name, and State of birth or marriage. For the death certificate it is suggested there is need to consider an additional item on prior residence in case of institutionalized deaths, persons who die in long-term institutions.

The last set of recommendations suggests for each item it should be demonstrated that the information has to be collected universally and continuously for a full ten year period. That's a point that has come up before and will need to be considered. Could the information be obtained in a different way, such as by way of follow-back studies for a short period of time and/or in a more limited geographic area? Good question. Should fetal deaths continue to be registered as legal events or should they be converted to a statistical reporting system? By whom and how is it decided which items belong in the confidential section, for example, the cause of death? Should it be in a confidential section?

That gives you an idea of the questions that you as a group raised. There are very few answers at the moment. There will be answers to many if not all of them in a few years from now. They may be the right answers and they may be the wrong answers but answer them one way or another I think we will. Would you agree, Bob Webster?

MR. WEBSTER: I think it's necessary, yes.

MR. ISRAEL: At this time, since we dragged Bob Grove up here, I'm going to ask him to comment generally on the revision of the certificates and to say anything that he would like.

DR. GROVE: Thank you, Bob. I listened to the statements of Bob Israel, Bob Webster and Andy Lunde and I think that taken together they provide you with a complete and excellent basis for starting on this very difficult and lengthy process of revising the standard certificates. I'd like to say, in addition, that Dr. Lunde's presentation was a superb history and description of the development of vital records and vital statistics. I can assure you, if you heard that, you can consider yourselves fortunate that the original plans for the speakers for this meeting were amended in at least that respect. I could not have matched Andy's performance that we heard this morning.

So far as the certificate revision itself is concerned, of the viewpoints that already have been mentioned I would like to affirm one, that communication with the significant groups at the local, State, and national levels is absolutely essential. I'm sure that you will be able to improve on what we did in that respect earlier although we made a tremendous effort.

We sent out literally hundreds of inquiries and several hundred questionnaires to various groups but there were some gaps, particularly at the level of State organizations. There was, probably some failure of communication between our office and the State offices. In some of those cases particular State medical societies may not have been contacted as clearly and as early as they should have been. This is very important because, as Dr. Lunde indicated, there are so many interests involved in these certificates, both from a legal-use standpoint and from the viewpoint of statistical and scientific purposes, and their success and their implementation depend upon the cooperation of so many different groups—physicians and, so on. It's absolutely essential to have their participation and understanding.

It doesn't mean, though—I would like to emphasize and I think maybe Bob Israel alluded to this—it doesn't mean that you have to get the agreement of every group with every item on the certificate. This is impossible in the first place and it should not be considered a goal. This leads to the further suggestion that one of the elements that's needed, in addition to flexibility, patience, and dedication to the job, is just straight courage. In some cases it is necessary to stand up and give a forthright reply when someone writes to you, or perhaps writes to his legislator or Congressman which happens sometimes, and asks—demands, perhaps—that something be done that wasn't done or something be undone that he doesn't think should have been done. If you think that you are right and your procedure was thorough, then my experience is that it's best to stand firm. You know, as a general once said, "Fight it out on that line if it takes all summer."

I don't really think, Bob, I have any more to say. Thank you very much. I have enjoyed seeing all of you.

MR. ISRAEL: The hour of noon has arrived with its usual superb timing. Bob talked right to the hour of adjournment so, unless there is a very important question or announcement that anyone wishes to make, I thank you all very much for your interest and your suggestions. These will be transmitted to the Technical Consultant Panel and the appropriate subcommittee for consideration.

Also, as was mentioned a little earlier by Bob Webster, I personally have written to many of you asking that you do this sort of thing more or less at your leisure back in your office, but not too leisurely, please. Let me know what you like and what you don't like, and if you think that there is something on the standard certificates that should be defended, let me know you like it. We'll put all that together and we'll give all of it to the Technical Consultant Panel and buy them a big bottle of aspirin.

Thank you very much.

Whereupon the session was adjourned at approximately 12:00 noon.

APPENDIX I

RECENT DEVELOPMENTS IN THE RANDOMIZED RESPONSE MODEL FOR HUMAN SURVEYS

Ralph E. Folsom, Bernard G. Greenberg,
Daniel G. Horvitz, James R. Abernathy[1]

Introduction

Randomized response is a relatively new statistical technique of great potential in surveys involving human populations. Many of these types of surveys are often plagued with either refusal to respond or reporting of untruthful answers owing to the sensitivity of certain questions as perceived by the respondent. The randomized response technique was designed to encourage cooperation and truthful replies to questions involving socially or legally deviant behavior or items of a personal and confidential nature.

The technique was first developed in 1965 by Warner[2] and there have been numerous modifications and improvements since that time. The purpose of this paper is to review briefly the major developments in the randomized response procedure from its inception, and to report in some detail on a most recent improvement that should make the technique even more widely acceptable to both respondents and survey designers.

Historical Review

In his early paper on randomized response, Warner considered the case where a proportion π of the population (Group A) possessed some sensitive characteristic while the remainder of the population did not possess this characteristic. The objective was to estimate π without bias and its variance. With the aid of a randomizing device, the respondent was invited to select one of the following statements *by chance,*

> I am a member of Group A (with a probability of P)
> I am not a member of Group A (with a probability of $1 - P$),

and to answer "Yes" or "No" to whichever one of the two statements had been selected by the randomizing device. Only the respondent was supposed to know to which one of the two statements his reply was addressed because the interviewer attempted to be at a distance from the respondent during the statement selection procedure so as not to know which statement had been selected.

The rationale underlying the randomized response procedure is to enable the respondent to answer a sensitive question without revealing his personal situation. Potential stigma and embarrassment on the part of the respondent are thereby removed because no one can interpret with certainty the meaning of the reply. There is no longer a need to refuse to respond or give false information. If the respondent is convinced that the procedure will not identify with a high likelihood the group to which he belongs, i.e., Group A or Group $\bar{A}$, it is presumed that cooperation and validity of response will be improved.

Warner showed that the maximum likelihood estimate of π is unbiased if persons are persuaded by the technique to tell the truth.

Abul-Ela *et al.*[3] extended Warner's method from a dichotomous model to the trichotomous case designed to estimate the proportions of three related, mutually exclusive groups, one or two of which possessed a sensitive characteristic. In order to develop theory for the multichotomous situation, the model was further extended to estimate any j proportions ($j \geqslant 2$) when all the j group characteristics are mutually exclusive, with a minimum of one and a maximum of $j - 1$ of them sensitive. Choosing a new, non-overlapping sample with a different value of P for each additional parameter to be estimated was advanced as the solution to this problem.

As indicated above, the Warner technique involved the use of two questions (or statements) both of which were related to the sensitive characteristic A. Following a suggestion by Simmons, Abul-Ela[4] in his doctoral dissertation investigated and described a variation of the Warner procedure known as the alternate or unrelated question model. This model was predicated on the assumption that confidence in the anonymity of the technique would be increased if one of the two questions referred to a nonsensitive, innocuous attribute Y rather than both questions referring to the sensitive attribute A. Two such questions might be

> Did you have an induced abortion during the past year? (A)
> Were you born in the month of April? (Y)

If π_Y, the population proportion with the nonsensitive attribute Y, is known in advance, only one sample is required to estimate π_A, the population proportion with the sensitive attribute. If π_Y is not known beforehand, two independent, non-overlapping samples are necessary to estimate π_A and its variance. In the latter case, the probability of an affirmative response from sample i may be written

$$\lambda_i = P_i\pi_A + (1 - P_i)\pi_Y \quad (i = 1, 2),$$

and where the values of λ_1 and λ_2 are estimated by the proportion of "Yes" responses recorded in Sample 1 and Sample 2, respectively. Assuming simple random sampling with replacement, the λ_i's are binomial proportions and the corresponding estimate of π_A is

$$(\hat{\pi}_A)_U = \{\hat{\lambda}_1(1 - P_2) - \hat{\lambda}_2(1 - P_1)\}/P_1 - P_2. \quad (1)$$

This value is the minimum variance, unbiased estimate with variance

$$\operatorname{Var}(\hat{\pi}_A)_U = \frac{1}{(P_1 - P_2)^2} \cdot \left\{ \frac{\lambda_1(1 - \lambda_1)(1 - P_2)^2}{n_1} + \frac{\lambda_2(1 - \lambda_2)(1 - P_1)^2}{n_2} \right\}. \quad (2)$$

This development is shown in Greenberg *et al.*[5] where the theoretical framework of the unrelated question model is studied with respect to estimation of the sensitive attribute, variance of the estimates, effect of untruthful reporting, selection of the unrelated characteristic, and other design properties. In addition, a method of incorporating the alternate question into the randomization device such that its value is known in advance was described. Several of these modifications were included in the North Carolina Abortion Survey described by Abernathy *et al.*[6] and Greenberg *et al.*[7] Horvitz *et al.*[8] discussed the unrelated question model and presented results form two field studies.

In a very recent paper, Dowling and Shachtman[9] confirmed that the alternate question randomized response estimator of π_A had less variance than that of Warner's procedure, for all π_A and π_Y, provided that P (or the max. (P_1, P_2) in the two-sample situation) is greater than approximately one-third.

Moors[10] also confirmed the work of Greenberg *et al.*[5] by showing that the two sample unrelated question randomized response procedure is an improvement over the Warner procedure. In addition, Moors calculated how much the variance of the estimate π_A can be reduced if the second sample is used entirely to estimate the population proportion, π_Y, with the nonsensitive attribute. The variance of Moors' optimized estimator has the form

$$\{(1 - P_1)\sqrt{\pi_Y(1 - \pi_Y)} + \sqrt{\lambda_1(1 - \lambda_1)}\}^2/NP_1^2 \quad (3)$$

where N, the combined sample size, is $n_1 + n_2$.

Warner[11] introduced a general linear randomized response model with estimates and variances obtained through analogy with familiar linear regression procedures. All existing randomized response procedures are shown to be special cases of this more general model.

In 1971, Greenberg *et al*[12] introduced the randomized response technique into the area of *quantitative* response whereby the questions are designed to elicit responses in quantitative terms rather than "Yes" or "No" as in the original Warner model. The overall distribution of responses, comprised of numerical answers to both questions, must be analyzed in order to provide estimates of the population mean and standard deviation of both the sensitive and nonsensitive distributions.

As a partial summary of the above developments, it may be stated that in any survey where a sensitive question is to be answered dichotomously, it is always preferable to select a neutral, unrelated or alternate question whose frequency in the sampled population is known beforehand. If this is not possible, consideration should be given to the procedure whereby the frequency of the nonsensitive attribute is determined through the structure of the randomizing device itself, e.g., as was done in Reference 7. Both of these procedures require only a single sample.

When neither of these techniques is feasible, then the current best procedure is to reduce the variance of the estimate of the population proportion with the sensitive attribute, π_A, by using the second sample solely for estimating the population proportion with the nonsensitive attribute, π_Y. We have been motivated in this paper to develop a new randomized response design which uses the second sample more efficiently. The idea is to ask a second unrelated question (Y_2) directly in the first sample. In addition to their direct responses to question Y_1, members of the second sample respond to a randomizing device containing questions A and Y_2. The new model is detailed in the next section.

Proposed Model

The purpose of the present paper is to evaluate another model to improve efficiency when two samples are required because π_Y is not known beforehand.* This method consists of using *two* nonsensitive alternate questions, Y_1 and Y_2, in conjunction with the sensitive question, A. The design can be described diagramatically, as shown in Figure 1.

