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PROCEEDINGS:

VOLUME I

conference-workshop on

REGIONAL MEDICAL PROGRAMS

JANUARY 17–19, 1968 • WASHINGTON, D.C. • NATIONAL INSTITUTES OF HEALTH • PUBLIC HEALTH SERVICE • U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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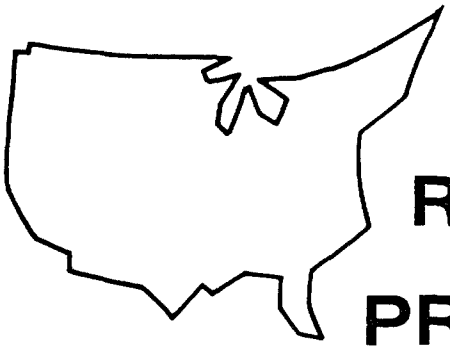

conference-workshop on REGIONAL MEDICAL PROGRAMS

VOLUME I — Plenary Sessions • Panel and Discussion Groups • Related Background Information on Conference-Workshop (Appendices)

VOLUME II — 15-Minute Papers on Regional Activities and Ideas

JANUARY 17–19, 1968 • WASHINGTON, D.C. • NATIONAL INSTITUTES OF HEALTH • PUBLIC HEALTH SERVICE • U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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PREFACE

The January 1968 Conference-Workshop on Regional Medical Programs, the proceedings of which are reproduced in these two volumes, was significant in origin, content and purpose, and marked a milestone in the development of Regional Medical Programs.

Growing out of a specific request of the Program Coordinators at their meeting in June 1967, this meeting was planned by the Steering Committee of Coordinators under the Chairmanship of Dr. Stanley W. Olson, Program Coordinator of the Tennessee Mid-South Regional Medical Program. Its purpose was to provide those directly involved in the development of Regional Medical Programs the opportunity to exchange ideas and information which would be of benefit in the further implementation of their programs at the regional level. The focus was on what Dr. Lowell T. Coggeshall in his summary paper called "the emerging substance" reflected in the on-going activities in the regions, particularly as they related to the key issues of this program, the quality and availability of health care for heart disease, cancer, stroke, and related diseases.

To achieve these goals the Steering Committee invited all regions to present papers on regional activities and ideas; to submit exhibits which could be viewed and demonstrated; and to participate actively in panel discussions. This invitation resulted in the presentation of 60 representative papers and more than 40 exhibits. Furthermore, virtually every invited speaker accepted the opportunity to discuss the major issues of the Conference-Workshop.

The University of Mississippi Medical Center and the Stanford University School of Medicine kindly granted leave to Dr. John A. Gronvall and Mr. Robert G. Lindee, respectively, to act as Conference-Workshop Co-chairmen. These two men established and directed the Conference Office located in the Division of Regional Medical Programs at the National Institutes of Health in the months preceding the Conference-Workshop. Other outside consultants who contributed richly to the success of the program were Mr. Greer Williams, who worked on the actual publication of these *Proceedings* from the receipt of the first abstract until publication, and Mr. Greer Hermetet and Mr. John Craner, who worked with exhibitors and on Conference arrangements.

At the time of the Conference-Workshop, many of the 54 existing regions were completing their operational proposals. The meeting served as a catalyst, so that at the present time operational applications from a total of 24 of the regions have either been approved or are under review. The members of the Steering Committee have expressed their satisfaction that the meeting met the needs and purposes for which it was designed. From the Division standpoint, the Conference-Workshop was a major source of substantive information concerning progress within the programs which was invaluable as testimony before the Subcommittee on Health of the House Interstate and Foreign Commerce Committee on March 26 and 27 in support of the bill to make necessary amendments and to extend Public Law 89–239. Finally, and most important of all, is the probability that this Conference-Workshop will emerge historically as the time when the definition of goals, organizational arrangements, and planning turned in the new direction of initial operational activities in the regions.

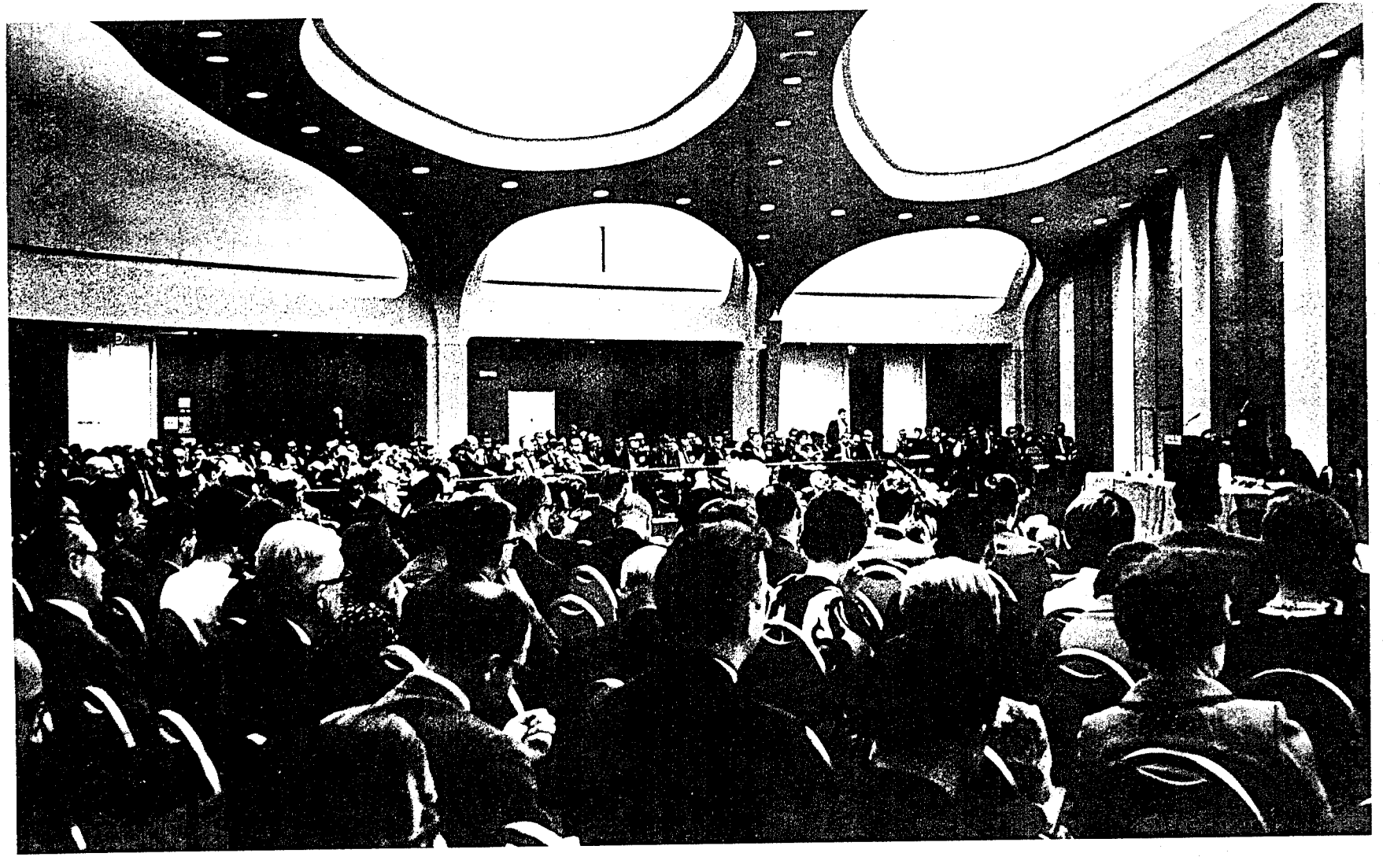
It is interesting to contrast these facts with those of the first National Conference on Regional Medical Pro-

grams held a year earlier in January 1967. That meeting had been called by the Division of Regional Medical Programs to obtain information from a representative group of knowledgeable individuals, which could be used in preparation of the required *Report on Regional Medical Programs to the President and the Congress* (PHS Publication No. 1690), and further to provide an interchange of information on planning and on the goals of the program. Dedicated principally to the problems of definition and elaboration of the concepts of cooperative arrangements, local initiative and evaluation, that first meeting as reported in its *Proceedings* (PHS Publication No. 1682) did much to characterize the program in its early stages of development.

To look back over the past 2 years and see how far we have come is to realize that Regional Medical Programs are no longer a concept, but are becoming an increasingly important resource for improving the care of patients with heart disease, cancer, and stroke.

Robert Q. Marston, M.D.
Associate Director,
National Institutes of Health,
and Director, Division of
Regional Medical Programs

March 31, 1968



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Lowell T. Coggeshall, M.D.

SUMMARY OF CONFERENCE-WORKSHOP ON REGIONAL MEDICAL PROGRAMS

Lowell T. Coggeshall, M.D.
Vice President Emeritus
University of Chicago

At the outset of this meeting, Robert Marston spoke of the "emerging substance" of the Regional Medical Program. In so doing he made my summing-up task so much the easier by providing, in one modest but apt little phrase, the keynote for the entire proceedings. Reading the proceedings of a year ago, I vaguely recognized the form of the program. Now, in addition to form, I find substance.

In medical science and practice—health care—the ultimate substance is advancement of knowledge or method that makes some worthwhile difference in the lives of people. That is, what we as members of the health professions and the great American public look for is to be found under the tormenting, unforgiving, one-word label: RESULTS. If we do not have in hand the kind of good results we want, and this is certainly the case in heart disease, cancer, and stroke, then we are prone to speak in terms of PROMISE. I do not mean false promise in this instance. I mean reasonable hope for enriching as well as prolonging life. What are the goals we seek to accomplish? As Laura G. Larson from the Mountain States Regional Medical Program has so intelligently pointed out: "Goals are essential to the success of any project because no one gets what he wants until he knows what he wants."

REGIONAL ACTIVITIES AND IDEAS

The corpus of this conference is found in the 60 reports selected, I understand, from 100 papers submitted. These 60 have been presented to you in the last 2 days and, with astonishing speed, published in two bound volumes and placed in your chairs, day by day and volume by volume.*

I will address my first fleeting remarks to this body of reports entitled *15-Minute Papers on Regional Activities and Ideas*. Since the total program, both in its planning and initial operating phases, exclusive of a short leadtime, is hardly more than a year old, it is a little early to speak about results. So, quite logically, we find little about results in these reports.

Rather, most of these reports run much in the vein of the one from the Tennessee Mid-South region, as presented by Lloyd Elam from Meharry Medical College. Let me give you enough of the sense of Elam's report to make my point about emerging substance and, in sum, provide a frame of reference for a reaction to the Regional Medical Program that I find I share with a good many others. It would be inaccurate in the extreme to say that I came to sneer and stayed to cheer, but I did arrive at this conference in a state of ignorance and I am going away much impressed with what I have learned, and with a great deal of enthusiasm for the program's future. I will try to make this enthusiasm a little more specific later on.

Elam, in the introduction to his report, points out that—in contrast to its dramatic exploration of causes, diagnoses, and treatment of disease—American medicine "has conducted only rudimentary research into how this new knowledge can be distributed and whether it makes much difference when it is." He points out what so many of us know but not all of us can make rigorously clear when we go to the White House or Congress for the money: "Yet," he says, "we have no precise knowledge of whether comprehensive medical care coupled with modern technology can be effective in improving the health of our citizens."

In this frame of mind, this voluntary program, headquartered jointly at Vanderbilt and Meharry, is attempting to find out whether comprehensive, family-oriented health care in a neighborhood health center coordinated with an automated multiphasic screening laboratory will result in improved mortality, morbidity, health service utilization, and health attitudes among impoverished people. Further, can this approach reduce the costs of illness, and can it preserve or restore the family?

This program, I am delighted to find, prefers the experimental to the exhortatory method of health progress. It is dividing its study population into three groups. One will deliver comprehensive care in a neighborhood health center plus multiphasic screening laboratory services to one group. It will give only the screening laboratory services to a second group. And it will save a third group for control, leaving it to obtain traditional medical services as best it can. The meaning of comprehensive health care, by the way, has been defined here as compassionate, personal, continuing, family-oriented, relating the patient to one doctor but giving him specialist group reinforcement and a modern technological backup. Further, the participating members of the community will have a direct voice in policymaking at the center.

This is but one example, and perhaps more sophisticated than some, but is fairly typical of many other regional efforts, I think. The effort is sober, sensible, and devoid of any claim or promise overrunning the evidence or defying reality. It is an effort in which any of us in clinical, academic, and scientific medicine would be proud to take part. Indeed, I think it is an approach we have been groping for. The willingness to experiment, to try and risk negative results is a source of strength in these programs.

**The 60 reports are available as volume II of the Conference-Workshop Proceedings.*

DR. COGGESHALL

The program reports reflected both a wide variety of plans and a general sense of progress but, because no one as yet has the recipe for instant health, it was a progress of expectations rather than of realization in most instances. In the time available I can give only a few examples.

As Breslow pointed out, the granddaddy of American regional medicine is the Bingham Associates Fund of the Tufts-New England Medical Center, which has been operating in the State of Maine since 1932. This program still flourishes, now under Regional Medical Program auspices. It is pleasing to find that innovation still flourishes, too. As reported by George Robertson, a guest resident program has been placed in operation. Tufts sends residents and clinical fellows from Boston to work in selected small community hospitals of Maine. These postdoctoral students go to Maine as teachers without diplomas. They cannot be used for routine hospital work because their presence is discontinuous. The local doctors do not think of the guest residents as teachers so much as channels of information from the medical center. They seem happy to learn, through these young men, how the professors currently handle various problems. It seems that you can teach an old dog new tricks, provided you know more than the dog. Put a nicer way, it always has been possible for the old to learn from the young.

We find another kind of innovation involving geography and logistics in the program of the Mountain States Regional Medical Program, operated by an organization called WICHE (pronounced "Whichy")—the Western Interstate Commission on Higher Education. Here is a region covering all or part of four States—Idaho, Montana, Wyoming, and Nevada—an area of 440,000 square miles with only 2,100 physicians, 15,000 other health professionals, and no homing institution, that is, no university medical center. Yet, I am told, this program has one of the most active and enthusiastic organizations and has found a cordial reception in the medical centers serving it from outside of the Mountain States region.

Much emphasis has been placed on the need for innovation in the Regional Medical Programs, but it is not all innovation, of course. Many of the principles of good health care that do require innovation for wider and more effective delivery are deeply rooted in the traditions of medicine as well as community organization. We find frequent reference to the importance of "concern" and "involvement" and at one point Willard A. Krehl wraps the matter up by stating: "The important objective is concerned involvement."

Speaking of the "educational package," William G. Cooper says: "One of the major overall objectives of Regional Medical Programs is to enhance the learning of all members of the health care team in order that they in turn will be able to provide

medical care for their citizenry. The 'learner' in this case may be the doctor, the nurse, the medical technologist, the physiotherapist, other members of the team or indeed the patient himself."

The Albany Regional Medical Program approaches continuing education by turning the tables on the medical center, as Frank M. Woolsey implies. If the mountain, that is, the practicing physician in the community, will not come to Albany Medical College for further training, Mahomet, that is, the medical center, will go to the mountain. The strategy is "community hospital learning centers" and the instrument is a so-called medical juke box, now in its developmental stage. This juke box plays records and projects pictures of whatever the medical center is pushing, educationally speaking. The basic machine is actually a commercial juke box, and the new jargon is wonderful: "Dial-access carousel projectors have been added."

We find a great deal about automated multiphasic screening at the rate of 60 tests a minute in the program reports, and a heavy emphasis on the familiar subject of continuing medical education. I am pleased to find Margaret Sovie from Syracuse reporting on continuing education in nursing, using the teaching facilities of a university hospital nursing service. Again, as throughout the program, we find a resort to electronic communications techniques, television, the telephone, and so on. The medical and nursing professions are capitulating quite brightly and gracefully, it appears, to the offerings of the visual and audio communications industries. Yet I am enchanted to learn, although not from a formal paper, that a network of small rural hospitals in the southwestern area of North Carolina called the "State of Franklin" plans to resort to carrier pigeons to transport laboratory specimens back and forth. The pigeons can carry the load. But for transplantable hearts, I assume, it will be necessary to employ falcons. Actually, a pigeon homing on a hospital laboratory serving smaller institutions, to me, expresses the very essence of regionalization.

But Luther Christman, Dean of the School of Nursing at Vanderbilt, a sociologist, sounds a warning that I can appreciate, from a career lifetime in internal medicine: ". . . Because messages about care must filter through many people, the messages may become garbled or not reach their target at all. Much time must be spent scurrying around . . . to insure that everyone is informed about the necessary care measures for each patient. Under this set of conditions there is likelihood of many errors of omission. . . . Thus, patients may be placed in some jeopardy by the very system set up for their care." It warms my heart to find a sociologist preaching this essential point of first-class clinical medicine.

Vincent Larkin, from the New York Metropolitan Regional Medical Program, a megalopolis constituting one of the largest regions in the Nation, diverts our attention from the limitations of the average practitioner, about which we hear so much, to those of the medical schools, so often assumed to be the ideal base for regional medicine:

"On closer inspection we can see that the medical school falls far short of being able to play this central role effectively. Institutions which have focused on the training of medical students are asked to focus on the patient; faculties which have been devoted to the education of medical students, interns, residents, and fellows are asked to instruct practitioners; high walls which were erected to protect the standards of the ivory towers are to be demolished without assurance that the standards will not be lowered and the ivory towers sullied; in short, the racing car is to be harnessed to the plow."

Therein lies one of the less obvious but more difficult problems in our heaven - and - earthmoving project, otherwise known as regional medicine. I can speak with the authority of a retired dean who has had many times to move his faculty in the direction of desirable change, sometimes finding that having moved these distinguished men he has to move them again at a later time and over the same ground.

ISSUES RELATING TO QUALITY AND AVAILABILITY OF HEALTH CARE

Having felt my first responsibility was to do justice, however inadequate, to the Regional Medical Programs in action, I can now, as the program for the opening session suggested, focus on the issues, in summary fashion.

The first three speakers were extremely well chosen for a diversity of viewpoint and as conversely it turned out for the general harmony of their remarks. On essentials, I think, there was not discord but general agreement, a wonder to contemplate since they projected the disparate images of medical dean, public health official, and medical politician. I grant that each represents a great deal more than these one-dimension profiles as anyone who knows Carleton Chapman, Lester Breslow, and—most pertinently—Dwight Wilbur might protest. I speak of this professor of medicine as a medical politician only because I doubt that anyone can rise to become president-elect of the American Medical Association without engaging in the politics of organized medicine.

Because the Regional Medical Programs now seem to be developing, explicitly or implicitly, as a reasonable and acceptable idea, and do have the approval of the American Medical Association, I am sure the Regional Medical Program's councils and staff would as leave forget the program's rather opportunistic

conception and bizarre gestation, but our speakers, with a sense of history that scholars can hardly abandon without impairment of their spirit of free inquiry, could not leave genesis quite alone.

Chapman remarked that the enabling legislation was born "amid talk of crisis in medicine," and added, "There has been so much talk about the crisis in medicine that we are beginning to consider all the shouting with suspicion instead of alarm." Wilbur, reflecting on origin and intent, agreed that "in many respects this act is quite extraordinary." Certainly none of us who had the opportunity to read the DeBakey report from an objective position can express anything but pleasant surprise that the heart disease, cancer, and stroke program has turned out so well. Whatever ground the infant lost in questionable percentage or difficult delivery, it has been made up through skillful legislation and administration, as well as being demonstrated in the emerging substance I mentioned. Due in part to the information overkill on heart disease, cancer, and stroke and in part to the simple fact that planning and organization strike the public as dull, the Regional Medical Programs until now have not had much of a story to tell. Speaking perhaps gratuitously for regional medicine, I would say the story is getting better all the time. I am much impressed with it.

Under the title, "Science and Service," Chapman's primary message was that research is service, even as teaching and patient care are services. There is really no quarrel here, and his is a nice way of promoting healing of the conflict resulting from the overemphasis on medical research at the expense of teaching and patient service.

Chapman speculated that Federal participation in the creation of a climate favorable to research is traceable to the career officers of the Public Health Service; in this, I should differ with him by amplifying those responsible to include not only crusading Public Health Service officers but health-minded politicians and research-minded physicians from the medical schools and research institutions. As a matter of fact, the first sizable medical research grants to nonprofit institutions and their investigators came from private philanthropy, followed by national voluntary health organizations. The Federal Government embraced such support after World War II and greatly augmented it.

Chapman further speculated that the "politics of the research climate," have "kept us from developing a mechanism capable of looking at the health problem for what it actually is: A tightly interrelated, enormously complicated, and overwhelmingly important unity." He pointed out that we as yet do not have an organizational pattern that is strong enough to foster balanced development of research, teaching, and practice.

Chapman denied that medical practice has failed to bring the fruits of biomedical research to the patient's bedside, but agree that the delivery of these fruits has been spotty. He also justly contradicted the common charge of a gap between laboratory discovery and application in medical practice, suggesting that if the biomedical researcher has any fault, it is that "he rushes into print and sometimes onto the television screen much too readily and uncritically" with findings described as breakthroughs. So, "it is small wonder that both physicians and laymen become bewildered when so many breakthroughs are either forgotten or proved wrong a year or two later."

This speaker conceived the problem to be one of equal access to health services on the part of all people, and concluded that the Regional Medical Programs is a moderate, evolutionary measure designed to carry out the prophecy that public dollars spent for research can bring us better health.

Those who believe that social groups with long-established and well-defined self-interests are apt to be moved only by threats or by promises have been made skeptical of the outcome of a program which depends, by direction of Congress, on voluntary cooperation of practicing doctors, academic medicine, public authorities, and a variety of others not wholly distinguished for their compatibility. I must admit to having shared this skepticism until the last three days.

Wilbur, however, was more sanguine about our capacity for social action and progress by common consent. He recalled that "De Tocqueville identified this unique American ability to become associated with others to plan and operate programs in the absence of central governmental direction and control."

Here, beyond a doubt, is the key to the future success or failure of a Regional Medical Program that has the singular characteristic of being imposed not from the top down but the bottom up and therefore leaves the distinct impression of having no strong and inspired leadership. The potential genius of the Division of Regional Medical Programs is that it insists that the ideas and the initiative, the organization and the stimulus, come from the grassroots, so to speak. There are some students of their fellow man and his motivations who regard all this as too good to be true, yet as far as the arrangements in 54 different regional programs have gone it is true.

Wilbur praised Dr. Marston and his staff for "the creation of a local and regional climate which engenders voluntary cooperative action to improve the health care organizational patterns and delivery system which currently exist," and later added, "in a sense, the program combines the better features of the liberal and conservative approaches to a creative society."

At the same time, Wilbur spelled out the position of organized medicine's cooperation in unmistakable terms. It is well known, I should note, that physicians and hospitals have credentials and qualifications by which they attempt to assure themselves of each other's competency and hope to insure their patients of a high quality of medical care. Since a poor quality of care is sometimes worse than none at all, it is natural for intelligent patients or their group representatives—such as organized labor or welfare agencies—to apply the profession's own standards to obtain the "best medical care." There is, of course, no guarantee.

Wilbur warned: ". . . If RMP becomes an instrument for the establishment of national standards with the coercive compliance compelled by such standards, it will arouse nationwide resistance from physicians, institutions, and allied health professionals. What can be gained by cooperation and meaningful participation will surely be lost if the use of coercive power, which for the moment lies dormant in Public Law 89–239, becomes its dominant characteristic."

This was practical advice on how to avoid conjuring up old devils, such as the fear of "socialized medicine."

Breslow touched on other kinds of problems in the regionalization of health, such as the fact that those interested in environmental health control and those planning patient care services "have remained almost entirely oblivious of each other," he also mentioned runaway costs: "The tremendous costs involved in applying just one set of advances in medical science, namely, organ transplantation, are causing top budget officials in Federal and State governments to burn the midnight oil. How fast should we develop these new procedures and how can economy be maintained?"

We must hurry on without answering these questions.

Roger O. Egeberg wished to give no ground on the need for excellence, but pleaded that availability of services was every bit as important as their quality.

Ray E. Trussell conceded that the pursuit of high quality care was time-consuming and costly, and supported Wilbur's position against national standards in regional medical care, yet he held that at his level (the city of New York) it is necessary to limit public funds to medical and hospital services that meet minimum standards. "Training bright practitioners to give better care to private patients will not satisfy the intent of RMP," he said. "There has to be an improvement in service . . . ."

Frank P. Lloyd explored the techniques of involvement by which the quality of medical care can be raised—for example, by persuading practitioners to give routine Papanicolaou smears. Amos Johnson, the articulate general practitioner from a rural North Carolina community attacked the issues of quality and availability from still another standpoint: How you persuade doctors to come to and stay in small towns. One good way is to begin with a community attractive to the doctor's wife. Anything that makes life tolerable for the doctor also helps. Johnson demonstrated himself to be quite comfortable with the idea of upgrading the quality of the practitioner's services.

DISCUSSION GROUPS

A kind of rough and ready validation of the choice of issues and points pursued by the program speakers came out of the discussion groups. In some instances, discussants stated their problems and their opinions more forcefully than the speakers. This was the case in the group that pondered urban and related problems. Their concern had to do with the difficulties of promoting community involvement and organizing regional programs in metropolitan areas containing a wide variety of overlapping or conflicting institutions and agencies medical schools, hospitals, voluntary health and welfare agencies, or the like. I listened, and heard lively discussion but no answers.

In these discussions, no one questioned the existence of a health manpower shortage, nor did anyone quite know what to do about it. Participants appeared to agree that no one knows for sure how many doctors and other health professionals the country needs, inasmuch as there is presently no way to measure the quality of care they are giving, the efficiency of their methods, the validity of "felt needs," or the number of persons not getting adequate health care.

The suggestion that the Regional Medical Programs offered an extraordinary opportunity to pin down some of the variables in meeting manpower demands and thus make a beginning toward solution obtained ready acceptance. In my own opinion, the organization, distribution, and more effective utilization of the services of health professionals is equally as important as, if it does not have higher priority over, large increases in the production of doctors, nurses, and others.

ADMINISTRATION OF REGIONAL MEDICAL PROGRAMS

Presentation of the Regional Medical Programs through the eyes of Bob Marston and his staff provided an excellent demonstration of the division's genius for drawing attention not to itself but to its regions, whence all things come and where all things happen, according to the law. In all probability, those listeners who concluded that the staffers of this division of the National Institutes of Health were a lot less interesting than the people from the field were merely uncomprehending of the devotion of Bob and his staff to the concept that leadership must come from the com-

munity or region and not from Washington bureaucracy.

It was a highlight of the conference, from my standpoint, to find that the members of both the division and the staffs of the programs themselves were, at every level, persons of apparent high caliber. The observation extends to the many bright, young people I met. The analogy of the university came to mind; the institution is precisely as strong or as weak as its faculty. Talent was plainly visible in the division staff and the regional coordinators and their staffs.

If this unusual policy of leadership—someone called it "creative anarchy"—survives its inherent disadvantages, such as the apparent lack of aggressiveness and articulateness, it will constitute one of the great tours de force in the history of public administration. The idea of carrying out the effective organization and operation of a program based on the necessity of voluntary cooperation and implemented by letting leadership come from the outside in and the bottom up is difficult to get used to, I concede. Once one appreciates what is happening, however, he is not disposed to change it, but becomes rather intrigued with how it will come out. The division staff otherwise gives every evidence of being extremely able. There seems to be method in their madness.

Marston quoted his chief, James Shannon: "Although we must contend with many diverse geographic and social circumstances, NIH, in administering the Regional Medical Programs, will strive to preserve existing centers of excellence in science, education, and service, while, at the same time, working with State and local forces, evolve a system that will make available to the bulk of the population medical services that are excellent in quality and adequate in quantity—at least in a major segment of the diseases that plague us all."

I have little doubt that his approach would have been extremely puzzling to some of the earlier prophets of regional medicine, such as John Grant of the Rockefeller Foundation or Joe Mountain of the Public Health Service, as it may also perplex some of the advanced students of social systems and processes. But if we regard the program as an experiment we may also conceive it as a rather startling innovation. It has the great virtue of keeping the enterprise well removed from that battlefield where we can still see the unburied bones of many a social planner and social reformer—that is the battlefield of socialized medicine.

Alexander M. Schmidt, chief of the Continuing Education and Training Branch, sums up the situation in this articulate fashion:

"The challenges faced by Regional Medical Programs are now readily apparent and, while great in size and scope, are matched by the potential for solution offered by the programs. The fragmented medical services, the rising costs of care, the shortages, the impersonalized and disjointed system, and the educational imperfections are the fabric of our health care crisis. The new emphasis being placed on these major issues by Regional Medical Programs is being reflected by the developing resources and energies of the programs."

It is significant that the staffers speak of not one program but of "programs" in the plural. In other words, we have borne witness in these three days to the emerging substance of 54 "happenings," that is, 54 Regional Programs now in existence. In place of the old medical analogy of the three-legged stool of teaching, research, and service to patients, I should like to introduce a new one to fit the occasion. I see the Federal Government as the hub of a wheel in which the spokes are teaching, research, and service, and the rim binding them together is Regional Medical Programs.

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QUALITY AND AVAILABILITY OF HEALTH CARE FOR HEART DISEASE, CANCER, STROKE, AND RELATED DISEASES IN THE FUTURE AS RELATED TO. . . .

SCIENCE AND SERVICE
Carleton Chapman, M.D.

REGIONALIZATION OF HEALTH SERVICE
Lester Breslow, M.D.

DEVELOPMENT OF PERSONAL HEALTH SERVICE
Dwight L. Wilbur, M.D.

THE POPULATION
Panel: Roger O. Egeberg, M.D.
Ray E. Trussell, M.D.
Frank P. Lloyd, M.D.
Amos Johnson, M.D.

QUALITY AND AVAILABILITY OF HEALTH CARE FOR HEART DISEASE, CANCER, STROKE, AND RELATED DISEASES IN THE FUTURE AS RELATED TO—

SCIENCE AND SERVICE

Carleton Chapman, M.D.
Dean, Dartmouth Medical School
Hanover, N.H.

Regional Medical Programs is a concept that was concerned, and is now being implemented, amid talk of crisis in medicine.

There is so much talk today about the crisis in medicine that we are beginning to consider all the shouting with suspicion instead of alarm. We are becoming so used to talk of crises and dire predictions that we are getting a little bored with the whole thing.

But there is a crisis in medicine, misdefined but real, one which has been gradually gathering force for a long time. All three aspects of our profession—research, practice, and education—are caught up in it and there obviously is no easy resolution. The three components have coexisted to now, each leading a relatively independent existence despite overlaps here and there. Each component has, from time to time, teamed up with one of the others for special—usually defensive—purposes but the preservation of independence has still been paramount. This, contrary to the views of some groups, has not always been a bad thing. On the contrary, it has for generations been a reasonable modus vivendi under which a great deal has been accomplished if we persuade ourselves to take the long view of it. But it has, at the same time, allowed the problems we must now solve to develop. We cannot now go our separate, independent ways and that, to my mind, is one of the chief things the Regional Medical Program law is all about.

SCIENCE IS SERVICE

My topic—Science and Service—is a very appropriate one by means of which to approach today's problems, although I know in advance that I run the risk of being too diffuse in coming at it from this angle. But I should say at the outset that if we don't approach the problem diffusely—or at least in general terms—we will fail to reach above the special privileges, functions, and obligations our individual professional callings impose on us. And we will fail to perceive the elements of nobility that are inherent in the taxing and gruelling effort that lies before us.

In this connection I should like to persuade you that science is service, that however basic and specialized it may be, its relation, immediate or distant, is to human need, hopes, and aspirations. The term "research in the service of mankind" has very fundamental meaning despite the fact that it has become so hackneyed and its context so restricted that it rubs many of us the wrong way. The basic researcher, no less than the conscientious schoolteacher or medical practitioner, is engaged in rendering a service to the public. He may succeed, within the confines of his laboratory, in improving the lot of millions; or more likely he will accomplish a much less dramatic objective. But he is engaged in public service all the same. Unfortunately, the more unobtrusively he works and the more remote his research area from immediately discernible need, the more likely he is to be regarded as a supernumerary, a parasite, on the social body. Or it may be assumed that if he works part time at some task that is visibly and immediately useful he may be allowed, more or less grudgingly, the right to do basic research on a limited basis. In other situations, the investigator is viewed with tolerance because he is obviously capable; but he is at the same time considered to be so impractical that someone in authority must tell him what work he can and cannot undertake.

THE CREATIVE CLIMATE

All these views are, in their undiluted forms, grossly wrong and are in themselves a public disservice. The question no one, the scientist included, is really willing to face is: How does society produce its Curies, the Floreys and Flemings, the Enders and Salks; the Einsteins, the Bohrs, and the Fermis? It is not, in our own bewildering and complex day, an accurate answer to say that outstanding and gifted men will rise to prominence no matter where they happen to be born and live out their lives. We know, of course, that a man like William Withering made his methodical observations while he was engaged in a busy medical practice and he did it without a shred of encouragement from His Majesty's government or from a university. Such men will unquestionably appear from time to time even though the climate of their time is one of indifference to investigative effort. But it happens extraordinarily rarely. We know also that phenomena like Leonardo de Vinci have sprung up from time to time in what seems superficially to be the most unpromising settings. Leonardo, at the start, had little more than a proud father to urge him on. But we tend to forget that he had his patrons in his formative years; men like Lorenso di Medici, who made it possible for him to work independently for something like 15 years. Whenever extraordinary talent has flourished, the ambient society has almost always had a hand in it by creating, one way or another, a favorable climate.

Today, the patrons of research are mainly the great foundations and the Federal Government, acting through the universities. Quite early in the life

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of the American republic, our universities attempted on their own to provide a limited climate for research creativity as it was then understood. Our Government at first had its hands full with other matters and took no direct action to support research but in Britain the identity of research and service was comprehended relatively early. Victoria had been on the throne little more than a decade when the Parliament gave scientific creativity a boost, using taxpayer's money for the purpose. It did it by setting up a system of grants-in-aid to individual scientific investigators, to be administered by the Royal Society. The Society itself was a bit suspicious of the government's intent but the system was accepted and the first grants were made in 1850. Socially and politically, it was a monumental event in the English speaking world; yet one can search all the standard authorities on Victorian Britain and find hardly a mention of it. The scientists themselves failed to comprehend the social importance of what was happening. They may, possibly, have been a bit ashamed of it and they grumbled about threats to their independence; but, even so, they accepted the funds and went to work. No one, least of all the scientist, seemed to understand that the creation of a healthy climate for that form of public service we call research is in important measure a political matter with all that that entails. Someone who is knowledgeable about politics and other social forces, as well as about science, had to point out the need for such a climate and had, at the same time, to be able to make the concept politically acceptable. It was and remains a subtle and tedious process; and the key to success was and is a convincing presentation to the public and to legislators of the fact that, in the short term and in the long, research is service and must not be defined too narrowly.

In the United States, Federal participation in the creation of a climate favorable to research in the health field seems to have come not from our great research societies—not directly from the most renowned of our scientists—but from an arm of the Federal Government itself: The U.S. Public Health Service. The effort began about the turn of the century and the most significant step was taken in 1937, when the National Cancer Act not only set up the National Cancer Institute but also gave the Public Health Service authority to award grants-in-aid and fellowships to independent investigators working outside Federal institutions. The subsequent evolution of the system, and the fundamental features which have made the National Institutes as we know them today so extraordinarily successful were the work of perceptive and dedicated career Public Health Service officers.

The importance of all this is, I believe, very fundamental indeed. The politics of the research climate is a poorly understood and badly ne-

glected academic topic. I should hope that before very long an enlightened scientist, perhaps working with other men from other disciplines, will study the matter exhaustively and that, in so doing, he and his colleagues will put all these forces—political, scientific, social—into proper perspective. Such a study has not, to date, seemed very important. Had it been otherwise, and had the very term "research climate" been viewed realistically instead of as a justification for emulating across the board the example and method of the medieval university we might be much further along. It would, I believe, have led us to create an orderly technique for self-examination and broad projection.

But the influences and currents that have tended to keep the biomedical researcher, the educator and the practitioner on his own narrow path have by the same token kept us from developing a mechanism capable for looking at the health problem for what it actually is: A tightly, interrelated, enormously complicated, and overwhelming important unity. We have not developed an organizational pattern that is strong and resourceful enough to foster simultaneous and appropriate development of all three main components. And now that the imbalance is apparent at all a counterreaction has set in which tends at times to exaggerate the imbalance and to set the stage for remedial action which may turn out to be less than optimal. Unless an effective common meeting ground is quickly established, our actions in the immediate future may do nothing more than to create a new type of imbalance, fully as unfortunate as the present one, in which the research climate is attenuated while one or both of the other elements is built up. This, some of my colleagues in the academic world are saying, is precisely what is happening and they may be right. The danger of creating a new imbalance is a very real one. The unifying force of the future, as the Regional Medical Program law recognizes, will probably be the emerging medical center, an agglomerate of hospitals, medical and health training facilities, community health centers and programs, and varying amounts of input from parent universities. This may not be ideal. But, since our system has developed no other unifying force, it is coming to be the fact. Paul Sanazaro recently defined the "broad outlines of academic, scientific, and social adaptations in our medical (centers)." He cites a redefinition of goals to include broad community involvement and restructuring of the medical schools, administratively and curriculumwise. His hope and apparent expectation is that all this can be done so judiciously that none of the good in the present, admittedly outmoded, system will be lost. This may possibly be the case if the process is an orderly and evolutionary one. There are those, on the other hand, who feel that the goals are so patently clear, and the present situation so blatantly bad, that only revolution will suffice. But these gentlemen, I believe, fail to understand that revolution is a process which injects an element of violence and disorder into a progressive movement that is already underway. And fully as often as not, the end result is a destructive one and an obscuring of noble and necessary goals which have themselves already arisen by evolution. But the least we in the academic world face, as we go about redesigning our methods and tailoring or expanding our total product to meet the Nation's needs, is a degree of internal dislocation and redistribution of emphases. The Regional Medical Program law, the cynics notwithstanding, is designed to minimize the disturbing effects.

THE PROBLEM ITSELF

There are those who ask: What problem? What crisis?

The problem has been defined, in what I think to be unfortunate terms, as the failure of the fruits of biomedical research to reach the bedside. The fact is that they are indeed reaching the bedside—but very spottily. If the biomedical researcher has a fault it is certainly not that he locks up his findings in his files. On the contrary, he rushes into print and sometimes onto the television screen much too readily and uncritically. The public and the practicing physician come all too quickly to be apprised of research findings most of which are likely to be described as breakthroughs. And it is small wonder that both physicians and laymen become bewildered when so many breakthroughs are either forgotten or proved wrong a year or two later. Some of them unfortunately reach the bedside almost immediately and produce results of which, understandably, very little is subsequently recorded. To intimate, as the President's Commission on Heart Disease, Cancer and Stroke did in late 1964, that the researcher is revealing his findings only to other members of his own particular research brotherhood is, I think, to avoid the major issue. There is no conspiracy of secrecy involved. But it is quite another matter to point out, as the Commission also did, the undeniable fact that *equal access to full and effective health services is not available to all our people*. And it is a diversion to engage in debate on whether adequate health services are a privilege or a right. However the statutes read, the strong probability is that our electorate comes closer to regarding these blessings as a right than as a privilege. Our country has been sold on the proposition that if we use public funds to enhance the development of a climate favorable to biomedical research, the country's health will be the better for it. This proposition is quite correct as far as it goes; but it is not complete in itself. It has taken us only part of the way toward the realization of the public expectation and, I believe, of the intent of the Congress. Regional Medical Programs

is a moderate, evolutionary measure designed to take in the rest of the way.

THE REST OF THE PACKAGE

To complete the job so well begun, complementary steps are obviously necessary and we begin to run into conflicts of interest and philosophies. This stage, as I have already intimated, might have been avoided had we developed a unifying planning mechanism as we proceeded in the development of a very necessary climate favorable to research. But this has not happened and it is reasonable to ask why it has not.

Should the researcher, public servant that he undeniably is, have done it? Should the medical schools have taken the lead in it? Or should the practicing physician, busy man that he is, have brought it about? The obvious answer is that for various and complex reasons no one of the three arms of our profession has been able to operate above the principle of independent coexistence.

The researcher, accustomed as he is to logical and methodical approaches to biomedical problems, might have helped by broadening his definition of research to include some aspects of the distribution of health services. This could probably have best been undertaken through the research societies; but it has not happened. The tendency, on the contrary, has been to establish a stratified attitude toward research; the top stratum is the most abstract; the lowest strata are those items which deal with such mundane matters as community structure, the distribution of health personnel, emergency and screening mechanisms, and the like. Our research societies have accepted, not implausibly, the upper strata as their proper bailiwicks and have, in effect, continued down the years to create valuable and indispensable forums for their members. But most of them have shown no great interest in the lower strata and have at times, in fact, unofficially reacted against proposals to attack such problems in depth. There has been an unhappy resistance to the fact that the strata are interdependent and, indeed, continuous.

Nor have the medical schools been notably successful, as a group, in creating some sort of planning mechanism that would have prepared us better for what we must now undertake. Many of our schools have inaugurated or participated in efforts to shore up the educational process itself and to assist in correcting the maldistribution of physicians by setting up programs designed to encourage young graduates to tackle general practice in relatively large areas. These efforts have failed. The schools cannot by their own efforts counter the forces that are producing major shifts not only of physicians and other professionals but also of the population at large. Nor have they any way of undoing the simple fact that many of the most effective of modern diagnostic and therapeutic methods are much too expensive to be installed and staffed in every town and village in the country. And the lack of access to such methods is one reason physicians decline to set up shop in small communities. Medical school researchers have devised most of these advanced methods and have, therefore, indirectly participated in the maldistribution of physicians. Should we therefore now destroy these tools and dismantle the system that produced them so that, as in the early 19th century, our great medical centers will have no more to offer than one man carrying the traditional doctor's bag of instruments?

No one today seriously argues that we should take such a course although one occasionally sees nostalgic statements that have somewhat the same effect. Obviously, what is needed is an effective link between the patient, wherever he is, the physician, the investigator, and the medical center. The Regional Medical Program law was designed to develop such a linkage and to improve those that already exist. And it puts the primary responsibility on regions. The medical schools and their investigators, along with the consumer and the physician, are inevitably specified by law as participants.

CAN IT SUCCEED?

But can the law really succeed in accomplishing such a goal? Will it really succeed in inducing relevant but disparate elements, which have never before actually pooled their resources to the extent that the magnitude of the problem unquestionably requires, to do so now?

Very frankly, I doubt that anyone can say. The law will not of itself fundamentally change the goals of the basic researcher and the service he renders, items which are in themselves justifiable and necessary to society. The law will not overnight transform the desperation many of our physicians feel as they battle to carry their service loads; nor will it necessarily convince all our physicians, or for that matter the entire public, that our traditional system of health service needs updating. And as for the consumer, the law provides him with new avenues of participation in planning but it will not necessarily educate him in distinguishing between what is reasonable and professionally justifiable, on the one hand, and what is not only medically indefensible but also extravagant and wasteful, on the other. The background against which the law is beginning to operate is not, in itself, especially favorable. We are passing in all aspects of our national life from a period of spacious, eager, and resourceful projection to one in which our attitudes are much more anxiety ridden and our outlooks much more constricted than was the case a few years ago.

A sequel, in Secretary Gardner's words, is ". . . the bitterness and anger toward our institutions that wells up when high hopes turn sour.

No observer . . . has failed to note the prevalent cynicism concerning all leaders, all social institutions. That cynicism is continually fed and renewed by the rage of people who expected too much and got too little . . . soaring hope followed by rude disappointment is a formula for trouble." It is a dangerous time in the life of the Nation, and one in which we are all too likely to fall into the paradox of blaming the very accomplishments of our recent past for the dilemma we now face. But none of this actually changes the problem at hand. It will not simply go away because we are frightened by national and international events that lie outside the field of health altogether. It is fortunate indeed, in my view, that the Regional Medical Program concept emerged when it did. It was basically a late product of that period of eager, resourceful projection but must now be implemented in a very different setting. I have heard the law referred to as the worst, most ill-conceived piece of health legislation ever passed by Congress. But, imperfect though it undoubtedly is, it is potentially the most important and its basic concept the most enlightened. Politics aside—as much as one can set it aside—the law does great credit to the Congress that passed it. The reason is simply that it provides a common workshop in which the components of our profession can now, with consumer participation, begin to hammer out the system our burgeoning Nation needs.

Initial cooperative efforts have, for the most part been encouraging. The basic goal so far, and it is indeed basic, is to help the physician and other health workers outside our great centers provide more adequately for the needs of their patients. The focus is on the physician and gives him full voice in, if not total control over, the planning process. It does not, per se, tamper with the all-important climate for research but it does strongly indicate the need for new types of research and research training. So far, it is indeed moving us toward a more complete, or balanced, view of the health problem.

One can predict, I believe, that firm directions will emerge from the planning, that inadequately defined regions will restructure themselves along lines that make sense, and that the peripheral physician will begin to get the help he needs. The essential service the researcher must render is in helping to design planning experiments and in evaluating results. If his own field of training and interest make it inappropriate for him to render this service, he must at least comprehend the need for researchers who can. All this is beginning to happen. So far, so good.

But the future, depending in some measure on circumstances outside the health field, may bring a time when the researcher and some of our medical schools become so disinterested and indifferent as to disengage themselves. Practitioners may follow suit. The consumer may make demands that are neither justifiable on health grounds nor within the means of the Nation, rich though we still are. If all this should transpire, it will be clear that the course of evolution and moderation is not appropriate, that stronger medicine is required. The differences between the three components of our profession will appear to the layman to be irreconcilable and his natural tendency will be to assume that we can make no contribution, other than purely technical, to the solution of the health problem. And we will be in no position to preserve the valuable and the good that has been so painfully built up in the past; the way will then be: Out with the old and in with the new. But—and this is the key question—who will say what the new is to be?

A moment of truth in health planning is at hand and the processes of polarization have already begun. The concept of Regional Medical Program in this troubled environ is the concept of reason and good sense. There is nothing else that holds serious promise of doing the job effectively and judiciously. And it is heartening indeed that it seems to be working in its initial phases of implementation; that as a result of the power of the concept disparate elements are becoming less disparate; that effective inquiring and sensible planning are getting under way. It does not insure the triumph of intelligence and moderation but it does induce us to examine the probable effects of doctrinaire extremism.

CONCLUSION

My assignment was science and service. Altering the title slightly, I have stressed the point that research, however rarified, is service. I have plead for the preservation of a favorable climate for research and have tried to indicate that the destruction of the present climate in the hope of accomplishing the broad and necessary goals—in solving the crisis if you will—will have no such effect. On the negative side, I have indicated that researchers and their organizations have given little evidence of understanding what is involved in the genesis, the care, and the maintenance of the research climate. The medical schools have tried to be everything to all men. They have made ingenious but ineffectual efforts to build a world for the researcher and to discharge an incredible array of service and educational obligations as well. The service, research, and educational elements have not yet found the common ground, the unifying instrument they need in order to bring the total health establishment to the level of development the situation now requires.

If the Regional Medical Program law is not a perfect mechanism for creating that unifying instrument, it is the closest approximation on the current scene. And while the early results of its implementation are not altogether orderly and uniform, they are in sum encouraging.

QUALITY AND AVAILABILITY OF HEALTH CARE FOR HEART DISEASE, CANCER, STROKE, AND RELATED DISEASES IN THE FUTURE AS RELATED TO—

REGIONALIZATION OF HEALTH SERVICES

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To those concerned with the improvement of health care in this country, regionalization has become the order of the day. The regionalization idea is growing both rapidly and in a variety of forms.

For example, recently covering most of the populated areas in the United States is a network of several score regional voluntary health facility planning bodies. They are usually based on metropolitan areas and extend beyond local governmental jurisdiction over geographic areas with populations of several thousand to several million. Initiated largely by hospital groups, these agencies vary in strength and scope of effort. They have been principally concerned with planning hospital facilities. To some extent, they have also undertaken cooperative endeavors in health manpower development, patient care such as laboratory services, administrative services, and other aspects of health care.

To safeguard our environment in the interest of health, as well as aesthetic considerations, water pollution and air pollution control districts are being established in many parts of the country. Similar efforts will soon be underway with respect to solid waste, and possibly noise. The new environmental control agencies tend to lie somewhere between State and local government, both functionally and geographically. Prodding by the Federal Government is playing a big role in their evolution. Those concerned with regional planning of patient care services and those in the environmental field have remained almost entirely oblivious of one another. This is unfortunate, because both have the goal of protecting and improving health, and each could learn from the other's experiences with many similar problems with respect to regionalization. Groups responsible for environmental measures and those responsible for patient care services—to advance health—have more in common than they usually realize.

The Congress has recently established two major programs involving regionalization of health services.

One of these is the object of our concern in this Conference-Workshop, the Regional Medical Program for Heart Disease, Cancer, and Stroke. All of us here are generally familiar with the legislative history and intent of the program and its present state.

The other extensive endeavor that is concerned with regionalization undertaken recently by the Federal Government in partnership with State and other agencies is comprehensive health planning. The latter seeks to organize comprehensive planning for health through State governmental action and the formation of areawide or regional bodies within and between States. The scope embraces both environmental and personal health services, as well as development of health facilities and personnel. It seems clear that the Congress intends comprehensive health planning to be a global effort, bringing together what is done in the environmental health field, in the Regional Medical Program, and in health facility and manpower planning—with an emphasis throughout on regional considerations.

Why this rather sudden emphasis on regionalization?

Probably it derives principally from our Nation's coming to grips with the changed character of our life, especially the trend toward metropolitanization. Migration from rural areas and small towns of the United States to the cities in recent decades has not only expanded cities but has brought adjacent cities into large metropolitan complexes. The latter have a quite different relationship to surrounding suburban and rural areas from that experienced by many of us in childhood. This new set of living circumstances is inducing many changes, particularly in the service industries such as transportation, education—and now health. We can no longer plan in this country solely on the basis of the small community; we must also plan for the big community—the region.

Another force toward the regional concept is growing public belief that health care costs must be held down somehow, perhaps by greater attention to organization. The Congress, reflecting that belief, has called for more efficiency in the health industry. The tremendous costs involved in applying just one set of advances in medical science, namely organ transplantation, are causing top budget officials in Federal and State Governments to burn the midnight oil. How fast should we develop these new procedures and how can economy be maintained? Furthermore, Congress has expressed a public feeling that the benefits of medical science are not being applied uniformly enough to all segments of the population. This latter point has been well documented during the past decade or so in the case of new immunizing agents despite the fact that their application was organized by local health authorities and the medical profession.[1] Reflection on the much slower and uneven spread of the cytologic test for cancer[2] and other well-known medical advances, where

relatively little systematic effort has been undertaken, will indicate further justification for the public feeling that improved organization, perhaps on a regional basis, would lead to better as well as less costly health care.

Regionalization also arises from growing recognition within the health field that the present complexity and specialization of health care requires exploration of new patterns of organization.

Hence, the trend toward metropolitanization, public concern about the cost and use of health care, and professional response to the now highly specialized nature of health care—all these and possibly other influences are focusing attention on the possible advantages of regionalization in health care.

As with all such social phenomena, one can, and for better understanding should, trace the origin back into history. What we now see is the sudden flowering of an idea that has roots in other times and places.

In 1920, the Dawson Report to the Ministry of Health of Great Britain projected a network of primary and secondary hospitals, affiliated with teaching hospitals, as a pattern for achieving effective integration of hospital services throughout the country.[3] Over the years, this has served as a model for regionalization in various countries.

Beginning in 1931, the Bingham Associates Fund inaugurated a regional system of health services throughout Maine and part of Massachusetts, in connection with Tufts Medical School and the Pratt Diagnostic Hospital in Boston, with secondary centers at Lewiston and Bangor, Maine.[4] The services included complete diagnosis and surgery in Boston for patients selected by participating physicians in the surrounding areas; consultation in laboratory diagnosis, radiology and electrocardiography; and postgraduate education through teaching clinics at several hospitals and courses at the medical center. The medical school thus entered into direct support of individual practitioners, with the aim of improving the quality of medical practice.

Around Rochester, N.Y., with support from the Commonwealth Fund, the Council of Rochester Regional Hospitals was organized in 1946 to provide: Continuing education for all categories of health personnel, advisory service in clinical medicine and hospital administration, joint hospital services on a regional basis, and standards for hospital operation.[5] The Rochester University Hospital and other large hospitals in Rochester served as the base for this effort.

Other medical schools, including those of the University of Virginia and Tulane University, from time to time have sought to establish closer working relationships with physicians and hospitals in the areas around the medical centers.[6] This effort has taken the form mainly of postgraduate education.

A potentially big boost to regionalization of health services came with the passage of the Hill-Burton Act in 1946. Two years earlier, Thomas Parran, then Surgeon General of the Public Health Service, had proposed regionalization of hospitals as a means of raising the level of medical care in a community. When Congress appropriated funds for assistance in hospital survey and construction, regionalization was incorporated into the program design. However, even with the subsequent authorization of specific funds through the Hill-Burton mechanism for studies and demonstrations, little was done to promote regionalization until the 1960's. There was a 15 to 20 year lag in national action. During that time progress was being made only by occasional voluntary, privately supported efforts such as in Rochester and Boston. This lag in national action resulted in part at least from opposition in some quarters toward governmental participation in the planning and organization of health care. Widespread advance began in the early 1960's when the Public Health Service gave grants-in-aid to the locally organized, regional voluntary health facilities planning bodies. These have grown in number from one in 1945 to a handful in 1960, to about 80 at the present time. As noted above, these bodies have provided diverse ranges of service and have achieved varying degrees of effectiveness. Until the advent of the Regional Medical Program, they represented the principal nationwide movement toward regionalization in the health field.

In other countries, some progress has been made toward regionalization and, as in the United States, principally with respect to hospitals.[7]

For example, in 1946, the National Health Service in England created a system of Regional Hospital Boards responsible for both hospital construction and operation. Under the authority of the Ministry of Health, the regional boards cultivate systematic and cooperative relationships with respect to purchasing supplies, recruitment and training of personnel, consultant services and other aspects of management among all the hospitals in their areas. The medical schools with their large teaching hospitals, however, report separately to the Ministry—not through the regional boards.

For purposes of hospital service, Sweden has been divided into seven regions each consisting of 3 or 4 counties. At the heart of each region is a highly developed medical center, in five of the seven regions a medical school. A typical county in the region will have one general hospital with relatively specialized services and usually some smaller general and cottage hospitals.

Following this brief review of the background, it may now be appropriate to consider a definition of regionalization, and some of the current issues surrounding it.

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While several definitions have been set forth, it seems most useful to use a broad definition such as:

> Regionalization is the organization and coordination of all the health resources and services within a defined area, for the purpose of maintaining the highest possible level of medical care, and of adapting a comprehensive health program to the characteristics and needs of the area.[8]

If the latter part of this definition is taken to include environmental health services and health education of the public (as I believe it should), then it encompasses all activities directed toward the improvement of health. The scope is more specifically indicated in the following list taken from the same source as the definition:

In essence, a range of desirable goals for developing regional systems of health services would include:

(1) Continuous opportunities for postgraduate education for all levels of health personnel.

(2) Participation of the regional organization in planning and expanding of systems of undergraduate education conducive to attracting and maintaining an adequate flow of health workers from every health discipline into service.

(3) Advisory services to small institutions and agencies unable to attract and support the full range of medical, technical, and administrative specialists.

(4) Development of systematic utilization and sharing of equipment and personnel within the region based on distribution and availability as related to adequacy of health services, such as:
   (a) hospital beds and services,
   (b) laboratory facilities,
   (c) public health and visiting nurses,
   (d) blood bank operations,
   (e) purchasing of clinic and hospital supplies.

(5) Uniform methods of reporting financial, professional, and all other service activities to make possible continuous comparative and evaluative appraisal of services rendered and costs of medical care.

(6) Development of programs of research specific to area or regional interests and problems; opportunities "to learn the truth about matters which otherwise must be accepted on faith, and to stimulate corrective action."

(7) Continuous study of medical care given outside the hospital toward improvement of office and home services, as well as recommendations of new forms of health services for the region.

(8) Creation of a program of health education related to all aspects of the regionalization system for the general public.

(9) Encouragement of participation in regional health programs of the physicians with only home and office practice, the dentist, the pharmacist, and the nurse, medical records librarian, and all other technical and administrative personnel throughout the region.[9]

With regionalization viewed thus broadly, it becomes clear that both regional planning of hospital facilities and Regional Medical Programs for Heart Disease, Cancer, and Stroke are important components of it. Understanding this relationship of Regional Medical Programs and other components to regionalization of health care in its totality is essential to maximum advance in the current situation.

One major issue in implementing regionalization thus is: What shall be the scope of any particular component?

Shall one element, for example, be limited to the placement and size of hospitals? Shall it also consider specific facilities such as for laboratory work and radiation therapy? Further, shall it include educational, advisory, and consultation service on clinical matters to physicians in the participating institutions? Shall it provide for the actual transfer of patients, when deemed appropriate medically, from one hospital to another? Shall it endeavor to link up services within a health facility to those available outside in the community? Shall administrative, rather than clinical, services in health facilities be the focus? Shall effort be devoted to standardization of procedures and records for purposes of evaluation?

This brief listing of potential scope in hospital regionalization implies two sets of questions for those involved in Regional Medical Programs: (1) What shall be the scope of activity in a particular regional medical program? and, (2) how shall this relate to regional development of hospital facilities and to comprehensive health planning in the region?

Rather than struggling over jurisdiction with others engaged in regional health care planning and development, those responsible for Regional Medical Programs might do better to

determine the most important contribution they can make to the improvement of health care, which now appears destined to be planned on the basis of regionalization. That contribution may be, on the one hand, to extend the excellence of the medical center in handling heart disease, cancer, and stroke, among the region's hospitals and physicians; and, on the other hand, reflect back to the medical center the substantial obstacles to achieving excellence throughout a region, such as isolation of individual physicians and inadequate planning of facilities. Regional Medical Programs are clearly intended to become a two-way street; and some believe that those in the medical centers have as much to learn as those elsewhere in the region.

An approach by Regional Medical Program leaders, based on such a concept of their relationship to other current regional developments, may be useful. Certainly, Regional Medical Program personnel are encountering in their regions, States and the country, persons who call themselves hospital planners, comprehensive health planners, and the like. Even though initially startled by the encounter and reacting momentarily on the fairly low biosocial level of "my jurisdiction," perhaps Regional Medical Program leaders can move energetically into the negotiations necessary to establish an appropriate role for their programs in the complex, fast-paced progress that is occurring in health care regionalization throughout the country. In defining and gaining acceptance of a proper role, it will be essential not only to specify the particular scope of functions to be undertaken by the Regional Medical Programs, but also to work out their relationship to other health care developments which are based on a regional concept. Study of the history and current status of the other developments, as well as consideration of the main strength of the Regional Medical Programs—medical excellence—will be helpful in working out the relationship.

What to do, in the sense of scope of function, may seem a sufficiently large issue for consideration today. But perhaps brief attention can be given to two other issues in regionalization of health care: Geography and sponsorship.

The question of size and distribution for Regional Medical Programs is, of course, largely determined by the availability of medical centers for participation. More generally, with respect to regionalization of health care, "the fundamental requirements as to size appear to be: (1) Each region should be large enough to include (or warrant the inclusion of) such an amount and variety of resources for health services that, when they are properly integrated, the region will be self-sufficient for most purposes; (2) each region should be small enough to make the administrative center or any other unique feature accessible to all parts of the region. Regional populations vary from one-half to 10 million, and distribution from center to periphery might vary from 25 to 250 developments as well as consideration or more miles".[10] In developing Regional Medical Programs, as in other aspects of health care regionalization, the primary focus should be on function; area considerations are secondary. What to do and the resources necessary to do it should determine the geographic boundaries of the enterprise.

Again, it would seem desirable that Regional Medical Program leaders study carefully the geographic aspects of other regional health developments. Understanding their historical, functional, and philosophic bases will be extremely useful in arriving at mutually acceptable definitions of roles.

For Regional Medical Programs, initiating sponsorship has come largely from the medical centers, as one might expect. Participating and advisory elements come from the region generally. In the case of other current regional health developments, such as hospital planning and comprehensive health planning, sponsorship has come from hospital groups and State health authorities. Other agencies in wide variety now are becoming involved in areawide and regional health planning: Medical societies, welfare councils, local and regional governmental bodies, independent commissions and councils, and others. Again, it will be important for Regional Medical Program leaders to appreciate the motivation and competence of these agencies, both the well-established and the newer ones, their potential for health development, and their ultimate community of interest with Regional Medical Programs. Eventually, the several major agencies sponsoring regional health activities must enter into constructive relationships with one another. This could be accelerated by early, objective analysis of the historical role and current regional health activities of the various agencies.

Consider for a moment the plight of the Surgeon General in this regard. He must ultimately respond to the several regional health endeavors which the Public Health Service is now sponsoring: Regional Medical Programs, hospital development and comprehensive health planning. He would surely be grateful for field solutions to the problem of interrelationship among these programs.

In summary, the Regional Medical Program for Heart Disease, Cancer, and Stroke is one important component in the rapid development of health care on an areawide or regional basis in this country. To fulfill its particular mission, those responsible will have to define scope of function, geographic coverage, and sponsorship—all in relation to other regional health activities which are also getting underway. In clarifying these relationships, it may be useful for those here today to adopt a very broad concept of regionalization in health af-

fairs, specify the particular activities which Regional Medical Programs will undertake, become sensitive to the other major agencies and programs involved in regionalization, and ultimately achieve a complete pattern varied in different parts of the country according to circumstances, in which Regional Medical Programs can make their maximum contribution to the improvement of health care for the American people.

References

(1) MERRILL, M. H., et al.: Amer. J. Public Health 48: 146 (February) 1958.

(2) BRESLOW, L. and HOCHSTIM, J.: Sociocultural Aspects of Cervical Cytology in Alameda County, Calif. Pub. H. Rep. 79: 107 (February) 1964.

(3) Interim Report on the Future Provision of Medical and Allied Services. Consultative Council on Medical and Allied Services, Ministry of Health of Great Britain. London: HMSO, Parliament Command Paper 693, 1920.

(4) GARLAND, J. E.: An Experiment in Medicine: A History of the First 20 Years of the Pratt Clinic and the New England Center Hospital of Boston. Cambridge: Riverside Press, 1960.

(5) ROSENFELD, L. S. and MAKOVER, H. B.: The Rochester Regional Hospital Council. Harvard Univ. Press (Commonwealth Fund) Cambridge, 1956.

(6) ROEMER, M. I. and MORRIS, R. C.: Hospital Regionalization in Perspective. Pub. H. Rep. 74 (10): 916–922 (October) 1959.

(7) ROEMER, M. I.: Personal communication.

(8) Building America's Health. Report of the President's Commission on the Health Needs of the Nation. Vol. 2. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 1952.

(9) MCNERNEY, W. J. and RIEDEL, D. C.: Regionalization and Rural Health Care. University of Michigan, Ann Arbor, 1962.

QUALITY AND AVAILABILITY OF HEALTH CARE FOR HEART DISEASE, CANCER, STROKE, AND RELATED DISEASES IN THE FUTURE AS RELATED TO—

DEVELOPMENT OF PERSONAL HEALTH SERVICE

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This Conference-Workshop provides an excellent opportunity to consider the potential impact of the Regional Medical Programs authorized under Public Law 89–239 on the development of personal health services. It is especially fitting that those most active in conducting this complex and potentially highly beneficial activity be brought together at this time to review planning efforts of the last 2 years and consider their translation into operational implementation.

In many respects this act is quite extraordinary. Its genesis and promotion as described in the recent article in the *Atlantic Monthly* are intriguing, to say the least. The diverse interpretations among various observers of its long-term objectives suggest many misunderstandings and an uncertain but hopefully great future. The zeal and enthusiasm of the men and women—including numerous medical leaders—reflect the dramatic appeal that it has for many individuals of good will and high hopes. The vaguely defined authority of the act seems to many inadequate to bring about the innovation and organizational changes they seek.

To Battistella,[1] the act's promise is to facilitate—

> ". . . the planning, organization, and delivery of health services within a functionally-based regional framework, capable of circumventing State-local political boundaries and orthodox health channels. Additional excitement centered on the possibility that, once launched and successfully demonstrated, the application of regionalism might spread to encompass a number of other problems pressing in on the health field, and might lead eventually to a complete reorganization of health services."

In another portion of his recent paper, Battistella [1] has this to say:

> ". . . to have insisted upon a more comprehensive and idealistic version would have been politically naive and would have precluded the passage of any legislation at all. To this way of thinking, a slice of pie is better than no pie at all. Some of the bill's supporters take an evolutionary point of view, and suggest that a combination of es-

calating problems in the delivery of health services and rising expectations for better and more economical care, will inevitably trigger an expansion of the program. Eventually, they see the seeds planted by the Heart Disease, Cancer, and Stroke Act leading to a complete reorganization of all health services within a regional framework."

The article by Clark [2] also proposes a national blueprint and suggests various models which might be followed in establishing this nationwide program. Any impartial physician who studied the Clark-Battistella thesis, as presented in their papers, would reach the conclusion that RMP was in fact designed to provide an instrument by which the organization and delivery of health care of the American people could be changed in a revolutionary manner.

These articles are well written and have the commendable characteristics of unequivocation and candor. Although one might disagree with the conclusions, one cannot impugn the authors' motivations. The fact remains, however, that the issues as presented by this school of thought are not designed to stimulate strong physician support of these programs.

Dr. Marston and his staff, on the other hand, and many of you who are active in the program, have sought through talks, articles, and actions to promote a different basic concept of the program, that is, the creation of a local and regional climate which engenders voluntary cooperative action to improve the health care organizational patterns and delivery systems which currently exist. As Marston has so well expressed it in several addresses: "The focus is on the patient; the mechanism is cooperative arrangements; the emphasis is on local initiative, flexibility, and decisionmaking; and the reason for the program is the relationship between science and service."

DR. WILBUR

The two key assumptions on which the purposes of Public Law 89–239 rest, according to Mayer,[3] are:

"(1) That there are differences in the quality of diagnostic and treatment capabilities available to different patients within this Nation, in the area of heart disease, cancer, stroke, and related diseases;

"(2) That through the mechanism of regional cooperative arrangements of the people, institutions, organizations and agencies involved in health in that region these differences can be lessened."

According to Mayer, this program is designed to strengthen existing institutions rather than to create new ones. He stresses the point that this is not a national program but a regional one, and he underscores that word "cooperative." He points out further that—

". . . it is important to understand that the Regional Medical Programs are not simply another kind of mechanism of funding individual projects. It does represent a new kind of conceptualization in the approach to health care and education. Whether it is capable of serving this function only time will tell."

I applaud this point of view and the emphasis given to these aspects of the program by the division of Regional Medical Programs. If the program in fact is clearly one designed to catalyze and to facilitate the development of better programs that now exist to serve patients and their physicians, it will undoubtedly receive enthusiastic cooperation from the medical profession and related groups. We know that the law and its legislative

history stress the voluntary cooperative nature of the program and that interference with existing patterns is specifically prohibited. As Dr. Marston [4] said in a recent talk—

> "These programs face the challenge of influencing the quality of health services without exercising Federal or State governmental control over current patterns of health activities."

Public statements of this type are encouraging evidence of the understanding by those responsible for directing this program of the profoundly complex problems and social and community interrelationships that confront all those who will be participating. The innate difficulties of achieving a consensus among a large number of disparate local agencies, all traditionally striving to maintain their independence and special prerogatives, are well known.

Rational decisionmaking by independent public and private entities on a voluntary basis, however, is an objective that is worth pursuing. Unlike many other countries, our Nation has reached its preeminence in many areas of activity because of this unique combination of multiple independent focal points of activity cooperating on a voluntary basis to achieve a commonly desired goal. De Tocqueville identified this unique American ability to become associated with others to plan and operate programs in the absence of central governmental direction and control. If RMP maintains its current emphasis on the working together of regional groups, it will fulfill its purpose of improving the quality, accessibility and availability of health care, physician and institutional performance, and consumer satisfaction. On the other hand, if RMP becomes an instrument for the establishment of national standards with the coercive compliance compelled by such standards, it will arouse nationwide resistance from physicians, institutions, and allied health professionals. What can be gained by cooperation and meaningful participation will surely be lost if the use of coercive power, which for the moment lies dormant in Public Law 89–239, becomes its dominant characteristic.

I have dwelt on these basic issues at some length because one cannot discuss this subject from the perspective of personal health services without first considering the basic issues involved in the development of the program as a whole. Change is expected by the vast majority of thinking persons; and the medical profession, like others, is changing its techniques and operational procedures constantly. Sometimes these changes are forced by external environmental factors which lead to improved prevention, diagnosis, and therapy of disease. At other times, changes are forced which are unacceptable to physicians and their patients. The current health manpower shortages and escalating health care costs are examples of external pressures that compel changes, some of which may be favorable and some undesirable. RMP is in a strategic position to bring about changes acceptable both to physicians and their patients that will improve performance and patient satisfaction without undermining patterns of behavior that are traditional, and, more significant, considered by the medical profession essential to the preservation of high quality care.

The sensitivity of medicine to the possible establishment of national standards under RMP for the treatment of certain diseases was demonstrated recently when it appeared that RMP might be moving toward such a development. I have been assured by Dr. Marston that no proposals for such national standardization have received any sympathetic hearing and that, on the contrary, it is his feeling that such proposals run counter to the spirit of the legislation and the manner in which it is being administered. I applaud this attitude, and I urge that it become a part of the fabric of your thinking as you conduct these regional programs.

Another aspect of the currently evolving RMP program that deserves commendation is its scientific spirit—that is, its willingness to depend upon observation and experimentation before reaching firm conclusions. The danger of national blueprints or models is their usual inflexibility. Your objectives are laudable, and they require implementation which permits ready change. It would be difficult to disagree with this statement from the *Report on Regional Medical Programs to The President and The Congress* [5] of June 1967—

> ". . . every person whose life and well-being may be in jeopardy from one of these diseases should have the full strength of modern medical science available to him through the cooperative efforts of the medical and related resources of the region in which he lives. These are the goals to which Regional Medical Programs are dedicated."

This utopian ideal, however, will be realized in varying degrees depending on the ability of the medical profession and the health care industry to make available such services and facilities, and upon the patient population to utilize resources as they become available.

I am deeply impressed by a recent article by Lahav [6] on "Methodologic Problems in Health Manpower Research." His observations are especially germane as you develop methodology for effective implementation of this law. He identifies some of the countless variables that make health economic research so difficult and facile conclusions and recommendations so perilous. He notes, for example, that Government sponsored programs can contribute to a more rational distribution of medical and other health facilities but that their ability to effect a comparably rational distribution of health personnel is relatively small because, in a free so-

ciety, distribution of professional manpower is predominantly a function of personal decisions made by individual practitioners.

In discussing rural health centers in rural northern Michigan, where McNerney and Riedel [7] found that their productivity was low in terms of unit cost and that they had difficulties in attracting and maintaining qualified professional and administrative personnel, Lahav noted that the difficulties in this situation could not be modified easily under conditions of "nonsocialized medicine" where practicing physicians had a large measure of independence. The keen observation that decisionmaking on a voluntary basis may tend to frustrate the impatient administrator with limited authority clearly applies to RMP. I urge a frank discussion of this question and your resolution of the problem in favor of voluntarism, for the gains that you will make in terms of flexibility and physician support will far more than offset any losses you may incur.

Another important point made by Lahav is his emphasis on the coordination of scarce resources rather than the mere creation of new ones. It may well be, as we strive together to create the best possible health care system for our nation, that the emphasis is of RMP on cooperation, coordination, and regional planning will turn out to be far more productive than programs designed simply to increase the output of health professionals. Certainly, the latter is necessary; but their placement in an efficient, rationally organized, and economically conducted system may be even more important.

In this connection, the recent comments by Dr. Marston [8] when he talked to a group in Illinois are especially appropriate—

> "As one views the current health scene, it seems inevitable that, as an increasing proportion of our national wealth is devoted to health and as the expectation for health services continues to rise, there will be marked pressures for the most effective allocation of health resources. These pressures will exert influences in such critical areas as the distribution of resources between short and long goals, that is, between biomedical research, for example, and the immediate delivery of service. Within service itself, there will be pressures for the distribution of effort between improvements in quality on the one hand and extensions of access to health care on the other; the allocation of resources for general purposes as opposed to targetive objectives; exploration of mechanisms to alleviate the acute shortage of all health talent; and the need to explore the division of responsibility between those health responsibilities carried out through the governmental sector and the responsibilities of the voluntary institutions and organizations."

I want now to turn to another subject of special interest to medicine: Continuing education. The problems of medical care and continuing medical education are inseparable. In fact, continuing medical education offers the greatest potential for rapid widespread solution of the identified problems or difficulties in the general area of patient care. In the planning and early operational RMP programs, it plays a major role. The AMA is especially anxious that this aspect of the evolving program be emphasized. Marston and Mayer,[9] in their article on "The Interdependence of Regional Medical Programs and Continuing Education," indicate—

> "The following two points concerning the development of continuing education activities within a given Regional Medical Program are of prime importance. First, the Division of Regional Medical Programs can make grants for two purposes only (a) to plan or (b) to establish Regional Medical Programs. It cannot make grants for the establishment of continuing education programs."

Understanding the preclusion of support of regional continuing education programs alone, we hope that special emphasis will be given to this aspect of a regional program, since to a significant degree the gap that may exist between science and service can be minimized by such continuing education. Incidentally, this problem of continuing the education of physicians and other health professionals in a rapidly changing scientific climate was considered at length by the recent Presidential Commission on Health Manpower on which I had the privilege of serving. You will recall that one of its rather controversial recommendations was that relicensure of physicians be considered as one means of stimulating physicians to continuously to review new information. Whatever technique is used to assure a physician's up-to-dateness, the provision of continuing education through the development of core curricula and other techniques, and the utilization of communications technology now rapidly becoming available, must be pursued vigorously.

The RMP program has stimulated widely favorable reaction from the medical profession. As a whole, the medical profession at the beginning of the year 1968 is probably more deeply involved in the planning process to determine the nature of the Regional Medical Programs than it has been in the planning of any previous Federal program. Many of our most distinguished medical leaders are participating full or part-time in the Regional Programs.

Many State and county medical socities are cooperating actively or in an advisory capacity and have expressed their enthusiastic support. Dr. Gullatt,[10] for example, in the Oklahoma State Medical Association *Journal* for April 1967 said:

> "The Regional Medical Program has the potential of making remarkable improvements in the continuing education of physi-

cians, an objective to which we have always been dedicated."