Technique used with respondents	Sample 1	Sample 2
Randomizing device	Question A Question Y_1	Question A Question Y_2
Direct question	Question Y_2	Question Y_1

Figure 1. Diagram showing use of one sensitive question (A) and two nonsensitive questions (Y_1, Y_2) in each of the two samples

It will be observed that the respondents in both samples answer a direct question on a nonsensitive topic and also one of two questions selected by the randomizing device. The latter question may be either sensitive or nonsensitive depending upon the outcome of the randomizing process.

In both samples the sensitive question A is selected with probability P. Let λ_i^r denote the probability of a "Yes" response to the question selected by the randomizing device in sample i, and λ_i^d the probability of a "Yes" response to the *direct* question in sample i. Further, let λ_i^{rd} be the probability of a "Yes" response to *both* questions in sample i. These probabilities may be written

$$\begin{aligned} \text{Sample 1:}\quad \lambda_1^r &= P\pi_A + (1-P)\pi_{Y_1} \\ \lambda_1^d &= \pi_{Y_2} \\ \lambda_1^{rd} &= P\pi_{AY_2} + (1-P)\pi_{Y_1Y_2} \qquad (4) \end{aligned}$$

$$\begin{aligned} \text{Sample 2:}\quad \lambda_2^r &= P\pi_A + (1-P)\pi_{Y_2} \\ \lambda_2^d &= \pi_{Y_1} \\ \lambda_2^{rd} &= P\pi_{AY_1} + (1-P)\pi_{Y_1Y_2} \qquad (5) \end{aligned}$$

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*This suggestion was made to the second author by Professor Donald Campbell of Northwestern Univeristy.

where

π_A = the proportion of the population with the sensitive attribute A.

π_{Y_i} = the proportion of the population with the nonsensitive attribute, Y_i $(i = 1,2)$

π_{AY_i} = the proportion of the population with *both* the sensitive attribute A and the nonsensitive attribute, Y_i $(i = 1,2)$

$\pi_{Y_1Y_2}$ = the proportion of the population with *both* nonsensitive attributes, Y_1 and Y_2.

Two unbiased estimates of π_A can be obtained from the observed frequencies of "Yes" responses in the two samples, namely

$$\hat{\pi}_A(1) = [\hat{\lambda}_1^r - (1-P)\hat{\lambda}_2^d]/P \qquad (6)$$

$$\hat{\pi}_A(2) = [\hat{\lambda}_2^r - (1-P)\hat{\lambda}_1^d]/P \qquad (7)$$

If $\hat{\pi}_A(1)$ and $\hat{\pi}_A(2)$ are statistically independent estimates of π_A, then the optimum estimator would be a weighted average of the two estimators, that is,

$$(\hat{\pi}_A)^*_{U2} = \{w_1\hat{\pi}_A(1) + w_2\hat{\pi}_A(2)\}/w_1 + w_2 \qquad (8)$$

with w_i inversely proportional to the variance of $\hat{\pi}_A(i)$. A similar approach is to calculate

$$(\hat{\pi}_A)_{U2} = w\hat{\pi}_A(1) + (1-w)\hat{\pi}_A(2) \qquad (9)$$

and to choose w optimally in some fashion. Since $\hat{\pi}_A(1)$ and $\hat{\pi}_A(2)$ are not independent, we solve for the value of w which will minimize the variance of $(\pi_A)_{U2}$, given n_1 and n_2, the sizes of the two samples. Let

$$\textstyle\sum_1^2 = \operatorname{var}\{\hat{\pi}_A(1)\} = (1/P^2)\{\lambda_1^r(1-\lambda_1^r)/n_1 + (1-P)^2\pi_{Y_1}(1-\pi_{Y_1})/n_2\} \qquad (10)$$

$$\textstyle\sum_2^2 = \operatorname{var}\{\hat{\pi}_A(2)\} = (1/P^2)\{\lambda_2^r(1-\lambda_2^r)/n_2 + (1-P)^2\pi_{Y_2}(1-\pi_{Y_2})/n_1\} \qquad (11)$$

$$\textstyle\sum_{12} = \operatorname{cov}\{\hat{\pi}_A(1);\hat{\pi}_A(2)\} = \frac{-(1-P)}{P^2}\{(\lambda_1^{rd} - \lambda_1^r\pi_{Y_2})/n_1 + (\lambda_2^{rd} - \lambda_2^r\pi_{Y_1})/n_2\}. \qquad (12)$$

Then

$$w_{\text{opt.}} = \left(\textstyle\sum_2^2 - \sum_{12}\right)\Big/\left(\sum_1^2 + \sum_2^2 - 2\sum_{12}\right) \qquad (13)$$

The minimum variance, for given n_1 and n_2, is, therefore

$$\text{Min.}\operatorname{var}(\hat{\pi}_A)_{U2} = \frac{\left(\sum_1^2\sum_2^2 - \sum_{12}^2\right)}{\left(\sum_1^2 + \sum_2^2 - 2\sum_{12}\right)}. \qquad (14)$$

If the sampling is simple random with replacement so that the λ's are multinomial proportions, then the estimator $(\hat{\pi}_A)_{U2}$ produced by substituting sample estimates for the Σ's in (13) will be Neyman's minimum-modified chi-square (MMCS) estimator[13] and will belong to the class of Best Asymptotically Normal (BAN) estimators. A consistent estimate for the variance of $(\hat{\pi}_A)_{U2}$ is

$$\operatorname{var}(\hat{\pi}_A)_{U2} = \left(\hat{\textstyle\sum}_1^2\hat{\sum}_2^2 - \hat{\sum}_{12}^2\right)\Big/\left(\hat{\sum}_1^2 + \hat{\sum}_2^2 - 2\hat{\sum}_{12}\right). \qquad (15)$$

For two unrelated attributes which are independent of the sensitive attribute and represent equal fractions of the population ($\pi_{Y_1} = \pi_{Y_2} = \pi_Y$, $\pi_{AY_1} = \pi_{AY_2} = \pi_A\pi_Y$ and $\pi_{Y_1Y_2} = \pi_Y^2$), the scheme has a symmetry which yields a simple form for the estimator and its variance. In this case, the optimum sample allocation becomes $n_1 = n_2 = N/2$. With equal

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*The symbol $(\hat{\pi}_A)_{U2}$ represents the estimate of π_A using the model containing two alternate questions as shown in Figure 1.

sample size allocation it is easy to see that $\Sigma_1^2 = \Sigma_2^2$ and $\Sigma_{12} = 0$, which leads to $w_{\text{opt.}} = 1/2$ and $\text{Min.var}(\hat{\pi}_A)_{U2} = \Sigma_1^2/2 = \Sigma_2^2/2$. Recalling our definition of Σ_1^2 we have, in this case,

$$\text{var}(\hat{\pi}_A)_{U2} = \left\{ \lambda_1^r(1 - \lambda_1^r) + (1 - P)^2 \pi_Y (1 - \pi_Y) \right\} / NP^2. \quad (16)$$

It does not seem unreasonable to assume that the situation represented by the variance in (16) could be achieved in practice. For example, two unrelated questions which could closely approximate this case are

Were you born in the month of April? (Y_1)

Was your mother born in the month of April? (Y_2)

$\text{Var}(\hat{\pi}_A)_{U2}$ could also be calculated with λ_2^r replacing λ_1^r in (16). Faced with sample data where π_{Y_1} is expected to equal π_{Y_2} and the independence assumptions likely to be met, this might create a dilemma whether to use $\hat{\lambda}_1^r$ or $\hat{\lambda}_2^r$, and whether to use $\hat{\lambda}_1^d$ or $\hat{\lambda}_2^d$ as an estimate of π_Y. Therefore, we would still recommend use of the general (MMCS) estimator. This statistic and its estimated variance in (15) do not rely on the validity of one's expectation with respect to symmetry.

The optimum choice of (Y_1) and (Y_2) yielding $\text{Var}(\hat{\pi}_A)_{U2} = \pi_A(1 - \pi_A)/N$ would be two alternate but 'related' questions whose responses agree perfectly with each other and with the sensitive question; that is, $\pi_{Y_1} = \pi_{Y_2} = \pi_{Y_1 Y_2}$ and $\pi_{AY_1} = \pi_{AY_2} = \pi_A$. However, alternate questions which are highly related to the sensitive question could reduce the likelihood of truthful responses. We must be careful to remember that reducing nonsampling answer bias, not sampling variance, is a primary objective. In spite of this caution, the new method does allow the possibility of improved precision through a clever choice of innocuous questions which are positively associated with the sensitive question.

Efficiency Comparisons

The variance form that was presented in (16) can be compared directly with the corresponding variance form for Moors' optimized version of the standard two sample one alternate question model noting that λ_1^r in (16) is equivalent to λ_1 in (3). The efficiency of $(\hat{\pi}_A)_{U2}$ relative to $(\hat{\pi}_A)_M$, Moors' estimator, is

$$E_1 = 1 + \left\{ 2(1 - P)\sqrt{\lambda_1(1 - \lambda_1)\pi_Y(1 - \pi_Y)} / \lambda_1 (1 - \lambda_1) + (1 - P)^2 \pi_Y (1 - \pi_Y) \right\}.$$

It is clear then that $(\pi_A)_{U2}$ would never be any less efficient than Moors' estimator.

When π_Y is known in the single alternate question model, only one sample is required to estimate π_A. The variance of this one sample estimator is

$$\text{var}(\hat{\pi}_A \mid \pi_Y) = \lambda_1(1 - \lambda_1)/NP^2.$$

The efficiency of the two alternate questions model relative to $(\hat{\pi}_A \mid \pi_Y)$ is therefore

$$E_2 = \left\{ 1 + [(1 - P)^2 \pi_Y (1 - \pi_Y) / \lambda_1 (1 - \lambda_1)] \right\}^{-1}.$$

Thus, the two alternate questions model will never be more efficient than the single alternate question model with π_Y known. Table 1 shows some values of E_1 and E_2 for various values of π_A, π_Y and $P = .5, .7$. The choice of $P = .5$ relates to our interest in a simple, universally accepted randomizing device which requires the respondent to toss a coin and respond to the sensitive question if, say, the head side turns up. The case of $P = .7$ was also selected because it has been the value used most frequently in our applications with the 'balls-and-box' randomizing device[6,7].