North Carolina prepared a special issue [11] devoted to RMP in May 1967. In an editorial in that issue, the following comment is made:

"In the months and years ahead, these early times of the program will no doubt be regarded as the critical period, when the shape of things to come became apparent. Thus far the Medical Society has played a creative role and our State's program is out ahead of many others because of this attitude. The only sensible course is to continue to act intelligently and constructively."

Dr. Frank Jones,[12] the president of the Medical Society of the State of North Carolina at that time, said:

". . . the medical society representing the physicians of North Carolina is involved in the Regional Medical Program. It was involved in a somewhat similar program before Heart, Stroke, and Cancer was birthed, and it will continue to be involved, working with the representatives of the public and the other deliverers of health care and the involved State governmental agencies in a continuing program directed toward quality care at all levels."

In the same Journal, Dr. Musser,[13] executive director of the association established to conduct this program, said:

"There is no question of the profession's ability to do the job. The important step is to direct our total talent and energy to it. The job—well done—will reassert and secure our leadership in health affairs and assure an ever improving state of national health."

In Georgia, Dr. Battey,[14] a member of the steering committee for the program, said:

". . . it is the intent and sincere desire of the members of the Georgia Regional Medical Program advisory group that this approach, during the planning phase, will seek out and find those interested individuals all over the State who will be anxious to take part in what may well be our greatest opportunity to achieve the best of medical care for all patients utilizing the regional and the truly cooperative approach."

In Missouri, a physician who initially had serious misgivings about this program is now conducting a valuable regional project on the management of cardiac emergencies. Under his direction, certain deficiencies have been identified and many individuals and facilities are cooperating enthusiastically to remedy these deficiencies.

I am impressed also by an article in the Onondaga County Medical Society "Bulletin" in New York recounting the specific projects being considered under their Regional Medical Programs. All available records are being analyzed to evaluate existing facilities; rural medical manpower is under study; a number of hospitals have opened their records for review of current handling of patients with heart disease, stroke, and cancer; communications among hospitals within a region are being appraised; interconnecting color television among these hospitals is being considered, as well as the educational television network; the transportation of laboratory specimens to central areas is under study; the use of helicopters for transport of the sick and, perhaps, physicians, is a possibility, and an extensive library project is already underway. The strong support of the County Medical Society is implicit. This same attitude of study, inquiry, and active implementation exists in many other medical groups in the country.

Clearly, RMP has stimulated a healthy atmosphere of voluntary cooperative review of current health programs and a refreshing willingness to express self-criticism of a constructive type. In a sense, the program combines the better features of the liberal and conservative approaches to a creative society. The traditional liberal dependence on the Federal Government as a means of solving all problems is mitigated and redirected into a new type of program sponsored, it is true, by the Federal Government but emphasizing the use of local as well as Federal funds and depending upon local regional decisionmaking and significant participation by the private nongovernmental sector. The conservative also can feel reasonably comfortable in the context of this program because it is not intended to be a revolutionary substitute or a national blueprint for existing patterns of behavior.

Rather, it builds upon the past and the present, adding new features, changing old ones, as local demands and resources make possible. Its flexibility, pragmatism, and acknowledgment of regional variations, particularly appeal to me as wise emphases.

This program can make a real contribution to personal health services if it continues to pursue what appears to be its main thrust today—to serve as a catalyst for and to facilitate those winds of change which blow in the right direction. If your zeal and enthusiasm are tempered with a sympathetic understanding of the traditions and basic motivations of those who now render health care, I predict that they will cooperate willingly with you, and that in this cooperation you will have the basic ingredient for success. Basically, we all have the same desire: To help the American physician to provide the best quality of care to the American people, in the American tradition.

References

(1) BATTISTELLA, R. M.: The Course of Regional Health Planning: Review and Assessment of Recent Federal Legislation. *Med. Care* 5: 149–161 (May–June) 1967.

(2) CLARK, H. T., Jr.: The Challenge of the Regional Medical Programs Legislation. *J. Med. Educ.* 41: 344–361 (April) 1966.

292-414 O—68——3

(3) MAYER, W. D.: Regional Medical Programs—A Progress Report. *J. of Med. Assn. of Georgia* 56: 143–147 (April) 1967. (Presented at the Second Georgia Conference on Medical Education, Mar. 4, 1967, Callaway Gardens, Pine Mountain, Ga.)

(4) MARSTON, R. Q. and SCHMIDT, A. M.: Regional Medical Programs: A View from the Federal Level. (An address delivered to the Continuing Medical Education Section of the Association of American Medical Colleges, Friday, Oct. 27, 1967.)

(5) Report on Regional Programs to the President and the Congress. Submitted by William H. Stewart, M.D., Surgeon General, Public Health Service, U.S. Dept. of Health, Education, and Welfare. U.S. Government Printing Office (June) 1967.

(6) LAHAV, E.: Methodologic Problems in Health Manpower Research. *The New Eng. J. of Med.* 277: 959–962 (November) 1967.

(7) MCNERNEY, W. J. and RIEDEL, D. C.: Regionalization and Rural Health Care: An experiment in three communities. Ann Arbor, Mich.: Univ. of Michigan Press, 1962, p. 175.

(8) MARSTON, R. Q. University Hour sponsored by Alpha Omega Alpha, University of Illinois, Oct. 4, 1967, unpublished.

(9) MARSTON, R. Q. and MAYER, W. D.: The Interdependence of Regional Medical Programs and Continuing Education. *J. Med. Educ.* 42: 119–125 (February) 1967. (Presented to the Section on Continuing Medical Education at the 77th Annual Meeting of the Association of American Medical Colleges, San Francisco, Oct. 21, 1966.)

(10) GULLATT, E. M.: President's Page. *J. of Okla. State Med. Assn.* (April) 1967.

(11) *N. Carolina Med. J.* Vol. 28 (May) 1967.

(12) JONES, F. W.: The Medical Society and the Regional Medical Program in North Carolina. *N. Carolina Med. J.* 28: 173–175 (May) 1967.

(13) MUSSER, M. J.: North Carolina Regional Medical Program. *N. Carolina Med. J.* 28: 176–182 (May) 1967.

(14) BATTEY L. L.: Georgia Regional Medical Program. *J. of Med. Assn. of* Georgia 56: 141–142 (April) 1967.

QUALITY AND AVAILABILITY OF HEALTH CARE FOR HEART DISEASE, CANCER, STROKE, AND RELATED DISEASES IN THE FUTURE AS RELATED TO—

THE POPULATION

Panel:
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This transcript has been reviewed and approved by the participating panelists.

DR. EGEBERG. Now, we are talking about excellence or quality and availability of medical care. And I have been beating the drums for excellence for the last 8 or 9 years. I do not want to lessen my feeling about excellence or give anybody the impression I am not in favor of excellence as far as we can bring excellence, but we need to think of availability from the point of view that excellence is fine, but if it is not available it really isn't very helpful to any particular patient.

And I thought I would go back to an experience I had in the war. Mr. (Stephen) Ackerman told me this morning that I had used this once before, but I hope it was a different group or smaller group, because as I came east on the plane yesterday I thought, "*There* is the basis of what I want to say."

I was at Western Reserve at the beginning of the war and helped form the fourth general hospital there; and we were commissioned. The unmarried men became lieutenants, those who were married became captains, and if you had a number of children you might make major. Well, I had four children so I became a major, and that was the way it was done in that outfit; possibly for the same reason, I was the assistant chief of the medical service.

This was a talented group, as the general hospitals affiliated with universities were, in the sense that they had assistant and associate and other professors and clinical professors in the various specialties. There was a talent in depth here.

We arrived in Melbourne and set up. Soon I was assigned to the job of

setting up a venereal disease hospital because that seemed a little more important than a general hospital at that point in our history. But, after a while, I managed to feel that there was romance in New Guinea or somebody needed me there and I managed to get there. It was the experience I had in New Guinea—the fact that I got through it—that has driven me into the things I am interested in now.

In the front lines one could find a lieutenant who had recently graduated or, if one were visiting the Australians, a sergeant who did not have a medical education except as taught by the doctors, but who was available to the people when they were wounded or when they were first ill with malaria or when they first had the beginning of an emotional break. He was available to stem things just as they started, and he handled, I would say, probably 80 percent of the cases that came to him.

It was my considered opinion after being there for about a year that probably more good was done in the theater and more help was given the soldiers by the doctors or corpsmen who were available at the time help was needed than by those who might have been better trained in narrower specialities, but who were two or three hospitals away.

I think the same problem exists in society at the present time. Doctors who have been in practice have been taught for years, for generations, perhaps since Hippocrates, that they shouldn't go out and look for work: they should do the best they can with the work that comes to them. And now, with the advances in medicine that have occurred in the past two or three decades, it perhaps becomes necessary for some representatives of those doctors to go out and seek the work for themselves or for others.

There are 30 million people in the United States who hardly know what medical care is. As some of you know, we have started a project in the Watts area of Los Angeles, and we are working with a group of people there hoping that we can turn the project over to them when it gets going well.

When we first got this group together, we asked them what they thought they needed most in Watts—finally, a woman got up and said, "What we need is a slab on every corner." And a little further questioning showed the slab was to lay them on while they are waiting for the ambulance or the hearse. And further questions brought out that this was the concept they had of medicine. And I am sure this applies in large areas of our country to certain parts of our population.

DR. EGEBERG

Now, to take Los Angeles as an example again, I have long been associated with the Los Angeles County Hospital, which is an excellent hospital. And for those who are acutely ill and for those less ill it gives very, very good care. But it is about 13 miles from Watts. And it is 13 miles from many other areas of Los Angeles where people also get sick and cannot on the whole afford private physicians.

I think we should picture a woman in one of those areas who has a child who is sick. I have seen these infants and small children come in moribund who should have been in a couple of days earlier. Even if a mother with a family of two or three or six children knows that one of her children is sick and that she should take it to a physician, a hospital or a clinic it may be impossible because of the distance. For her 13 miles is probably a greater distance than 50 or 60 miles is in a rural area. She may not even have the money for bus fare which is almost $2 a round trip. She can't impose on her neighbors because there aren't that many cars in the areas we are talking about. And the transportation of care to such patients, or of them to care, becomes a vital part of any program that is going to succeed in this Regional Medical Program.

The transportation of care, the availability of care, is just as important as the excellence of care. We must think of these things as a coordinated plan where we use, insofar as we can, the people who are already working in the areas, and bring people into those areas where they have not chosen to work because there wasn't much reward of the kind they really had to have.

So just to begin, I would like to make the plea that availability in our case is every bit as important as excellence.

Dr. TRUSSELL. I would like to talk to the issues of availability and quality and the opportunities for and challenges to our RMP from some urban experiences which I have had, from some New York State experiences, and from some frustrations I have had being a member of HIBAC, which is the council that establishes policy for medicare subject to the approval of the Secretary of Health, Education, and Welfare.

Each Regional Medical Program operates in a different climate. There are different precedents, different things going on, different understandings, different degrees of willingness to face up to the realities. And Regional Medical Programs may be the leaders. I have described RMP legislation as the first legislation in this country that ever gave the scientific

community a chance to get together and tell the public what it needed and how they would like to do it.

Regional Medical Programs may be the leader and innovator, or RMP, as is true in some urban areas, has to find a way to fit itself into what is already going on in order to achieve its goals and make the kind of additive contribution to which Dr. Breslow addressed himself so well this morning.

I think that many in this room would do well to think seriously about Dr. Breslow's message because it was the voice of experience. If you look at the studies of quality of care in this country—and they are time consuming and expensive—you find a wide range of excellence in care. Almost invariably, the highest scores are achieved in the medical centers with teaching programs and the lowest scores in the small proprietary and voluntary hospitals. I don't think there is any reason to argue that there are not differences in quality of care in a given city or in this country. There are exceptions to the rules that I have mentioned. I can think of several excellent small hospitals, and I can think of several poor large hospitals. Nevertheless, the generalization emerges from the studies that have been done in this direction.

One thinks about remedies to uneven quality of care. One immediately supports Dr. Wilbur's view that there shouldn't be a national standard because, as somebody pointed out, a national standard would have to be a minimum. This is what medicare is faced with. Congress enjoined us to see to it that any hospital which had a utilization committee and was accredited by the Joint Commission on Accreditation of Hospitals must be certified as a provider, if it also complied with Title VI. That is a minimum standard.

There were a lot of hospitals which were not accredited. So we took the Joint Commission standards, and modified them and said if the hospitals met those and had a utilization committee and complied with Title VI, they could be certified. That is an even more minimum standard. As a national instrument, medicare contributes nothing to raising standards of care in most hospitals of any size and importance. There are absolutely no controls on the quality of the medical care or on the utilization of the care outside of hospitals except as carriers may draw attention to excess utilization which, as a result of fee review, may appear to them to have occurred.

DR. TRUSSELL

So each Regional Medical Program offers a marvelous instrument to further stimulate an interest in and furtherance of standards. It has an opportunity to draw on the professional talent in the region (and there is a lot of talent in every part of this country) and let that professional climate develop which one finds in centers of excellence which we all strive for and realize we will never have completely. But let RMP be the professional leader to the extent that is possible. Let RMP speak out for the person who is getting poor care and in favor of that person getting better care. But this is voluntary, and it does require courage.

I would point out that we are now in a much larger ball game than we were at the turn of the century. There are many organized approaches to the delivery of care, and these offer excellent opportunities for dealing with the subject of quality. There are administrative decisions that can be made and have been made in certain settings.

For example, at one time, I had a study made of what kind of care I was paying for in voluntary hospitals in New York City. It that time, I was authorizing about $60 or $70 million of care for poor people in the voluntary system, in addition to spending a couple of $100 million in the municipal system.

We found that 85 percent of the care we were purchasing from the voluntary system was in approved teaching programs, and I would suspect that, as a national score, that is pretty good. But 15 percent of that care was in hospitals that were approved for nothing. They didn't have interns. They might have had 1- or 2-year approvals in a couple of specialties. These hospitals were the same hospitals that turn up in medical audits with low scores, in health department inspections with low scores, in laboratory testings with low scores.

And so, through the auspices of the Interdepartmental Health Council, which was started by Commissioner Leona Baumgartner when she was Commissioner of Health in New York City, we set up some standards which were agreed to by all the city agencies—by the city controller who disbursed the money, by the Board of Hospitals who established policy for the Department of Hospitals, and by the Inter-Departmental Health Council. And we just set out some simple little guidelines.

First, we announced we would not pay for care in a voluntary hospital which was not accredited.

Secondly, we prohibited payment for care of children on pediatric services which were not approved for residency training.

Third, we required that adults either be cared for on a service approved for residency training or be taken care of by qualified specialists.

We set up some other standards through the Interdepartmental Health Council, using expert advice from outside of government, on what kinds of services amputees needed. The city then offered all the institutions in the city an opportunity to be certified as amputee centers. And 14 out of the vast array of health facilities in New York City qualified. The city then adopted a policy of paying for services to amputees only in those 14 centers.

With the help of a group of outside experts, all nongovernmental with the exception of one who happened to be a cancer expert in the City Health Department, we established some standards to guide the payment for the care of patients with cancer and limited payments to the hospitals that met those standards.

These were administrative decisions which were made about the use of public funds, but called on expert advice outside of government to achieve them.

Finally, we had to come to something that is not new in this country: that is, some sort of regulatory mechanisms. A hospital code was developed with the help of an expert committee of about 80 people to govern proprietary hospital codes. For example, the code prohibits major surgery by men who are not trained to do major surgery.

This code has now been upheld through the Federal Supreme Court, thereby determining the right of government to protect all patients in institutions which have been licensed rather than just patients who are paid for by public funds. This code has now been adopted essentially for all hospitals in New York State.

We now have a code in New York State which affects all hospitals and which establishes a minimum which is far beyond the requirements of the Joint Commission. In fact, one of the requirements is that every hospital must become accredited. I once required every proprietary hospital in New York City to become accredited, and 33 became accredited compared to 13 that had already been.

When it comes to availability of service, there have to be some very large-scale public decisions made. I am all for continuing education. We have one of the largest continuing education programs in my school [Columbia] of any School of Public Health in the country, but training bright practitioners to give better care to private patients will not satisfy the intent of Regional Medical Programs. There has to be an improvement in the service which is made available in urban settings to people who are entitled to free care. And Regional Medical Programs has to make a conscious decision to allocate its money and its policy in that direction.

And finally, in some parts of this country, regionwide planning has gone far ahead of this recent RMP program. In New York State, we have a system of seven councils covering the entire State. There can be no building, no modification of a building, no establishment of a building, without approval of this local regional council which is a locally elected group broadly representative of the community, then the approval of a State Council which is again broadly representative, but appointed by the Governor, then approval by the State Commissioner of Health.

DR. LLOYD

Whatever Regional Medical Programs is going to achieve in the way of major program changes and facility changes in New York State will have to be done through this preexisting network of mandatory community planning. By some people, this has been viewed as the end of voluntarism, by others the beginning of a control of excess costs through preventing unnecessary building and of rational planning for health services.

Dr. LLOYD. Health is a major resource of a community and a nation, and it should spend its money to protect its health. I do not believe that spending money for research and continuing education compromises the delivery of health care services. And the country need not delete funds from research and from education to finance the delivery of medical care.

The delivery of medical care is spotty and the quality varies within the country. Regional Medical Programs can work in a variety of ways in our communities. One of the best ways that it can function is by developing in areas that do not have comprehensive health care planning and undertaking the development of comprehensive programs that will deliver quality health care to the population. We do not believe that there is an unusual rising expectation for unusual medical care. I believe that the legitimate expectations of the citizens

of this country regarding medical care have not been really fulfilled and that this country has paid for the delivery of medical care that has not been rendered under the systems that we now have.

If the country was receiving adequate medical care and the delivery was good and the quality was good, there would be no real reason for the Regional Medical Program. The mere fact that we are here means that in some way the volunteer system has failed in delivering quality medical care to its population.

I believe also that we need to reevaluate the delivery of medical care; and I feel that the private practitioner may not be able to be available for all of the services that he has been available for before and that we should look much more into providing that first line of medical care with other personnel. In continuing education, I believe that the programs, although extensive in the country, have failed in getting into the physician's office.

We have been concerned with one small program and having physicians, private practitioners, do Pap smears in their office.

We held several meetings in which all practitioners in the community were invited. And then, we checked the laboratories to see if the number of Pap smears increased; the Pap smear statistics did not show a large increase.

So we did a different thing. We took a page out of the pharmaceutical house sales technique, and we sent into the private practitioner's office individuals with a small, 3-minute movie that showed how a Pap smear should be done. We left samples of twenty Pap smear kits and paid for them, to be read and returned. This has increased the use of the Pap smear in the community in which we have been working some 200 percent.

I believe that the Regional Medical Programs should be a mechanism for further experimentation in the delivery of medical care. Now, we must go outside of the medical profession for help in the delivery of medical care. I do not believe that we can depend totally upon the universities or the public health departments for the delivery of care. It is community involvement, and it must be a community involvement, that will make health care much more available to the population and also have some control over the quality of care that is rendered to the population.

I believe that the Regional Medical Program can serve this purpose. If it serves the purpose only of perpetuating the type of care that we are now giving, it will be just another line of frustrations for those who are looking to the Government for the provision of adequate and quality medical care.

Dr. JOHNSON. I guess I was chosen to talk to you here today to bring to you a message about remote areas and the provision of health care in these areas. And in order that you know how remote I am and back to what fundamental basis of primary medical care I go, I practice in my village where I was born, and I have been practicing there 34 years. When I went back to practice in my village, it had 642 people in it. But after World War II, we had a population explosion and we have got 700 people now.

It is my contention that people who live in, Dr. Egeberg, the Watts district of Los Angeles or, Dr. Trussell, the Harlem district of New York, are perhaps more remote from the standpoint of having adequate available health care for them than are most of the people who live in rural communities throughout the United States. There has come to be in my thinking another dimension of what constitutes adequate health care coverage. And that dimension relates to time. And I firmly believe that any person who is within 30 minutes of adequate health care facilities available is adequately covered for the matter of health care.

Now, we realize, those of us who come from small communities and rural communities, that every crossroad in every community wants a doctor just like they want a preacher and sometimes need an undertaker. And in my village, the man wanted to be convenient so he built directly across the street from me. But that is a little bit too close, and that stimulated me to upgrade my quality of care.

I firmly believe that every small community does not need a physician. And I believe that many of the small communities in this country who now have physicians will no longer have them when the ones who are there now pass on. I am sure my community will not have another one when I am gone. And I don't think they need one.

When I came there, people who lived 5 miles from my community were over 30 minutes away from my office. Now, we have paved roads running in every direction, a hospital 17 miles on each side of us, whereas we had a hospital 45 miles away when I started there. And by automobile or ambulance, a person can be in either one of these hospitals within 15 or 20 minutes if they are in a big enough hurry.

So that I think it is axiomatic that any community that cannot support at least two physicians, a measure of group practice, can ill expect to retain one. And I think that the problem that we are going to have to face in this country and it is going to have to be faced at a community level, perhaps with some measure of stimulation from regional programs and other approaches to the provision of health care for people, is to stimulate these small communities to combine into a larger community.

In many instances, it is entirely possible to take four or five smaller rural communities, where each of the communities is within a measure of 20 or 30 miles of another community, and somewhere in the center identify

DR. JOHNSON

a location where two, three, four, or five physicians can locate and do excellent work.

Well, now, a community that can support four or five physicians can also afford to have an attractive community where a physician and his family might want to move and to raise a family. Certainly not every crossroads can do this. I have regretted many, many times that I raised my children in the small community where I did because I had to send them off to preparatory school when they were about 8 or 9 years old, and I am sure I lost much of the contact that would have been good for me to have had with my family. And I don't think I would do this again.

But if we can, by working with the communities and allowing the consumers to have a part in the planning, get a half dozen communities to agree each to give up their little one community and form a larger community in which the community can support half a dozen doctors more or less, can support an excellent school system, can support excellent religious facilities, can support good cultural facilities, then, there is reason to believe that there will be physicians who will be willing to move into these areas.

But we do have to have a community adequate to be attractive to physicians if we are going to get physicians in there. And one key to attracting a physician and keeping a physician in this sort of a community is having a situation which is tolerable to the physician's wife, a little bit attractive to the physician's wife. There is no one factor more involved in where a physician lives, particularly as it involves smaller communities, than the satisfaction that his wife gets from living in that community.

Now, also, a group of physicians can reasonably expect to provide continuous and comprehensive care for their people around the clock and around the calendar, because one person can take night calls this week, another next week, and maybe you only have to take the night calls one week out of every month or every fifth week. The same thing with weekends. One physician can cover all of the emergencies for the entire group during one weekend, and the other three or four can have time off. And that will make life tolerable so that a person can live with his family and help to bring his children up and keep his family a closely knit unit.

So I think that the one thing that we must do—and maybe the Regional Program can be the stimulus—we must have some effort to consolidate the smaller communities and have medical care available within the time limit of 30 minutes.

Now, if we are going to do this, we have to have the type of physician who can earn a living in a small community. And that physician has to be trained a little more broadly than the presently conceived specialist. This physician has to be able to take care of something like 75 or 80 percent of all of the ills that beset mankind. And if we are going to have this physician, the medical schools are going to have to face up to the fact that they have to produce a family physician or a primary physician. And no place else except the medical schools can do this.

And if they are going to do it effectively, they must have an ongoing program providing this sort of care within the confines of the medical school and the hospital associated with the medical school in order that the medical students can identify with this system of the provision of health care. Otherwise, the medical students will not identify with it and will not go into it.

A little story about the ability of the Regional Programs to produce: We have seven counties in southwest North Carolina, in the Appalachian region, that are quite unique. They are mountainous counties, and they do not have too many resources. They have 110,000 people. They have 62 doctors. They have eight hospitals, two of which are accredited by the Joint Commission on Accreditation of Hospitals.

This community got a little bit of catalystic aid from the Regional Program interested in community planning. They organized a community planning corporation. The doctors organized an Academy of Medicine, all 62 of them. The hospitals agreed to have the Joint Commission on Accreditation of Hospitals come in and survey every hospital there with the idea in mind that, after the survey was done, there would be an effort to build in the center of this area which, incidentally is called the "State of Franklin," a facility that would upgrade the facilities available for every person in the community and those going to every hospital in the community—the X-ray treatment, the electrocardiographic work, laboratory work, multiphasic screening. And they agreed that the Joint Commission would work with this project with the idea in mind of doing some innovative work in this area and that ultimately, within a

year or two, the situation would be so improved, as to the provision of quality care in this area, that the Joint Commission would agree to accredit all of these eight hospitals with their central unit—to upgrade them as one unit.

I have been on the Joint Commission now for 7 years, and I am working with it. And I think that that is going to be a demonstration project that all of the Regional Programs may well look to with pride. And it may cut a pattern whereby we can improve the quality and availability of health care for the people in the remote areas of this country.

Dr. EGEBERG. Now, I am going to address a question or two and perhaps people will disagree with one another here. I would like to start with Dr. Lloyd if he doesn't mind.

He stressed something very important—community involvement in the delivery of medical care. And I wonder if he would take a couple of minutes to enlarge on this just a bit—lay versus medical.

Dr. LLOYD. I believe that the laymen can be sophisticated enough to have something to do with talking about the quality and the delivery of medical care. I believe that third parties who are paying for the care can certainly, again, have something to say about the quality of care they are paying for and how the care is to be supplied.

You are not afraid at all of other involvement when you are delivering good care. I have been sitting on a tissue committee in a large hospital, and have noted that men who are practicing good surgery don't mind getting the unusual letter that they get from the tissue committee, for whom they have nothing but the highest respect. It is men who are not doing good work really, I suppose, who move to other hospitals when the tissue committee looks critically at their work.

We must give the type of care that a community would like to have. We have given the kind of care that we would like to give at times, and it has been not what has been wanted in that community or needed in that community. The community many times will know much more of what they need than we do. And we must talk to people in communities—I am talking about groups, civic leagues, labor unions, and the like—who have much to tell us about the delivery of medical care.

I was in practice for about 10 years, too, so that I can talk as a practitioner. A physician's office is a very inefficient operation. It is only because we have so much profit built in that we can run the business the way we do it. It is a very inefficient operation, and we have shown that we can take many procedures, that physicians have been doing all the time because of the history of them doing them, and get people who have much less training to do these procedures even better than the physicians.

Again, with regard to community involvement, we are not economists, we are not businessmen, and many times in the community, we can find these aids that we need.

Dr. EGEBERG. Thank you, Dr. Lloyd. I think medicine has perhaps suffered from feeling that it has had to have a majority in most groups that decide on medical affairs. If they had worked more often with less than half the votes they might have had some more insight rubbed into them.

Dr. Trussell brought out one way of assuring a higher level of medical care which I thought was intriguing and almost needs repetition. It has been said that perhaps another way of assuring a higher level of medical care might be through having everybody in practice belong to some organization responsible for the delivery of medical care. And I would like to ask Dr. Trussell what he thinks of that.

Dr. TRUSSELL. I think that everybody would agree that physicians who are in association with one another contribute to more thinking and self-criticism and that they are better doctors by virtue of belonging to some kind of an association.

In urban areas and particularly in the New York City area, we have unknown thousands of doctors who have no recognized hospital appointment. This creates some very real problems for RMP in trying to involve these individuals in continuing education. I don't know what the answer is.

To enlarge a little on your statement about availability, Dr. Egeberg, one of our problems in New York City was too much availability. New York City has traditionally been the portal of entry for poor people. Right now, we have our immigration from the south and from Puerto Rico. These people need free care. And for decades they have received free care. The problem was that it wasn't uniformly good, and we had to undergo a massive reorganization.

And I am sure Dr. Johnson, who obviously hasn't been in Harlem, will be greatly relieved to know that Columbia University staffs the Harlem Hospital under a city contract currently at the rate of $12.5 million a year. It is matching interns and filling residency slots. There is a new 800-bed hospital which will be open next year. And things are somewhat better in Harlem than they were a few years ago. Even the Governor is going to build a State office building just 10 blocks away from the hospital—which is real progress.

With respect to making things available also, Dr. Egeberg, again, I want to say you can do some things when they are of proven value by requiring them, at least where there is an institutional right to impose a requirement. It is generally recognized that cervical cytology is a preventive technique which has a very high yield in women between the ages of 21 and 55—in fact, 70 percent of all cancer of the cervix in New York State that is reported is in that

age group. And in our State hospital code, there is now a requirement that any woman who hasn't had a Pap smear within the previous year when she is admitted to any hospital in New York State and is in that age group has to have a Pap smear.

There is also a requirement that anybody who hasn't had a chest X-ray within the previous year has to have a chest X-ray unless the Commissioner of Health deems it epidemiologically unnecessary in that hospital to have this uniform requirement.

There are some high-yield chest X-ray programs in Harlem, Bedford Stuyvesant, and the Bellevue areas. On the other hand, you can go 50 miles out of New York City, and it isn't worth the money to take a chest X-ray on everybody. It is left up to medical judgment. But it is the philosophy in New York State, reinforced by the law, where a preventive measure has proven of value to private patients as well as public patients, it is now being built into the requirements on hospitals to provide that preventive measure for all hospitals.

This does not, of course, extend to private practitioners in Dr. Lloyd's program. And his description of encouraging more doctors to do more Pap smears was a very exciting discussion.

Dr. EGEBERG. Thank you, Dr. Trussell.

Just one interruption here. I recently attended a medical association meeting in southern California where this question of Pap smear came up along these same lines. And there was a sharp difference of opinion. Everybody over the age of 60 thought this was a real interference with the practice of medicine and that a county society was trying to tell people how to practice. Practically everybody below 50 thought it was a wonderful thing.

Dr. Johnson, you talked about getting physicians into smaller communities. I am sometimes amazed how many people want to live in these large sores that we are breeding around the country, but apparently they do. I have heard that it is the wives who feel that they would rather live in a large community. And I have often thought that if some of these people could be introduced to a small community, maybe that would be all that would be required.

I was on a medical manpower committee concerned with the armed services not too long ago in which somebody suggested that perhaps the draft's main drawback was that it didn't involve everybody and perhaps everyone ought to take a year of some kind of service. Those who didn't have to go into the armed forces might do their service in some small community, and many of them might stay there if they fell in love with the community and their responsibilities. Would you care to remark on that? I know what you are going to say.

Dr. JOHNSON. I would be very glad to comment on that. If you could introduce these people in their formative years to an attractive community, you might do something. But so many of them have gone out into preceptorship programs and have seen communities like the one that I live in where I am on call 24 hours a day 7 days a week around the clock around the calendar, and the educational facilities, the cultural facilities, et cetera, are not up to par, and I would say that a preceptorship program, if it is a forced preceptorship program, will start with a bias built in against it. A preceptorship program has as much potential for harm as it does for good. But if you can introduce folks into an attractive community and get them interested in fishing and hunting, and so forth, you can coerce them a little bit. Maybe you can teach the wife to shoot quail.

I do believe this, however, that this business of putting communities together cannot be done by bureaucrats; it cannot be done by medical educators; it cannot be done by people from the top down; it cannot be done by people who represent a mass pool of practical ignorance, you might say, about how to provide health care services for people in these communities.

But we are going to have to make health care available, and I do agree that the physician is going to have to learn to use his time better. I have four assistants, and I assure you that my productivity is much greater because of that, and I don't have to charge as much in order to pay the bills at the end of the month. We are going to have to make medical care more available, but I don't want us to get way out in left field and make it available from those who cannot supply quality care.

DIVISION OF REGIONAL MEDICAL PROGRAMS
REPORTS ON. . . .

PROGRESS AND ISSUES
Robert Q. Marston, M.D.
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Maurice E. Odoroff

DIVISION OF REGIONAL MEDICAL PROGRAMS REPORTS ON—

PROGRESS AND ISSUES

Robert Q. Marston, M.D.
Associate Director
National Institutes of Health and
Director, Division of
Regional Medical Programs

Karl D. Yordy
Deputy Director, Division of
Regional Medical Programs

The progress and issues in the implementation of individual Regional Medical Programs are stated in your agenda. They are the same progress and issues faced by the division viewed from a slightly different perspective.

This year your steering committee has focused this entire Conference-Workshop around the question of quality and availability of health services. In our report to you this morning, the division of Regional Medical Programs will present reports on selected areas related to this general problem. Dr. Bucher will report for his group on progress in the use of operations research techniques and methodology. Dr. Schmidt will document the increasing activity in the division centered on the substantive improvement of health services.

I would like to focus on some of our contemporary issues by quoting suitable words from the past. "Our knowledge of the clinical pathology of the heart has advanced with such rapidity during the last decade, and the subject as a whole has become so technical, that at the present time it is difficult or well-nigh impossible for the general reader to keep pace with its progress. The writings are scattered; they call, in the reading, for considerable preliminary knowledge of the subject matter discussed.

"In contemplating the work of the past few years, it seems to me that a stage of the enquiry had been reached at which it was possible to give a review of the main results of the numerous researches, and to place before the student of general medicine the evidences upon which the chief conclusions of the present day rest.

"A number of phenomena, observed in clinical and experimental studies, are described side by side in this book, and an attempt is made to show the manner in which abnormal actions of the heart, as they occur in patients, may be identified with similar disturbances artificially created in laboratory experiment." This quote is from the preface of Sir Thomas Lewis' book on "Mechanism of the Heartbeat," published December 1910.

I have chosen Sir Thomas Lewis because Dr. William Branch Porter, my professor of medicine, was a student of Lewis' and always used a stethoscope given to him by Sir Thomas. Sir Thomas dedicated his book to his teachers, Makenzie and Einthoven. Last week at the University of Chicago Board of Trustees dinner for the faculty, Professor Chandrasekhar, in speaking of distinction in science, traced the genealogy of Nobel Prize winners in chemistry in an unbroken student-teacher relationship back to 1901. He emphasized the point that excellence begets excellence. Medicine has been particularly dependent on the preceptor concept, the 1 to 1 ratio of student to teacher or physician to patient. The unquestioned validity of this arrangement to assure excellence, though proven through the years, constitutes a major challenge when you and I address the complex issues of the maintenance of excellence in the organization and delivery of health services.

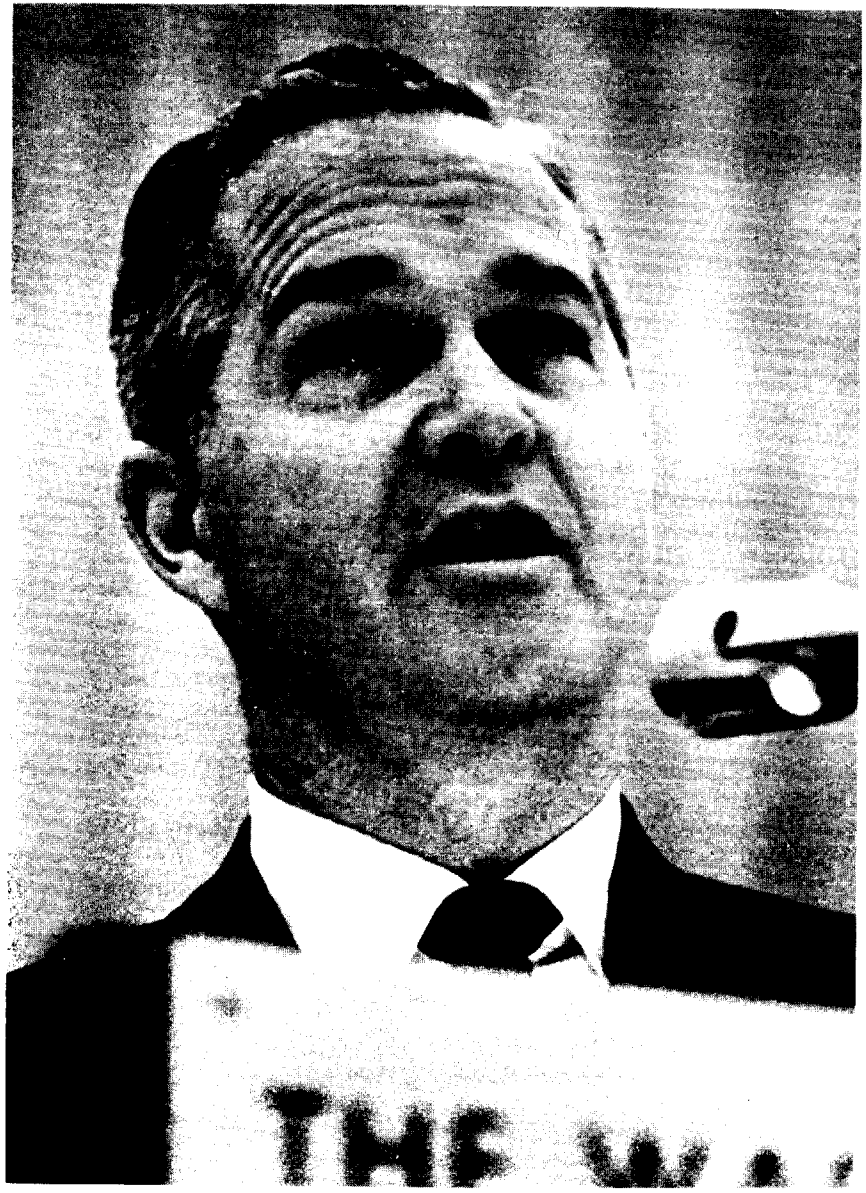
Two speakers on our program last year spoke pointedly on this issue. Undersecretary Cohen said, "Some have argued that there is an inconsistency, or even conflict, between high quality and widespread use. They believe that excellence is such a rare and tender flower that it can only bloom in special and carefully protected environments. They have suggested that we can lose everything by trying to mass produce what requires the most skilled craftsmanship.

"This point of view, I believe, is contrary to our national history and commitment. I think we have the capabilities as a society to make the very best available to all our people."

Dr. Shannon, in a paragraph that we have quoted often, stated, "although we must contend with many diverse geographic and social circumstances, NIH, in administering the Regional Medical Programs, will strive to preserve existing centers of excellence in science, education, and service while, at the same time, working with State and local forces, evolve a system that will make available to the bulk of the population medical services that are excellent in quality and adequate in quantity—at least in a major segment of the diseases that plague us all."

It is appropriate to consider for a moment the Regional Medical Programs in the context of the Federal role in the organization and delivery of health services. In its present outlines, that role is relatively new, except for the facilities programs and some of the previous stimulation of planning as described yesterday by Dr. Breslow. Experience with the major new components of that role is limited. The effects of medicare and medicaid are just becoming known. Most of the Regional Medical Programs have not yet entered operational phase. The experience with comprehensive health planning is at a still earlier stage of development.

As I was proofreading this speech I was informed that one of my great teachers, Lord Florey, whose development of penicillin earned him a Nobel Prize, died February 22, 1968. (R.Q.M.)



DR. MARSTON

An expanded health services research program is mostly intent. But the urgency and public awareness are increasing, and one can describe some characteristics of the road that lie ahead.

The nature of this Federal role almost certainly is different from the current Federal role in the support of medical research, such as the grant programs of the National Institutes of Health, or in the direct delivery of health services, such as the Veterans Administration hospital system. It will probably be different from the emerging Federal role in support of medical education, though the fuller outlines of that role, while further along than the health services role, are still in the process of being determined.

Federal research support is primarily involved in the support of some functions within an institution. Support for medical education becomes more concerned with the viability and strength of the total institution. But it seems apparent that the Federal role in the organization and delivery of health services must be concerned not just with single institutions but with the interrelationships among many institutions, organizations, health personnel, and the consumers of health services. The importance of the consumer was described forcefully by Dr. Lloyd in his presentation yesterday. It is clear that this role will not be characterized by the direct delivery of health services by the Government on the Veterans Administration model. Rather, we see a fertile environment for the exercise of that peculiar propensity and genius of our society to invent new institutional and organizational frameworks to meet new challenges. In my previous responsibilities, I have often heard young physicians and medical scientists from other countries praise our unique ability to bring together the skills of those from many disciplines to focus on particular problems. To carry this approach into the problems of health care will require not only the focusing of a variety of individual talents, but also a wide range of institutions and organizations, each of which can make a particular and essential contribution to the solution of the health care problems.

Regional Medical Programs themselves have challenged our capacity for organizational invention with a variety of results. One concrete manifestation of a creative organizational response has been the emergence of new nonprofit corporations to serve as the common arena where many institutional interests can meet for common purposes. These new organizations will be tested in the coming years to see if they can truly encompass the many relevant interests within a new unity of purpose, relate effectively to other activities in the health field, and avoid the dangers of becoming protective or static.

In stimulating new structures and relationships in health, much of the Federal role will probably be indirect, through influencing a vast and dynamic health endeavor that is based

on local institutions, organizations, and initiatives.

A Governmental role will not predominate at the actual meeting point of the provider and consumer of health services, even though the proportion of financing through Governmental channels is likely to increase. The efforts to preserve voluntary action will continue to shape the character of the Federal role.

While maintaining local freedom of action, one aspect of the Federal role is clear: It must facilitate the implementation of productive and desirable change in areas affecting health services. One of the major forces for change is the strong desire for high standards of excellence that has permeated our medical activities and that has led to so much impressive accomplishment throughout the history of American medicine. The tradition of excellence and its continued pursuit will continue to create much of the need for changes in the organization and delivery of health services. The same tradition will also continue to create opportunities for improved health care. The Federal commitment to the wider availability of the best in medical care and the continued support for the development of medical excellence are two aspects of the same interest. This relationship was a central theme in Dr. Chapman's presentation when he referred to research in the service of mankind. But to accomplish this role of facilitating productive change, it will be necessary to capitalize on all of our resources and energies in the health field. We must be as concerned about integrating the public and private segments of the health endeavor as with avoiding the isolation of the ivory tower or the solo practitioner. There will be a continued need to focus on special problems, such as the critical health problems in the urban slums, but that special attention will need to include the development of relationships between these special efforts and the rest of the health services framework in order to avoid replacing old isolation with new.

If these are some of the possible outlines of the Federal role in the organization and delivery of health services, how do Regional Medical Programs relate? Dr. Breslow said yesterday: "To those concerned with the improvement of health care in this country, regionalization has become the order of the day." Because regionalization is essential for accomplishing the purposes of this program, we have chosen in our revision of the *Guidelines* to describe the mechanism for achieving the goal of the Regional Medical Programs as a process of regionalization.

That goal is described in the Surgeon General's Report on Regional Medical Programs as . . . clear and unequivocal. The focus is on the patient. The object is to influence the present arrangements for health services in a manner that will permit the best in modern medical care for heart disease, cancer, stroke, and related diseases to be available to all."

We have described the process of regionalization in the following terms in the new *Guidelines:*

Regionalization among the full array of available health resources is a necessary step in bringing the benefits of scientific advances in medicine to people wherever they live in a region they themselves have defined. It enables patients to benefit from the inevitable specialization and division of labor which accompany the expansion of medical knowledge because it provides a system of working relationships among health personnel and the institutions and organizations in which they work. This requires a commitment of individual and institutional spirit and resources which must be worked out by each Regional Medical Program. It is facilitated by voluntary agreements to serve, systematically, the needs of the public as regards the categorical diseases on a regional rather than some more narrow basis. Regionalization within the context of Regional Medical Programs has several other important facets:

It is both functional and geographic in character. Functionally, regionalization is the mechanism for linking patient care with health research and education within the entire region to provide a mutually beneficial interaction.

Regionalization provides a means for sharing limited health manpower and facilities to maximize the quality and quantity of care and service available to the region's population and to do this as economically as possible.

Finally, regionalization also constitutes a mechanism for coordinating its categorical program with other health programs in the region. As a result, their combined effect may be increased so that they contribute to the creation and maintenance of a system of comprehensive health care within the entire region.

Because the advance of knowledge changes the nature of medical care, regionalization can best be viewed as a continuous process rather than a plan which is totally developed and then implemented. This process of regionalization consists of at least the following elements: Involvement, identification of needs and opportunities, assessment of resources, definition of objectives, setting of priorities, implementation, and evaluation. I will describe and discuss these seven elements in the process separately, although in practice they are interrelated, continuous and often occur simultaneously.

First, *involvement.* The involvement and commitment of individuals, organizations, and institutions which will engage in the activity of a Regional Medical Program, as well as those which will be affected by this activity, must underlie a Regional Program. By involving in the steps of study and decision all those in a region who are essential to implementa-

tion and ultimate success, better solutions may be found, the opportunity for wider acceptance of decisions is improved, and implementation of decisions is achieved more rapidly. Other attempts to organize health resources on a regional basis have experienced difficulty or have been diverted from their objectives because there was not this voluntary involvement and commitment by the necessary individuals, institutions and organizations. The act is quite specific to assure this necessary involvement in Regional Medical Programs: It defines, for example, the minimum composition of Regional Advisory Groups.

To insure a maximum opportunity for success, the composition of the Regional Advisory Group should go beyond the minimum requirements to be reflective of the total spectrum of health interests and resources of the entire region. And it should be broadly representative of the geographic areas and all of the socio-economic groups which will be served by the Regional Program.

The second element, *identification of needs and opportunities.* A Regional Medical Program must identify the needs as regards heart disease, cancer, stroke, and related diseases within the entire region. Further, these needs must be stated in terms which offer opportunities for solution.

This process of identification of needs and opportunities for solution requires a continuing analysis of the problems in delivering the best medical care for the target diseases on a regional basis. And it must go beyond a generalized statement to definitions which can be translated into operational activity. Particular opportunities can be identified by: ideas and approaches generated within the region, extension of activities already present within the region, and approaches and activities developed elsewhere which might be applied within the region as part of the process of regionalization.

The third element, *assessment of resources.* This implies a continuously updated inventory of existing resources . . . an inventory of capabilities in terms of function, size, number, and quality. Every effort should be made to identify and use existing inventories, filling in the gaps as needed, rather than setting out on a long, expensive process of creating an entirely new inventory. Information sources include comprehensive health planning agencies, hospital and medical associations, and voluntary agencies. This inventory provides a basis for informed judgments and priority setting on activities posed for development under the Regional Program. It can also be used to identify missing resources—voids requiring new investment—and to develop new configurations of resources to meet needs.

Definition of objectives is the fourth element. A Regional Program must be continuously involved in the process of setting operational objectives to meet identified needs and opportunities. Objectives are interim steps toward the goal of Regional Medical Programs, and achievement of these objectives should have an effect in the region felt far beyond the focal points of the individual activities. This ripple effect can be one of the greatest contributions of Regional Medical Programs.

Element number five is *setting of priorities.* Because of limited manpower, facilities, financing, and other resources, a region must assign some order of priority to its objectives and to the steps to achieve them. Besides the limitations on resources, factors to consider include: (1) Balance between what should be done first to meet the region's needs, in absolute terms, and what can be done using existing resources and competence; (2) the potentials for rapid and/or substantial progress toward the goal of Regional Medical Programs and progress toward regionalization of health resources and services, and (3) program balance in terms of disease categories and in terms of emphasis on patient care, education, and research.

The purpose of the preceding steps has been to provide a base and imperative for action. Thus, *implementation* is the sixth element. In the creation of an initial operational program, no region can attempt to determine all of the program objectives possible, design appropriate projects to meet all the objectives, and then assign priorities before seeking a grant to implement an operational program which encompasses all or even most of the projects. Implementation can occur with an initial operational program encompassing even a small number of well-designed projects, provided they will move the region toward the attainment of valid program objectives. Because regionalization is a continuous process, a region is expected to continue to submit supplemental and additional operational proposals as they are developed.

After the implementation of an operational program, there are two potential threats to be avoided. One is the projects will lose their regional identities by becoming institutional projects, and thereby cancel the opportunity for the operational program to have regional scope and effect. The other threat is that projects will lose the relationships one to another which maintain the interaction of patient care, education, and research. Preventing these breakdowns requires project and program administration of a high order. It also requires sustained communications, involvement, and the application of evaluation.

This brings me to the final element in the process of regionalization: *Evaluation.* Each planning and operational activity of a region, as well as the overall Regional Program, should receive continuous, quantitative, and qualitative evaluation wherever possible. Evaluation should be in terms of attainment of interim objectives, the process of regionaliza-

tion, and the goal of Regional Medical Programs.

Objective evaluation is simply a reasonable basis upon which to determine whether an activity should be continued or altered, and, ultimately, whether it achieved its purposes. Also, the evaluation of one activity may suggest modifications of another activity which would increase its effectiveness.

Any attempt at evaluation implies doing whatever is feasible within the state of the art and appropriate for the activity being evaluated. Thus, evaluation can range in complexity from simply counting numbers of people at a meeting to the most involved determination of behavioral changes in patient management.

As a first step, however, evaluation entails a realistic attempt to design activities so that, as they are implemented and finally concluded, some data will result which will be useful in determining the degree of success attained by the activity.

By this rather detailed definition of regionalization, we arrive at the criterion for judging the success of a region in implementing the process of regionalization. Success is measured by the degree to which it can be demonstrated that the Regional Program has implemented the seven essential elements of regionalization: Involvement, identificaion of needs and opportunities, assessment of resources, definition of objectives, setting of priorities, implementation, and finally, evaluation.

Ultimately, the overall success of any Regional Medical Program must be judged by the extent to which it can be demonstrated that the Regional Program has assisted the providers of health services in developing a system which makes available to everyone in the region the best care for heart disease, cancer, stroke, and related diseases.

In giving you some of the content of the revised *Guidelines,* I would like to reassert, as was done in the report of the Surgeon General to the President and the Congress that the basic concepts of the Regional Medical Programs remain unchanged. As you review the revised *Guidelines,* which I hope to have available for you in draft form on Friday, you will find increased clarity, not surprises.

I believe that it is important to point out that this program is still in its infancy. It has not yet been supported by a critical mass of money, it still awaits extension of its initial legislation, and it still must document more firmly its value. However, all the pressures leading to its existence have intensified in the past two years, and new conditions such as the implementation of medicare, medicaid, and a greater concern for increasing costs have become realities. We also have gained some meaningful experience—exemplified best by this meeting itself.

As the programs evolve, now and at times unexpected problems will emerge, and some of them will test sorely the stability of Regional Medical Programs. For instance, the earmarking of some of the RMP funds by the Congress is viewed by some as a threat to the concept of regional initiative and regional determination. We believe, however, that this will not occur. We must try to continue to estimate honestly the potential of RMP. One organization was described sardonically by the *Economist* as a "permanent institution devoted to proving there is not enough food in the world." Results, not assertions, will be needed.

And yet the consciousness of the problems of our society is not due primarily to our increased sensitivities but more to the strengthened power of the people in demanding that their needs be met. The question remains, however, whether the inertia of the system in a large and complex nation can be overcome.

The energies and high hopes of those now working in the regions must overcome the problems of an ingrained system. Through no choice of any individuals, the time for change is now. The forces of evolution should prevail and the system should move to respond to the demands of the Nation's needs.

DIVISION OF REGIONAL MEDICAL PROGRAMS REPORTS ON—

A NEW EMPHASIS

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Dr. Manegold and I appreciate the invitation extended to us by your program committee to report on some significant recent developments in Regional Medical Programs. These developments have two things in common: They originated in regions, but have stimulated change here at the division of Regional Medical Programs. Secondly, they reflect the current status of the programs. These developments represent a new emphasis on the relevance to patient care of both the programs and the division. During the next few minutes, I would like to characterize further this new emphasis.

To gain perspective, I would remind you of the first National Conference on Regional Medical Pro-

grams, held here one year ago. Those of you who attended, or who have seen the recently distributed *Proceedings* of that meeting, may remember its dual purpose: To encourage ideas from a representative group of individuals that could be used in preparation of the report of the Surgeon General to the President and Congress, and to provide an interchange of information on planning and on the goals of the program. The first meeting did much to characterize the program in its early stages of development. The meeting was dedicated principally to the problems of definition and elaboration of the concepts of cooperative arrangements, local initiative, and evaluation.

The meeting now underway is significantly different. It is obvious that major program goals have, for the most part, been defined and accepted. Based on these goals, program activities have begun. Indicative of this is the relatively rapid development of operational programs. Six months ago, four regions were operational; before the next 6 months are over, we expect between 24 and 36 regions to have submitted their requests for operational funds. The obvious implication is the regional planning is fairly well advanced. However, we have been intrigued by the impact of regional planning which the first operational projects have had. Regions have discovered the benefits of shifting their attention from the immediate objectives pertinent to a particular project, to long range program goals.

As regions matured, the division perceived this important shift of emphasis. Last fall, the division reorganized so as to respond better to evolving regional needs. The plan for this reorganization has been given to you in the *News, Information, and Data* release of January 11, included in your Conference book. One of the major results of the division reorganization was the appointment of an Associate Director for Program Development and Research, Dr. Richard F. Manegold. This new activity of the division represents the main response to the stimulus from the regions. The activities of the new branches of the division will be directed toward major problems perceived by the regions. These problems will grow out of the acceptance by regions of the patient as the proper focus of its program. Because of operational activities there has been a renewed—or in some cases a new—emphasis on the relevance of program and projects to the system of health care.

Titles from the printed program of this meeting illustrate this emphasis on the patient and the system of health care. I need only to select two examples from papers being given later today. One title is "Clinical Data Collection with a Purpose." Another: "Nursing in the Regional Medical Programs: Alliance for Better Care." Even the title of the discussion group on continuing education—"Continuing Education and Training, For What?"—demonstrates the acceptance of the challenge to make Regional Medical Programs relevant to major health care issues of today.

DR. SCHMIDT

These issues are readily identified. There are now at least six groups of distinguished individuals in the health fields, in government, in professional organizations, or in foundations seeking a rational approach to what is viewed as a health care crisis. One of these, the President's National Advisory Commission on Health Manpower, reported recently "There is a crisis in American health care . . . . The crisis, however, is not simply one of numbers . . . . If additional personnel are employed in the present manner and within the present patterns and 'systems' of care, they will not avert or even perhaps alleviate the crisis. Unless we improve the system through which health care is provided, care will continue to become less satisfactory, even though there are massive increases in cost and numbers of health personnel."

The report then goes on to make a number of recommendations in several areas. But you may have noted in the report that while pages 1 through 31 speak to the specific problem of health manpower, pages 32 through 77, or more than half the report, are concerned with improving the health care system.

In point of fact, whether one considers the manpower shortage, or the increasing demands for service, or the rising costs of medical care, or the lack of health care in our urban ghetto areas, or even the problems surrounding continuing education and training of health manpower, one is forced to consider the present health care system, and how it must change. Predictions are that by 1975 many new patterns will have been established which will determine many aspects of our work in the health field. The relevance of this to the Regional Medical Programs was stated by Dr. Ward Darley: "It is the response to the heart disease, cancer, and stroke legislation more than any other one thing that is presently providing the common ground upon

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which the interests are gathering that are necessary to plans that will meet not only the growing, but also the changing demands of our society." This responsiveness to major issues is newly being emphasized by Regional Medical Programs.

Acceptance of the challenges posed by the health care crisis is well demonstrated by the activities of regions. One region, faced with the not uncommon situation of a large number of hospitals wanting to establish coronary care units, was initially concerned with the mechanics of building and equipping such units. Their attention shifted, however, to a consideration of how the region might give the best diagnosis and treatment to all patients with myocardial infarction. What started as an emphasis on hardware in hospitals developed the potential of bringing the best talent in a region together to consider a number of critical problems, including the need for trained manpower, the need for specialized resources in a community hospital, and the need to document for evaluation purposes what emerges from a possible dramatic change in the care of patients within a region.

Another region, finding itself with a number of small hospitals already having established coronary care units, has turned to the difficult but necessary task of studying the effectiveness of these small units, and the cost/benefit realities of such units in small hospitals.

Even the problems surrounding continuing education and training of health manpower forces Regional Medical Programs to consider other major issues. One region has within it an expensive and excellent facility for the production of audio-visual materials, such as color motion picture films and television tapes. Because of the need for such materials by that region, the production facility and the region are working cooperatively. But attention has shifted from the mechanics of the production and distribution of teaching aids to the need for the determination of the proper content and use of such materials in teaching programs. The region and the producer have jointly begun to study these problems in the specific terms of educational needs. In addition, they have recognized their unique ability to conduct such a study, which promises benefits to all regions.

On the other side of the country, a region unable to produce its own audio-visual aids has decided to define carefully its need for program materials, and only then to secure them from a neighboring region. In these ways, interregional cooperative arrangements are being structured in order to solve elaborate hardware problems. The point to be made, however, is the switch from primarily a hardware problem to the larger issue of the proper use of educational aids within a program.

I would like to turn now to the central issue of continuing education and training programs. Continuing education was specifically mentioned in our enabling legislation as a means of improving the health manpower of the Nation. Continuing education has been accepted as a reasonable and desirable process by most everyone—but the question asked by Dr. George Miller in his article in a recent issue of the Journal of Medical Education, and to be asked by our panel this afternoon — "Continuing Education, For What?" is a very important one. The answer, at least for Regional Medical Programs, would appear to have been given by these words from the report of the Surgeon General to the President. "The ultimate objective of Regional Medical Programs is clear and unequivocal. The focus is on the patient. The object is to influence the present arrangement for health services in a manner that will permit the best in modern medical care for heart disease, cancer, stroke, and related diseases to be available to all."

Many regions are now reexamining their continuing education programs in order to relate them more closely to the objectives of Regional Medical Programs. For example, a continuing education task force of one region has stated that generally, continuing medical education is to be considered as part, and only part, of the integrated activity of that program. Secondly, the objectives of the educational programs would relate directly to the objectives of the region as a whole, and would be based directly in the health care process. Thus, if one is to make assessment of needs for educational programs, this assessment must be based on the system of health care, the role of the learner, and his needs. Inescapably, what a physician or a nurse or a technician actually does is what must determine educational needs. A paper to be presented later today accepts this premise, and reports on a study of physician office practice. I would like to emphasize by repetition a most important point made by Dr. Dwight Wilbur yesterday. The problems of medical care and medical education are inseparable, and medical education offers the greatest potential for rapid and widespread solution of identified problems or deficiencies in this general area of health care. In medical education, attention must be focused directly on the questions: "Will this effort change behavior?" and, "Will this change in behavior result, in fact, in the patient receiving the maximum benefit of modern knowledge?" The benefits derive not only from the new knowledge of the treatment of disease, but as well from the knowledge of new systems of health care.

I have said that these emphases of the regions have stimulated the division to respond, and I mentioned the establishment of a new office for program development and research within the division. As you may have noticed in the information you have received, the already established branch of Continuing Education and Training will be closely allied with a Regional Health Services branch.

This alliance will allow the desired interaction between the branches.

The Continuing Education and Training branch will add some needed units to those already existing. We have had an Allied Health Professions section for some time, as well as an Education Evaluation and Research section headed by Dr. Frank Husted. The latter section is prepared to consult with regions about the difficult task of program evaluation. We are now establishing an instructional media unit, and a curriculum design unit, among others. A reference unit will be set up to assist in the collection of information specifically relating to educational and health service programs. These units are intended to serve, on request, regional as well as divisional needs, and will work closely with the as yet embryonic Health Services branch.

The Regional Health Services branch is now being developed. The need for this branch was anticipated in the earliest days of the division. However, because of the pressing need to support early planning efforts, and the relatively higher priority assigned to the educational programs, creation of the Health Services branch was delayed. The new emphasis upon the patient and the system of health care obligates a new priority. Further, it is now apparent that medicine, a holistic system, can no longer reasonably separate educational function from service.

The Regional Health Services branch will be prepared to conduct, encourage, and support research on needs, criteria, and methods for new and improved capabilities for delivery of health services on a regional basis. There will necessarily be an important relationship with the developing National Center for Health Services Research. There will also be developed relationships with private institutions, medical school departments of community medicine, and professional associations.

The branch will obviously have a review and evaluation function, which will lead naturally to a role of consultation and service to the regions.

The challenges faced by Regional Medical Programs are now readily apparent and, while great in size and scope, are matched by the potential for solution offered by the programs. The fragmented medical services, the rising costs of care, the shortages, the impersonalized and disjointed system, and the educational imperfections are the fabric of our health care crisis. The new emphasis being placed on these major issues by Regional Medical Programs is being reflected by the developing resources and energies of the programs.

DIVISION OF REGIONAL MEDICAL PROGRAMS REPORTS ON—

OPERATIONS RESEARCH AND SYSTEMS ANALYSIS

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Jack H. Hall, M.D.
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Maurice E. Odoroff
Assistant to Director for Health Data Division of Regional Medical Programs

In March 1967, the Division of Regional Medical Programs entered into a contract with the University of Michigan College of Engineering to obtain the consultative services of Dr. Herbert Galliher and his operations research group. Together with Mr. Maurice Odoroff, biostatistician on the staff of DRMP, they began work on a number of topics. In August, two individuals with experience as medical administrators joined the Division for a 6-month period on leave from their respective institutions (Dr. Jack Hall, Director of Medical Education of the Methodist Hospital Graduate Medical Center in Indianapolis, and Dr. Robert Bucher, Dean of the Temple University School of Medicine).

The similarity of interests of these people soon made it obvious that we would function best in some type of team fashion, and the feeling is shared by all that a great deal of progress has been made because of our "cooperative arrangement." It is my privilege today to give this presentation on behalf of the group by (1) using an example for illustrative purposes, (2) summarizing briefly some of our activities, and (3) making a few major recommendations.

There have been, to date, few if any demonstrations of the successful utilization of operations research in relation to the health care system. Nevertheless, a number of attempts are underway to model portions of the system, and these appear promising enough to justify our conviction that an effort to develop health related operations research should be undertaken. As we do so, we must be mindful of the lessons learned from developments in other areas. Probably the most notable contributions of operations research have been in the fields of industry, transportation, and defense. In each instance, it took a

decade of intense work before a reasonably complete definition of the system was accomplished. The health care system has complexities which exceed any of these and, although some of the specific methodologies already developed may be utilized with minor modification, we should not expect the health system to yield to definition in a matter of months or even a year or two. This leads one to reason that initial attempts should be focused on specific problems which can be clearly defined, and a more global approach should be reserved for a time when more of the pieces of the puzzle have been described and codified.

Those of us who are interested in

DR. BUCHER

and connected with Regional Medical Programs should recognize the opportunity and responsibility which we bear in this development. Operations research can function only as there is an operational laboratory within which studies can be undertaken. As the regions develop their cooperative endeavors, they will be constructing the organizational forms which have previously been unavailable. In the past, an institution represented one of the few health organizational entities which existed, but they rarely related themselves to a population, and tended to deal only with isolated episodes of illness. A Regional Medical Program, on the other hand, has the opportunity to concern itself with the totality of the spectrum of specific disease processes and their management. Thus, the country could logically look to this program and each of us involved to lead in the development of more systematic methods of relating our resources to the benefit of all our people.

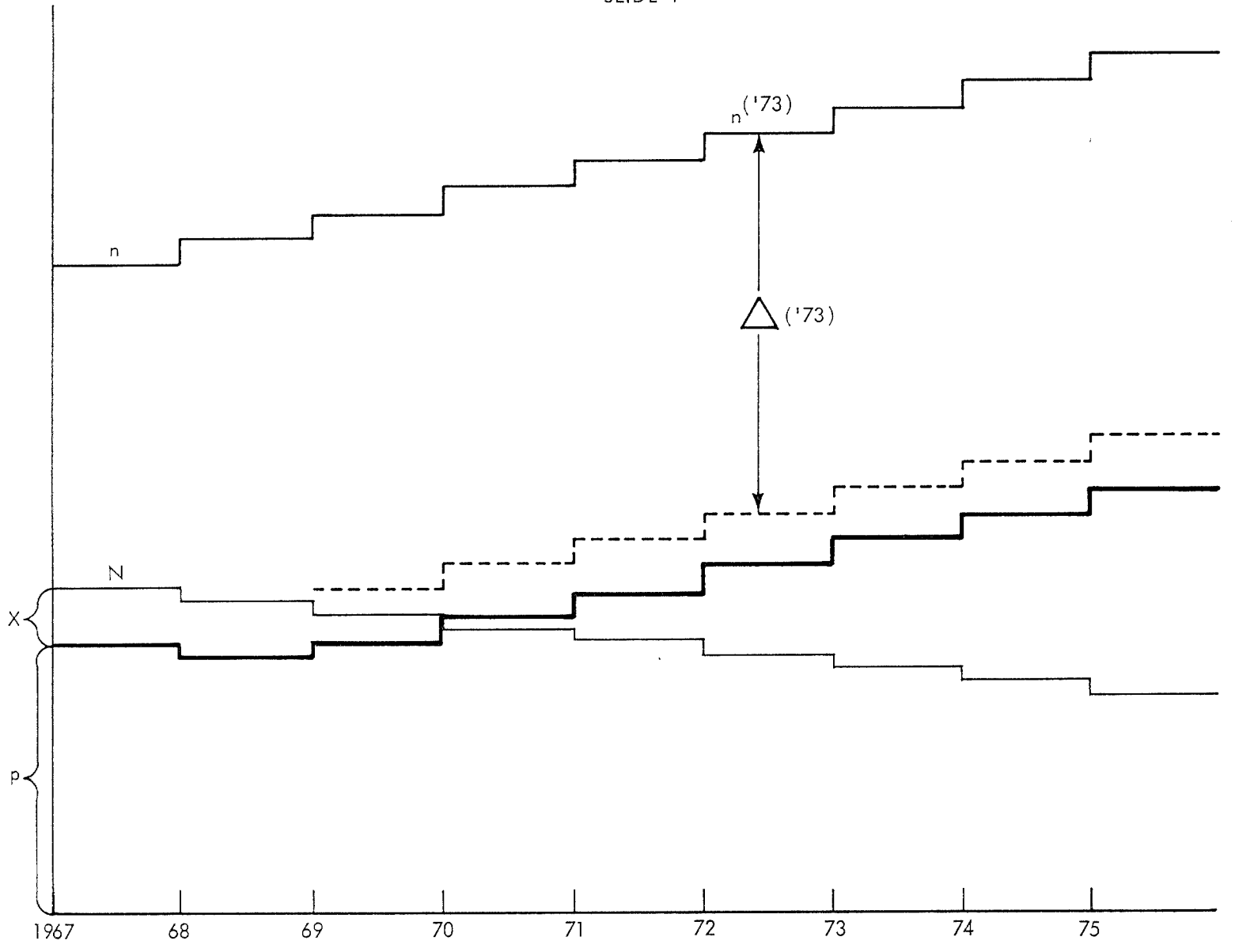
In examining my own experiences during the past 6 months, I realize how difficult it is for a physician to gain an understanding of just what the discipline of operations research represents. General contact with a systems approach as applied to planning efforts may lead one to the conviction that there is a methodology available which can help to clarify complicated processes. However, as a specific approach is made, unfamiliarity with the mathematical symbols and formulae which are the tools of the operations researcher produces a feeling of frustration. I am going to take a risk at this time and assume that many of this audience have had little more experience with or insight into operations research and the process of modeling than I have had. If this is true, it is foolish to try to explain, utilizing vocabulary with which we are familiar. Rather, I thought it might be helpful to review briefly one specific mathematical model which we have been developing, in order to illustrate the process by example.

The operations research approach to an operational experiment may be thought of as consisting of six definitive steps: (1) Formulating the problem; (2) constructing a mathematical model to represent the system under study; (3) deriving a solution from the model; (4) testing and refining the model and the solution derived from it; (5) establishing controls over the solution; and (6) putting the solution to work. Performance is then compared with expectations and, if necessary, the process is recycled. This particular example represents an approach to the manpower development problem within a closed system such as a region. It is not being presented as a finished product nor for the purpose of communicating its content. Rather, it is presented as an illustration of the first three steps in the operations research process. The first stage is that of formulating the problem, and slide 1 illustrates this in graphic terms.

The upper line on the slide represents the health care demand of the population in the region over a period of time. The increase in demand in each of the succeeding years is a function of anticipated growth of the population. The solid line below this represents the amount of care capability which would be present in the region during the next 10 years if no new capability was produced. In this hypothetical situation, in order to build a model, we have expressed each of these quantities in terms of time per year, and the symbols define these terms. For example, $N(t)$ represents the amount of capability existing in time period t.

This line would diminish by virtue of annual attrition if no persons were added to the system. Assuming that the training of people will be accomplished within the region, the heaviest line represents the situation which could occur if some of the capability (X amount) were to be directed toward teaching. Assuming a 2-year training course, at the end of 2 years there would be manpower capability added to the region as represented by the dotted line, and if the same amount of teaching were continued in each year, the total manpower capability per year would rise as depicted by the continuation of the dotted line. It now becomes clear that one of the objectives of any strategy should be toward the diminution of the gap between demand and existing capability over a period of time, this gap being designated as $\Delta(t)$. In

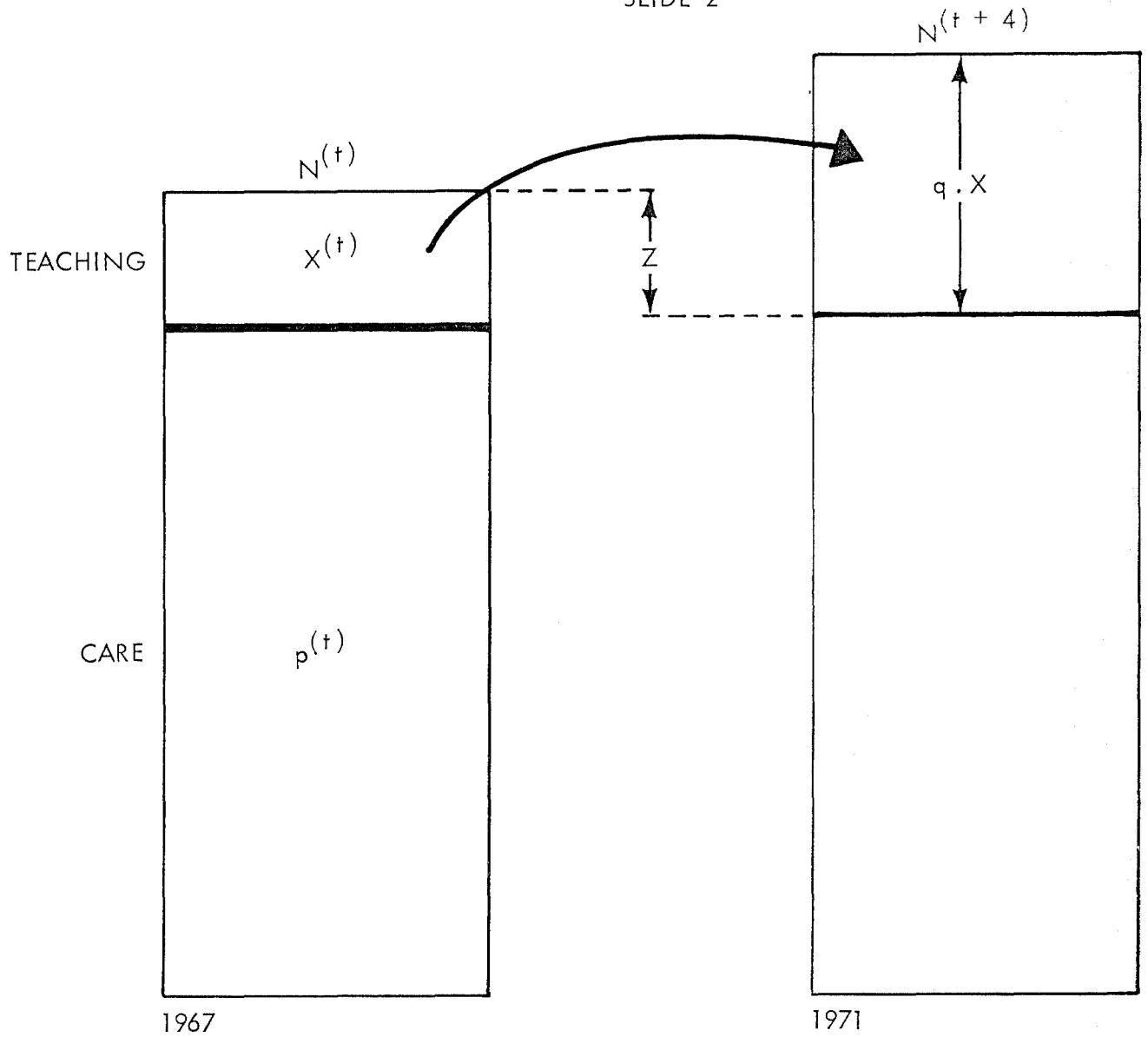
SLIDE 1



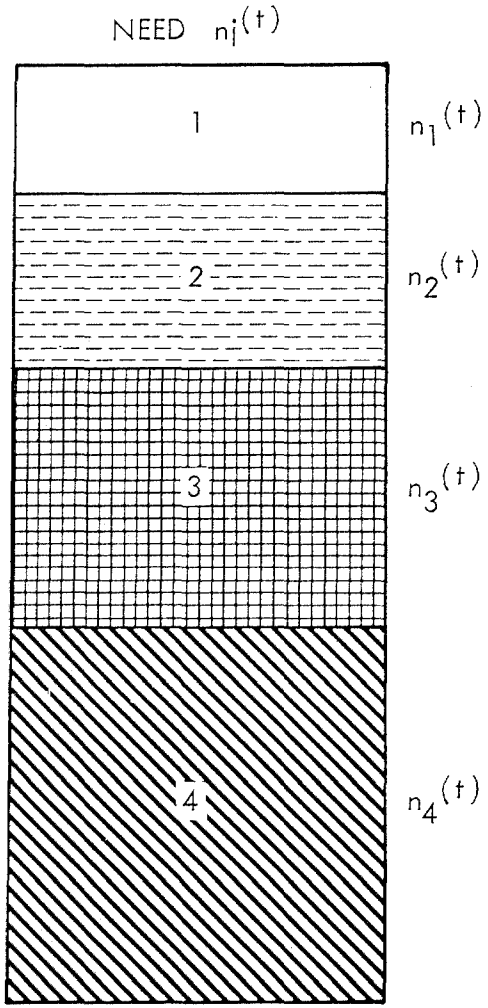
order to examine this more closely, let us look at two of the blocks in somewhat greater detail. The next slide (slide 2) illustrates the situation as it exists in the hypothetical model at this time. The total area is defined as $N(t)$ and is expressed in this instance as minutes per year. The area labeled $X(t)$ represents the portion of the capability which is given to teaching during year (t) and the area designated $p(t)$ represents that portion being devoted to care during that year. For example, if this block represented physicians, the $N(t)$ would be the total number of minutes of physician time available for the year, and $X(t)$ would be the total number of minutes of physician time expended in teaching.