Table 1 demonstrates the sizeable gains in efficiency for the new estimator relative to Moors' optimized version of the single unrelated question model. The gains that result from determining π_Y prior to the survey do not seem to warrant the additional effort when $P \geqslant .7$, π_Y is small, and $\pi_A \geqslant .20$. Moreover, the relative loss in efficiency with $P = 1/2$ is not great under the present model and the two alternate questions procedure is certainly better than the other randomized response procedures discussed in the literature when π_Y is not known. For a sensitive variable with $\pi_A = .2$ the two alternate questions model with $\pi_Y = .1$ is 27 percent as efficient as

Table 1. EFFICIENCY OF THE TWO UNRELATED QUESTIONS RANDOMIZED RESPONSE MODEL

		Efficiency of the Present Model Relative To:							
		Moors' Optimized Model				Model with π_Y known			
		π_Y				π_Y			
P	π_A	.1	.2	.3	.5	.1	.2	.3	.5
.5	.05	1.860	1.886	1.884	1.852	.755	.732	.733	.761
	.10	1.800	1.852	1.862	1.840	.800	.761	.753	.771
	.20	1.714	1.800	1.826	1.822	.850	.800	.781	.784
	.30	1.658	1.762	1.800	1.810	.877	.824	.800	.793
	.40	1.618	1.734	1.780	1.802	.893	.840	.813	.798
	.50	1.592	1.714	1.768	1.800	.903	.850	.821	.800
.7	.05	1.644	1.701	1.709	1.672	.882	.857	.853	.870
	.10	1.550	1.633	1.658	1.640	.917	.887	.877	.884
	.20	1.453	1.550	1.590	1.596	.946	.917	.904	.901
	.30	1.404	1.504	1.550	1.569	.957	.932	.917	.911
	.40	1.375	1.476	1.527	1.555	.964	.940	.925	.916
	.50	1.359	1.461	1.514	1.550	.967	.944	.929	.917

the direct question estimator even when $P = 1/2$. If $P = .7$, this efficiency increases to 42 percent. These efficiencies were calculated from sampling variances alone and were based on the assumption that there was no response bias to the direct question. It does not take more than about 5 percent or 10 percent evasiveness to make the Mean Square Error = $\{(\text{Bias})^2 + \text{Variance}\}$ of the randomized response procedure highly preferable to that of asking the sensitive question directly.

Results of a Field Test

In the fall of 1971 the Research Triangle Institute conducted a field test of the two alternate questions model on a probability sample of the residents of Mecklenburg County, N. C. who were sixteen years of age and older. The test was performed in connection with a Drinking and Driving Attitude survey conducted for Mecklenburg County and the U. S. Department of Transportation. The population of interest in the survey was those persons who "drink" alcoholic beverages. The randomizing device was a penny toss ($P = 1/2$). The sensitive question read:

> I had an automobile accident during the past year in which I was at fault. (A)

The two alternate questions were as follows:

(a) I was born in the month of April. (Y_1)

(b) I lived in North Carolina but not in Mecklenburg County in 1966. (Y_2)

Although the sample design was a highly stratified cluster sample which requires special procedures for the proper estimation of the λ's and Σ's in our estimation equations, we will proceed, for illustrative purposes, as if a simple random sample was selected. The first sample consisted of 184 joint responses to either question A or Y_1 based upon the result of the coin toss, and the direct question about Y_2. The second sample yielded 239 joint responses to the device with questions A and Y_2, and the direct question about Y_1. Estimates of the λ's (expressed as percentages) were:

Sample 1	Sample 2
$\hat{\lambda}_1^r = 11.7901$	$\hat{\lambda}_2^r = 22.2591$
$\hat{\lambda}_1^d = 10.2443$	$\hat{\lambda}_2^d = 8.4169$
$\hat{\lambda}_1^{rd} = .9364$	$\hat{\lambda}_2^{rd} = 1.1805$
$n_1 = 184$	$n_2 = 239$

Substituting these estimates into estimation equations (6) and (7) we obtain

$$\begin{aligned} 100\hat{\pi}_A(1) &= [(11.7901) - (.5)(8.4169)]/.5 \\ &= 15.1633 \\ 100\hat{\pi}_A(2) &= [(22.2591) - (.5)(10.2443)]/.5 \\ &= 34.2739 \end{aligned}$$

Using $\hat{\lambda}_1^d = \hat{\pi}_{Y_2}$ and $\hat{\lambda}_2^d = \hat{\pi}_{Y_1}$ the following estimates of the Σ's in (10), (11), and (12) are produced:

$$\begin{aligned} (100)^2\hat{\Sigma}_1^2 &= \{11.7901(100 - 11.7901)/184 \\ &\quad + (.25)(8.4169)(100 \\ &\quad - 8.4169)/239\}/.25 \\ &= \{5.6522 + .8063\}/.25 \\ &= 25.8341 \end{aligned}$$

$$\begin{aligned} (100)^2\hat{\Sigma}_2^2 &= \{22.2591(100 - 22.2591)/239 \\ &\quad + (.25)(10.2443)(100 \\ &\quad - 10.2443)/184\}/.25 \\ &= \{7.2403 + 1.2493\}/.25 \\ &= 33.9584 \end{aligned}$$

$$\begin{aligned} (100)^2\hat{\Sigma}_{12} &= -.5\{[(100)(.9364) \\ &\quad - (11.7901)(10.2443)]/184 \\ &\quad + [(100)(1.1805) \\ &\quad - (22.2591)(8.4169)]/239\}/.25 \\ &= 2(.1475 + .2900) = .8750 \end{aligned}$$

In terms of these $\hat{\Sigma}$'s, equation (13) leads to

$$\begin{aligned} w_{\text{opt.}} &= (33.9584 - .8750)/[(25.8341 \\ &\quad + 33.9584) - (2)(.8750)] \\ &= (33.0834/58.0425) = .57 \end{aligned}$$

This value of $\hat{w}_{\text{opt.}}$ in equation (9) leads to the percentage

$$\begin{aligned} (\hat{\pi}_A)_{U2} &= (.57)(15.1633) + (.43)(34.2739) \\ &= 23.38 \end{aligned}$$

From equation (15) we have

$$\begin{aligned} &100\sqrt{\text{var}(\hat{\pi}_A)_{U2}} \\ &= \sqrt{\frac{25.8341 \times 33.9584 - (.8750)^2}{25.8341 + 33.9584 - 2(.8750)}} \\ &= \sqrt{876.519076/58.0425} \\ &= \sqrt{15.1013} = 3.89 \end{aligned}$$

The unbiased estimator with $w = 1/2$ is, in terms of a percentage,

$$\begin{aligned} (\hat{\pi}_A)_{w=1/2} &= (15.1633 + 34.2739)/2 \\ &= 24.72 \end{aligned}$$

with

$$\begin{aligned} &100\sqrt{\text{var}(\hat{\pi}_A)_{w=1/2}} \\ &= \sqrt{\left(\hat{\Sigma}_1^2 + \hat{\Sigma}_2^2 + 2\hat{\Sigma}_{12}\right)/4} \\ &= \sqrt{(25.8341 + 33.9584 + 2(.8750)/4} \\ &= \sqrt{15.3856} = 3.92 \end{aligned}$$

An alternative procedure for computing the weighted estimate $(\hat{\pi}_A)_{U2}$ is to represent the estimation equations in samples 1 and 2 in terms of a linear model as discussed by Warner[11], that is

$$\mathcal{E}\begin{bmatrix} \hat{\lambda}_1^r \\ \hat{\lambda}_1^d \\ \hat{\lambda}_2^r \\ \hat{\lambda}_2^d \end{bmatrix} = \begin{bmatrix} P & (1-P) & 0 \\ 0 & 0 & 1 \\ P & 0 & (1-P) \\ 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} \pi_A \\ \pi_{Y_1} \\ \pi_{Y_2} \end{bmatrix}$$

or

$$\mathcal{E}(\hat{\underset{\sim}{\lambda}}) = P\underset{\sim}{\pi}$$

The variance-covariance matrix of the estimated λ vector is block diagonal with the first block of the form

$$\Sigma_{\lambda_1} = (1/n_1)\begin{bmatrix} \lambda_1^r(1-\lambda_1^r) & \lambda_1^{rd} - \lambda_1^r\lambda_1^d \\ \lambda_1^{rd} - \lambda_1^r\lambda_1^d & \lambda_1^d(1-\lambda_1^d) \end{bmatrix}. \tag{17}$$

The second block Σ_{λ_2} is defined similarly with λ_2 parameters replacing the λ_1's and n_2 for n_1 in (17). Using sample estimates for these Σ matrices and forming

$$\hat{\Sigma}_{\lambda} = \begin{bmatrix} \hat{\Sigma}_{\lambda_1} & \underset{\sim}{0} \\ \underset{\sim}{0} & \hat{\Sigma}_{\lambda_2} \end{bmatrix}$$

where $\underset{\sim}{0}$ denotes a 2×2 null matrix, the estimate $(\hat{\pi}_A)_{U2}$ can be obtained by weighted least squares as

$$(\underset{\sim}{\hat{\pi}})_{U2} = \left(P'\hat{\Sigma}_{\lambda}^{-1}P\right)^{-1} P'\hat{\Sigma}_{\lambda}^{-1}\underset{\sim}{\hat{\lambda}}.$$

The simple unbiased estimator with $w = 1/2$ can also be obtained as the unweighted least squares estimate

$$(\underset{\sim}{\hat{\pi}})_{w=1/2} = (P'P)^{-1}P'\underset{\sim}{\hat{\lambda}}.$$

A consistent estimate of the variance covariance matrix of $(\underset{\sim}{\hat{\pi}})_{U2}$ is $(P'\hat{\Sigma}_{\lambda}^{-1}P)^{-1}$ and a consistent estimate for $(\underset{\sim}{\hat{\pi}})_{w=1/2}$ is $(P'P)^{-1}(P'\hat{\Sigma}_{\lambda}P)(P'P)^{-1}$. For our example,

$$\hat{\Sigma}_{\lambda_1} = \begin{bmatrix} 5.6522 & -.1475 \\ -.1475 & 4.9972 \end{bmatrix}$$

$$\hat{\Sigma}_{\lambda_2} = \begin{bmatrix} 7.2402 & -.2900 \\ -.2900 & 3.2253 \end{bmatrix}$$

and

$$P = \begin{bmatrix} .5 & .5 & 0 \\ 0 & 0 & 1 \\ .5 & 0 & .5 \\ 0 & 1 & 0 \end{bmatrix}$$

The resulting estimates for $\hat{\pi}_A$ and their simple random sample standard errors are, in terms of percentages,

$$(\hat{\pi}_A)_{U2} = 23.38 \qquad SE(\hat{\pi}_A)_{U2} = 3.89$$
$$(\hat{\pi}_A)_{w=1/2} = 24.72 \qquad SE(\hat{\pi}_A)_{w=1/2} = 3.92$$

These estimates of the percentage of Mecklenburg County residents sixteen years of age and over who were responsible for an automobile accident are conditioned to apply only to drivers who are not alcohol abstainers. It is interesting to note that the simple unbiased estimate (i.e., $w = 1/2$) performed rather well for this example and the two resultant estimates are rather similar.

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APPENDIX II

BRIEF DESCRIPTION OF "NCHS PACKAGE HEALTH INTERVIEW SURVEY"

The National Center for Health Statistics recognizes as inherent in its program a need to make available detailed information on the methods and operations of its data collection mechanisms. Such policy is necessary and desirable in order for users to better understand the data and to be able to replicate the results when desirable.

The Health Interview Survey has freely provided documentation on every step in its operation and in addition has been prepared to supply technical assistance and consultation to other agencies seeking to design health surveys. While recognizing that others probably would not find a simple replication of the national survey desirable or possible for various reasons, it was very obvious that important gains were possible if a degree of standardization and comparability could be achieved in most health surveys.

An important step in this direction was taken several months ago in collaboration with about a dozen Office of Economic Opportunity Neighborhood Health Center Surveys. An extensive, and as yet unevaluated, effort was made to use a standardized core of items in the baseline surveys conducted in these areas. The Division of Health Interview Statistics eventually conducted one of the Community Surveys in order to get firsthand experience with a number of problems somewhat peculiar to local surveys conducted on an *ad hoc* basis.