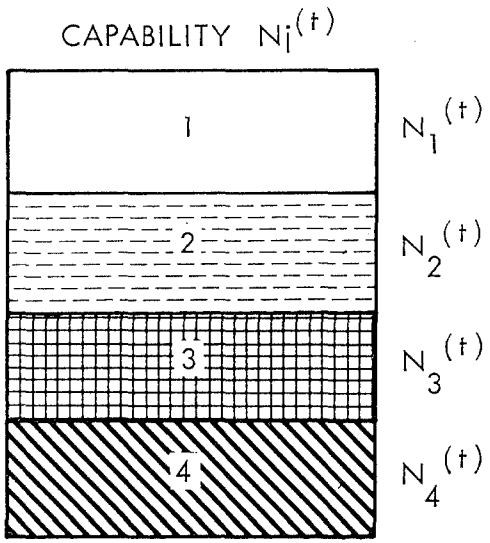
The block to the right represents the situation 4 years hence. There is a new value for $N(t)$ since additional capability has been produced. This is designated as $q \cdot X$ which means that the number would be equal to the amount of personnel produced by each unit of teaching time multiplied by the amount of teaching time actually expended (X). Q is essentially a student-faculty ratio figure. The difference designated by $\mathbf{Z}$ represents the attrition which is anticipated by loss of people due to death, retirement, or other types of departure from the system. This can either be expressed in numbers or as a percentage of the total number. No teaching time is indicated in this second block since this must be decided and com-

SLIDE 2



SLIDE 3



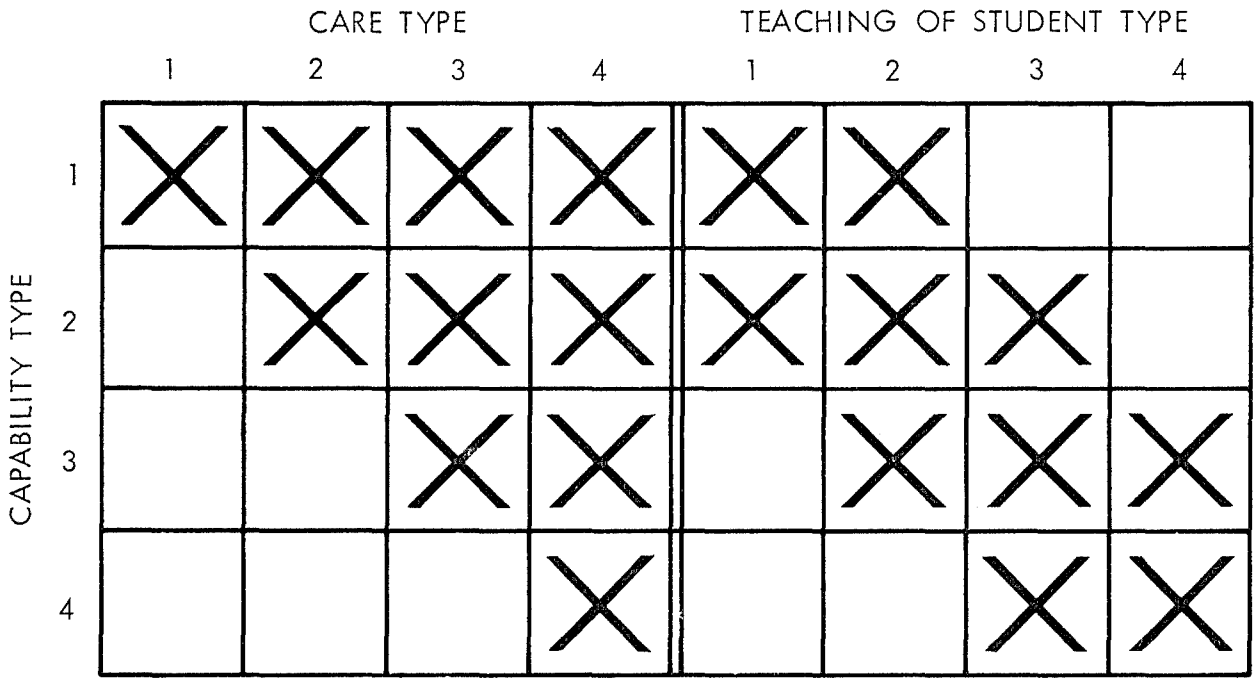


puted on the basis of needed production of persons for future years.

In simple terms, we have now formulated the problem and begun the construction of a preliminary mathematical model. However, the real life situation is not quite so simple. The next slide (3) perhaps depicts the situation somewhat more realistically. It can be seen that the need (designated n) is divided into several types. For example, type 1 might be those needs which can be fulfilled only by a physician, type 2, those that can be fulfilled by a registered nurse, etc. The capability existing (designated N) can also be divided in terms of the types of skills which exist. The next side (4) is a matrix which illustrates the interlocking activities. A person having capability of type 1 can do all of the tasks required for all four care types. A person of capability type 2 can accomplish care types 2, 3, and 4. In the hypothetical region posed, we also stated that a person of capabilty type 1 teaches students of type 1 or 2, and so on. In addition, there are varying course lengths for each of the student types. The mathematical symbols must reflect these varying types, and the numerous possible combinations and permutations of efforts expended by the various capabilities in providing types of care and types of teaching are obvious.

One other assumption made in this process is that it is linear in ranges of normal operation. It is likely that absolute linearity does not exist in biologic or social systems. However, for computational purposes it is appropriate to assume linearity under controlled conditions as is illustrated in the next slide (5). As time expended in teaching is plotted against the capability produced by that teaching effort, it is quite possible that a nonlinear relationship exists. At the lower point of the curve, it is conceivable that minor increments in expenditure of time in teaching would have little effect on the production of capability,

SLIDE 4



and that at the upper end of the curve there might be a saturation effect wherein large additional increments in teaching time might produce no significant increase in manpower production. However, the part of the curve with which we are usually concerned is probably close enough to the straight line to allow the relationship to be expressed as a linear one.

No attempt will be made to illustrate all of the mathematical statements which describe this problem, but a few examples can be shown and explained. The next slide (6) illustrates the general statement of the amount of capability which exists at a given time. The equation reads as follows: $N_j(t)$ (the amount of j-type capability at time period t) is equal to the amount of j-type capability which existed at the previous time period plus the summation of the time expended in teaching the j-type student by the i-type teacher times the factor relating teaching time to production of j-type persons by i-type teachers during time period t and minus the loss of j-type personnel during the preceding time period. Each activity can be represented in mathematical symbols and each positive statement of fact becomes a mathematical formula.

Up to this time the operations researcher did not know what specific methodologies and techniques could be utilized. As the situation was displayed it was possible to identify that it could be approached best in terms of a multitime period linear program.

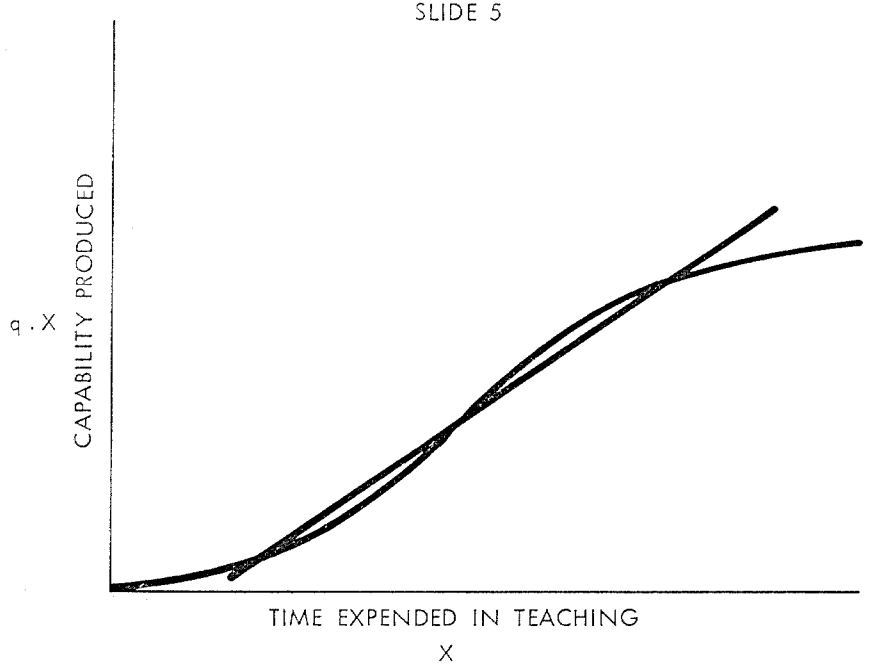
We can anticipate in the medical system that some models may defy existing known methodologies. In these cases, the operations researcher may have to derive new methodologies. Or occasionally in the interest of expediency, simplification of the problem to put it into known methods may allow usable approximations of solutions.

One other thing which must be done is to constrain the computation so that it will not produce unacceptable solutions. Two constraints in this problem are illustrated on the next slide (7). The quick solution would be to turn everyone's efforts toward teaching and therefore produce the needed manpower rapidly. However, this would be unacceptable since the level of care rendered would be intolerable at the current time. Thus, the first constraint states that a total of all of the types of capability rendering care in a given time period must be greater than or equal to some minimum level of care which is stated.

Another constraint is that the amount of capability devoted to care and to teaching must not be greater than the total amount of capability existing within the system itself at any one time.

While construction of a mathematical model is within the sphere of competence of the operations researcher, it is important to recognize that he cannot do this alone, but must

SLIDE 5



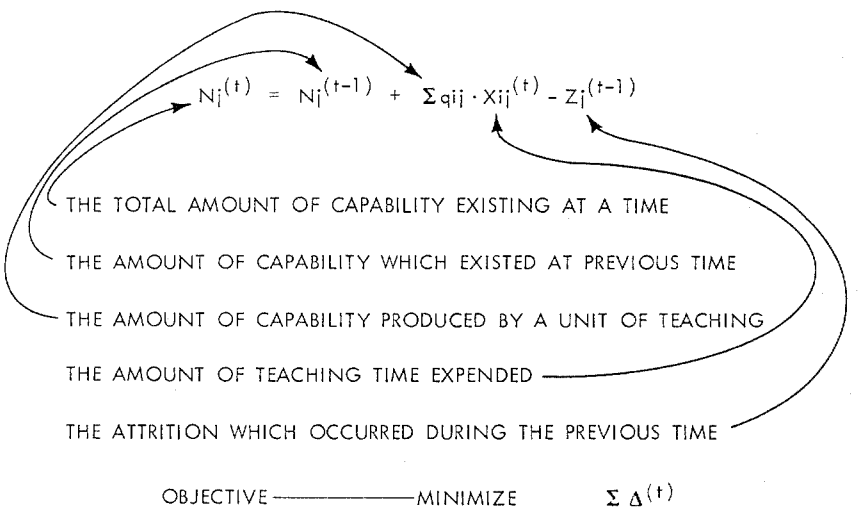
have the partnership of someone familiar with the system and one who can assist in obtaining the most appropriate methods of measurement. As was stated, this particular problem has been defined as a multitime period linear program. Without endeavoring to explain what a linear program is, I would only state that it is one which has been used for many purposes, and computer programs exist to enable the solving of those which are complicated and extensive (e.g., in the automobile industry a linear program on the assembly operation is run each night). In brief, the methodology picks the optimal strategy by selectively searching among the totality of all feasible combinations and permutations of allocating time expenditure for each of the capability types in each time period to each type of care and to the teaching of each specific type of student in each time period. This particular model with the hypothetical four types of care and personnel results in a linear program problem consisting of 110 formulas and 200 variables.

Once the data has been inserted, a man using a calculator could solve the problem in several weeks. The computer, however, can solve it in several minutes. Of course, this is a simplified hypothetical situation utilized to develop the model. Real situations, when placed into the model form, will often result in an increase in the number of variables and computational time will rise in relationship to this increase. While this may prohibit manual solution, computer solutions may nevertheless be feasible at a cost that is reasonable in relation to the planning priority.

Credit for the mathematical methodology for this problem is due to Mr. Leonard Krystynak, a graduate student working with Dr. Galliher. He has derived the initial solution and is currently subjecting the model to further testing. We are now preparing real-life data for insertion into the model. However, it is not our purpose to examine this specific model, and further discussion on it will await another time. Hopefully, it may have helped to give some insight to those of you unfamiliar with operations research on the way in which it functions.

It is essential that there be an atmosphere of partnership and participation between the operations researcher and a teammate who can identify a problem, state the problem clearly and precisely in English or graphic illustration and assist in finding the most suitable units of measurement. The operations researcher can then formulate the mathematical statements which summarize, in unambiguous specification, the exact facts and principles of the problem. From here, he can identify the specific type of mathematical processes to be utilized in identifying the optimal strategy.

SLIDE 6



SLIDE 7

CONSTRAINTS

1. $\Sigma p_{ij}(t) \geq M_j(t)$

TOTAL OF CAPABILITY RENDERING CARE

MINIMUM LEVEL OF CARE STATED

2. $\Sigma p_{ij}^{(t)} + \Sigma X_{ij}^{(t)} \leq N_j^{(t)}$

AMOUNT OF CAPABILITY DEVOTED TO CARE

AMOUNT OF CAPABILITY DEVOTED TO TEACHING

TOTAL AMOUNT OF CAPABILITY EXISTING

The last slide (8) illustrates the process and, in addition, indicates the magnitude of input needed at each stage by operations researchers and by medical people familiar with the system and capable of making value judgments. One can see that the bulk of the effort in all but two of the stages must be contributed by medical people. The actual solution is purely mathematical and the model testing phase is often heavily mathematical.

The particular methodology used in the example given (linear programing) is only one of many which are available, and this is but one of a number of problems to which the group has directed its attention. A major portion of our activity has been expended in reviewing the accomplishments of OR–SA in other areas and assessing possibilities of relating these accomplishments to health problems. A few specific examples are cited:

1. Within industry and the military services, OR–SA has developed theories and methodologies related to the prediction of demands for products and services. One example of a health problem to which these may be applied is that of coronary care, and a mathematical model has been developed and is being validated. A stochastic model is being attempted with the objective of determining how many coronary care units should be provided in each locality. If successful, the model may be useful for each region.

2. The methods of approaching production scheduling problems in industry may be applicable to a host of medical problems. The example cited today is one of these. Another on which work is progressing is that of coronary care capability programing. This represents a multitime period capability programing of coronary care modalities and of manpower provision. The objective would be to determine as accurately as possible how the division and the regions should allocate their funds and other resources in the establishment of coronary care units and manpower. The time dynamics in this problem are comparable to those shown in the example.

3. A rheumatic heart disease control model, which includes a multistage model of the disease and contains both epidemiologic and professional training components, is being developed. This utilizes decision-theoretic methodologies which have been developed for process and quality control, and military surveillance.

4. Regional economic problems in industry related to location of plants, warehouses, and sales regions have been assisted by another set of mathematical processes which give promise in approaches to regional economics in health care. The group has examined this and some preliminary work has been done.

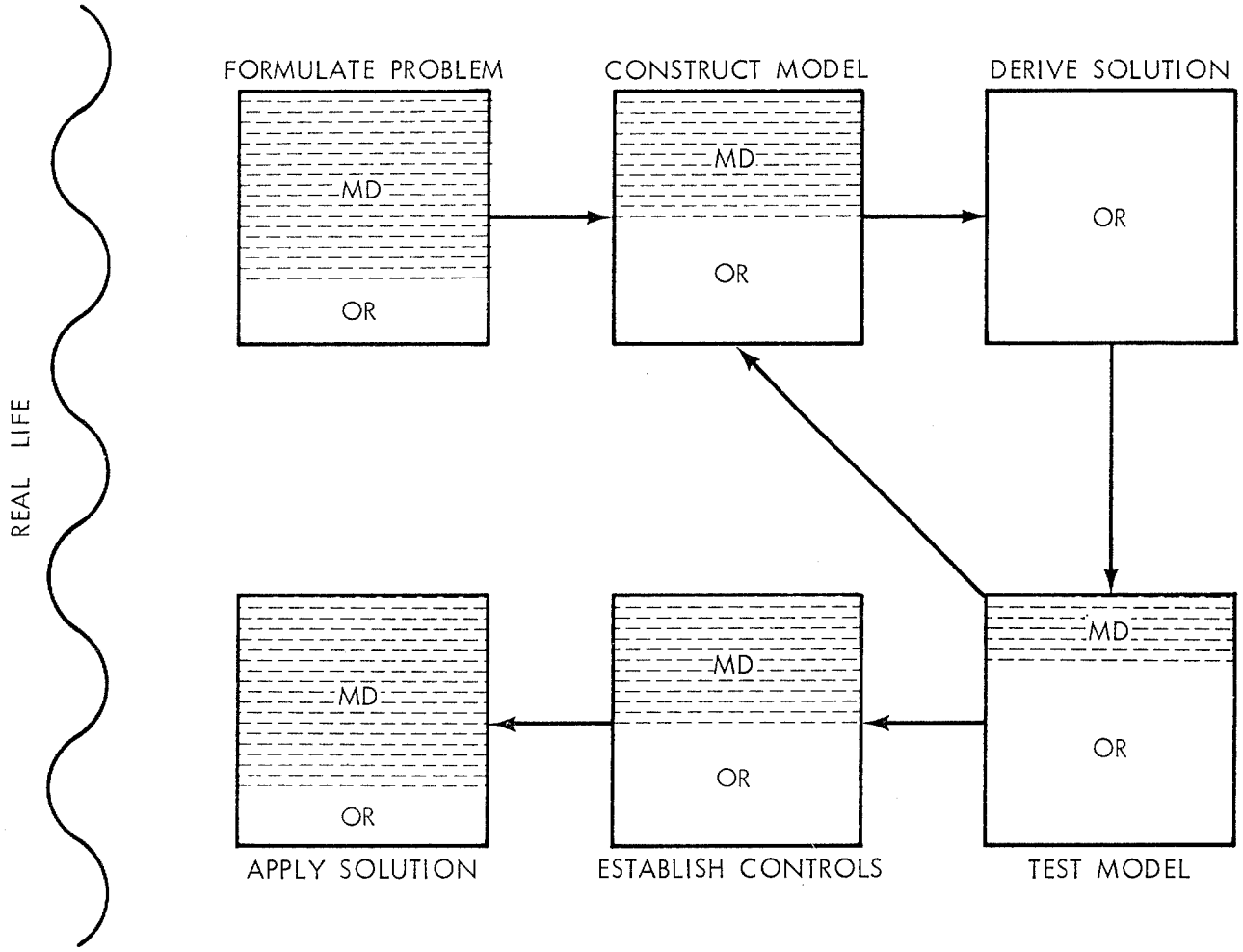
5. The study of patient trajectories has also been instituted. The methodologies in this problem are related to those which have been developed and used in marketing research and consumer behavior.

It is our conviction that we are just entering upon the threshold of a new scientific development in medical care. Hopefully, we may leave two major points with you at this time.

First, health operational research will be successful only as there is full teamwork between the operations researcher and medical people. Full time commitment of significant medical manpower is essential.

Second, Regional Medical Programs represents an operational experiment. Operations research is the science of operational experimentation. Thus, those of us here assembled have one of the best opportunities for a leadership contribution in the development of its application to health.

SLIDE 8


REAL LIFE
FORMULATE PROBLEM
MD
OR
CONSTRUCT MODEL
MD
OR
DERIVE SOLUTION
OR
MD
OR
APPLY SOLUTION
MD
OR
ESTABLISH CONTROLS
MD
OR
TEST MODEL

A NATIONAL VIEW OF DEVELOPMENTS IN. . . .

HEART DISEASE
Donald S. Fredrickson, M.D.

CANCER
Kenneth M. Endicott, M.D.

STROKE
Richard L. Masland, M.D.

A NATIONAL VIEW OF DEVELOPMENTS IN— HEART DISEASE

Donald S. Fredrickson, M.D.
Director, National Heart Institute
National Institutes of Health

Some time ago I would have considered this morning's program best defined as an "interfaith meeting." My judgment and pronunciation have improved alike. I now know that this is better described as an "interface meeting." Defining the surfaces at which the programs of the categorical institutes and the Regional Medical Program mutually interact is a difficult exercise, but essential to perform.

In organizational language the mission of the National Heart Institute is to develop new knowledge that will lead to both a reduction in the rate at which healthy individuals develop cardiovascular diseases and improved care of those who have such diseases.

The major mission of Regional Medical Programs would seem to be to promote the application of that knowledge and to see that its benefits are available to the greatest number.

This separation of the concepts of discovery and delivery seems splendidly convenient. It is also not very helpful and could be absurdly wrong if interpreted as a perfectly workable division of labor as we all move together to meet the Nation's needs for better health care.

Our mutual involvement in this common endeavor obviously is complex and our roles are not so clearly divided, for discovery and application are not easily separated. Society—not unreasonably—supports all of our activities because it expects something better for itself. It gains when discovery is applied. In this sense, discovery may only become real when it becomes practical and safe and clearly beneficial, and when it becomes available to those who need it.

Thus, the Heart Institute has its stake in delivery of such gains it may achieve through research. And RMP has its stake in applying the mechanisms of discovery. For how shall you know, save by applying the best of experimental methods, how to solve the problems of application, to determine the needs, and to evaluate the worth of interventions? And how shall new techniques be taught and disseminated most widely except by those who have acquaintance with the method of their discovery.

We have common purposes, then, and must be prepared to blend and exchange our efforts, expertise, and resources at many points of contact.

As we see the programs in the regions unfold, there are several interfaces between these programs and those of the Heart Institute that are particularly identifiable at this point in time.

These Heart Institute activities are of three or four major types. The first concerns training of individuals in the techniques of cardiovascular research, diagnosis, and care. Our training programs have several aims of importance to regional activities. Currently we have as fellows or trainees primarily learning how to do research, nearly 1,800 individuals. Since its inception, more than 11,000 scientists have been trained under the training grants and fellowships program. Some of these men are now leading and participating in aspects of Regional Medical Programs, and more will follow.

Of more direct relevance is a relatively new program of clinical training grants. Begun in 1966, 35 of these grants are currently being supported by the Institute. The objective here is to train physicians who understand enough of research to make it easier for them to apply new developments and to teach them to others. They are an essential "hybrid" ingredient of the plans to upgrade the practice of cardiovascular medicine. They will not all remain in university centers and most are not expected to pursue research as a major means of their livelihood. Their contributions should have a major impact on the success of Regional Medical Programs.

The Heart Institute is also interested in some aspects of the training of special paramedical skills. On an experimental basis, we have been supporting, for example, the Duke University effort to train physician assistants. These individuals save physician time by taking over tasks in intensive care units, hyperbaric chambers, emergency rooms, hemodialysis, and other functions. The Institute has looked upon such an effort as research, for all discoveries of importance are not molecular in nature. The broader application of successful portions of such prototype experiments is not within the resources of the Institute and is distant from the center of its mission. It is much closer to Regional Medical Programs.

A second program of direct importance to Regional Medical Programs is the development of cardiovascular research and training centers. These are units envisoned in the President's Commission for Heart, Cancer, and Stroke and for which planning funds were first awarded in fiscal year 1966.

With respect to the Cardiovascular Research and Training Centers program, I should begin by stating that no centers are presently in existence. At least one is ready for funding and 10 are now in the planning stage, but the first specific operational grants under the center concept are expected in 1969. Thereafter, given available funds to support the operation of such centers, the NHI timetable calls for two to become operational in 1969; a total of five in 1970; seven in 1971; 10 in 1972; and 12 in 1973.

What will these centers be? We hope they will represent true cardiovascular "centers of excellence" as envisioned by the President's Commission.

DR. FREDRICKSON

As we are now planning for them, each center will be an organizational unit, existing within the framework of a university or similar institution, for the purpose of attacking a broad range of cardiovascular disease problems.

Ideally, the center would be organized under a single outstanding director. It would be staffed with a corps of scientists and clinicians representing not only the clinical disciplines, but also the physical, engineering, and social sciences.

Provision will be made for such scientists to work in sufficiently close proximity to encourage free exchange of information, ideas, and constructive criticism.

While the center will be conducting a broad range of studies, it will also be involved in research directly relevant to the solution of clinical problems posed by the cardiovascular diseases.

Thus it will provide, or else be closely allied with, personnel and facilities essential to the conduct of advanced diagnostic and therapeutic procedures. The operational grant will provide funds for the care of research patients both on an inpatient and outpatient basis. The center will be a clinical resource for referral of patients requiring highly sophisticated diagnostic or therapeutic procedures not generally available in the average community hospital or clinic.

The center will provide a training resource for equipping scientists and physicians with the skills and techniques of modern biomedical research. Through its clinical training programs, it should be a focus for effective dissemination of the fruits of its research to the region which it serves. The activities of the center will be national or even international in scope but it will exert its strongest influence on cardiovascular research and clinical care in the region where it is located.

It is axiomatic that a good clinical research program in a hospital has a way of improving the medical care received by the regular ward patients in that hospital. In the case of the center, we hope that it will serve as a standard of excellence for hospitals in its sphere of influence. We also expect them to be foci of activities relevant to Regional Medical Programs.

We expect to increase the number of planning grants to 20 or 30. This will provide a competitive basis for selecting the 10 to 12 that will qualify eventually for full operational support. The criteria of excellence that we have set for these centers are admittedly high. Given the continued availability of funds for this program, we expect that enough institutions will gradually develop the capabilities needed to qualify for an equitable geographical distribution of centers to be achieved.

Meanwhile, there are many units, smaller than the centers envisioned above, which are now being funded as program projects. They, too, provide a combined attack on cardiovascular diseases by multidisciplinary support. The Institute was a pioneer in creating such programs and believes they have significantly enriched the clinical capabilities in major hospitals, both university and unaffiliated. Again, the basis for funding is primarily research productivity. The quality of the diagnosis and treatment in these institutions, however, has invariably gone up hand in hand with research.

I expect that Dr. Masland will deal with activities relative to stroke centers, for his Institute has a far larger share than ours in such a program. We are pleased to be able to participate in joint council activities concerning this program, offering such program help as is primarily vascular rather than cerebral in origin.

A third kind of program of interest to our discussion this morning is coordinated research. Much of it is funded by contracts and aimed at solving specific problems of general interest and judged to be especially important. Generally these deal with accelerating developmental research or testing out on a large scale the efficacy of possible interventions. Both are the inevitable byproducts of more basic research. All tend to be expensive, complicated, and highly demanding, both of Institute and community resources. They are also essential for advancement of means for managing cardiovascular disease.

The first of these is our Artificial Heart-Myocardial Infarction program. This program is combining bioengineering and biomedical approaches to the problem of heart disease in general and the acute heart attack in particular.

The bioengineering attack on this enormous health problem is being carried out by the Artificial Heart branch. It is presently concentrating on the development and refinement of devices to provide pumping assistance to damaged or failing hearts. There is reason to believe that temporary cardiac assistance can salvage patients dying of a temporary loss of sufficient cardiac pumping reserve. We need better devices and more investigation to prove their capabilities as well as their limitations. Within the present

constraints, we are also supporting research aimed at solving certain vital problems of materials, pumps, energy, and controls necessary for development of a permanently implantable device to replace the heart. It is presumed—and I think correctly—that such a device will be feasible. It will only be desirable if it permits complete rehabilitation of a productive individual. We proceed on this premise. In this regard it should be noted that heart transplantation and artificial devices are not mutually exclusive. Indeed, development of both possibilities—as a total problem of "cardiac replacement" needs to proceed collaterally.

Of more direct pertinence to Regional Medical Programs is the coordinated program to improve all phases of medical management of the acute heart attack. This is the primary goal of the Myocardial Infarction branch of the Artificial Heart-Myocardial Infarction program.

Presently it is supporting the establishment of Myocardial Infarction Research Units, or MIRU's, at five university medical centers. Eventually, 10 to 12 will be established.

Each of these units will be especially equipped and staffed to conduct intensive research on acute heart attacks and their complications while providing unexcelled medical care to heart attack patients.

These units will attempt to learn as much as possible about the presently unpredictable clinical course of acute heart attacks. They will attempt to determine what drugs or other measures might be used to minimize heart-muscle damage resulting from the attack.

They will seek to understand better the development of arrhythmias, cardiogenic shock, and other potentially lethal complications of the acute attack and means for more rational management.

They will evaluate, more precisely and thoroughly than has previously been possible, both accepted methods of treatment and promising new ones, including assisted-circulation techniques and devices.

The units themselves will be well equipped and instrumented and staffed for round-the-clock research and patient care. An aim is to attract to this neglected problem those who have felt infarction to be too hopeless or complex for application of their special skills.

The MIRU's will be training grounds for medical and paramedical people needed to extend acute coronary care to as much of our population as possible. The ultimate effectiveness of the MIRU program is dependent upon the development and dissemination of new knowledge and techniques that can be applied whenever and wherever heart attack cases start.

The Myocardial Infarction program will do more than develop MIRU's. It will actively support a program to develop animal models of infarction, study contracts to close gaps in knowledge, and to examine the problem of sudden death, that large segment of infarctions or other coronary deaths which do not reach the hospital.

The Myocardial Infarction program will seek to coordinate the accumulation of knowledge of many aspects of its specific concerns. Its cooperating research units need not be restricted to 10 or 12 large operations. Ways are being considered now of how the facilities of the Regional Program might be utilized and joined in this effort.

Of direct importance to the Regional Programs is an example of coordinated research to try out the efficacy of a program to prevent myocardial infarction. This is the Coronary Drug project—a secondary prevention trail.

Mortality from first heart attacks is about 30 percent; but with each recurrent heart attack the patient's chances of survival decrease sharply. Most heart attack deaths are due to recurrent attacks; and, with each recurrence, the likelihood increases that death will be sudden or else occur so swiftly that hospitalization proves impossible.

The goal of the Coronary Drug project is to see if lipid-lowering drugs can improve long-term survival among heart attack patients by reducing the incidence of recurrent heart attacks and other complications of preexisting coronary heart disease.

Elevated blood lipids, especially blood cholesterol, have been found consistently associated with increased susceptibility to atherosclerosis and coronary heart disease. It thus seems reasonable to suppose that elevated blood lipids also adversely affect survival among patients who have sustained heart attacks by increasing their susceptibility to recurrent heart attacks and related complications of preexisting coronary heart disease.

We hope to establish that long-term reduction of blood lipid levels will confer some protection against these complications and thus improve long-term survival among these patients.

We hope that one or more of the lipid-lowering drugs being tested will reduce the 5-year mortality rate by 25 percent or more.

The drugs being evaluated are conjugated equine estrogens, d-thyroxine, nicotinic acid, and chlofibrate. All are known to reduce blood lipids and to be free of serious toxicity, and all are currently available to the practicing physician.

The study involves 55 clinics throughout the continental United States, Hawaii, and Puerto Rico. Eventually, it will involve a total of 8,500 patients, more than 1,200 of which are already enrolled. The clinical phase will be completed in 1974. Among the clinics participating are some involved in Regional Medical Programs. Here is an example of how Regional Programs with its coordination, access to large number of patients and special expertise in patient management may find opportunity for important research. Field trials are indispensable for

determining applicability of research findings. Through RMP the "field" is now better organized and can be more helpful than ever before.

There are other NHI field trials, such as effect of relief of extracranial occlusions on incidence of strokes, of the value of renovascular repair or of treating pyelonephritis, or hypertension, of gamma globulins in preventing hepatitis after open heart surgery, to name a few. Again, some participants in RMP units are already involved.

Finally, there is one more new coordinated program that deals with problems of great national and regional concern, the availability of blood and blood fractions.

This is the National Blood Resource program, now in its second year of operation. Although headquartered at NIH, this program is a cooperative endeavor involving a number of Institutes and divisions of NIH, other Federal agencies, and non-Federal organizations such as the American Red Cross and American Association of Blood Banks. The participants share a common interest: All are concerned in some way with the acquisition, processing, storage, distribution, usage, or study of blood and blood products.

The major goal of the program is to improve all phases of technology related to the handling of blood and blood products. Only through more efficient production, storage, and distribution of blood products can a steadily accelerating demand for these products be met without serious strains on existing blood resources.

The clinical demand for specific blood components such as red cells, platelets, or specific protein fractions has increased rapidly during recent years. It will probably increase far more rapidly in the near future, for the use of whole blood where some specific blood component is called for is being increasingly considered undesirable and wasteful. The list of such components is increasing, and includes frozen cells, as well as proteins, platelets, and leukocytes.

The use of the specific blood component to correct a specific deficit yields superior clinical results while diminishing the risk of transfusion reactions. At the same time, it makes it possible for a single unit of blood to serve the needs of many patients.

One of the specific goals of the National Blood Resource program is to insure an adequate supply of blood fractions to meet clinical and research needs. With contract support from this program, the American National Red Cross is working on an integrated blood fractionation system for the large-scale production of specific blood components.

When perfected, such a system could be installed in large, strategically located blood banks around the country to serve regional needs for blood and plasma fractions.

Other major concerns of the program are research on ways to reduce the losses of whole blood and cellular components of blood that occur through outdating in storage. This includes the study of chemical additives as well as the storage of cellular components at very low temperatures. Present freezing techniques, which are expensive and rather cumbersome, need to be streamlined and, where possible, automated if their full potential is to be exploited. The National Cancer Institute, likewise, has a considerable program related to blood products, particular platelets and other formed elements.

It is planned that the National Blood Resources program will also study the feasibility of better computer-based inventory systems for blood and blood products than are now available on a regional basis.

These, then, are some of the present goals of the National Blood Resource program. The ultimate goal, of course, is to insure that an adequate supply of whole blood, plasma, or specific blood fractions is always available whenever and wherever it is needed.

How some or all of these programs will specifically interlock with regional activities is to be resolved. Your presence will be of the greatest importance in making our own programs more meaningful. We're glad you're here. We will do our best to work with you and for you in every way we can.

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A NATIONAL VIEW OF DEVELOPMENTS IN— CANCER

Kenneth M. Endicott, M.D.
Director, National Cancer Institute
National Institutes of Health

Recent and important developments in the field of cancer at the moment are not in its treatment and diagnosis, but its prevention. The pace of discovery in the relationship of viruses in the production of cancer is indeed rapid. I personally regard it as certain that viruses play an important role in causation of human cancer and I entertain some optimism that we may, indeed, discover an approach in that direction in the prevention of this disease. This has already been accomplished with regard to certain cancer in experimental animals and I do not think man is all that different. That is the only hope I see at the moment for any general solution of the problem.

Now we are certainly not lacking causes for cancer. There are at least a thousand different chemicals that can produce the disease in animals. We do not know how many of them have something to do with human cancer. Several forms of radiation produce cancer. Various hereditary factors seem to operate from time to time; endocrine imbalance and, in the light of some recent studies, probably arrangements of the immune mech-

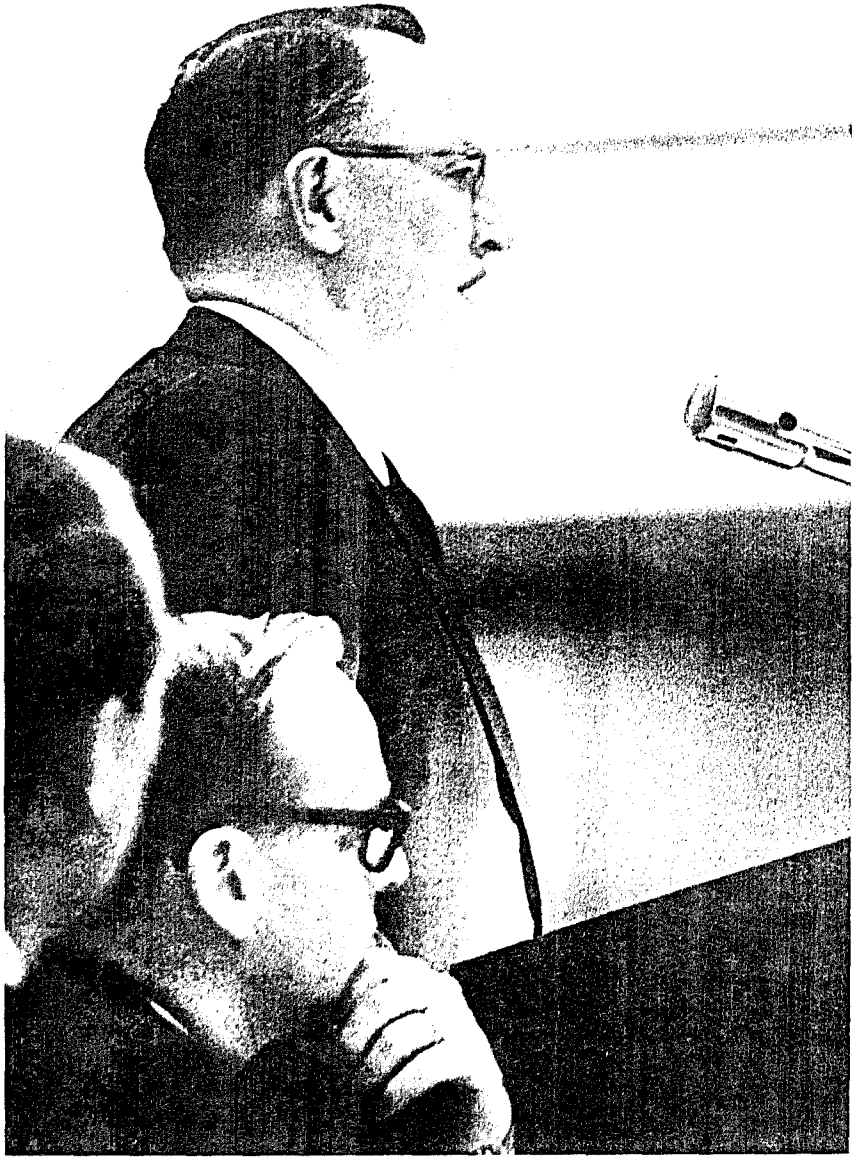
anisms have something to do with it. There are so many causes of cancer that to eliminate them all would be a superhuman task. But the virus approach, I think, offers much hope.

Now, that is not to say that there are not advances in the diagnosis and treatment of cancer. There is slow, steady progress in surgical management and improvements in radiation therapy. Of particular interest to me, because of my background, has been progress in chemical treatment of cancer so it is now possible to say that some forms of human cancer can be cured with drugs. That is an important development, even though the field of application at the present time is quite limited. Chemotherapy, in the better centers, has come to represent an important therapeutic device for palliating advanced and disseminated cancer. Its skillful use can keep many, many people reasonably comfortable and productively engaged until virtually the end of their disease.

We have long been concerned at the Cancer Institute with the problem of the provision of services. The National Cancer Institute, which is the oldest institute, was charged by the Congress, with the total job of bringing the disease under control. The Cancer Institute, created in 1937, had authorization from the beginning to engage in the provision of services as well as in research and education. It is interesting to look back and see what has been done about this. Two of the first things done included procurement of a large supply of radium and its preparation for loans to physicians and hospitals around the country. That program is still in existence but as you can well appreciate, the developments in the field of radiation since 1937 have somewhat diminished the importance of radium use. The second was a grant to Dr. E. O. Lawrence in California for examining the potential of the cyclotron for the treatment of human cancer.

The institute was very small and consisted largely of an intramural basic research program until 1946 when the present phenomenal growth of NIH began. Shortly after that a number of new programs were established by the National Cancer Institute which were aimed at the problem of the provision of services. The first of these programs was a teaching grant to medical schools and dental schools for improving the undergraduate education in the diagnosis and treatment of cancer. That program was discontinued about 2 years ago and replaced with a new one which has a much broader target. It is called the Cancer Clinical Training Grant program and is aimed at improving the educational environment in the medical schools and university-teaching hospitals to enhance the educational experience of everyone who is receiving education and training in that institution. The training program no longer aimed just at the medical student but at the house officers, nurses, paramedical personnel, and postgraduate students such as practicing physicians. Approximately half of the medical schools have qualified and are being funded under this program. I might indicate that our advisors recommend that every effort should be made to make this new program, in your terms, "interdenominational or interfaith," so we have encouraged the medical schools to involve multiple departments and establish a program which does not become a captive of a single department.

In the late 1940's, radiation was a field of intense interest, and the radiologists were very much interested in hardware. I'm happy to say that they still are. One of the new programs at that time, which has a real relevance here, was the development and installation of a series of megavoltage instruments for exploration of their therapeutic possibilities. From this has come the present generation of linear accelerators and betatrons and the like. This program has just been brought out and dusted off and given a new start within the past year or two. The radiologists advising us believe that the present generation of high energy sources is outmoded and that it is possible to create a new generation of radiation sources, particularly linear accelerators and electron beam sources which will be much more suited to modern day treatment. We have a development program underway. I hope within a matter of a few months to let contracts for the fabrication of the first new machines, which will go on trial in perhaps three or four places so we may be able to make available something much better than you have now for high voltage therapy. One of the great shortages, we believe, so far as the proper management of cancer patients is concerned, is the shortage of radiation therapists. At the risk of being shot down by some of my colleagues in the audience who are general radiologists, I would like to report that we have been advised and we agree that the training generally given in therapeutic radiology in the course of preparation for general radiology is quite inadequate. About 6 years ago we launched a program to improve and increase the training of therapeutic radiologists. It was startling to discover that in 1960 there were some 15 therapeutic radiologists in training in the United States, of which eight were foreign nationals. After 6 years of intensive effort in this field, the number of American nationals in training has gone from seven to 70. There is quite a little emphasis given to radiation biology and radiation research in the course of training. About 15 or 16 are being trained each year. They are being snapped up in the medical centers and schools and we could place many more than we have. We are continuing to expand the training base as more persons complete the training and move to an institution where they can set up a new focus. I would think it may be from 5 to 10 years before there will be enough to adequately man the medical schools that will be in existence at that time.



DR. ENDICOTT

The field of cancer is somewhat unique in terms of its research base. Along about the same time that the Congress was establishing the National Cancer Institute, several communities or States did the same thing. The State of New York established the Roswell Park Memorial Center at Buffalo. The State of Texas established one in Houston, the M. D. Anderson Hospital. Private philanthropy established the Sloan-Kettering Institute in New York City which became associated with Memorial Hospital. Through Dr. Farber's effort, the Children's Cancer Research Foundation was established in Boston. There was another one in Philadelphia, one in Detroit, and these have come to be the backbone of cancer research and advanced cancer clinical training in the United States. If they have a university affiliation, most have a rather tenuous one, and many of them have none at all. These are the cancer centers in the United States—some of them are large and very expensive organizations. I think the budget for the Memorial Sloan-Kettering may be on the order of $25 million a year, including the hospital. Such centers as Memorial Sloan-Kettering, M. D. Anderson, Roswell Park, have what I regard to be an adequate clinical base to serve geographic regions in terms of training, consultation, and of accepting referred patients afflicted with almost any form of cancer.

It is quite obvious that in the near future we are not going to have 50 M. D. Anderson hospitals or Sloan-Kettering Institutes distributed around in the 50 regional medical programs with which you are concerned. This is not to say that there is no cancer potential. I wouldn't want to suggest this but we have very few complete centers. This has been a matter of great concern to the National Cancer Institute for a long while and, since 1960, we have had funds provided by the Congress to do something about this.

These are cancer center funds; Dr. Fredrickson mentioned the same thing in the heart field. We had a running start on him because we already had some complete centers and some bits and pieces that might be put together around the country. So we have tried to build upon whatever nuclei we could find. And I might mention some of the things that we encountered. In one institution, perhaps, the department of surgery would be sufficiently interested in the cancer field to be willing to set aside a substantial number of research beds to create a cancer clinical research center which then might take on some "interdenominational" flavor and serve as a focus for other departments. In other medical schools, it would turn out to be the department of radiology. In a few, very few I might add, the department of medicine was interested, and we began with a clinical center that was oriented primarily for chemotherapy. It is most unusual, in fact, I am sure I wouldn't use all of the fingers on one hand to list medical schools that had a strong in-

terest in the three major areas. We began making these grants in 1960. I think there are perhaps 20 by now, most of them limited pretty much to one field.

At the time, or shortly before the legislation was passed which created this program, we were given an appropriation of funds for planning grants by the Congress and have made a number of such grants, some of which looked to ambitious cancer programs. One, in a large metropolitan area in the west, envisions the construction of a 700-bed cancer hospital in connection with a general hospital which would provide services, serve as a research and teaching center, and as a geographical referral center. The entire administrative and staff support for this is being included in the planning. I don't know if it will ever come into being, but at least someone is taking a swing at it.

Our involvement in therapeutic trials has been extensive, and has stretched over many years. I am sure there isn't an institution represented here that has not participated in these trials at one time or another, or in one way or another. As you know, cancer is the second leading cause of death, but that doesn't mean very much because it is really a collection of relatively rare diseases. I don't know how many types there are, you can't get the pathologists to agree on that, but there are probably well over 100. This presents very serious problems in therapeutic trials because no single institution, no matter how large, is likely to see enough patients of the right variety in a reasonable time to carry out a therapeutic trial. So it became necessary to set up some kind of cooperative network in which a number of institutions could work on a common protocol to compare this therapy with that therapy. We were particularly interested because we had a large drug development program and this meant nothing unless the drugs were given clinical trial. So beginning about 1956, a series of cooperative groups were established which have involved hospitals and primarily medical school faculty members all over the United States. They began in the field of chemotherapy. They were later extended to examination and combination therapies, surgery and chemotherapy, radiation and surgery, and different modalities of radiation so that at the present time approximately one-sixth of our entire budget is invested in therapeutic trials of one sort or another. In some instances, these have been organized on a regional basis. This usually happened with the more common types of tumors where you could find enough patients in a region. More ordinarily, they have been organized on the basis of specialties. The pediatricians scattered around in the children's hospitals band together to study the therapy of acute leukemia or rhabdomyosarcoma or what have you.

We made one effort in studying drugs in what is called Phase 2 studies where you try a new drug against a broad spectrum of different kinds of cancer. We tried organizing this on a regional basis, eastern, middle western, far west. It didn't work very well and we finally collapsed the thing about 2 to 3 years ago and put it on a national basis operated by the University of Wisconsin at the present time.

We have reached the stage where we do not believe that the present organizational framework for therapeutic trials is adequate to meet our needs for the testing of new drugs and we are going to set up a much smaller organization for that, concentrated within just a few institutions. However, the usefulness of cooperative network still remains; in fact it is about the only way to test out new therapeutic ideas in a reasonable time. Of course, we are not going to abandon this program; we are going to keep it going.

However, I think that we have a common task here to see whether much of this could be better organized and better accomplished within the framework of the RMP. There are obviously some of the regions that haven't a large enough population base to make this feasible. If you are going to study a disease which has an incidence of perhaps 10,000 cases in the United States in a year, then the intermountain plateau out in my home country just will not generate enough cases to do much with. If this were to be undertaken in some of the more sparsely settled sections of the country, it would probably be necessary for several adjacent regions to coordinate and consolidate their efforts.

We made a little try about a year ago with a special problem I might mention in the field of choriocarcinoma in women. It is now possible to treat this disease with drugs, to save the uterus, and for the women to have successful pregnancies afterwards. To do so requires rather extensive laboratory facilities and treatment facilities and specially trained physicians and laboratory people. The incidence is low in the United States. The cases are under 1,000, so it was proposed by some of the leaders in this field that a regional approach be made to this problem by setting up perhaps a half dozen centers scattered at strategic centers throughout the country where the disease could now be not only diagnosed but also treated. These obviously would be engaged in research. We approached Dr. Marston about this problem and it developed that it was very awkward to try to do this by the RMP because everything in RMP has to be initiated locally and get filtered by the local committee and come to Washington. That would be pretty hard to engineer, we thought at least at that stage. We sought another way to handle this problem until the RMP can shake down a little bit, but I think it is a good example of what might be done intelligently to handle a collection of relatively rare diseases that are extremely difficult and expensive to treat.

Finally, I would like to admit that

we are kibitzing. We should be able to do a lot more about cancer and so are engaging in a luxury of kibitzing. And we have several studies in progress that may turn out to be useful to you. One is the evaluation of the requirements in the field of radiation therapy for an adequate therapy center in terms of equipment, personnel, the population base that it can serve, probable case load per population base. The group which is working on this, created by one of the study sections, is a group of academic radiologists. They are going to try to develop some outline for the ideal center. One can learn a lot about this from Europe where they tend to have Radiumhemat and where they do almost all radiation therapy. They are also developing what they call halfway houses. These, I think, are a more realistic plan of what we could do today with the manpower we have and with the resources.

I am happy to report to you that I think we have more resources that we need in one area. I think we have more cobalt machines than we need and one solid contribution would be a cobalt collection program to get some of them back. Thank you.

A NATIONAL VIEW OF DEVELOPMENTS IN— STROKE

Richard L. Masland, M.D.
Director, National Institute of Neurological Diseases and Blindness
National Institutes of Health

I am sure the excitement we have felt here in Bethesda at seeing Regional Medical Programs come into being has not been as great as yours in the regions, because you can look forward to the thrill of being in direct contact with the people you are helping. But perhaps we do get a more frequent look at the national picture, and I can assure you that today there is considerable excitement in that.

The whole concept of blanketing the country with regionally based programs for improving distribution of medical services and speeding the application of research and technical advances was so revolutionary that many of us expected great opposition and difficulty. The opposition turned out to be negligible compared with the enthusiasm, and although endeavors of this kind are never easy, the launching of 51 programs and involvement of over 1,700 people in less than 2 years is nothing short of spectacular. If we can maintain this momentum, we will soon begin to see practical realization of one of our highest goals.

Drs. Fredrickson and Endicott have very ably presented their Institutes' programs in heart disease and cancer as they relate, or will ultimately relate, to your work in the regions. I would like to review for you the form and some of the substance of the program of the National Institute of Neurological Diseases and Blindness in stroke.

Our effort and, in fact, the whole national effort in the stroke field are as yet extremely inadequate in relation to the size of the problem. Estimates place stroke mortality at 200,000 deaths a year, and morbidity at 2 million. Costs exceed $1 billion per year in medical and nursing care and loss of earnings.

JOINT COUNCIL SUBCOMMITTEE

Our program in stroke began to take shape about 7 years ago with

DR. MASLAND

formation of a Joint Council Subcommittee on Cerebrovascular Disease consisting of National Advisory Council members from the Heart and Neurology Institutes, and other consultants expert in specific areas. This group is the chief guiding force of the program, and has been in large part responsible for its coordination and development. Advice to the Councils and Institutes, sponsorship of meetings, conduct of surveys, provision of the "push" to get new teaching programs started are a few examples of the work of this subcommittee. The whole program is under its constant review, and much of the program is a direct result of the group's recommendations.

CENTER GRANT PROGRAM

By about 1960, it had become apparent that many of the broader questions in medical research would probably never yield to the piecemeal approach of simply supporting the proposals of individual scientists, project by project, as they came in, no matter how worthwhile they were, individually. We therefore began supplementing our project grants by awarding funds for centers where major aspects of chronic disease problems might be given a team approach. We feel that we are thus responding to two great needs: (1) The support of specific projects, for the answering of the more discreet questions, each answer adding a little to the growth of biology, or refining in some degree our knowledge of life and disease, and (2) the support of broader, coordinated attacks on groups of problems by perhaps as many as 15 to 20 physicians and scientists, plus various kinds of technicians and other supporting staff.

We now have 16 of these centers working exclusively in cerebrovascular disease, and two more have been approved by our council but not yet funded. The centers vary considerably, depending on the problems they are attacking. Several are devoted exclusively to single approaches, such as epidemiology, or the study of aphasia; others are working with several related approaches, such as the physical mechanics of cerebral blood flow, cerebral cellular metabolism, and efforts to affect these factors with drugs, inhaled gasses, and other means. Although most of these centers are less than 3 years old, reports are beginning to flow from them in considerable volume, and we have very high hopes for this part of our program.

More recently, on recommendation of the Joint Council Subcommittee, we have offered grants for a new type of facility which we will be calling the outpatient clinical research center. These units should substantially expand our opportunities in epide-

FIGURE 1

STROKE RESEARCH CENTERS SUPPORTED BY NINDB - 1968

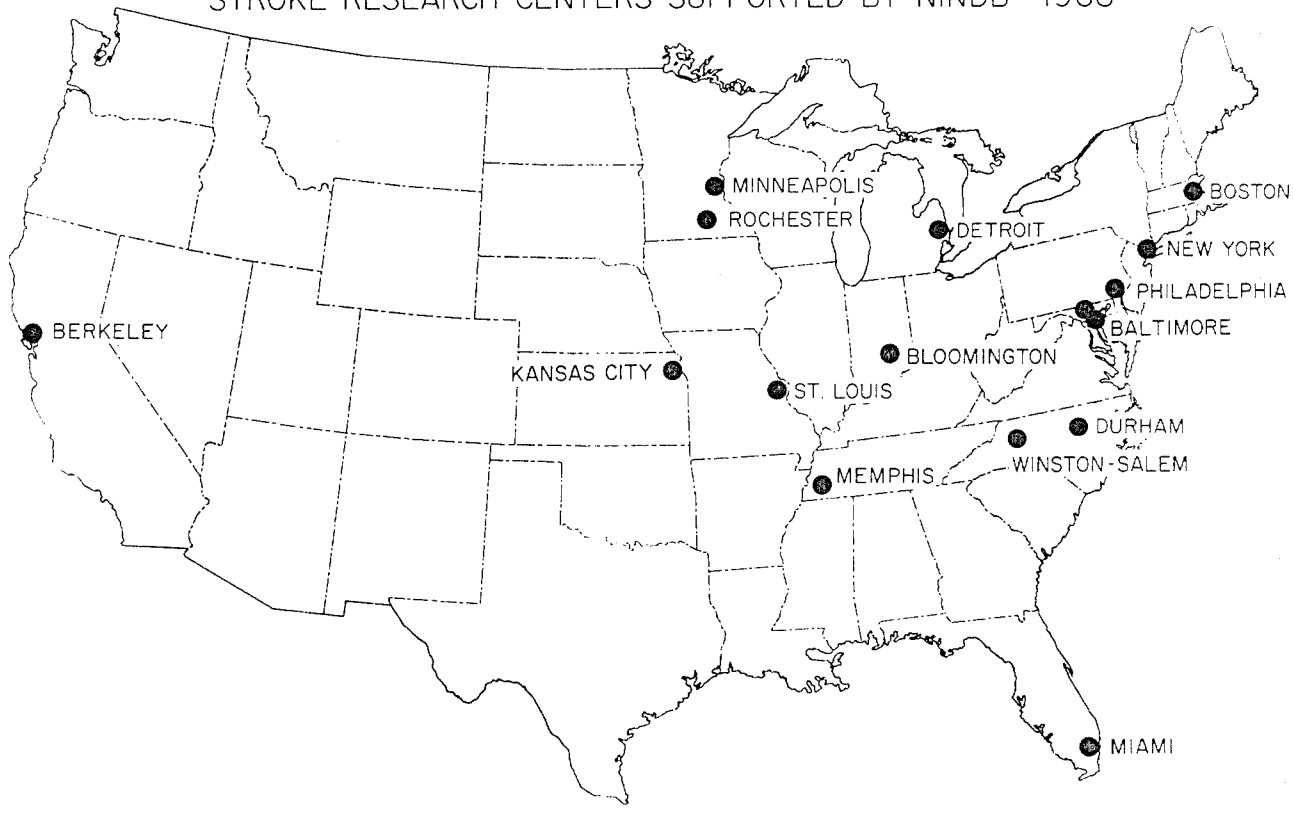
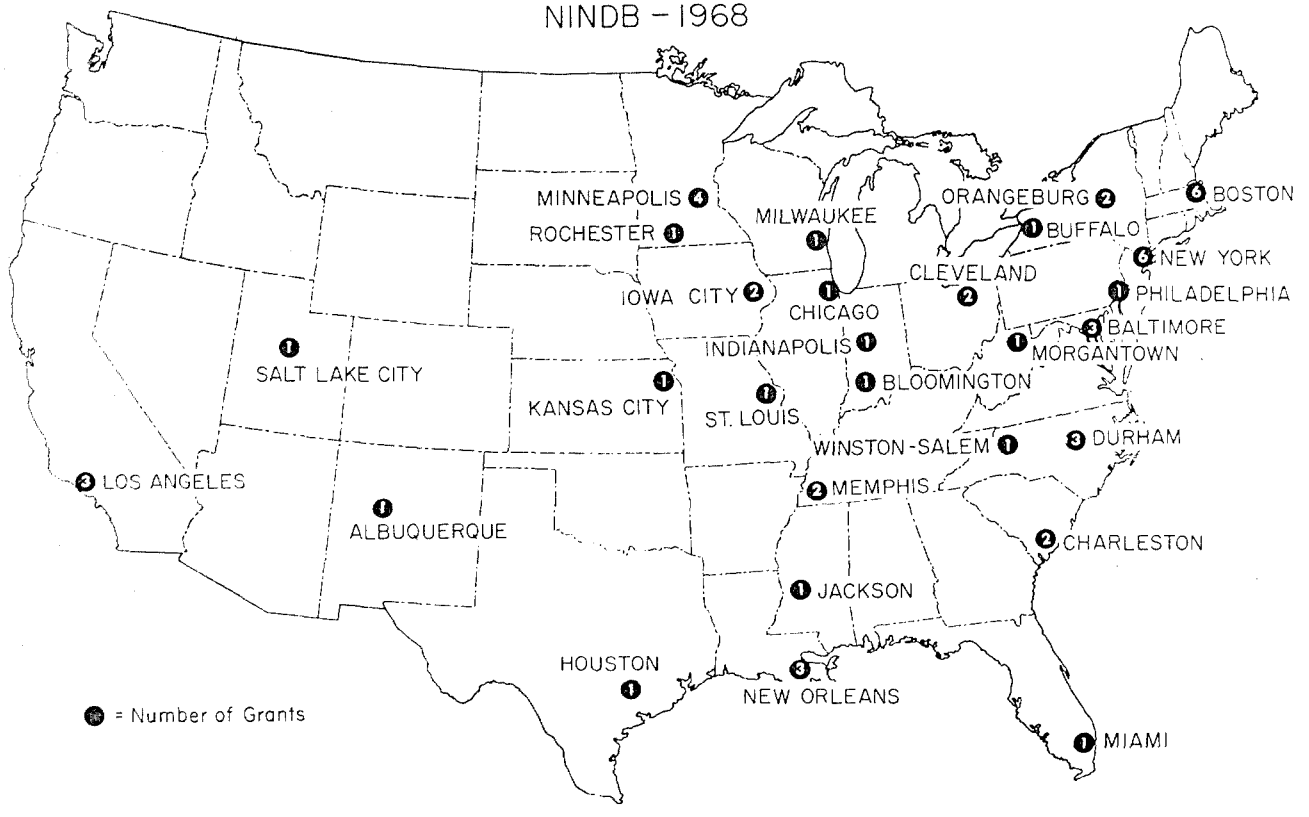


FIGURE 2

CEREBROVASCULAR RESEARCH PROJECT GRANTS
NINDB – 1968



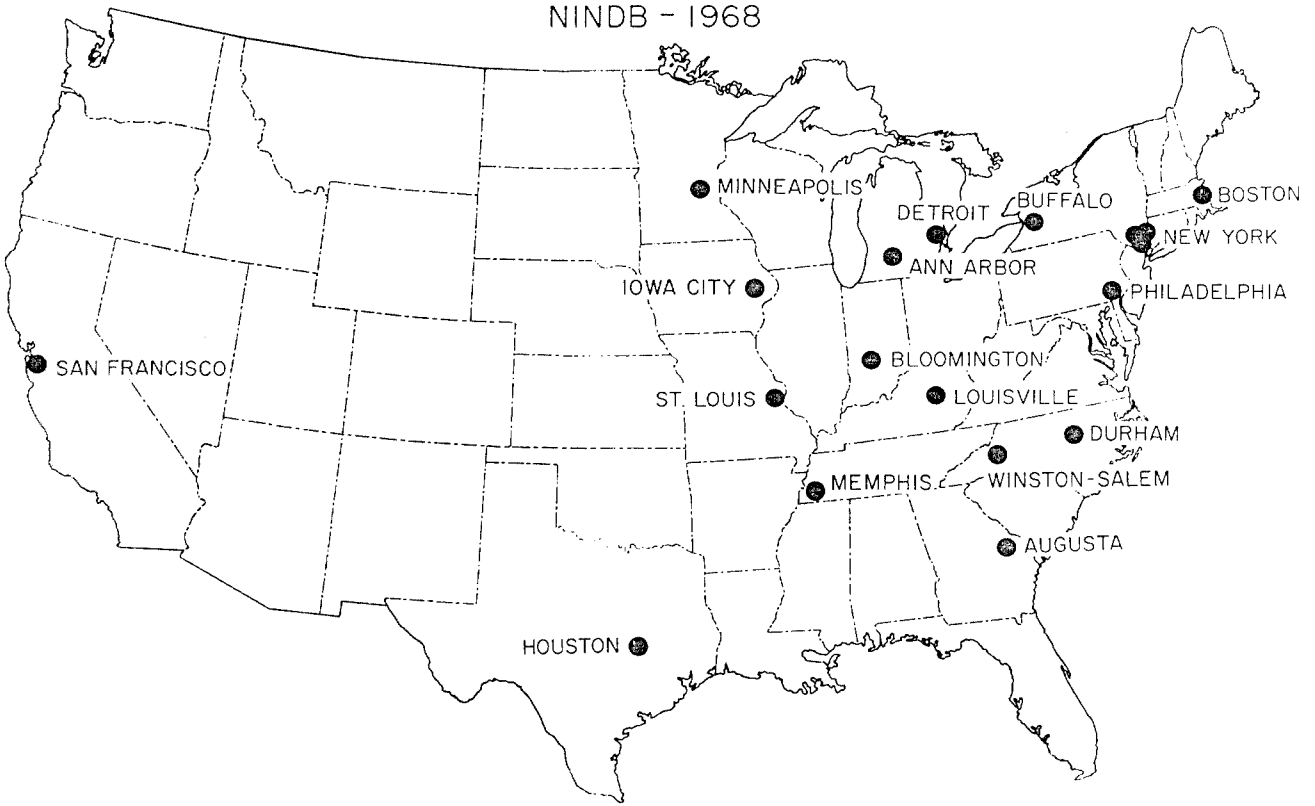
miology and other areas where ambulatory patients can be helped and can make a contribution to research at the same time.

Project grants.—In addition to the broadly targeted work of the centers, about 50 research projects are being conducted with Institute support. These cover practically the entire spectrum from basic laboratory studies in such fields as neurophysiology and biochemistry to clinical investigations of drug effectiveness, the improvement of diagnostic devices and techniques, and development of ever more ingenious surgical approaches.

Cooperative studies. — Another promising approach to the problem of stroke is through cooperative statistical studies, because of the large amount of data that can be collected and analyzed through the combined efforts of a number of institutions. The Institute has been supporting a Cooperative Study of Intracranial Aneurysms and Acute Subarachnoid Hemorrhage among 24 university-based centers here and abroad since 1958.

Personnel at a central registry at the University of Iowa have analyzed the accumulated data on over 6,000 cases and have published a wealth of carefully derived statistics of value to physicians in deciding upon courses of treatment. This study has produced data on the most common causes of subarachnoid hemorrhage, susceptibility of various age groups, sex distribution, most common sites of aneurysms, sites related to age and sex, percentages of patients who had warning signs, the relation of environmental events to hemorrhage, and the value of angiography in detecting multiple aneurysms. Also produced were new analyses of the mortality of nonsurgically treated cases, the risks of death and of rebleeding at various time intervals after hemorrhage, the statistically critical size of aneurysms, and the influence of age, sex, aneurysm site, and general patient condition on survival. Among the study's highlights was the statistical verification of intracranial aneurysm as the most common cause of subarachnoid hemorrhage—51 percent. Next most common is hypertensive arteriosclerotic cerebrovascular disease—15 percent. Other findings were that the peak frequency for hemorrhage due to aneurysm lies with the 50 to 54 age group and that hemorrhage from aneurysm is more common in women by a ratio of 3 to 2, though men predominate below age 40. The study also revealed that headache and dizziness occur before hemorrhage in at least 90 percent of the cases.

FIGURE 3
COOPERATIVE STUDY OF INTRACRANIAL ANEURYSMS
AND SUBARACHNOID HEMORRHAGE
NINDB - 1968



With the discovery and use of effective antihypertensive drugs has come a decrease in the number of people dying of strokes. But no one knows the degree of protection these drugs afford, which antihypertensive drugs have the greatest effect on stroke, or whether the effect could be enhanced.

The Institute is supporting a cooperative study at eight institutions of hypertensive patients showing signs of cerebrovascular disease, in order to learn the answers to these and other questions about this important relationship.

Some of you are also familiar with the National Heart Institute's joint study of extracranial arterial occlusion. The purpose of this study is to improve the criteria for selecting patients for carotid artery surgery and to enable surgeons to predict in which types of cases they can expect success with the procedure. Twenty-seven investigative teams are now contributing to the study. Much valuable data has come from this project, and it serves as another illustration of what can be done cooperatively. As the Regional Medical Programs develop, I am sure they will provide many excellent new opportunities for collection and analysis of data.

TRAINING

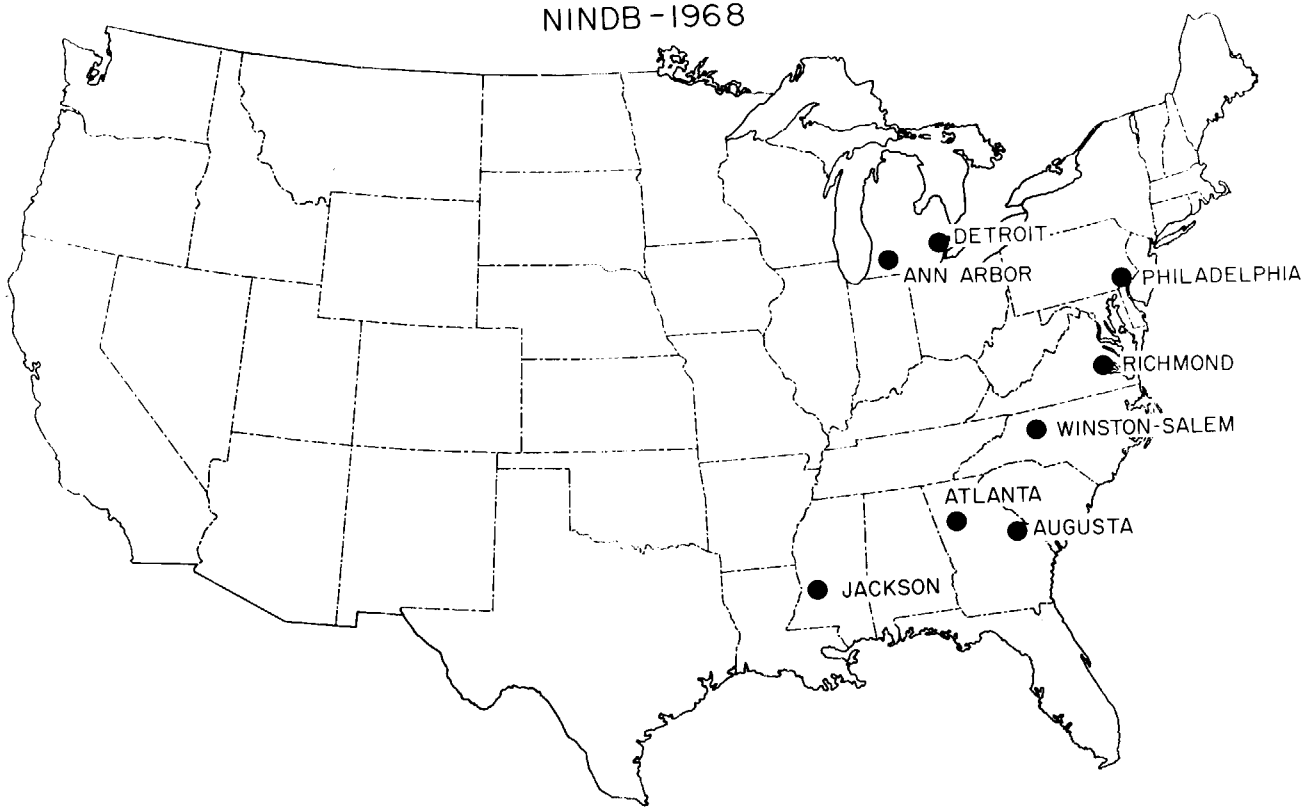
One of the principal reasons for the modesty of our past efforts in stroke research has been the shortage of people trained in the necessary professional specialties and scientific disciplines. Since its establishment in 1952, the Institute has allocated about 25 percent of its budget to training support for teaching and research—approximately 9,000 people have received training during this period—but it has only been within the past several years that we have been able to begin training programs specifically in stroke. Now, however, we are making considerable progress in this area with seven cerebrovascular training programs at Minnesota, Wayne State, the University of Tennessee, the Medical College of Virginia, Bowman Gray, Massachusetts General Hospital, and at the Mayo Clinic.

These are in a sense supplemented by over 130 training programs in neurology, neurosurgery, and all the other neurological disciplines involved in cerebrovascular disease. Most of our training programs are in fact discipline-oriented, so it is impossible to state very exactly what portion relates to stroke.

FIGURE 4

COOPERATIVE STUDY OF CEREBROVASCULAR DISEASE AND HYPERTENSION

NINDB - 1968



Of particular interest to you people may be another new type of support we have begun to offer which we call the cerebrovascular clinical traineeship. These are for practicing physicians seeking a few weeks or more of intensive study of the latest developments in diagnosis and therapy. We have a number of these traineeships active at the moment, and hope to expand the program substantially in the next several years.

A new program for clinical training of cerebrovascular nurse-specialists is also underway. This program will give nurses who have the R.N. degree 6 to 12 months of specialized "bedside" training in the field, and will give nurses holding the baccalaureate degree 2 years of specialized training toward a master's. Stipends for the trainees will be funded by the Public Health Service's Division of Nursing, while salaries for the key faculty personnel will be derived from NINDB's cerebrovascular center grants, or other sources. A committee composed of three neurologists, one ophthalmologist, and several nurses has been established in the Division of Nursing to review applications, and we are doing everything we can to move this program ahead as rapidly as possible.

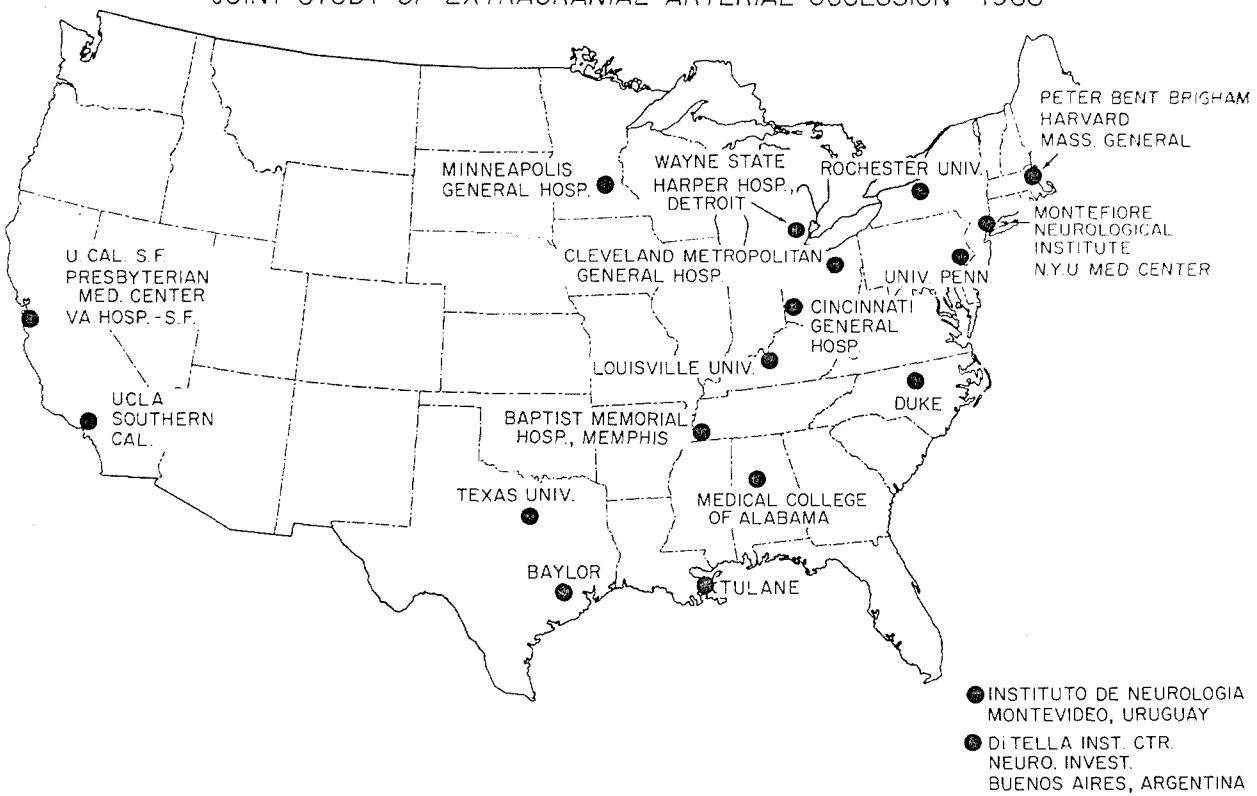
COMMUNICATION

The improvement of communication in the stroke field has been one of our most important program goals. Through our Joint Council Subcommittee, which I mentioned earlier, we sponsor scientific conferences, both on specific aspects of the problem, such as aphasia and rehabilitation, as well as larger meetings covering the whole field. One of these was the sixth in a series of biennial conferences at Princeton, N.J., which I attended last week. This was a tremendously exciting meeting, attended by virtually all of the leading people in the field. I think everyone felt that things are at last beginning to happen, and that a new day is dawning for the stroke patient.

Coming up are several other meetings of particular interest. Dr. Arthur L. Benton at the University of Iowa is organizing a workshop for us on behavioral changes related to cerebrovascular disease. Also, the second annual meeting of the chiefs and senior staff members of our cerebrovascular clinical research centers will be held next month in California. This meeting will be specifically concerned with an in-depth review of

FIGURE 5

JOINT STUDY OF EXTRACRANIAL ARTERIAL OCCLUSION - 1968



hypertension as related to stroke, and will include sessions on neuroradiology of stroke, cerebral metabolism, therapy, and microcirculation of the brain.

Another important aid to communication sponsored by the Institute is a service providing a monthly package of reprints of stroke articles appearing in medical journals. This service, headed by Dr. Robert Siekert at Mayo, has been very well received by physicians and researchers, and may ultimately be expanded into an abstract journal when the volume of stroke literature becomes sufficiently heavy.