This experience was viewed as a necessary step in preparation of a "package survey" in which it is hoped that we can more systematically record our experience and recommendations for others to consider when designing health surveys. In summary, we hope to accomplish two objectives with such a "package": (1) make more available the Health Interview Survey experience, and (2) promote more comparability in other health surveys, at least on a number of items usually contained in most surveys. A further incentive for adoption of selected common elements in other surveys is the potential value of having available national estimates on a reasonably current basis from the ongoing National Health Interview Survey with which to compare or contrast the findings.

The items listed below are suggested as a set of core items but there will also be made available suggested modules to cover other topics of possible interest. For all of these items, and new ones added as our experience increases, there will be available a set of definitions, interviewer training materials, coding data and tabulation plans which have been pretested and found to be useful. It has been anticipated that, typically, another survey would start with core items and then add any other items of special interest. New topics or items would obviously need special development and pretesting by other areas wherever an existing "module" was not available. Thus a new survey might contain an entire package of topics previously used by NCHS and requiring little new development or a combination of core items and new ones developed to meet special needs.

Contents of Package Health Survey
Core Items

1. Demographic Items
   Age, sex, race, education, 2-week. employment status and family income, etc.

2. Dental Care
   Interval since last visit
   Number of dental visits during the past 12 months
3. Medical Care
   Interval since last visit or call
   Number of visits or calls to a medical doctor during the past 12 months
4. Limitation of Activity Questions
   Same approach as the HIS except obtaining only the *main* condition causing limitation
5. Hospitalizations
   Number of hospitalizations during the past 12 months
6. Health Insurance
   Medicare coverage for hospital and doctor bills
   Private health insurance coverage for hospital bills, surgeon bills and doctor bills
   Reasons that a family has no health insurance coverage

Available health "modules" will include topics such as the following:

1. More intensive inquiries on utilization of services (e.g., physician, dentist, hospitalization)
2. Use of nursing homes and home care services
3. Vision supplement
4. Hearing supplement
5. Pregnancy care
6. Family planning
7. Immunization supplement
8. Satisfaction with sources and types of services
9. Personal health care expenses
10. Environmental topics from "NEEDS" or other surveys
11. Other topics developed in research and development phase of the Cooperative Federal-State-local System surveys

APPENDIX III

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REV. 5/71

Form Approved
O.M.B. No. 68-R1184

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION
NATIONAL CENTER FOR HEALTH STATISTICS
HEALTH AND NUTRITION EXAMINATION SURVEY

GENERAL WELL-BEING

ASSURANCE OF CONFIDENTIALITY
All information which would permit identification of the individual will be held strictly confidential, will be used only by persons engaged in and for the purposes of the survey, and will not be disclosed or released to others for any other purposes (22 FR 1687).

a. Name *(Last, first, middle)*	b. Deck No. 171	c. Sample No. — — — — — —	d. Sex 1 ☐ Male 2 ☐ Female	e. Age — —

READ — **This section of the examination contains questions about how you feel and how things have been going with you. For each question, mark (X) the answer which best applies to you.**

1. How have you been feeling in general? *(DURING THE PAST MONTH)*	1.	(001) 1 ☐ In excellent spirits 2 ☐ In very good spirits 3 ☐ In good spirits mostly 4 ☐ I have been up and down in spirits a lot 5 ☐ In low spirits mostly 6 ☐ In very low spirits
2. Have you been bothered by nervousness or your "nerves"? *(DURING THE PAST MONTH)*	2.	(002) 1 ☐ Extremely so -- to the point where I could not work or take care of things 2 ☐ Very much so 3 ☐ Quite a bit 4 ☐ Some -- enough to bother me 5 ☐ A little 6 ☐ Not at all
3. Have you been in firm control of your behavior, thoughts, emotions OR feelings? *(DURING THE PAST MONTH)*	3.	(003) 1 ☐ Yes, definitely so 2 ☐ Yes, for the most part 3 ☐ Generally so 4 ☐ Not too well 5 ☐ No, and I am somewhat disturbed 6 ☐ No, and I am very disturbed
4. Have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile? *(DURING THE PAST MONTH)*	4.	(004) 1 ☐ Extremely so -- to the point that I have just about given up 2 ☐ Very much so 3 ☐ Quite a bit 4 ☐ Some - - enough to bother me 5 ☐ A little bit 6 ☐ Not at all
5. Have you been under or felt you were under any strain, stress, or pressure? *(DURING THE PAST MONTH)*	5.	(005) 1 ☐ Yes -- almost more than I could bear or stand 2 ☐ Yes -- quite a bit of pressure 3 ☐ Yes -- some - more than usual 4 ☐ Yes -- some - but about usual 5 ☐ Yes - a little 6 ☐ Not at all

6. How happy, satisfied, or pleased have you been with your personal life? *(DURING THE PAST MONTH)*	6.	(006) 1 ☐ Extremely happy – could not have been more satisfied or pleased 2 ☐ Very happy 3 ☐ Fairly happy 4 ☐ Satisfied -- pleased 5 ☐ Somewhat dissatisfied 6 ☐ Very dissatisfied
7. Have you had any reason to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel, or of your memory? *(DURING THE PAST MONTH)*	7.	(007) 1 ☐ Not at all 2 ☐ Only a little 3 ☐ Some -- but not enough to be concerned or worried about 4 ☐ Some and I have been a little concerned 5 ☐ Some and I am quite concerned 6 ☐ Yes, very much so and I am very concerned
8. Have you been anxious, worried, or upset? *(DURING THE PAST MONTH)*	8.	(008) 1 ☐ Extremely so -- to the point of being sick or almost sick 2 ☐ Very much so 3 ☐ Quite a bit 4 ☐ Some -- enough to bother me 5 ☐ A little bit 6 ☐ Not at all
9. Have you been waking up fresh and rested? *(DURING THE PAST MONTH)*	9.	(009) 1 ☐ Every day 2 ☐ Most every day 3 ☐ Fairly often 4 ☐ Less than half the time 5 ☐ Rarely 6 ☐ None of the time
10. Have you been bothered by any illness, bodily disorder, pains, or fears about your health? *(DURING THE PAST MONTH)*	10.	(010) 1 ☐ All the time 2 ☐ Most of the time 3 ☐ A good bit of the time 4 ☐ Some of the time 5 ☐ A little of the time 6 ☐ None of the time
11. Has your daily life been full of things that were interesting to you? *(DURING THE PAST MONTH)*	11.	(011) 1 ☐ All the time 2 ☐ Most of the time 3 ☐ A good bit of the time 4 ☐ Some of the time 5 ☐ A little of the time 6 ☐ None of the time
12. Have you felt down-hearted and blue? *(DURING THE PAST MONTH)*	12.	(012) 1 ☐ All of the time 2 ☐ Most of the time 3 ☐ A good bit of the time 4 ☐ Some of the time 5 ☐ A little of the time 6 ☐ None of the time

13. **Have you been feeling emotionally stable and sure of yourself?** *(DURING THE PAST MONTH)*	13.	(013) 1 ☐ All of the time 2 ☐ Most of the time 3 ☐ A good bit of the time 4 ☐ Some of the time 5 ☐ A little of the time 6 ☐ None of the time
14. **Have you felt tired, worn out, used-up, or exhausted?** *(DURING THE PAST MONTH)*	14.	(014) 1 ☐ All of the time 2 ☐ Most of the time 3 ☐ A good bit of the time 4 ☐ Some of the time 5 ☐ A little of the time 6 ☐ None of the time
		For each of the four scales below, note that the words at each end of the 0 to 10 scale describe opposite feelings. Circle any number along the bar which seems closest to how you have generally felt DURING THE PAST MONTH.
15. **How concerned or worried about your HEALTH have you been?** *(DURING THE PAST MONTH)*	15.	(015) 0 1 2 3 4 5 6 7 8 9 10 Not concerned at all — Very concerned
16. **How RELAXED or TENSE have you been?** *(DURING THE PAST MONTH)*	16.	(016) 0 1 2 3 4 5 6 7 8 9 10 Very relaxed — Very tense
17. **How much ENERGY, PEP, VITALITY have you felt?** (DURING THE PAST MONTH)	17.	(017) 0 1 2 3 4 5 6 7 8 9 10 No energy **AT ALL,** listless — Very **ENERGETIC,** dynamic
18. **How DEPRESSED or CHEERFUL have have you been?** *(DURING THE PAST MONTH)*	18.	(018) 0 1 2 3 4 5 6 7 8 9 10 Very depressed — Very cheerful
19. **Have you had severe enough personal, emotional, behavior, or mental problems that you felt you needed help** *DURING THE PAST YEAR?*	19.	(019) 1 ☐ Yes, and I did seek professional help 2 ☐ Yes, but I did not seek professional help 3 ☐ I have had (or have now) severe personal problems, but have not felt I needed professional help 4 ☐ I have had very few personal problems of any serious concern 5 ☐ I have not been bothered at all by personal problems during the past year

20. Have you ever felt that you were going to have, or were close to having, a nervous breakdown?	20.	(020) 1 ☐ Yes -- during the past year 2 ☐ Yes -- more than a year ago 3 ☐ No
21. Have you ever had a nervous breakdown?	21.	(021) 1 ☐ Yes -- during the past year 2 ☐ Yes -- more than a year ago 3 ☐ No
22. Have you ever been a patient (or outpatient) at a mental hospital, a mental health ward of a hospital, or a mental health clinic, for any personal, emotional, behavior, or mental problem?	22.	(022) 1 ☐ Yes -- during the past year 2 ☐ Yes -- more than a year ago 3 ☐ No
23. Have you ever seen a psychiatrist, psychologist, or psychoanalyst about any personal, emotional, behavior, or mental problem concerning yourself?	23.	(023) 1 ☐ Yes -- during the past year 2 ☐ Yes -- more than a year ago 3 ☐ No
24. Have you talked with or had any connection with any of the following about some personal, emotional, behavior, mental problem, worries, or "nerves" **CONCERNING YOURSELF** *DURING THE PAST YEAR?*		
a. Regular medical doctor (except for definite physical conditions or routine check-ups)	24a.	(024) 1 ☐ Yes 2 ☐ No
b. Brain or nerve specialist	b.	(025) 1 ☐ Yes 2 ☐ No
c. Nurse (except for routine medical conditions)	c.	(026) 1 ☐ Yes 2 ☐ No
d. Lawyer (except for routine legal services)	d.	(027) 1 ☐ Yes 2 ☐ No
e. Police (except for simple traffic violations)	e.	(028) 1 ☐ Yes 2 ☐ No
f. Clergyman, minister, priest, rabbi, etc.	f.	(029) 1 ☐ Yes 2 ☐ No
g. Marriage Counselor	g.	(030) 1 ☐ Yes 2 ☐ No
h. Social Worker	h.	(031) 1 ☐ Yes 2 ☐ No
i. Other formal assistance:	i.	(032) 1 ☐ Yes – What kind? ________________ ________________ 2 ☐ No
25. Do you discuss your problems with any members of your family or friends?	25.	(033) 1 ☐ Yes - and it helps a lot 2 ☐ Yes - and it helps some 3 ☐ Yes - but it does not help at all 4 ☐ No - I do not have anyone I can talk with about my problems 5 ☐ No - no one cares to hear about my problems 6 ☐ No - I do not care to talk about my problems with anyone 7 ☐ No - I do not have any problems
26. Filled out by:	26.	(034) 1 ☐ Examinee 2 ☐ Interviewer 3 ☐ Mixed

APPENDIX IV

STUDY OF COST OF STATES VITAL AND HEALTH STATISTICS PROGRAMS

I. Background

Under Public Law 91-515, DHEW is authorized to support the development and implementation of cooperative systems for producing uniform vital and health statistics at the Federal, State, and local levels. Within the authority of this law, NCHS is developing a continuing program for sharing of data collection and processing costs with State and local vital and health statistics programs. Reliable estimates of the costs of these programs are needed as a basis for developing the formula for such support.