Several other publications are of interest; we have published a Cerebrovascular Bibliography regularly since 1961. The bibliography, issued every 3 months, consists of a selection of stroke and related listings from the National Library of Medicine's *Index Medicus*, and provides a continuing reference to virtually all research in the field.

The Joint Council Subcommittee is also making plans for revision of a Survey Report on Cerebrovascular Disease, reviewing the entire field and telling us where we stand in prevention, therapy, and rehabilitation. Our last edition, published in 1965, was well received, and is still available. The revision will probably require 2 to 3 years to produce, but it should be a valuable reference document when completed.

These are the principal elements of our program in stroke. I would like at this point to mention the five or six major areas in which our scientists are working, and then move on to a very brief summary of the field's most urgent needs.

RESEARCH AREAS

Epidemiology. — Epidemiological studies of stroke are of utmost importance, because detailed knowledge of the distribution of the disease, correlated with genetic and environmental factors, diet, and other influences, could provide important clues to its causes and results.

A considerable body of evidence has accumulated pointing to variations in deaths from stroke in different countries; variations among population groups within some countries; variations from one time to another; and even seasonal variations. Epidemiologists agree that some of the variations are doubtless accountable to difference in methods of classification and standards of reporting, but they also agree that some of the variation in the rates is real, and they have made this the object of intense study.

In addition to several project grants and two centers devoted to the epidemiology of stroke, the Institute is funding by contract with Johns Hopkins a national epidemiological study. Data is being gathered and analyzed for comparisons of customs and practices in certification of deaths, and is being correlated with hospital records and with physicians and household interviews. For the first time, accurate information will become available about the incidence and mortality of stroke and the validity of reported differences in different parts of the country.

BLOOD BRAIN BARRIER

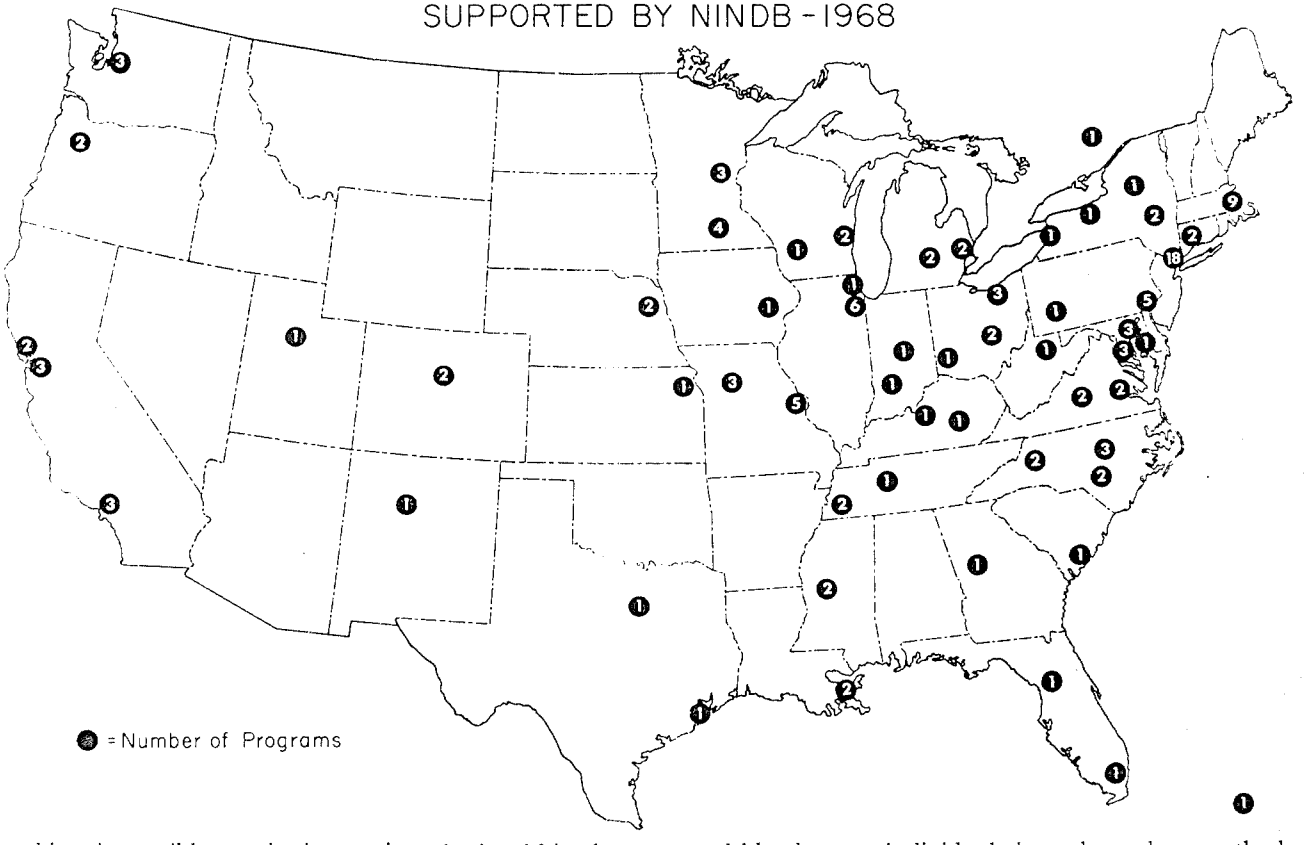
Within the brain there is a sensitive barrier system which separates the brain tissue from the circulating blood and yet permits the exchange of nutrients and waste products between the two compartments. Derangement of this barrier, which commonly occurs after brain injury, can lead to serious complications. Considerable research effort is being invested in studies of this mechanism, with the aim of finding means of minimizing brain destruction following stroke or other injury.

BLOOD FLOW STUDIES

The occurrence of stroke is a dynamic process. There are constant variations in the flow of blood through the brain. New methods using radioopaque dyes or radioactive tracers are making it possible to obtain precise information about the condition of the arteries of the brain and the distribution of blood flow through them. The development of simpler, less expensive procedures can greatly increase the usefulness of these measures for early recognition of the stroke-prone individual, and the possible prevention of vascular thrombosis within the narrowed blood vessel. Several of our centers are concentrating on blood flow studies, and on the improvement of techniques and instruments for them.

FIGURE 6

STROKE AND RELATED TRAINING PROGRAMS
SUPPORTED BY NINDB - 1968



APHASIA

Much can be done to remedy the disability of the paralyzed, aphasic, or otherwise neurologically crippled individual through modern methods of reeducation. Investigations on neurological control mechanisms are developing greater knowledge of normal processes, as well as means whereby deranged channels of input and output may be supplemented or bypassed. Intensive study of normal and deranged higher nervous activities is providing means for remediation of

aphasia and other disorders of the intellect.

TREATMENT EVALUATION

Evaluation of methods of treatment is another major area of research effort. In addition to the cooperative studies which I mentioned earlier, a number of our research centers are heavily involved in this, as well as individual investigators.

Development of improved methods of diagnosis is also of utmost importance. Angiography, isotope scanning, thermography, rheoencephalography, echoencephalography, and the EEG are among the diagnostic techniques undergoing constant improvement and refinement.

NEEDS IN THE REGIONS

Now to summarize a few of the field's most urgent needs: In considering the types of stroke programs which may evolve within the various regions, I think we should start with a review of the total needs of the stroke problem. For a total program, any society must be prepared to cope in some way with the following needs:

1. *Stroke prevention.*—In its ultimate, the prevention of stroke probably depends upon the prevention of arteriosclerosis. Lacking this, we still have the ability to recognize the stroke-prone individual and to provide for such an individual certain prophylactic measures. In general, the stroke-prone are those with hypertension, with diabetes, or with very high-blood cholesterol levels. Programs for the early recognition and treatment of such persons is thus a part of a total stroke program. Equally important are measures for the early recognition and prompt treatment of patients showing minor neurological symptoms, such as the transient ischmic attack.

2. *Early accurate diagnosis of stroke.*—Cerebrovascular disease may present itself in a variety of forms ranging from the most minor disturbance of sensation, movement or consciousness to sudden collapse, and profound coma. The differential diagnosis is often difficult and may require sophisticated diagnostic equipment. Each region must assure itself of the existence of such diagnostic competence, and of the orientation of the practicing physician regarding the need for and the availability of such special services.

3. *Emergency treatment.*—The patient with sudden cerebral hemorrhage represents a medical emergency. Not all cases of cerebral hemorrhage are fatal. Nursing care for the comatose patient requires special skills. Little consideration has yet been given to the logistics of handling these difficult cases. In regard to treatment of the acute phases of stroke, here also there is much to indicate that the existence of programs and personnel especially concerned with application of currently available methods, could do much to reduce death and disability.

4. *Surgical intervention.*—The usefulness of surgical intervention in diseases of the extracranial arteries as well as in the management of intracranial aneurysms is still highly controversial. When our statistical studies in these areas are concluded, we will know much more. I am convinced that there will be a continued role for surgery in some forms of stroke until large scale prevention is achieved.

5. *Restoration of function.*—The long-term nature of stroke residuals, and their devastating impact on employability are major elements in the problem. The distribution of rehabilitating services, their relation to the general hospital, the nursing home and the community represents another important area for community action.

6. *Long-term care.*—The patient with stroke residual disability represents a major social and economic problem. One-sixth to one-seventh of the patients in our State neuropsychiatric hospitals are patients disabled by cerebrovascular disease. Yet this represents but a small fraction of the total problem. We need more information regarding the characteristics of this disabled population and the resources available to provide them with the best chance for a continuing useful or at least meaningful life. Where and by whom are they best cared for?

We have noted a serious lack of documents outlining guidelines and concepts for community-based stroke control programs that would utilize total community resources. Reports by expert committees have been published by the World Health Organization for heart disease and cancer, but nothing is available in the stroke area. The Joint Council Subcommittee has formed a task force to develop and outline a community control program for stroke, and I know that this outline will be of great value to the Regional Medical Programs and other public and governmental agencies when it becomes available.

All of these needs are pressing, and it is hard to assign priorities to them. But I might say in conclusion that the greatest need of all is recognition that much can be done for stroke patients—much more than we are doing now. We can prevent some strokes, we can bring better diagnosis and treatment to more people, and we can do more to restore function. Many thousands of stroke victims who could be helped lie helpless, slowly deteriorating toward states of organic dementia.

This is now within our power, and I know we will meet the challenge.

PANEL DISCUSSIONS ON. . . .

HEART DISEASE

Panel: Jesse Edwards, M.D.
Samuel M. Fox III, M.D.
William Likoff, M.D.
Theodore Cooper, M.D.
Campbell Moses, M.D.

CANCER

Panel: Sidney Farber, M.D.
Michael J. Brennan, M.D.
Juan del Regato, M.D.
Kenneth M. Endicott, M.D.
Guy F. Robbins, M.D.

STROKE

Panel: Nemat Borhani, M.D.
Clark H. Millikan, M.D.
James F. Toole, M.D.
William A. Spencer, M.D.
Richard L. Masland, M.D.

These transcripts have been reviewed and approved by the participating panelists.

PANEL DISCUSSION ON—HEART DISEASE

Panel:
Jesse Edwards, M.D. (Chairman)
President, American Heart Association
Charles T. Miller Hospital
St. Paul, Minn.

Samuel M. Fox III, M.D.
Chief, Heart Disease Control Program
National Center for Chronic Disease Control
Bureau of Disease Prevention and Environmental Control
Public Health Service

William Likoff, M.D.
President, American College of Cardiology
Hahnemann Medical College
Philadelphia, Pa.

Theodore Cooper, M.D.
Associate Director
National Heart Institute
National Institutes of Health

Campbell Moses, M.D.
Medical Director
American Heart Association
New York, N.Y.

DR. EDWARDS. As a Regional Medical Program panel on heart disease in January 1968, we are in an exciting atmosphere. The past has given us many gifts and we are to participate in shaping these for progress in the future.

The progress I see for the future has three P's: One, perfection; two, productivity; and three, prevention. By perfection we mean refinement and greater availability of the many techniques now present to treat the afflicted and the development of new techniques where applicable. By productivity we refer to the accomplishment, either in the home or on the job, of the person who has heart disease. By prevention we mean accomplishing the greatest of all accomplishments, that of keeping the divine gift of the normal heart unaltered by disease.

The three P's have been translated into old terms; namely, treatment, rehabilitation, and prevention. But while the terms are old, we must apply new imaginative ideas to make full use of the tools with which we now work.

In a narrow sense treatment may be considered in the realm of putting out brush fires, that of taking care of illness when and where it happens. If treatment of an acute illness consists simply of shepherding the patient through his immediate physical problem, the cruelest thing we can do to a patient is to discharge him from the hospital, for the disease treated in the hospital has many broad ramifications outside of the hospital.

Within our capabilities, discharge of the patient from the hospital involves opening broad avenues of activity, activity that pertains to the patient's illness. These include, among many others, physical rehabilitation of the patient, mental rehabilitation of the patient, evaluation of his capacity for work, orientation of industry as to the usefulness of the previously ill, educating the families as to the dietary and emotional reception of the patient upon his return home.

In the past 2 days we have had demonstrated many sophisticated techniques for the physical care of the patient. These techniques absorb physicians' time and energy. We must seek ways of developing nonphysician personnel capable of doing certain tasks now traditionally done by the physician.

A reservoir of resources of various and diverse types is available to us from such units as the National Heart Institute, the Heart Disease Control program, and the American College of Cardiology.

To consider development of many of the necessary and new services, the voluntary health agency, the Heart Association, has the know-how and the will to assist RMP in establishing a blueprint for the future.

Dr. Fox. In thinking of new developments in heart disease, the interest in coronary care units is a perfect example of the synthesis of new knowledge into a practical operation package with widespread usefulness. Unfortunately, we do not have all the statistical definitions of the cost-benefit ratios that support coronary operations.

Dr. Jack Hall has a most interesting design in the wind from which we think we will learn much; but even with the lack of what we do desire in the way of justification on the statistical case for the coronary care efforts, there are very few who feel what we are doing across the Nation in this effort does not have real virtue.

There are many opportunities for fascinating work that still remain and most of them appear to lend themselves very well to the RMP type effort.

This is a slide which I am sorry is a little complicated, but we will try to look at it in easy stages. It may illustrate some of the new approaches that perhaps will expand our present concept of coronary care.

The boxes on this slide represent a set of hypothetical units in a system of coronary care, a system in the sense of the practioneer rather more than system analysis.

In the center of the boxes here is one labeled "Surveillance for Dysrhythmia." This and the box immediately below it, "Intensive Care," such as we can provide for circulatory failure—and that perhaps poorly named but expressively conveyed concept of the cardiogenic shock—these represent the major loci of coronary care efforts at the present time.

To the right here is a unit, "Continued Surveillance and Care," the first stage of regressive care in which there is a significant mortality still to be conquered. Those cases who survive through the surveillance area pass on to the progressive care unit.

Above and further along is "Education and Rehabilitation," about which there is much enthusiasm but insufficient evaluated experience at this time.

The Heart Disease Control program is very interested in looking at physical rehabilitation as well as efforts through an increase in habitual physical activity to prevent heart disease in the primary sense.

To the far right is "Preventive Programs," about which others will speak. We need to know a great deal more, as was brought out by Dr. Fredrickson yesterday.

My opportunity is to look at what might be called the front end of this system, that into which we would like to attract people more promptly. All together too many coronary victims die before they even go into the hospital, not to speak of a coronary care area.

It is estimated, on the basis of what we must admit are not too adequate statistics, that over 200,000 individuals die outside of hospitals with acute coronary events as compared to essentially the same number dying within the hospital. This is a commentary on our inadequate system, if you will.

Most of those who die outside under these circumstances die acutely. They are not those with long-standing symptoms except in the very elderly who, as a matter of philosophy, are permitted to pass on in the warmth of their family, with which I think we must have some sympathy.

Now, what can we do to persuade those needing the protection of coronary care services to make earlier prudent decisions? A coronary reception area might be of assistance. This is a concept about which nothing really has been done of which I am aware.

The terms coronary care acrium or coronary triage unit were considered, but outside of the health professions these terms might not be well understood, although I think among us their meaning might be a little more precise.

What is suggested? Perhaps the receptive environment easy to enter, having a low impedience appearance, if we can paraphrase our electrical engineering colleagues, no admission delay, full monitoring prior to an investigation of signs, symptoms, laboratory data and things of this sort, and above all, staffed by competent personnel but possibly in lesser numbers than occur in the coronary care unit as we now have it constituted because the probabilities of acute electrical catastrophe presumably would be much less. Those would be pump failure and such things that would go on in an intensive care area as presently constituted. Low cost would be a necessary part, acceptable, therefore, to third-party insurance as is becoming increasingly a part of our medical scene as to the person and the family.

The lab backup for enzymes and such should be available; and indeed we need what we might classify as a low outpedience, namely, a means of getting sprung from such circumstances back into active life if the probabilities seem reasonably acceptable that the episode which suggested the need for admission is not any longer acutely lyeriptic. Later discussion might help define the opportunities and problems of this area in somewhat more detail.

In September of last year I had the privilege of riding out with the mobile coronary unit which has attracted considerable attention in Belfast, North Ireland. Dr. Frank Pantridge will be before the cardiology meeting in San Francisco and I think he has done a great deal to lead the way in showing what can be done in the way of mobile services.

A physician and a nurse go out from the coronary care unit where they are otherwise employed to meet the ambulance at the pickup point. They quickly go to the scene with claxon horn blowing except when they approach the immediate locale at which time they make a very quiet and thereby not too alarming entry.

Most of the devices of the coronary care unit are taken out of the van into the home or site in which the suspect coronary case is found—doctor, nurse, monitoring devices, medication, including intravenous and defibrillator. They stabilize the patient physiologically, reassure the patient and family, and then from the usually highly anxious circumstances accompanying a heart attack they quietly move the patient off without horns and such to the coronary care unit at the main hospital.

This is beautifully done in Belfast. Can we do this in the United States? I think there is no question we can. We must build some type of front end on the coronary care system and after we have done so, get more prudent decisions earlier in the course of the coronary experience.

The Heart Disease Control program looks forward to continuing to work with those in the Regional Medical Programs on this and we hope that we will be able to help define some of these circumstances.

Dr. LIKOFF. There resides in the broad field of cardiovascular disease ample reason why the Regional Medical Programs, structured as it is by law, affords a remarkable opportunity to improve health care. The intensity of the diseases of the heart and blood vessels overwhelms comprehension. Indeed, in this western culture, these afflictions are almost a way of life.

The economic loss from abbreviated and attenuated work rivals expenditures for prolonged armed conflict. Prevention is tragically ensnarled in concept. Hardly a fragment of clear fact supports a myriad of fashionable beliefs regularly urged upon the public, and any standardization is late and often uncertain.

Treatment is as dependent upon nature's generosity as upon scientific genius. The small capsule of effective measures often may lead to as much disability as it was designed to correct.

In this arid environment, each fresh effort in treatment, even though only a hopeful inquiry, is understandably overdramatized as a breakthrough.

For the stricken, accommodation to useful life is totally undisciplined. Guidelines, obscure enough in their own right, are misunderstood, misapplied, or newly structured out of prejudice.

Stung by peculiar public laws which hold employees forever responsible for the consequences of maturing heart disease, industry is a traditional foe of rehabilitation.

Finally, the public is more than vaguely conscious of these facts because we have trained it to be able to criticize and in its acknowledged restiveness it wants more of what is available, and more to be available.

Embodied in this total issue are challenges to advance knowledge, to improve education, and to perfect application. The magnitude of what must be accomplished immediately has great confusion and, just as admittedly, inertia.

How can the wheel be loosened? The first plea is for simplication of objective, for a clear recognition of the boundaries that must be set for your effort. At least at the outset we are laboring under a practical law. Goals should be interpreted in that spirit, whether the intent is to advance knowledge or improve the application of what is already known.

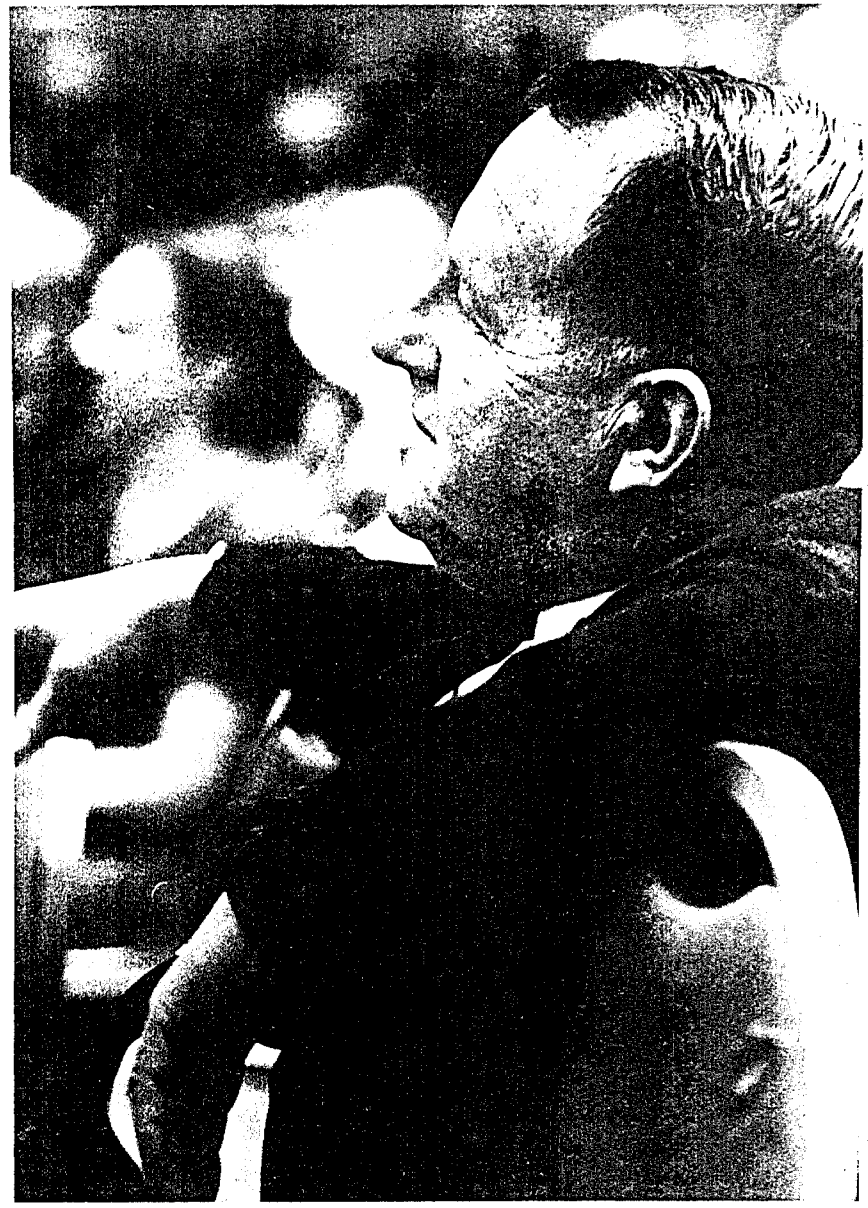
Objectives, secondly, cannot be engaged as separate enterprises. Knowledge, education, and application defy clear separation.

Where the cardiac resides in your region, how great his number is, and what his fate is over the years may be a prosaic inquiry compared to molecular biology, the cardial sick cell, or any other unit in the body; but this simple discovery assumes new dignity if it has a frontal impact upon education and upon application. Simple correlated goals then are reasonable and these are the attainable ones.

Thirdly, judicious assumption of regional needs by responsible men of action is an essential requirement for a proper takeoff even though this is perhaps contrary to the spirit if not the letter of the law.

How far off from actuality is the presumption, for example, that acute coronary care is delayed, that ausculation is a limping art, that clinical physiological correlations are poorly understood, that new instrumentation is unavailable or its role not fully comprehended.

It may be folly to expect action from the periphery when the needs themselves truly remain unrecognized. There are two more simple determinants of sincere and definitive action. The first is the forthright enlistment of regional talent through whatever unit or organization or affiliate this cadre can be recruited; and finally, operations through experimental modules probably represent the most effective method of getting the show on the road.



Dr. COOPER. As outlined by Dr. Fredrickson yesterday, we in the Heart Institute feel that we have a very practical interface with the Regional Medical Programs. We view our job as providing you with new practical means of treatment for coronary heart disease, a disease which has not yet seen a material benefit in terms of reduction of morbidity and mortality.

About 2 years ago the Heart Institute had a very small but elegant group of consultants surveying many of the medical centers in order to find out what the clinicians need in new findings for the treatment of coronary artery disease; the thing they found out was most needed was interest and research activity in this disease. Apparently coronary artery disease had become somewhat less glamorous for the investigators.

Following upon this report, the Institute in the context of its already established Artificial Heart program initiated a "targeted" Myocardial Infarction program. This program is a supplement to the millions of dollars being spent already by Heart Institute grantees in areas of research which, under the grant mechanism of laissez-faire research, bear on the treatment and diagnosis of coronary artery disease.

It was felt, however, that the more organized and focused program on the problem of coronary artery disease would be a great stimulant to research efforts in the area. Increased activity would be helpful in identifying some critical gaps in our information. These findings could then mature into means of practical treatment for this devastating disease.

What was agreed upon at that time was a program of contractual research in myocardial infarction. The initial core of this program was designed as a series of research units which would be located in medical centers throughout the country. It was originally envisioned there should be 12 such major research units. These are research units, I would emphasize, that are concerned with the clinical investigation of the patient with myocardial infarction. All ancillary laboratory work is directed toward this end.

In the past year five such major units were implemented at a cost of roughly $5.1 million. In December of 1967 we received an additional set of bids for the enlargement of this network. We anticipate that in the coming year we should be able to add an additional three or four such units. Hopefully next year, if our budget permits, we will reach the critical mass of these 12 units.

Around this core then we shall attempt to stimulate further interest in various segments of the country by having sort of mini-units which would be located in existing coronary care units. These smaller units could be the testing ground for the application of the new findings found in the centers of major investigational effort.

Finally, another segment of this program will direct itself to specific contractual research in such areas as pharmacological interventions on arrhythmia, furthering understanding of the pathology of coronary disease in man, etc. We have to reach the point where we have based about 50 percent of our effort in a major clinical investigational effort and 50 percent of our program in specific laboratory research projects related to the management and diagnosis of coronary artery disease.

Complementing this, we have our Artificial Heart program. You will recall, on Dr. Fox's diagram, one of the practical means of therapeutic support for the complication known as cardiogenic shock is mechanical circulatory assistance. We are now spending $8.6 million in contractual research designed to improve the machines that are now available and to develop new types of mechanical assistance to the circulation. Perhaps in some years to come we shall be able to produce a total replacement for the heart, a mechanical prosthesis.

Dr. MOSES. Within the Heart Association we have tried to encourage our various affiliates and chapters to offer their assistance to RMP programs around the country. In some places this has worked out quite effectively; in others, it hasn't. In some, the Heart Associations have been really quite unaware of the objectives of the RMP program. We are making strenuous efforts to correct this because the RMP program offers an opportunity to provide real muscle to achieve many of the long term goals of the American Heart Association.

The public and professional education programs of the Heart Association have now with the RMP program a chance to expand and develop and to succeed, and we are very pleased that this is the case.

Let me point out to you some of the areas where the various volunteer agencies can be useful to RMP. For example, in the area of personnel, whether we are talking about volunteer personnel or professional staff. Many of the full-time RMP people have come from the professional staff of the Heart Association.

This is entirely appropriate. At the volunteer level, RMP programs are providing support in dollars for some of the activities of people who were volunteers with the Heart Association. The same, I am sure, is true for the Cancer Society. One comes to Dr. Gordon Barrow who, of course, was very active as a volunteer in the Heart Association for many years and now is director of the Georgia program.

One of the other areas where the volunteer health agencies can be of use in the RMP programs around the country is in the development of effective educational materials. We have requests, for example, from RMP programs to develop 5-minute radio spots to be used in various places around the country, and hopefully other associations such as the Cancer Society programs can be implemented, can help RMP programs

in many, many ways in the public education field.

This interface has been used by almost every speaker in the last 2 or 3 days, but certainly the interface between the public and the RMP that can be bridged by a volunteer health agency is a very realistic one. After all, the volunteer health agencies have been for many years, long before RMP, interested in improving the level of patient care—particularly in cancer and heart disease.

I would like to conclude with one reference to Dr. Fox's diagram. You recall that in his diagram he had on one end of the scale the need for improved ways to provide better input into the coronary care formula—the coronary reception area that he talked about—and at the other end of the scale he had the importance of education and preventive programs to achieve a more complete control of the coronary disease problem. Well, it is at these two ends of the scale where the Heart Association can be most useful in providing insight, and in providing people who are accustomed to working in the prevention and public education spheres.

I urge you as professionals with the Regional Medical Programs to take advantage of the experience, of the background and dedication of the workers in the voluntary health agencies.

I think if you will talk together, if you work together, you will find that both the voluntary health agencies and the Regional Medical Programs are really working for one common goal and that is improved health care for the people of the United States.

VOICE. I wonder if Dr. Fox would give us his current estimate of the effectiveness, and in any way he wants to define this, of coronary care units in the present state of the art.

Dr. FOX. Unfortunately, we don't have the statistics we all would like. For a while before the aggressive approach to prevent catastrophic events came in, we could say that so many patients had conditions considered to be lethal were it not for the intervention of a trained team and techniques with the monitoring system. At that time it would look as if there were essentially six to eight persons per hundred coronary admissions that were in the category where effective coronary care efforts were saving them.

Now, the long-term meaning of the discharge of a patient having suffered myocardial infarction and having been resuscitated or otherwise preserved has not yet been defined; in the sociological sense this is most important. But I think there is an encouraging early trend to indicate these individuals do not become 5 or 6 month average survivals and then die after an intensive attempt at rehabilitation and do not essentially become of critical importance as a part of their community or their families in the socioeconomic sense. There are no data that go much beyond this.

Dr. EDWARDS. I suppose this question has two aspects to it. One, how many people are specifically saved by the resuscitative potential of the coronary care unit, and the other, does the very presence of a coronary care unit with the training and attitudes of personnel that go with it have an indirect influence on top of the specific benefits to the patient who required actual resuscitation?

Dr. LIKOFF. I think that there is a growing belief that, in the area of electrical catastrophe, the acute coronary care unit has been successful in ameliorating the mortality and morbidity statistics and that in the area of power failure there has been no influence whatever upon the mortality rate.

There is also the very distinct impression that the presence of an acute coronary care unit in any one institution upgrades interest, care, and perhaps the ability to treat as opposed to those institutions that do not have an acute coronary care unit. However, I remind you that this whole problem is up for examination. There are sufficient feelings on both sides of the fence to warrant, for example, that this topic matter was included as a controversy in cardiology at the forthcoming scientific sessions of the American College of Cardiology.

Dr. MOSES. Another answer to this question is that with the introduction of continued surveillance we have really had a change in our interpreting of the results from the coronary care units. Initially, if a patient suffered a major catastrophe and was resuscitated, this was put on the credit side of the ledger. Now, since most of the electrical disturbances do give warning and there are some changes in the monitoring that indicate that this catastrophe is imminent, it's now possible to prevent many of these and therefore we now say if you have a resuscitation event in a coronary care unit it's probably a small black mark in the record because perhaps they missed the warning signs.

So it's very difficult to answer your question accurately, but certainly the growing experience with it, if we can get some kind of data analysis, will be able to lead us to some intelligent judgments as to how these should be implemented and just how many we need to meet our population needs.

VOICE. I think that Dr. Moses' remarks should be immediately qualified about the black mark bit by saying that it's no black mark at all if the patient also has power failure. Resuscitative efforts on power failure still occur frequently and are unpreventable.

It would appear to me that the triage area can never really justify itself because presumably the setting would be in a hospital with a coronary care unit; trained personnel would monitor this from the unit or maintain it from the unit. It could be very much more expeditiously resolved merely by changing admission policy to the unit, by having patients admitted directly without delay to the unit providing there were a few more beds made available in the unit for this purpose.

It's almost implicit if it's to work it has to have patients admitting themselves to the unit without physician recommendation either to the triage area or to the unit, and this could pose a regular mare's nest of problems.

Dr. EDWARDS. Dr. Fox, would you care to comment on this question? I think we should define a little bit what we are talking about. Dr. Fox has already indicated that among fatalities in coronary disease about half occur outside the hospital. The individual, sometimes without any previous illness, that witnesses no pain at least, suddenly dies. Some people do have a preamble to death and in this preamble stage is where so much can be accomplished.

Dr. Fox. I think what we are faced with requires some type of operational research. I hope I made it clear that this concept of the reception area is only something to shoot at. I think we can do better.

The problem that some of us see is that people are reluctant to enter themselves in anything that has the formality of the present coronary care circumstance; and if we can reduce what we as physicians don't consider to be much of an impedience but which apparently is an impedience in the mind of the public, if we can reduce the steps that they had to take prior to making prudent decisions and draw them in earlier in the symptom course, we have a chance of doing something if there is an amount of time from early, usually unappreciated, or unrecognized symptoms until more major catastrophes in a fair number of cases.

Dr. EDWARDS. I wonder if we could just have another comment. It is, of course, a problem to plan resuscitative measures or preventive measures in the person who is about to die suddenly. How can we define this individual, and do people really die that suddenly from acute coronary disease, and do some of them not have symptoms which even the physician and even the electrocardiogram have failed to relate to major coronary disease?

Dr. LIKOFF. The potentiality of sudden death from coronary artery disease is recognized by all of us. Secondly, preamble to death, if it does exist, generally exists in the form of irregular or aberrant electrical activity of the heart. Thirdly, it is unlikely that sudden death occurs as a result of independent so-called power failure, that this is a rather gradual event that is in effect predictable.

VOICE. One of the things that you brought up seems to me to be something we haven't thought about much here at all and that is the epidemiology of this problem. In what group, in what population do we look for these premonitory signs, and can we define the population in whom the incidence of myocardial infarction or other cardio accidents is highest?

Dr. COOPER. The epidemiological area has been of considerable interest from the pragmatic standpoint for research. Some months ago in the clinical literature there appeared the results of the Baltimore study, in which Lilienfeld and his colleagues said that, in the retrospective analysis, they were able to document that an overwhelming number of the persons who had died suddenly sought medical advice for conditions related to cardiovascular disease. It may have been up to 90 percent. We need to have this type of retrospective information to develop and design prospective studies.

We would like to help the people in the hospitals and the practicing physician identify these patients, and in some way monitor them, so as to prevent this so-called "sudden death." I think it is becoming more and more apparent that sudden death in a completely well individual is really not a very common entity. I think there is an area where the public education programs of the Heart Association and the Regional Medical Programs could offer a great deal.

Dr. MOSES. But they have to be backstopped with the professional education program and the physician has to have something reasonable to do in these people that are identified as increased risks and we are not quite so comfortable about that, aside from the very general things controlling the risk factors: High-blood pressure, shock, and hypercholesterol.

Dr. EDWARDS. Unless we can do something for them, we might scare them to death. We would have to plan something in the way of making available a resuscitative measure and this is a major magnitude problem. I emphasize again, this involves about an equal number of people to those who die in the hospital.

VOICE. I wanted to thank you for saying the "divine gift of the human heart." So often many people think God is dead and they say nothing about what the Divine Physician does in cooperation with other physicians. I just wanted to thank you for that remark made in public.

Then I wanted to ask Dr. Moses if he would think a routine test with the electrocardiogram done on every patient would help for better patient care.

Dr. LIKOFF. A routine electrocardiogram is almost worthless as a screening instrument for the presence of coronary atherosclerosis. On the correlative studies that have been done on measuring anatomic changes in the arteries, it has been repeatedly demonstrated that the electrocardiogram remains normal in the face of other considerable anatomical change.

Dr. COOPER. I would like to take a little issue with Dr. Likoff on that response. We recently have reviewed some of the routine electrocardiograms from the Framingham study. The study is still really in progress. In identifying those that had "sudden death", the retrospective analysis showed electrocardiograms revealed that over 50 percent of them had so-called benign arrhythmias; I don't say that this necessarily demon-

strates cause and effect, but I do think there is some merit to pursuing such an analysis in detail with modern computer technology. The routine electrocardiogram is a method for obtaining some further information on this difficult problem.

Dr. MOSES. I think what Dr. Likoff meant was that any given individual cannot be labeled falsely or accurately from that data alone.

Dr. LIKOFF. That is very correct.

VOICE. I would like to say, with this incidence of the higher use of hospital beds, that it would be wonderful if we could assure a patient he could go into the hospital as rapidly as possible with the first real knowledge of a coronary. That is a major problem in our area: Just to be assured that the patient could be admitted to the hospital and let alone to this coronary care unit to be observed and diagnosed.

Dr. EDWARDS. I think we are talking about an area of patient service that really has not been considered in developing hospital services with proper identification through mass studies of the need, and first of all, the magnitude and the potential for doing something about it. Therefore, it may very well be that our pattern of hospital construction and bed availability will ultimately change to overcome this problem and that is what we are here for.

VOICE. I would like to ask Dr. Fox in view of his recommendation that a mobile unit would be of value to supply, how in Ireland do they know when to send the unit out. When the phone rings, do they all then go?

Dr. Fox. I don't believe I can really represent Dr. Frank Pantridge's philosophy from the very brief time I spent here. It's like a 2-week tour of Vietnam. I had 1 day's tour of Belfast's unit, but I had the impression that the physicians of Belfast and the area around were the prime calling source for this unit, that there was nothing verging on self-admission.