The matter of collecting reliable data on program costs among States is highly complicated. The statistical activities are organized differently in many States. In some States, there are centralized vital and health statistics activities and support services and, in others, these activities are spread through several State agencies. Within the same State organization, the three principal components; namely, vital registration and statistics, other health statistics, and data processing may be under one or more heads. Most States do not have expenditure accounting systems that will provide cost data in sufficient detail. Definitions and approaches in budgeting differ from State to State.

These and related problems require extreme care and thoroughness in reporting manpower and dollar costs in a manner consistent with Study instructions.

II. Study Objectives

To produce reliable data on the level of direct manpower and dollar resources that are currently being expended on vital and health statistics activities at the State level; to carry out a comprehensive analysis of these data; and to prepare a report of findings.

III. Basis for Data Collection of Costs

The approach chosen for this study is to obtain data, through a State coordinator, from knowledgeable State officials who are responsible for segments of vital and health statistics programs. This approach is favored for this study because of its open-ended flexibility which is not available in gathering costs based on formal budgets or expenditures. It provides an avenue to more realistic and comprehensive coverage of all kinds of costs although each line item cost may be less precise than would be available through expenditure accounting. Program officials will naturally draw upon budget and expenditure data, their program knowledge, awareness of organizational placement within State government of components being studied, and other pertinent factors in assembling cost information

IV. Scope of Data Collection

Each State Health Department is being asked to participate in the study. First, efforts will be directed toward a representative sample of States to provide national estimates. The Health Director in each State is being asked to designate a study coordinator who will be responsible for working with NCHS in collecting cost data for all State-level vital and health statistics programs that are within the Health Department and for all State-level costs of

Mental Health and Comprehensive Health Planning programs when they are in organizations outside the Health Department.

V. Time Coverage

To the extent possible, the fiscal year ending in 1971 is the period upon which cost data are to be based. This will provide the most current information available for an entire fiscal year. If the best available data should not be for this period in a State, the period covered may be altered. If a different coverage period is used, it should be specified on the data collection forms.

VI. Exclusions

This study does not attempt to collect direct expenditure information on capital and personal property investments, such as buildings, computer hardware systems, machinery, office furniture and equipment. Acknowledgement of these investments is to be reflected in office rental estimates, computer rental, furniture and equipment amortization, etc.

This study also excludes vital and health statistics programs located outside the Health Department (except mental health and comprehensive health planning, which are included in the Study).

Except fees paid to local registrars for copies of vital records, the Study excludes State support of county and city vital and health statistics activities. While these costs represent an integral part of the Federal, State, and local health statistics system, they are excluded from this study in order to make the scope of this effort more manageable. A separate study may be required to collect this kind of cost information. (See definitions and guidelines for more specific exclusions.)

VII. NCHS-States Channel of Communication

A designated official in each State health department is being asked to serve as coordinator of communications and data collection within a State. A NCHS team will visit each State to collect cost data and to provide staff support to the State Coordinator when necessary.

VIII. Timetable and Major Steps of Study

Date	*Step*
March 15-21, 1972	Coordination of study methodology and procedures with Executive Committee, AAVRPHS and other interested States' vital statistics officials.
April 1-15, 1972	Tested semi-final forms and procedures in Tennessee and Arkansas.
May 1—June 30, 1972	Bureau of Budget Clearance.
June 8, 1972	Completion of preparation and reproduction of final forms, procedures, and instructions.
June 11, 1972	Orientation of State Visit Teams.
July 1—August 15, 1972	Visits to States in Sample.
July 1—December 31, 1972	Visit to remaining Registration Areas.
June 14, 1972	Status report at June Public Health Conference on Records and Statistics.
August 15—September 30, 1972	Analysis of data and draft report based on Sample of States.
January 1—March 31, 1973	Analysis of data and draft report based on all registration areas
April 1973	Circulation of draft report for comment.
May 30, 1973	Completion of final report.

IX. Sample States for National Estimates

Arkansas
Delaware
Georgia
New York City
Nebraska
New Hampshire
Ohio
Oregon
Tennessee
Utah

X. Definitions and Guidelines

A. Activity category

There are three activity categories in this study—

1. Vital Registration and Vital Statistics
2. Health Statistics, excluding Vital Statistics
3. Data Processing support of Vital and Health Statistics

A separate set of reporting forms is required for each of these activity categories. When vital registration and vital statistics are in separate units, each can be recorded on separate reporting forms.

B. Data Collection

Data collection costs are to be included as statistical program costs when data are being obtained *primarily* for statistical purposes; e.g., health interview survey, abstracts of hospital care costs, etc. When source data are collected *primarily* for purposes other than vital and health statistics, data collection costs should be limited to cost of modifying or assembling the source data in a form for statistical processing and analysis. For example, assembling and maintaining crippled children's registers and cancer and tuberculosis case registers are primarily for information about individuals and delivery of health services and secondarily for statistical data. Therefore, collection costs for this study should be limited to cost of utilizing the register for statistical purposes. Likewise, nursing and local health activity reports are primarily for such purposes as program planning, reporting, and evaluation. Therefore, collection costs for this study should be limited to cost of utilizing the register for statistical purposes.

C. Program Management Data Systems

Costs of developing and maintaining such data systems as medical, maternal and child health, nursing services systems are excluded since the systems are *primarily* for program management and not statistics. Cost of using these systems to derive statistical data are included.

D. Machine Rentals

This breakdown is to include rental, or allocation of cost of machine time, staff who operate EAM equipment and computers (except when they are included under salaries and employee benefits), and other mass processing hardware.

E. Program Area

The program areas are listed on page . Separate reporting forms are requested for each program area for which reliable cost information can be assembled.

F. Space Rental

This is to include office and other space utilized by vital and health statistics programs at the going rental rate for that type of space in your local area. An estimate for rental should be included whether or not the office space is paid directly from the program's appropriation or other funds. This item should be omitted if this cost is included in indirect costs.

G. Office Furniture and Fixture

This cost should be estimated on the basis of the purchase price of such personal property investment, amortized evenly over ten years.

H. Support of Statistical Programs at No Cost

When manpower or services are provided to statistical programs at no costs to the program (for example, computer time) such support should be included as an expense of the statistical program at the current prevailing rate.

I. Support of Statistical Programs at Nominal Costs

When manpower or services are provided to statistical programs at reduced cost, such support should be included as an expense of the statistical program at the current prevailing rate; for example, $10.00 hourly charge for computer time when the prevailing rate is $75.00. The objective is to avoid understating total costs when such reduced rates represent a substantial dollar amount.

J. Indirect Costs

This includes such costs as indirect salaries, (accounting, bookkeeping, personnel management, executive direction, etc.). This may be expressed as a percentage of direct salary costs or as a dollar prorated.

XI. Level of Cost Detail Sought in Estimates

The minimum information required is reliable total estimates in the format required in Forms A, B, and C for the three major Activity Categories given below. In addition, cost estimates are also needed for each Program Area given below *to the extent that reliable estimates* can be developed.

If cost data within a State cannot be reasonably structured in the manner called for in the data collection forms, an alternative approach will be worked out between the State Study Coordinator and the NCHS Team, in consultation with the NCHS Subcommittee.

Activity Category	*Program areas*	*Examples*
A. Vital Registration and Vital Statistics	1. Vital Records only	Data collection, registration, indexing, certifications, records control
	2. Vital Statistics only	Statistical classification of data, keypunching, processing, statistical analysis, reports preparation, data dissemination
		Consultant services
B. Health Statistics, excluding Vital Statistics	1. Maternal and Child Health	Maternity and infant care, Prematurity care program, Crippled children
	2. Environmental and Occupational Health	Water pollution, Air pollution, Radiological health, Industrial health, Sanitation (food, milk, housing, solid wastes)
	3. General Health and Morbidity	Communicable diseases, Food and drug, Heart, Cancer, Stroke, Diabetes, Rheumatic fever, Other chronic diseases, Accidents
	4. Mental Health	Alcoholic institutions, Rehabilitation centers, Community centers.
	5. Health Manpower and Facilities	Statistics for physicians and other medical personnel, Hospitals and nursing homes
	6. Population	Family planning, family growth, Population estimation
	7. Direct Health Services	Laboratory services, Medicare, Medicaid, School health, Nutrition
	8. Comprehensive Health Planning	General

XII. Cost Data Collection Forms and Instructions

Form A—Activity Category: Vital Registration and Vital Statistics

This form is to be used to report *total costs* for vital registration and statistics at the State level. If vital registration and vital statistics are distinctively separate, two separate forms A may be used by modifying the name of the Activity Category.

Page 1 is to collect summary information on source of cost information and source of funding.

Page 2 is to collect information on salary costs and number of positions, by type, and fringe benefits. Where an employee's time is divided between registration and statistics, he should be listed under the section where he spends most of his time. Vacant positions are not to be included on Page 1. Vacant positions during the reporting period that are usually filled are to be listed on Page 4.

Page 3 is to collect all costs other than salaries and employee benefits.

Page 4 is to collect (a) information and cost estimates of typical operations that were not experienced during the reporting period, (b) cost of atypical operations that were included in the reporting period, and (c) a statement of substantial change in permanent financial support since the year for which costs data are being obtained.

Example of Atypical Cost Included: One time research contract that was funded during the reporting period.

Example of Typical Cost Excluded: Regular cost of machine rental which was not paid during fiscal year.

Example of Significant Program Change: Four permanent positions were authorized in 1972 and cost data are based on 1971 program.

Form B—Activity Category: Health Statistics, except Vital Statistics

This is a summary form for reporting *Total costs* of health statistics, except vital statistics, in the Health Department and Comprehensive Health Planning and Mental Health when they are not in the Health Department. This form is to include all costs in the health statistics program areas reported on Form D. The sum of all Form D's need not be the same as the totals on Form B since reliable estimates may not be available for all program areas covered by Form D.

Detailed instructions for Form B are the same as for Form A.

Form C—Activity Category: Data Processing

This form is to be used for reporting costs of data processing in support of statistical programs within the health department. When comprehensive health planning and mental health are located outside the health department, a separate Form C will be used to record data processing support to the statistical programs of each of these organizations.

Care should be taken to exclude data processing costs for maintaining data banks, registers, etc. that are not maintained primarily for statistical programs (see definitions).

If data processing is lodged in more than one organization and consolidated costs are not available, a separate Form C may be prepared for processing costs in *each* organization.

Form D—Activity Category: Health Statistics; Program Area

This form is to be used for reporting costs for each program area in health statistics for which reliable estimates are available.

A separate set of Form D is required for each separate program area for which costs are available. If reliable estimates are not available for a program area, no Form D is required.

All estimates by program area (Form D) are also to be included in Form B (Health Statistics Costs, excluding vital statistics).

Detailed instructions for Form D are the same as for Form A.

Form E—Subject matter areas in State and Vital and Health Statistical Programs

One checklist (Form E) is to be completed for the entire vital and health statistics program within the health department. This form is to give NCHS an indication of the subject matter areas represented in the Health Department's vital and health statistics costs and will serve as a checklist for the NCHS Team to use in investigating various kinds of statistical costs in relation to these subject matter areas.

FORM A

One Year Period Ending____________, 1971

STATE:____________________

AGENCY:____________________

Activity Category:
☐ Vital Registration and Vital Statistics
☐ Vital Registration Only
☐ Vital Statistics Only

Name of State Study Coordinator:____________________

Name of Person Providing Cost Information:____________________

Name of NCHS Team:____________________

____

Principal Source of Information

1. ☐ Officials' Knowledge of Program
2. ☐ Budget Information
3. ☐ Expenditure Records
4. ☐ Combination

State Agency Providing Data Processing Support:____________________

Total Estimated One Year Cost:	$__________	100.0%
Source of Funding:		
State Government, including funds received from other State programs:	$__________	____%
Vital records searching-copying fees received during reported period:	$__________	____%
Federal Government grants, contracts and other Federal sources of funds:	$__________	____%
Other (Specify):	$__________	____%
____________________	$__________	____%
____________________	$__________	____%
____________________	$__________	____%

SALARIES AND EMPLOYEE BENEFITS

ACTIVITY CATEGORY: VITAL REGISTRATION AND VITAL STATISTICS

Position description	NUMBER OF POSITIONS	TOTAL DOLLARS
REGISTRATION (Subtotal)		
Director of Registration		
Assistant Director of Registration		
Section Supervisors		
Vital Records Field Representative or Record Consultant		
Secretaries		
Clerks		
Other (Specify)		
STATISTICS (Subtotal)		
Director of Statistics		
Statisticians		
Statistical Assistants		
Statistical Clerks		
Secretaries		
Clerks		
Other (Specify)		
OTHER (SPECIFY) (Subtotal)		
EMPLOYEE BENEFITS (Social Security, Retirement, Insurance, Etc.)		
TOTAL POSITIONS, SALARIES, AND BENEFITS		

FORM A

OTHER COSTS

ACTIVITY CATEGORY: VITAL REGISTRATION AND VITAL STATISTICS

	TOTAL DOLLARS
Travel:	
Shipping Charges (Other than Postage):	
Postage:	
Telephone and Telegraph:	
Rentals and Other Allocation of Machine, Space, and Equipment Costs:	
Microfilm Equipment:	
Photocopy Equipment:	
Other Machines:	
Office Furniture:	
Office Space:	
Other Space (Specify)____________________	
____________________	
Other (Specify)____________________	
Printing, Duplicating, Binding, and Repairs:	
Contracts:	
Research:	
Machine Repairs:	
Technical and Professional Services:	
Other (Specify)____________________	
____________________	
Supplies:	
Indirect Costs (Indirect salaries and other indirect costs)	

(Describe)____

____

____

TOTAL OTHER COSTS:	

FORM A

ADJUSTMENTS

DOLLARS

I. ATYPICAL COSTS INCLUDED IN PAGES 1-3
Describe Type of Expenditure and Frequency Experienced:

II. TYPICAL COSTS NOT INCLUDED IN PAGES 1-3
Describe Type of Expenditure, Position Titles, Number of Positions:

III. SIGNIFICANT CHANGES IN PERMANENT FINANCIAL SUPPORT SUBSEQUENT TO YEAR UPON WHICH STUDY DATA ARE BASED:

SUMMARY FORM B

One Year Period ending______________, 1971

STATE:______________________________

AGENCY:____________________________

Activity Category: Health Statistics,
excluding Vital Statistics

Name of State Study Coordinator:__________________________

Names of NCHS Team:_______________________

____

____

Principal Source of Information

1. ☐ Officials' Knowledge of Program
2. ☐ Budget Information
3. ☐ Expenditure Records
4. ☐ Combination

State Agency Providing Data Processing Support: ____________________________________

Total Estimated One Year Cost:	$______________	100%
Source of Funding:		
State Government, including funds received from other State programs:	$______________	____%
Federal Government grants, contracts and other Federal sources of funds:	$______________	____%
Other (Specify):______________	$______________	____%
____________________	$______________	____%
____________________	$______________	____%
____________________	$______________	____%

Program Areas included in this form:

- Maternal and Child Health Statistics ☐
- Environmental and Occupational Health ☐
- General Health and Morbidity Statistics ☐
- Mental Health ☐
- Health Manpower and Facilities ☐
- Population Statistics ☐
- Direct Health Services Statistics ☐
- Comprehensive Health Planning ☐

FORM B

SALARIES AND EMPLOYEE BENEFITS

ACTIVITY CATEGORY: HEALTH STATISTICS

POSITION DESCRIPTION	NUMBER OF POSITIONS	TOTAL DOLLARS
STATISTICS (Subtotal)		
Program Directors		
Statisticians		
Field Representatives		
Statistical Assistants		
Statistical Clerks		
Clerks		
Secretaries		
Other (Specify)______		
______		
______		
______		
______		
______		
______		
______		
______		
EMPLOYEE BENEFITS (Social Security, Retirement, Insurance, etc.)		
TOTAL POSITIONS, SALARIES, AND BENEFITS:		

FORM B

OTHER COSTS

ACTIVITY CATEGORY: HEALTH STATISTICS

	TOTAL DOLLARS
Travel:	______
Shipping Charges (Other than Postage):	______
Postage:	______
Telephone and Telegraph:	______
Rentals and Other Allocation of Machine, Space, and Equipment Costs:	
Photocopy Equipment:	______
Other Machines:	______
Office Furniture:	______
Office Space:	______
Other Space (Specify) ______	______
______	______
Other (Specify) ______	______
Printing, Duplicating, Binding, and Repairs:	______
Contracts:	
Research:	______
Machine Repairs:	______
Technical and Professional Services:	______
Other (Specify) ______	______
______	______
Supplies:	______
Indirect Costs (Indirect salaries and other indirect costs)	______
(Describe) ______ ______ ______	
TOTAL OTHER COSTS:	______

FORM B

ADJUSTMENTS

DOLLARS

I. ATYPICAL COSTS INCLUDED IN PAGES 1-3
Describe Type of Expenditure and Frequency Experienced:

II. TYPICAL COSTS NOT INCLUDED IN PAGES 1-3
Describe Type of Expenditure, Position Titles, Number of Positions:

III. SIGNIFICANT CHANGES IN PERMANENT FINANCIAL SUPPORT SUBSEQUENT TO YEAR UPON WHICH STUDY DATA ARE BASED:

FORM C

One Year Period Ending ____________, 1971

STATE: ____________________

AGENCY: ____________________

ACTIVITY CATEGORY:

☐ Data Processing— Health Department

☐[1] Data Processing— Mental Health

☐[1] Data Processing— Comprehensive Health Planning

☐ Other (Specify)

Name of State Study Coordinator: ____________________

Name of Person Providing Cost Information: ____________________

Principal Source of Information

1. ☐ Officials' Knowledge of Program
2. ☐ Budget Information
3. ☐ Expenditure Records
4. ☐ Combination

Name of NCHS Team:

____________________ ____________________

State Agency Providing Data Processing Support: ____________________

Total Data Processing in Support of Statistical Programs $__________

Source of Funding:

State government, including funds received from other State agencies: $__________

Federal government grants, contracts, and other Federal sources of funds: $__________

Other (Specify): ____________________ $__________

____________________ $__________

Allocation of data processing among statistical activities and programs:

Vital Statistics (Subtotal):	$__________
Registration:	$__________
Statistics:	$__________
Health Statistics (Subtotal)	$__________
Maternal and child health statistics:	$__________
Environmental and occupational health statistics:	$__________
General health and morbidity statistics:	$__________
Mental health statistics:	$__________
Health manpower and facilities statistics:	$__________
Population statistics:	$__________
Direct health services statistics:	$__________
Comprehensive health planning statistics:	$__________

---

[1] Use only when this organization is outside of the health department.

FORM C

This page is not required when *all* salary and benefit costs are included in machine rental. If *some, but not all,* such costs are included in machine rentals; only salaries and benefits not in machine rentals should be recorded on this page.

POSITION DESCRIPTIONS	NUMBER OF POSITIONS	TOTAL DOLLARS
Data Processing Managers	____________	____________
Computer Programmers	____________	____________
Computer and EAM Operators	____________	____________
Keypunch and Encoder Operators	____________	____________
Coding Clerks	____________	____________
Clerks	____________	____________
Secretaries	____________	____________
Other (Specify) ______________________	____________	____________
______________________________	____________	____________
______________________________	____________	____________
Employee Benefits Applicable to Above Entries Only	____________	____________
Total Positions, Salaries and Benefits	____________	____________

FORM C

OTHER COSTS

ACTIVITY CATEGORY: DATA PROCESSING

	TOTAL DOLLARS
Travel:	____________
Shipping Charges (Other than Postage):	____________
Postage:	____________
Telephone and Telegraph:	____________
Rentals and Other Allocation of Machine, Space, and Equipment Costs:	
Computer:	____________
EAM Equipment:	____________
Photocopy Equipment:	____________
Other Machines:	____________
Office Furniture:	____________
Office Space:	____________
Other Space (Specify) ____________	____________
____________	____________
Other (Specify) ____________	____________
Printing, Duplicating, Binding, and Repairs:	____________
Contracts:	
Research:	____________
Machine Repairs:	____________
Technical and Professional Services:	____________
Other (Specify) ____________	____________
____________	____________
Supplies:	____________
Indirect Costs (Indirect salaries and other indirect costs)	____________

(Describe) ____

____

____

TOTAL OTHER COSTS: ____________

FORM C

ADJUSTMENTS

DOLLARS

I. ATYPICAL COSTS INCLUDED IN PAGES 1-3
Describe Type of Expenditure and Frequency Experienced:

II. TYPICAL COSTS NOT INCLUDED IN PAGES 1-3
Describe Type of Expenditure, Position Titles, Number of Positions:

III. SIGNIFICANT CHANGES IN PERMANENT FINANCIAL SUPPORT SUBSEQUENT TO YEAR UPON WHICH STUDY DATA ARE BASED:

FORM D

One Year Period Ending______________, 1971

STATE:____________________

Activity Category: Health Statistics

AGENCY:____________________

PROGRAM AREA:__________

Name of State Study Coordinator:____________________

Name of Person Providing Cost Information:____________________

Name of NCHS Team:____________________

____

Principal Source of Information

1. ☐ Officials' Knowledge of Program
2. ☐ Budget Information
3. ☐ Expenditure Records
4. ☐ Combination

State Agency Providing Data Processing Support:____________________

Total Estimated One Year Cost:	$__________	100.0%
Source of Funding:		
State Government, including funds received from other State programs:	$__________	____%
Federal Government grants, contracts and other Federal sources of funds:	$__________	____%
Other (Specify): __________	$__________	____%
__________	$__________	____%
__________	$__________	____%
__________	$__________	____%

FORM D

SALARIES AND EMPLOYEE BENEFITS

ACTIVITY CATEGORY: HEALTH STATISTICS

PROGRAM AREA:

POSITION DESCRIPTION	NUMBER OF POSITIONS	TOTAL DOLLARS
STATISTICS (Subtotal)		
Program Directors		
Statisticians		
Field Representatives		
Statistical Assistants		
Statistical Clerks		
Clerks		
Secretaries		
Other (Specify)		
EMPLOYEE BENEFITS (Social Security, Retirement, Insurance, etc.)		
TOTAL POSITIONS, SALARIES, AND BENEFITS:		

FORM D

OTHER COSTS

ACTIVITY CATEGORY: HEALTH STATISTICS

PROGRAM AREA:

TOTAL DOLLARS

Travel: .... ________

Shipping Charges (Other than Postage): .... ________

Postage: .... ________

Telephone and Telegraph: .... ________

Rentals and Other Allocation of Machine, Space, and Equipment Costs:

- Photocopy Equipment: .... ________
- Other Machines: .... ________
- Office Furniture: .... ________
- Office Space: .... ________
- Other Space (Specify)________________.......... ________
- ________________.......... ________
- Other (Specify)________________.......... ________

Printing, Duplicating, Binding, and Repairs: .... ________

Contracts:

- Research: .... ________
- Machine Repairs and Maintenance: .... ________
- Technical and Professional Services: .... ________
- Other (Specify)________________.......... ________
- ________________.......... ________

Supplies: .... ________

Indirect Costs (Indirect salaries and other indirect costs) .... ________

(Describe)________________________________

____

____

TOTAL OTHER COSTS: .... ________

FORM D

ADJUSTMENTS

DOLLARS

I. ATYPICAL COSTS INCLUDED IN PAGES 1-3
Describe Type of Expenditure and Frequency Experienced:

II. TYPICAL COSTS NOT INCLUDED IN PAGES 1-3
Describe Type of Expenditure, Position Titles, Number of Positions:

III. SIGNIFICANT CHANGES IN PERMANENT FINANCIAL SUPPORT SUBSEQUENT TO YEAR UPON WHICH STUDY DATA ARE BASED:

FORM E

SUBJECT MATTER STATISTICAL AREAS IN STATE VITAL OR HEALTH STATISTICS PROGRAMS

Statistical Activity	Function: Check appropriate block(s) below						
	Data Collection	Data Classification & Preparation	Data Processing & Tabulations	Data Analysis	Report Preparation & Publication	Surveys or Special Studies	Consultation & Advisory Assistance
A. Vital Registration & Vital Statistics							
1. Vital Registration only							
2. Vital Statistics only							
B. Health Statistics, excluding Vital Statistics							
1. Maternal & Child Health							
a. Maternity & infant care							
b. Prematurity care program							
c. Crippled children							
2. Environmental & Occupational Health							
a. Water pollution							
b. Air pollution							
c. Radiological							
d. Industrial health							
e. Sanitation (food, milk, housing, solid wastes)							
3. General Health & Morbidity							
a. Communicable diseases							
b. Food & drug							
c. Heart							
d. Cancer							
e. Stroke							
f. Diabetes							
g. Rheumatic fever							
h. Other chronic diseases							
i. Accidents							
4. Mental Health							
a. Alcoholic institutions							
b. Rehabilitation centers							
c. Community centers							
5. Health Manpower & Facilities							
a. Statistics for physicians & other medical personnel							
b. Hospital & nursing homes							
6. Population							
a. Family planning							
b. Family growth							
c. Population estimation							
7. Direct Health Services							
a. Laboratory services							
b. Medicare							
c. Medicaid							
d. School health							
e. Nutrition							
8. Comprehensive Health Planning							

Registration Area ____________________

APPENDIX V

ACCREDIDATION COUNCIL FOR PSYCHIATRIC FACILITIES*

A Council of the
Joint Commission on Accreditation of Hospitals
875 North Michigan Avenue, Chicago, Illinois 60611

The Accreditation Council for Psychiatric Facilities, a Council of the Joint Commission on Accreditation of Hospitals, has initiated the Psychiatric Facilities Accreditation Program, aimed at conducting voluntary accreditation surveys of psychiatric facilities throughout the Nation.

The Council has devoted two years to a research project aimed at the systematic development of accreditation standards and survey procedures for psychiatric facilities. The project was financed by a research grant from the National Institute of Mental Health and by contributions from the Council's Member Organizations.**

Whereas surveys of psychiatric hospitals previously were conducted by the Hospital Accreditation Program of the Joint Commission, such hospitals are now surveyed by the new accreditation program for psychiatric facilities. In addition to surveying psychiatric hospitals, the new program has extended its purview to include community mental health centers, psychiatric outpatient clinics, partial hospitalization facilities, and psychiatric facilities serving children.

Criteria of Eligibility

To be eligible for survey, a facility shall:

- Be a psychiatric facility defined as an organization with its own governing body, its own administration, and its own medical staff, and whose primary function is the diagnosis, treatment and/or rehabilitation of the psychiatrically ill, and in which the medical responsibility for patients rests with a psychiatrist or other physician. (Psychiatric facilities include private psychiatric hospitals; public psychiatric hospitals; community mental health centers; psychiatric outpatient clinics; psychiatric partial hospitalization facilities; and psychiatric facilities serving children);
- Meet the requirements of applicable State laws and regulations;
- Have been in operation under the present ownership for at least six months prior to survey;
- Complete and return an application for survey;
- Provide the information requested in the Survey Questionnaire;
- Operate without limitation by reason of race, color or national origin.

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*This document is being revised.

**The Council comprises seven Member Organizations: American Academy of Child Psychiatry; American Association on Mental Deficiency; American Hospital Association; American Psychiatric Association; National Association of Private Psychiatric Hospitals; National Association of State Mental Health Program Directors; and National Council of Community Mental Health Centers, Inc.

The Survey Process

The survey process begins when a psychiatric facility completes and returns the *Application for Survey—Psychiatric Facilities* to the Accreditation Council for Psychiatric Facilities.

If the facility is eligible for survey, the application is processed and the facility is sent the *Accreditation Manual for Psychiatric Facilities*, which contains the standards for quality programs and services in psychiatric facilities.

In order to measure the facility's compliance with the standards, a comprehensive questionnaire is sent to the facility ninety days before it is scheduled for an onsite survey. Since psychiatric facilities vary widely in the degree and complexity of their departments and services, the questionnaire is in modular form, which enables it to be tailored to fit the specific departmental/service makeup of each facility.

The facility completes and returns the questionnaire to the Accreditation Council for Psychiatric Facilities within 30 days.

The questionnaire is processed by computer which generates a "profile" of the facility. This profile comprises a series of "information messages" relating to components of departments/services whose compliance with standards requires further evaluation by the surveyor and an overview of the compliance of the facility with standards. The facility, as well as the surveyor, receives a copy of the information messages several weeks before the onsite visit of the surveyor.

The most important phase of the survey process is the onsite visit by the psychiatrist-surveyor. By receiving beforehand a copy of the information messages and the survey questionnaire completed by the facility, the surveyor is able to acquire an overview of the facility that helps him to conduct the survey quickly and efficiently. This also leaves him time to exercise his essential role as an educator.

Upon completion of the survey, the surveyor sends a report of his survey and evaluation of the facility to the Accreditation Council for Psychiatric Facilities.

The final decision on the accreditation status of the facility is made by the Joint Commission upon the recommendation of the Council and the decision is communicated to the facility within a reasonable period of time after the survey.

In the case of an adverse decision, the facility may appeal the decision according to well-defined procedures of due process.

Questions and Comments

If you have any questions and/or comments on any aspect of the Accreditation Council for Psychiatric Facilities and its accreditation program, please write to the Accreditation Council for Psychiatric Facilities, 875 North Michigan Avenue, Chicago, Illinois 60611, or call (312) 642-6061.

Order Form

CUT ON DOTTED LINE

- -

I am interested in the work of the Accreditation Council for Psychiatric Facilities. Please send me:

________ copy(ies) of the Application for Survey—Psychiatric Facilities		No charge
________ copy(ies) of the Accreditation Manual for Psychiatric Facilities	@	$4.75
________ copy(ies) of the Survey Questionnaire for Psychiatric Facilities	@	$9.75

____
Name

____
Name of Facility

____
Street Address

____
City State Zip Code

Please send your request to:

Joint Commission on Accreditation of Hospitals
Accreditation Council for Psychiatric Facilities
875 North Michigan Avenue
Chicago, Illinois 60611

Make checks payable to: Joint Commission on Accreditation of Hospitals

I am enclosing my check in the amount of $ ____________.

APPENDIX VI

SOME RELATIONSHIPS BETWEEN PUBLIC MENTAL HOSPITALS AND MENTAL HEALTH CENTERS

7. Please estimate for all clients from your catchment area who entered the PMH during the last six months of 1970, what percentage used the following routes.

N=158	*Percentage*
Admitted directly to PMH without going to Center	
a. By court committal	17%
b. Other than by court committal	22%
Transferred from Center to affiliated inpatient unit at PMH	
c. After screening at other part of Center	12%
d. After some treatment at other part of Center	17%
Transferred from Center to non-affiliated inpatient unit at PMH	
e. After screening at Center	10%
f. After some treatment at Center	13%
Other routes to PMH (describe)	
g. OTHER	9%
h.	%
TOTAL ADMITTED	100%

25. Please rank order the importance of the following *ultimate service or outcome goals* for (1) your Center, and (2) the PMH serving your catchment area. Give a rank of "1" to the goal which is most important for your Center, "2" to the next most important goal, etc. Rank the goals of the PMH in a similar manner, giving a rank of "1" to the goal which in your view is most important for the PMH, "2" to the next most important goal, etc.

Ultimate Service Goals	N=183 *Center's Goals*	N=145 *PMH Goals*
Reduce the incidence of mental disorders (prevention)	(1) 2.38	(4) 4.55
Increase the rate of recovery from mental disorders	(2) 3.26	(2) 2.26
Reduce the level of disability associated with chronic mental disorders	(6) 4.53	(3) 2.65
Care for those who display acutely disturbing behavior	(4) 3.71	(1) 1.81
Increase community understanding, acceptance, and support of mental health programs	(5) 3.84	(5) 4.71
Raise the level of mental health and improve the quality of community life	(3) 3.27	(6) 5.0

Are there others? If so, describe____

APPENDIX VII

SELECTED STATISTICS FOR (DESIGNATED AREA) AND COMPARISON AREAS BASED ON 1970 CENSUS SECOND AND FOURTH COUNT SUMMARY TAPES*

General Population Data

(1) Total population
(2) Number of males (in households)
(3) Number of females (in households)
(4) Population in group quarters
(5) Population white
(6) Population Negro

Socioeconomic Status

Economic Status

(7) Income of families and unrelated individuals: median income of families and unrelated individuals
(8) Families in poverty: percent of total families below poverty level**

Social Status

(9) Low occupational status, males: percent of employed males 16 years of age and over in low status occupations (operatives, service workers and laborers including farm laborers)
(10) High occupational status, males: percent of employed males 16 years of age and over in high status occupations (professional, technical and kindred workers and managers except farm)

Educational Status

(11) School years completed: median school years completed by persons 25 years of age and over

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*For counties, information will be available for rural and urban segments, and the white population, the Negro population and persons of Spanish background.

**The term "poverty level", used in these tabulations, refers to the Social Security Administration's poverty index. A family referred to as "below poverty level" is one where the ratio of family income to poverty level is below 1.00.

Ethnic Composition

(12) Negro: percent of population Negro (in households)
(13) Other nonwhites: percent of population other nonwhites (in households)
(14) Foreign stock: percent of population who are foreign born or native born of foreign or mixed parentage

Household Composition and Family Structure

(15) Husband-wife households: percent of all households husband-wife
(16) Age of household heads: median age of household head
(17) Youth dependency ratio: persons under 18 years of age per 100 persons 18-64 years of age (in households)
(18) Aged dependency ratio: persons 65 years of age and over per 100 persons 18-64 years of age (in households)

Type of Housing (Urbanization)

(19) Single dwelling units: percent of housing units that are single detached (trailers excluded)
(20) Highrise apartments: percent of housing units in structures of 7 or more stories

Condition of Housing

(21) Overcrowding: percent of persons in households with 1.01 or more persons per room
(22) Standard housing: percent of occupied housing units with direct access and with complete plumbing and kitchen facilities for exclusive use

Community Instability

(23) Recent movers: percent of population moving into residence 1969-1970

DETAILED STATISTICS FOR (DESIGNATED AREA) AND COMPARISON AREAS BASED ON 1970 CENSUS SECOND AND FOURTH COUNT SUMMARY TAPES*

Socioeconomic Status

Economic Status

Income

(1) Income of families, white: median income of white families
(2) Income of families, Negro: median income of Negro families
(3) Income of unrelated individuals: median income of unrelated individuals
(4) Income of unrelated individuals, white: median income of white unrelated individuals
(5) Income of unrelated individuals, Negro: median income of Negro unrelated individuals
(6) Families in poverty, white: percent of white families below poverty level**
(7) Families in poverty, Negro: percent of Negro families below poverty level
(8) Population in poverty: percent of population below poverty level
(9) Population in poverty, white: percent of white population below poverty level
(10) Population in Poverty, Negro: percent of Negro population below poverty level
(11) High income families: highest quartile family income

Value of Housing

(12) House value, non-Negro: median value of non-Negro headed, owner-occupied housing units
(13) House value, Negro: median value of Negro headed, owner-occupied housing units
(14) Rent, non-Negro: median value of monthly rent of non-Negro headed renter-occupied housing units
(15) Rent, Negro: median monthly rental of Negro headed, renter-occupied housing units

Employment level and Labor Force Participation

(16) Unemployment: percent of labor force 16 years of age and over unemployed
(17) Unemployment, white: percent of white labor force 16 years of age and over unemployed
(18) Unemployment, Negro: percent of Negro labor force 16 years of age and over unemployed
(19) Under-employment, males 25-64 years of age: percent of male labor force 25-64 years of age who worked less than 40 weeks in 1969
(20) Under-employment, white males 25-64 years of age: percent of white male labor force 25-64 years of age who worked less than 40 weeks in 1969
(21) Under-employment, Negro males 25-64 years of age: percent of Negro male labor force 25-64 years of age who worked less than 40 weeks in 1969
(22) Labor force participation, females: percent of females 16 years of age and over in the labor force (including armed forces)
(23) Labor force participation, white females: percent of white females 16 years of age and over in the labor force (including armed forces)

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*For counties, information will be available for rural and urban segments, the white population, the Negro population, and persons of Spanish background.

**The term "poverty level" used in these tabulations refers to the Social Security Administration's poverty index. A family referred to as " below poverty level" is one where the ratio of family income to poverty level is below 1.00.

(24) Labor force participation, Negro females: percent of Negro females 16 years of age and over in the labor force (including armed forces)

(25) Low occupational status, white males: percent of white employed males 16 years of age and over in low status occupations (operatives, service workers and laborers including farm laborers)

(26) High occupational status, white males: percent of white employed males 16 years of age and over in high status occupations (professional, technical and kindred workers and managers except farm)

(27) Low occupational status, Negro males: percent of Negro employed males 16 years of age and over in low status occupations (operatives, service workers and laborers including farm laborers)

(28) High occupational status, Negro males: percent of Negro employed males 16 years of age and over in high status occupations (professional, technical and kindred workers and managers except farm)

(29) Low occupational status, females: percent of employed females 16 years of age and over in low status occupations (operatives, service workers and laborers including farm laborers)

(30) Low occupational status, white females: percent of white employed females 16 years of age and over in low status occupations (operatives, service workers and laborers including farm laborers)

(31) Middle occupational status, white females: percent of white employed females 16 years of age and over in middle status occupations (sales, clerical and kindred workers and craftsmen, foremen and kindred workers)*

(32) Low occupational status, Negro females: percent of Negro employed females 16 years of age and over in low status occupations (operatives, service workers and laborers including farm laborers)

(33) Middle occupational status, Negro females: percent of Negro employed females 16 years of age and over in middle status occupations (sales, clerical and kindred workers and craftsmen, foremen and kindred workers)

Educational Status

(34) School years completed, white: median school years completed by white persons 25 years of age and over

(35) School years completed, Negro: median school years completed by Negro persons 25 years of age and over

(36) Low educational status: percent of persons 25 years of age and over with 8 years or less education

(37) Low educational status, white: percent of white persons 25 years of age and over with 8 years or less education

(38) Low educational status, Negro: percent of Negro persons 25 years of age and over with 8 years or less education

(39) High school completion, white: percent of white persons 18 years of age and over who have completed 4 years of high school or more

(40) High school completion, Negro: percent of Negro persons 18 years of age and over who have completed 4 years of high school or more

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*The percent of the population in high status occupations may be obtained by subtracting the percent of the population in middle and low status occupations from 100 percent.

Socioeconomic Status (Continued)

(41) High school completion, young white adults: percent of white persons 18-24 years of age who have completed 4 years of high school or more
(42) High school completion, young Negro adults: percent of Negro persons 18-24 years of age who have completed 4 years of high school or more
(43) Four year college educational status: percent of population 25 years of age and over with 4 or more years of college

Ethnic Composition

(44) Southern or eastern European stock: percent of population who are foreign stock of southern or eastern European background (Poland, Czechoslovakia, Austria, Hungary, U.S.S.R. and Italy)
(45) Spanish or Puerto Rican stock: percent of population of Spanish background (Spanish speaking, Spanish surnames or Puerto Rican)

Household Composition and Family Structure

General Characteristics

(46) Median household size
(47) Small households: percent of households with one person
(48) Large households: percent of households with 6 or more persons
(49) Children living with their parents: percent of children under 18 years of age living with both parents
(50) Sex ratio: males per 100 females (population in households)
(51) Fertility ratio: children under 5 years of age per 1000 females 15-44 years of age (population in households)
(52) Husband-wife households, white: percent of white households, husband-wife
(53) Husband-wife households, Negro: percent of Negro households, husband-wife

Family Life Cycle

(54) Age of household heads, white: median age of white household head
(55) Age of household heads, Negro: median age of Negro household head
(56) Youth dependency ratio, white: white persons under 18 years of age per 100 white persons 18-64 years of age (in households)
(57) Youth dependency ratio, Negro: Negro persons under 18 years of age per 100 Negro persons 18-64 years of age (in households)
(58) Aged dependency ratio, white: white persons 65 years of age and over per 100 white persons 18-64 years of age (in households)
(59) Aged dependency ratio, Negro: Negro persons 65 years of age and over per 100 Negro persons 18-64 years of age (in households)
(60) Families with children: percent of families with own children under 18 years of age
(61) Childbearing only families: percent of families with own children under 6 years of age, *no* children 6-17 years of age
(62) Childbearing and childrearing families: percent of families with own children both under 6 years of age and 6-17 years of age
(63) Childrearing only families: percent of families with own children 6-17 years of age, *no* children under 6 years of age
(64) Childrearing completed: percent of husband-wife families with husband 45 years of age and over and with no children present

Persons Not in Families

(65) Group quarters: percent of total population living in group quarters
(66) Inmates of institutions: percent of population in group quarters who are inmates of institutions
(67) Inmates of mental hospitals: percent of population in group quarters who are inmates of mental hospitals
(68) Rooming house and related populations: percent of population who reside in rooming houses or other non-institutional group quarters
(69) Households with primary individuals: percent of households with heads who are primary individuals
(70) Non-relatives: percent of persons in households who are non-relatives of the household head
(71) Single males: percent of males 25 years of age and over who have never married
(72) Single females: percent of females 25 years of age and over who have never married

Disrupted Families

(73) Divorced or separated males: percent of males 14 years of age and over who are divorced or separated
(74) Divorced or separated females: percent of females 14 years of age and over who are divorced or separated
(75) Widowed females: percent of females 14 years of age and over who are widows
(76) Female headed households: percent of households with female head
(77) Female headed households with own children: percent of households with own children that are headed by females

Condition of Housing

Housing

(78) Vacancy index: percent of total housing units vacant year-round
(79) Standard housing, non-Negro: percent of non-Negro headed housing units with direct access and with complete plumbing and kitchen facilities for exclusive use
(80) Standard housing, Negro: percent of Negro headed housing units with direct access and with complete plumbing and kitchen facilities for exclusive use

Density

(81) Overcrowded housing: percent of occupied units with 1.01 or more persons per room
(82) Non-Negro population in overcrowded housing: percent of the non-Negro headed household population in housing with 1.01 or more persons per room
(83) Negro population in overcrowded housing: percent of the Negro headed household population in housing with 1.01 or more persons per room
(84) Persons in highly overcrowded housing: percent of the household population in housing with 1.51 or more persons per room

Type of Housing

(85) Renter-occupancy: percent of occupied housing units which are renter-occupied
(86) Trailers: percent of all housing units that are mobile homes or trailers
(87) Large apartment structures: percent of housing units that are in structures with 20 or more units
(88) Single dwelling units, non-Negro: percent of non-Negro occupied housing units that are single detached
(89) Single dwelling units, Negro: percent of Negro occupied housing units that are single detached
(90) Rural population: percent of population rural

Community Instability

(91) Recent movers, white: percent of white population moving into residence 1969-1970
(92) Recent movers, Negro: percent of Negro population moving into residence 1969-1970
(93) Mobile persons: percent of population 5 years of age and over residing in a different house than in 1965
(94) Migrants: percent of population 5 years of age and over in different county than in 1965

Other Populations With High Potential Need for Health, Welfare and Related Services

(95) Teenagers not in school: percent of population 14-17 years of age not enrolled in school
(96) Teenagers not in school, Negro: percent of Negro population 14-17 years of age not enrolled in school
(97) Working mothers with children: percent of mothers 16 years of age and over with own children under 18 years of age who are in labor force
(98) Working mothers with pre-school children: percent of mothers 16 years of age and over with own children under 6 years of age who are in labor force
(99) Aged persons living alone: percent of households that are 1 person households with head 65 years of age and over
(100) Aged persons in poverty: percent of persons 65 years of age and over below the poverty level
(101) Extremely crowded households without complete plumbing facilities: percent of occupied housing units with 1.51 or more persons per room and lacking complete plumbing facilities
(102) Overcrowded households with Negro female heads: percent of households headed by Negro females with 1.01 or more persons per room
(103) Female headed households with own children, Negro: percent of Negro headed households with own children that are headed by females
(104) Large families with low income: percent of families with 6 or more persons and income less than $7,000
(105) Female headed families with children in poverty: percent of families with one or more related children under 18 years of age which are female headed and below the poverty level
(106) Disabled population: percent of persons 16-64 years of age not inmates of institutions and not attending school who are disabled or handicapped
(107) Disabled population unable to work: percent of persons 16-64 years of age not inmates of institutions and not attending school who are disabled or handicapped and unable to work
(108) Poverty children: percent of children under 18 years of age living in poverty

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