On the other hand, the police ambulances and nonmedical calls were received and responded to. The national restraint of the North European might keep a system in control that might not be generally realized elsewhere.

I hope I make myself clear in my ignorance of exactly what this means, but I think one of the very important operations problems to define is who calls the unit, under what circumstances and under what level of relative priority is the unit sent out and with what manning circumstances, particularly in large cities where multiple calls might be concurrent.

Dr. EDWARDS. Dr. Fox, do you have any idea of what the distribution is of live patients to dead patients by the time the service gets there?

Dr. Fox. No. Dr. Pemberton who is the epidemiologist in the area has some statistics and I am afraid I can't give them offhand. The number of those found dead is I think rather minor and, in a recent letter from Dr. Pantridge, so far nobody, even those with complicated electromechanical coupling, heart block, and the like, has been lost in the ambulance; but he doesn't feel this type of excellent record will be maintained at the 100-percent level.

They have shortened the admission time now to less than half an hour from the time of first call except for the time in which they stabilize, and become acquainted with, the patient on the scene. This stands considerably better than the 6-hour delay that is reported from Edinburgh, which as far as I know is a shorter period than any reported as an average figure after symptoms in the United States.

VOICE. One of the problems in the periphery or the grassroots is the ready, quick interpretation of electrocardiograms by a practitioner in the field, particularly those in more remote areas. I wonder if Dr. Fox or the others would comment on this current evaluation of EKG for transmission by telephone and how close are we to more widespread applicability and availability of computerized interpretations. How good is a computer now on arrhythmias?

Dr. Fox. Heart disease has abnormality. Dr. Caesar Caceres has been working on it for some 7 years now in getting this effort started. As an example, one Regional Medical Program, Missouri, is in large part duplicating a system which will provide a means on the data phone, to computer on magnetic tape, and teletype feedback of electrocardiograms. The basis of the Caceres development is to have the ability to get a good machine reading. The machine system maintained by paramedical and engineering personnel seems competitive with what is likely to be most available.

The ability to put in a mobile front end to this unit though is still a bit of a problem. In other words, one has the electrographic machine plugged into the data phone which must be able to go through clean telephone lines, which don't always exist, and as the result of priority selection, on the computer and back. This interfacing has not been resolved and I think we all learn a great deal from the practical experience to be undertaken in Missouri.

We hope that in the system of coronary care that is being tried in some places in the country that radiotelemetry will be evaluated in a cost-benefit sense. The state of the art in science permits this to be undertaken, but at sizable cost and with some problems with the Federal Communications Commission. Some of these have to be worked out as operational problems, but they all lend themselves to reasonable solution.

Dr. EDWARDS. We have in the room Dr. George Wakerlin who is the past medical director of the American Heart Association and now is Missouri Regional Medical Program Director. Dr. Wakerlin, would you care to respond?

Dr. WAKERLIN. I would make a comment about various things that have been discussed. For example, with reference to coronary care units

and whether they really save lives or not, we have a specific example in the Missouri region of an intensive cardiovascular care unit which was manned under RMP auspices back in April. According to the figures of the people who are responsible for that unit, particularly the director, Dr. Glenn O. Turner, in the past 8 months or so 23 lives have been saved, men who otherwise would have died if they had come into that same hospital during the period prior to the setting up of the present form of the intensive cardiovascular care unit. This is only one unit, but I think there is no question about the fact that better care, closer attention to patients is bound to save some lives.

While it's very desirable to have statistics, I think that we shouldn't wait on any large statistical gathering. RMP should proceed as rapidly as possible to assist in the setting up of intensive cardiovascular units and/or coronary care units in representative hospitals, particularly smaller community hospitals within their regions.

With reference to the use of computerized electrocardiography, this is underway as Dr. Fox indicated in Missouri and we are about to set up six terminals in various parts of the State. Hopefully there will be a total of 20 within approximately the first year, and one thing that I am sure will hasten this along will be the fact that Dr. Arthur E. Rickli, who is Dr. Fox's predecessor as chief of the Heart Control Disease program, has joined the Missouri Regional Medical Program as Director for Operations of the program. So another important source for RMP personnel in addition to voluntary health agencies is the U.S. Public Health Service. For example, Dr. Earl Simmons who was with the Heart Disease Control program is also a member of the staff, an associate director for stroke of the Missouri Regional Medical program. I must say I was a little surprised to hear Dr. Moses recommend the Heart Association as a source of personnel in view of the fact it has lost some four or five of its key people. We must keep a strong Heart Association also, but I think all is fair in love and war and it is up to the individual himself to decide where he wants to go.

Dr. MOSES. What you are really after is the control of cardiovascular disease. The label or the hat, whether you are doing it for free or pay, is really not the most important thing.

Dr. EDWARDS. As president of the American Heart Association, I am unconcerned about the fact we are having a certain amount of traffic from the Heart Association to RMP. At the same time we are happy that we have people that are attractive to other organizations.

But seriously, this whole subject of personnel is important as it relates to our areas of interest in this panel. There is no question about the fact that the more sophisticated methods of diagnosis and treatment of patients require more physician time. We have fewer doctors to do the job as we program things like the Regional Medical Programs and siphon physicians away in some instances from practice into administrative jobs.

The matter becomes even more complex as we add the need for administrative people, and the voluntary health agencies represent a very natural resource or reservoir for this type of person. I think we have reached the stage where among the other things that we have to consider is the universities' providing an educational program which would train people for the jobs that health agencies and RMP require, just as the universities now train individuals to be hospital administrators. I think we have reached the point in our medical development, health development in this country, where universities should take on the job of educating people who will be involved in the areas that we are discussing.

Dr. WEINBERG. I may have misunderstood earlier, but I thought I heard Dr. Fox, in speaking of input impedience in the coronary care units, mention there was a certain resistance on the part of patients into entering those units. We haven't found that. The patients like the units. They like the feeling of security in there and if anything, we sometimes have trouble in getting them out. They don't like to leave to go to some other part of the hospital. Our problem in the input is more with the practicing physician. He is likely to put in his high-risk patient with power failure, for whom we can do little. But the young patient who is a relatively good risk and the one, when he does have complications, who is likely to have one of an electrical nature and have a good chance of resuscitation, that is the one that he hesitates to put in. We are making some headway in pleading with the doctors to put those patients into the coronary care units. But that has been our biggest problem.

VOICE. Dr. Fox, could you elaborate on the present state of the art in programing the computer to interpret arrhythmia?

Dr. FOX. This is not as far advanced as is the interpretation of the standard 12-scale electrocardiogram. There are programs going on in this at a number of places: Dr. Caceres' group, Warner in Salt Lake City. There are quite a few groups in California and elsewhere. None of them is as definitive as a good arrhythmia-interested electrocardiographer at this time. However, they will do things which we at this time cannot economically afford in tying good arrhythmia talent to the monitoring of patients. They can present displays of the time rate of occurrence and of premature ventricular complexions whether they are essentially of the same form, presumably unifocal in origin or multifocal, on the basis of the variance in forms. This type of display will give us the ability to develop criteria on which rules, if you will, for nurses and others may be built. As such, I think that hand in hand with the development of a ca-

pability to "hack the dysrhythmia electrocardiogram," to use jargon, will be an ability to know precisely what is its understanding for management.

VOICE. Dr. Fox spoke about using an identification card for those people at high risk for electrocardiographic or cardio accidents. Here is such a card. I am not member of that population. That is my normal electrocardiogram.

Dr. EDWARDS. Do you think this electrocardiogram is really normal?

VOICE. I see no reason why it couldn't be applied by the Regional Medical Programs to persons in whom appear four or five or six of the cardinal indices of high liability.

Dr. LIKOFF. Do you provide these to all of your patients?

VOICE. We provide it at the time of annual periodic examination. My name is Webb and I am a colonel in the U.S. Air Force.

Dr. EDWARDS. Your point is that people should carry their last electrocardiogram around with them and use that as a baseline in the event of a question of change.

VOICE. This is quite possible. It is not expensive. It's quite easy to carry out. If this were embossed on an addressograph card which had the person's essential data embossed on the other side, it would really facilitate his admission to the hospital.

Dr. FOX. I think one commentary is this: Dr. Robert Grant used to say our criteria for the electrocardiography is comparable to saying all men of normal height range between 5 feet and 7 feet 7 inches or something. We have very slack criteria and the use of something of this sort immediately makes much more sensitive our appreciation of change.

Dr. EDWARDS. Dr. Likoff, would you care to comment on this point of the base line electrocardiogram?

Dr. LIKOFF. I am not really certain where this discussion has drifted, nor to what purpose. Is it implied that it is difficult for a patient with overt symptoms to be admitted to a hospital or is it implied there is some difficulty in the emergency station or first care of this patient becoming confused as to what is wrong?

Actually, this is the crux or the nexus of the whole problem. If this in truth is so in your region, then clearly some identification of a patient who might get into trouble would be worthwhile, but then would statistical analysis, itself worthwhile, be necessary proportionately because there are a number of people without any warning signs whatever who get into deep trouble almost immediately. I can't really see this is a pertinent point unless one can establish that this sort of thing goes on routinely throughout the country. I rather doubt it.

VOICE. Perhaps the time has come for the panel to begin to discuss the detection and treatment of coronary heart disease via exercise.

Dr. LIKOFF. Do you ask such a question because you envision such a project?

VOICE. I am aware that we have a vogue for this. I think the vogue is fairly well documented and certainly it is accepted by a large number of cardiologists. The problem is how to prevent or how to make our spectator sport-conscious public more aware of the fact that perhaps they would do themselves more good if they indulged in it a bit themselves.

Dr. EDWARDS. Are you speaking against Sunday professional football? I think it really is amazing the number of people who sit themselves down on a Sunday afternoon watching when they could be doing something possibly to better their health.

VOICE. We have been talking about the detection of coronary disease. I asked the question for the panel to discuss the role of exercise of a practical sort that might help.

Dr. EDWARDS. Dr. Moses, would you care to say something about exercise as a practical matter in coronary disease?

Dr. MOSES. I can't speak to it authoritatively from the point of view of diagnosis, but I think Dr. Likoff or Dr. Fox might. I can say that there is now ample data that the regular exerciser, the person who as part of his daily habit either at work or at play engages in significant physical exercise, this person is less vulnerable to the catastrophic heart attack. He probably is not any less vulnerable to heart attack but is less vulnerable to a catastrophe. I think the first part of the man's question had to do with exercise and the diagnosing, and I think I am not qualified to answer that. Dr. Likoff may well like to comment or Dr. Fox.

Dr. LIKOFF. This is the type of area, the inquiry into this problem, the advancement of knowledge, with which I think, the Regional Medical Program must engage itself if it is to be an effective type of program throughout this country, because the answer regarding exercise both diagnostically and therapeutically is unknown.

There are again many concepts in this regard and precious little truth. As far as exercise for diagnosis is concerned, it is stated by the most astute among us that the physician taking a careful history and performing a careful examination can diagnose the onset of coronary artery disease in all but about 20 percent of the candidates or potential inquiries that come to his office. Secondly, if exercise were performed as a method of clarifying the 20 percent that he cannot put his finger on, 20 percent of that base figure—20 percent of 20 percent—would be salvaged by the more sophisticated exercise tolerance studies.

Now, this is an overview. There are proponents and there are antagonists to this view, but I think it's a reasonably fair one. In all likelihood, from the diagnostic standpoint, exercise cannot do much for you unless you are interested in physiological parameters and detail of what careful bedside techniques are apt to do.

In terms of therapy there is beginning to be an accumulation of fact

to indicate that the performance of a cardiac patient exercised through a leisurely routine is greatly improved. However, the likelihood is apparently that he dies on the same designated date, only he dies in better condition.

Dr. EDWARDS. Dr. Fox, would you care to comment on exercise?

Dr. FOX. Only, I don't think we have the data today to indicate when, but I certainly agree when he dies he will have died having led a more active and we hope more rewarding life.

VOICE. I think this is very pertinent because I think the thing that bothers most practicing physicians is the refocus and reemphasis on the postcoronary management of their patient. In other words, patients are told about the value of exercise and so are doctors, but this has not adequately been clarified; so I think there does remain a great deal of confusion.

Now, there are some fairly good studies that have been done. Many are now in progress trying to more carefully delineate how much exercise can be imposed in the rehabilitative phase of post myocardial infarction and I think the Regional Medical Program should involve itself in these studies and do a better job of both professional and public education at this point.

We have to remember for many years we have preached the philosophy of intensive bed rest and treatment of coronary patients with kid gloves, so now we are in fact changing and reversing this position. As a matter of fact, there have been some excellent papers published which would indicate that the role of anticoagulants really reflects the fact we have now modified the care of the coronary patient to introduce the exercise component; so in effect we have introduced another variable in evaluating, for example, anticoagulation procedures. Dr. Fox's group, I am certainly sure, is very much interested in this; and if the Heart Association also is interested, we perhaps ought to develop some good guidelines which would be based on sound experimental data such as is available with the help of physicians in making sounder decisions in this matter. I think there are possibly some legal compliance cases regarding these matters about which the doctor is also concerned.

Dr. EDWARDS. I think you are qualified to answer this question which I would like to put to you. What is your attitude about a formal work evaluation of the patient who has recovered and is considering returning to work?

VOICE. I think this has been one of the key interesting foci of the Heart Association. We have helped with governmental agencies to sponsor and support work evaluation tests. We feel it's a highly important thing to develop. We would like the practicing physician to know the availability of these units so that he could help support his patients.

Of course, exercise evaluation is part of this program. I think that any time you introduce a program of exercise in an individual who has had a myocardial infarction this has to be done under fairly carefully and prescribed circumstances. It's not something you can do haphazardly, and you cannot say that everyone is going to be treated the same; so I think this area deserves a great deal of consideration, particularly in view of the rather significant switch in our philosophy of the care of the patient with myocardial infarction.

Dr. EDWARDS. I will agree we haven't even begun to scratch the surface. I think we should have questions from someone who hasn't spoken.

VOICE. The question is to Dr. Fox and perhaps the other members as well. Can you try to briefly summarize what we know about the economics and effectiveness of coronary units in relation to the population served for the 50-bed hospital, 200-bed hospital, so forth.

Dr. EDWARDS. Do you understand the question?

Dr. FOX. I believe I do, but I wish you hadn't asked it because it reveals my ignorance; I am sorry to say there are no data that really tell us the answer to your question. Part of the question I think is: Is it worthwhile to set up a unit which is dedicated to the relatively unique care of coronary patients in smaller hospitals? And this is an area of great interest that has not yet been fully explored, but it would appear when you get below the average acute hospital size of 100 beds you run lower than 100 infarctions as diagnosed on exit, either dead or alive.

If you then spread this patient population over the number of beds that can be maintained effectively in the cost-benefit sense by the two competent people that are considered necessary for resuscitative efforts, you will come up with a very disadvantageous personnel-to-patient ratio; and, therefore, in these smaller hospitals it seems important to try to put together a combined unit either with intensive care of other sorts, the postsurgical recovery room, back of the emergency room, in which patients in the area of trauma and such are cared for by the same personnel, but where there is a reasonable degree of isolation, particularly acoustical isolation of the coronary patient so he isn't kept anxious as a result of the hustle and bustle attending the care of other sorts.

Much must be done. The Congress recognized this and gave moneys which are in the RMP budget this year specifically to explore small hospital and other facility coronary care efforts, for which a brochure of explanatory text has been issued by the RMP office.

VOICE. I saw something in the Springfield, Mo., coronary care unit which impressed me very much. They have developed something which merits consideration; that is, the rehabilitation of the postinfarction situation. After the patient has gone through the I.C.C.U., he comes out

and then he progresses into a rehabilitative phase and there is the opportunity where you can begin to induce the philosophy of exercise to the patient or begin to talk to the patient about restructuring his living in regard to diet and other things which are going to greatly influence his way of life in the future.

I think we probably ought to pay serious attention to this thing because I think it does offer a good way to restructure the life of a postcoronary patient.

Dr. EDWARDS. We realize in closing we haven't really gotten very far. We have estimated that 20 million Americans right now have heart disease and a year from now a million of them will have died. We have major areas of challenge. Our biggest challenge is in the area of atherosclerosis and coronary heart disease. One very important point that has not been discussed very much in the past which is bound to be a subject for the future over and over again is the patient who thinks he is well and might be dead within the next half hour from coronary disease. The acute death occurring in perhaps a quarter of a million people a year outside of the hospital emphasizes how important a practical problem this is to determine the identification of the individual and to provide facilities to prevent the catastrophe.

We have had just a few words about rehabilitation and recognize that if our economy is to remain stable with this tremendous weight of coronary patients in the population, extensive efforts in development of appropriate rehabilitation must be undertaken.

PANEL DISCUSSION ON—CANCER

Panel:

Sidney Farber, M.D. (Chairman)
President-Elect, American Cancer Society and Director of Research Children's Cancer Research Foundation
Boston, Mass.

Michael J. Brennan, M.D.
Scientific and Medical Director Michigan Cancer Foundation
Detroit, Mich.

Juan del Regato, M.D.
Director, Penrose Cancer Hospital
Colorado Springs, Colo.

Kenneth M. Endicott, M.D.
Director, National Cancer Institute
National Institutes of Health

Guy F. Robbins, M.D.
Director of Planning
Memorial Hospital for Cancer and Allied Diseases
New York, N.Y.

DR. FARBER. It has been a year since the last meeting of the Regional Medical Programs. A great deal of experience has been gathered by many groups throughout the country, and it seemed to the division that the time was ripe to discuss some of the questions of cancer more specifically. I am going to ask Dr. Michael J. Brennan, Professor of Medicine at Wayne State University, to begin.

Dr. BRENNAN. I have been asked to talk about the Regional Medical Program in Michigan and the needs of this program in cancer in the light of the studies that we have been involved in for the past several months. Now, in the State of Michigan, we have divided the State into three subregions. The total population of the State is around 8 million and there are 4 million in the metropolitan area which is composed of four counties—Wayne, Macomb, Oakland, and Monroe. The great problem with the disease is it is concentrated in the metropolitan areas because they are where the population is.

When we started off, we had the idea that our biggest difficulty was with the delivery of care to what are called the disadvantaged urban populations. We have 6,000 deaths from cancer a year in the metropolitan region. This is about one out of every 50 people that die in this country of the disease.

If we take it that some 30 percent of our population is in Harrington's poverty classification and disadvantaged in one way or another, and that the stage at which people present themselves for the treatment of cancer in this group is much more far advanced than it is in the people going to private physicians, then one would think that a very large saving in lives could be accomplished by simply raising the level of care available to these people to that available to the portion of the population which can afford to

go to private physicians and be treated in private hospitals.

However, if one corrects for the fact that a great number of these categorically indigent people are people over 65, living on social security and retirement income, then it develops that our optimism about the effect of widespread programs of detection among the poor will be too sanguine.

My calculations would indicate, and I won't go into them in detail here, that we would be able to save somewhere around 450 more lives a year if we gave to this indigent population the same attention that we give to the paying population, in the large hospitals where we have the best medical talent and facilities available to us.

Now, why don't we pick up a much larger margin of control if we manage greatly to improve the medical surveillance over somewhere in the order of 30 percent of our population? The reason is that the distribution of cases, according to disease site, is so far different in the private hospital group than it is in the county hospital group. The county hospital group is at a disadvantage in terms of the fact that they are older people and more of their mortality from cancer is with kinds of neoplasia for which we do not at the present time possess any effective system of therapy and control.

This disappointing fact of the matter brought home, after I had realized it, something which I noted for the first time in the report of the President's Commission on Heart Disease, Cancer, and Stroke. While a great deal was called for in the way of educational facilities, research facilities, specialized hospital facilities, training of chemotherapists and so on, there didn't seem to be any general realization that until we arrive at the time where we have a significant major technological improvement in our ability to handle this disease—particularly in that portion of the population over 65 in which 50 percent of the disease is concentrated—until that time comes, we have to face up to it that around 60 percent of people who have this diagnosis made—this includes all cases, skin and elsewhere—are going to die of cancer.

Studies on our service at Henry Ford Hospital, which is a large cancer chemotherapeutic and medical management service, showed that in the last year of life, the median length of time required in hospital for the full polliation utilization of the radiological, neurosurgical, surgical, chemotherapeutic, and medical maneuvers which to our best judgment were needed for the help of these patients was 45 days in the last year of life.

Multiply that times 6,000 people dying of the disease, and you can get an idea of how many hospital bed days you require. It turns out that, for the management of the late patient, we need somewhere in the order of 1,000 hospital beds and an outpatient visiting service with a capacity of 1,500 patients per week.

Now, of course, these people are being cared for in one way or another at the present time, often shamefully and often times far below the level at which we should be able to help them. But, in terms of integrated facilities for the management of disseminated cancer, we only have at most in the Detroit metropolitan area 200 beds that would qualify for such a designation in terms of the kind of men who are in charge of them and in terms of the kind of facilities and skills available to those men and within those institutions for the management of this kind of disease.

It seems to me, therefore, that the most greatly needed development for the Regional Medical Programs in the context of our existing situation (not the situation we hope for 5 or 10 years from now, but our existing situation) is the development of an extended-care type of facility suitable for the management of patients under chemotherapy, under radiotherapy, under medical management for disseminated cancer. These institutions need not be as expensive nor as heavily staffed as the conventional hospital. They ought to be satellite to the general hospital and ought to have a ready flow back and forth of patients according to need. Unless we create them, we may find ourselves in a situation where we don't have room in the general hospitals for the care of acute illness.

All of these things flow out of a sociological change which has happened in our society. The large family structure has disappeared. We are dealing with the unit family structure. In people past 65, this unit family structure often consists of two persons, both of whom are afflicted with one or another form of chronic illness or disability. To talk about basing cancer care on home care programs under these circumstances is to talk about having to provide nursing service and practical nursing service in homes all over the city, in homes which are small, which don't have resources to help with the care of these seriously ill people. We have to realize that we must find ways to make up for all of those things which the extended family structure did in the past for the elderly and for the sick—all those kinds of support, loans and physical assistance, nursing assistance, transportation, help with shopping, all of these things.

In the cancer patient and in the stroke patient—and these two diseases are very much alike in what they impose in these regards—these difficulties are severe, protracted, and beyond the reach of any unit family structure to deal with. We must, therefore, develop institutional organizations which respond to needs which we cannot think of as being primarily or solely medical, but which are medicosocial.

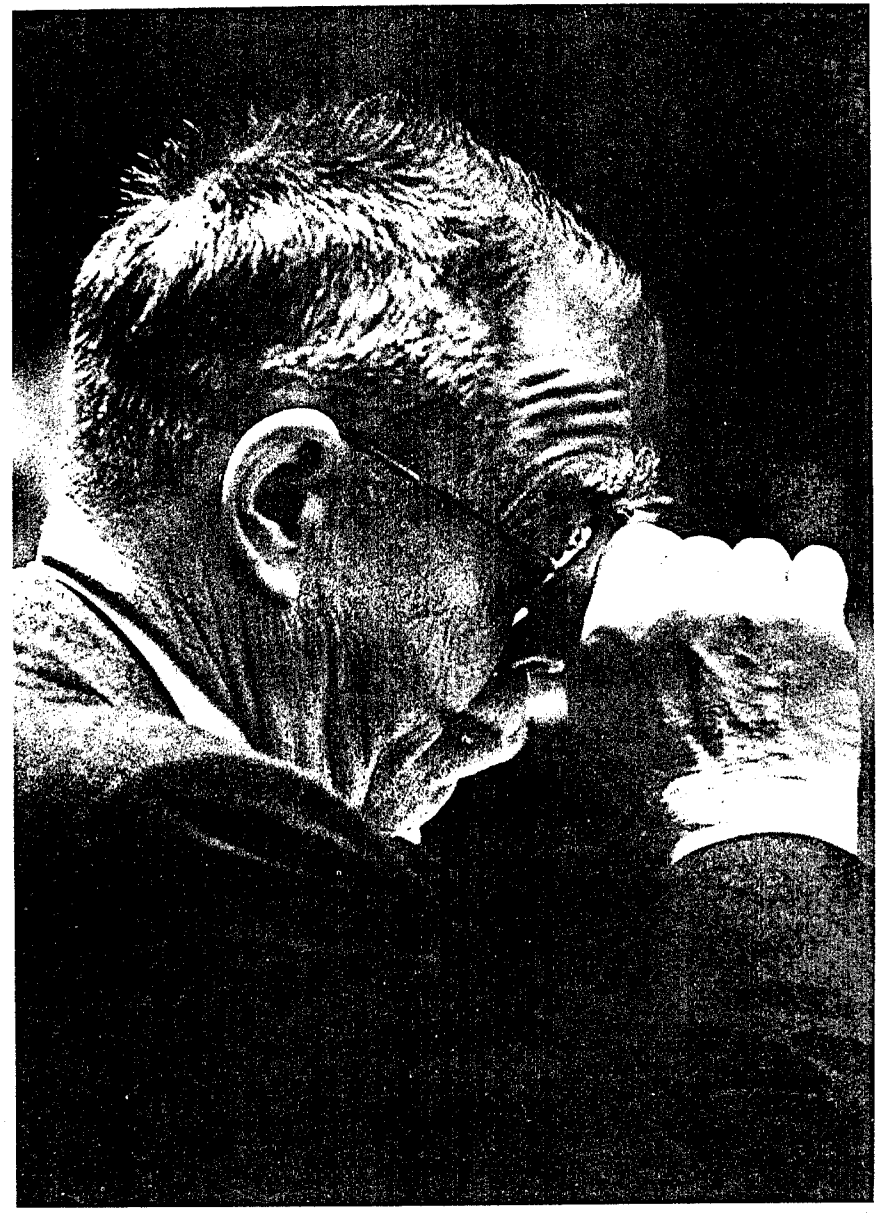
Dr. FARBER. The second speaker, Dr. Juan del Regato, is director of the Penrose Cancer Hospital in Colo-

rado Springs. He is a member of the National Advisory Cancer Council and is known to all of you, not only for his preeminence in the field of radiotherapy, but also for his broad philosophy of patient care, diagnosis, and research in the field of cancer.

Dr. DEL REGATO. As you know, I am a therapeutic radiologist, although my interest in cancer is wide. For the purposes of this session, I should concentrate on the particular aspects that are involved in the response to the needs that you might find in the field and the actual possibilities of solution. Radiotherapy is only second in importance to surgery in the treatment of cancer.

We feel that it is not enough, of course, in order to create the possibilities of fruitful curative treatment as well as palliative treatment with radiotherapy, to just acquire the equipment. As we have repeatedly said the skill has to be there first before the equipment comes, and the equipment is only a very small part of the whole business.

To begin with, in our own concept, one cannot do adequate radiotherapy in any place unless there is a comprehensive care of cancer available in that particular place. That implies competent diagnostic facilities, competent cancer surgery in the various specialties, competent tumor pathology, which is an item often disregarded. We do not treat the pathologic report; we treat the pathologic entity. And a pathologic report is sometimes at variance with the truth.



There should be also, of course, in such a center cancer chemotherapy and other ancillary services such as rehabilitation, followup facilities, et cetera. Unless these circumstances are fulfilled, it is not likely that anybody in an isolated place is going to do adequate radiotherapy just simply because he has the equipment. And even if he were skilled, he needs all of these other conditions to have been fulfilled in order that he can do adequate radiotherapy.

But to give you an idea, assuming that we are already in a position where we have decided where the center is going to be, there are two approaches for you in the field—the one is to reinforce the centers that are already there. And the second one is creating new centers. Well, the first one is, of course, easier. It may not be geographically satisfactory, but it is much easier.

Now, we figure that a major center will need at least one radiotherapeutic unit for every 300 new patients per year, one high-voltage or cobalt unit, and one or two other radiotherapeutic units such as roentgen therapy of conventional voltage. And then, there should be also availability of radium and superficial radiotherapy equipment. This is a minimum for every 300 new patients at the major center.

This equipment will require additional supporting facilities such as transverse tomography, dressing rooms, followup examination rooms, treatment planning simulators in order to diminish the time that is

misused in trying to study the patients within the room where the main unit is.

There is, of course, need for minor surgical suites and all of this kind of thing that goes along with such a center. Machine shops are usually necessary, accessory to departments of radiotherapy, because of all the minor different things that have to be built to treat patients adequately. And, of course, I wouldn't pass by the obvious need for physicists in any such center and specialized dosimetrists or special technologists, technicians, nurses, et cetera, without which one cannot think about having an adequate center for radiotherapy.

Now, it is obvious that there are certain indications of radiotherapy that could be taken care of without all of that, but the point that we are thinking about is a center that is responsible for, respondent to, all of the needs with which we might be presented, all of the possibilities, not a selected group. The selectivity might come at the secondary centers level where the people in charge might decide to take up only certain problems that can be managed at this level and then transfer the others to the major centers. That is a question of logistics in which I cannot nor am I competent to go.

My emphasis has to be upon the fact that whenever you contemplate radiotherapy, as Dr. Endicott already indicated yesterday in his brilliant address, we probably have already too many cobalt units in the country; what we need is people who know how to handle them. The cobalt will not do the job. It is the skill and the facilities, the ancillary facilities that go with the department of radiotherapy, that are needed. And these, of course, are not easily acquired.

There is a total of 300 well-qualified and specifically trained radiotherapists in the country—exactly 299—for the entire country. A great deal of the radiotherapy will have to continue to be done for some time by men who are willing and are capable of doing both radiodiagnosis and radiotherapy since we do not have, nor can expect to have, in the near future a sufficient amount of radiotherapists. We need easily eight to 10 times as many as we have at the present time. And the number of men in the training of therapeutic radiology is rather reduced. It is of the order of 50 to 60 in the entire Nation. That yields, at most, some 20 new radiotherapists per year. This is really a very small amount of new radiotherapists for such a large country with such great needs.

This presents, I am certain—and I am not trying to make it worse, but rather make it evident—a very serious problem to envisage. It isn't easily solved, but it is obvious that the solution of the problem is not necessarily to buy the equipment or to will this no longer a problem. It is a problem and will continue to be a problem.

Now, from our point of view, outside of the field of radiotherapy, we have lived just long enough to know that it is a tragedy to put a tremendous effort in the early diagnosis of patients only to see them mistreated or neglected afterwards. If we undertake any such thing as a regional smears project for the diagnosis of cancer of the cervix before it has become an infiltrating cancer, the important thing is that the patients that are found to have carcinoma in situ receive adequate treatment or the patients that are found in that process that have already early infiltrating carcinomas receive adequate treatment.

It is not because it is early that it is easier to treat it. In fact, it requires a greater skill sometimes to do the job even though the patient is early. The same thing applies to such things as cancer of the breast. Whether the diagnosis is done in every doctor's office, as it should be, or whether it is done in special cancer centers like our own, a great number of early cancers of the breast can be found, and they can be found by young physicians who are specially trained to palpate thoroughly the breasts of all women in followup examinations.

We have a large clinical followup examination of thousands of patients that were treated for minor things like basal cell carcinomas of the tip of the nose whom we have followed now for periods of 15 to 20 years. All patients are properly examined annually when they come for their followup examination and this yields a considerable number of cancers of the breast among the women and cancer of the prostate and of the colon among men.

In our hospital, in one year in which we made a record of it, a whole third of the patients with cancer of the breast who were operated in our hospital were women who had cancer of the breast discovered by a resident in training when the women were not aware that they had anything the matter with them. That is when it is fruitful, of course, to discover cancer and to treat it. But it would be too bad to discover a number of early cancers of the breasts and have someone do a simple mastectomy on them. This is the time to do really adequate surgery, and this is the thing that I think is worth emphasizing.

Dr. FARBER. The third speaker is responsible for the largest program in the world today—the National Cancer Institute.

Dr. ENDICOTT. I thought today I might talk a little bit about some of the problems of operating a cancer center because we have sort of a cancer center. Perhaps it is a little on the long-haired side because it is primarily research oriented, but it comprises many of the features of so-called excellence which I think medical schools and university-based cancer centers would want. It is part of a more general facility in which many diseases are studied. So it is not really a cancer hospital, although we have separate wards. Most of the specialities that might be concerned

with the treatment and diagnosis of cancer are represented and most of them have separate wards of their own. It is concerned primarily with treatment and research on therapy of advanced disease, but it also includes substantial leavening of studies of the abnormal physiology and biochemistry of the disease and something which I regard as very important—we insist on the right of our physicians to admit patients with other diseases and to carry out studies in other areas.

Now, I think this is something very important in keeping first-rate men working in the management of advanced cancer. They have to have some outlet, some psychological outlet, especially the younger ones, or they simply can't take it. They can't face those patients, especially children, day in, day out, unless they have some variety in the diet.

Our group requires what many would consider to be excessive support in terms of laboratory facilities. Part of these laboratory facilities are directly related to what they are doing in patients, but even more is required to do the research they want to do which is not directly patient related. And I am sure that it is necessary to provide this if you are going to get first-rate men and keep them on the job.

We have 250 beds. Of those, 150 are in the clinical center in Bethesda, and they are all research beds. We have another 100 beds in the Public Health Service Hospital in Baltimore, and only a portion of these are research beds.

The beds are expensive. They are much too expensive for patients who are ambulatory. And we have long since developed arrangements with local motels for patients who are taken care of in the outpatient facility and live in motels. This is especially helpful in dealing with children, especially children with acute leukemia. We have beds enough to bring them in when they really require intensive care, but for the most part, they are cared for in the outpatient facility.

To do this adequately, obviously, requires more than the ordinary outpatient facilities. One has to analyze the kind of thing that is going to be done in this facility and prepare for it.

Now, I am convinced that many of the medical schools, medical centers, that are going to be involved in this program over a period of years can attract and keep the kind of men you are going to need to do the educational job, the consultation job, the central referral job, if you will provide research beds, some laboratories, and a good ambulatory care arrangement of some sort.

Mike Brennan has talked about one possibility. I have mentioned the use of motels. Perhaps we might get Dr. Farber to mention how he handles this same problem, especially with children.

Dr. FARBER. The final formal presentation will be given by Dr. Guy Robbins, the Director of Planning at the Memorial Hospital for Cancer and Allied Diseases in New York City.

Dr. ROBBINS. I have found that working in the vineyards which are being irrigated and nurtured by the Regional Medical Program is really one of the most stimulating activities that I have been involved in. I found early—I am trying to speak as a surgeon—that one of the greatest things that one had to do was to take the Billy Graham approach, not the Billy Sunday approach.

My father was a Methodist minister down in southern Indiana. We used to have these men and women come in to save souls. This basically was the utilization of a technique which would get souls out of the Baptist and Christian Church into the Methodist Church. And I remember as a small boy one of these characters coming to town and taking me out to get a soda. Right away, I was suspicious because, having dealt with a lot of ministers, they usually didn't give very much away. So I said to Mrs. Barr—first, I drank the soda—"Why did you do this?"

She said, "Guy, I am here to help your father. Now, sometimes during my first evening, things don't go just right, and I want you to get one of your friends, and when I am giving my plea, if things don't go right, I will give you a sign, and you come on down the aisle."

And I will never forget to my dying day as I pulled this other little ragamuffin out into the aisle and went down there, this woman said, "And a little child shall lead them."

But, you know, you do have to take some sort of an approach to all of these things and look for techniques and for ways of communicating that will present your objective. And as you know, with many of Billy Sunday's converts, they stopped near the local bar to celebrate their salvation on the way home and that was it.

But I think that from what I have seen, the team that has been developed here is taking the Billy Graham approach. And this is a tough thing for surgeons to do because, you know, we are pretty egotistical, and most of us, I think, really shy a little clear of cancer because somehow or another it is woven into our philosophy that you do something like a hernia, and it gets all done, and that's fine. But if you take care of a cancer patient and there is a recurrence and there are all these family problems and everything else, you sort of look at it as a defeat of your own. To try and develop among surgeons and those working with surgeons an intradisciplinary approach to look at the patient as a whole, a person, this is tough.

But there are more and more people that are doing this. And certainly, it falls within the philosophy of the way of life that I think can be clearly defined as Americanism.

I have been very fortunate to have been involved with the Cancer Commission of the College of Surgeons for a number of years, and with Murray

Copeland and Lee Clark and many of the other people I see here in the room I am part of a team that is working with the regional medical group. And I can tell you we are 100 percent behind the program, and we are not too far behind, either. We are right in there with it.

Many of you may or may not know about our regionalization program. We had a tumor registry program. It has been going for a long time. And under John Klein, Lee Clark, and Murray Copeland, we decided to do an audit on this just to see how good it was. This started about 5 or 6 years ago. We found out a lot of things that you are finding—things that we thought were all right.

Well, instead of shaking a nasty finger and saying, "It is no good; get rid of it," we got together to try to do something about it. The first thing we did was to broaden our cancer commission to get this intradisciplinary activity on the road. We have representatives from general practice, pathology, radiology, radiation therapy, and general medicine. We also have entwined in this practicing surgeons all over the country and are succeeding in getting them to look at this problem—the way of helping people get along, utilize what we have, throw away some of the things that are bad. But we have found there are very few things that are bad; it is just the way that they are used. I am sure that you will find extra manpower if you will utilize these men that are all over the country now. There are 200 of them. Many of them are in the program now, but there are some that would like to be part and parcel of this.

We have found that our tumor registries are a good way of evaluating how things are going. However, we have found one thing that we were terribly lacking in. We have had all kinds of support at the local level and certainly at the national level from Mary Switzer and her group in vocational rehabilitation. It is great to diagnose a patient. It is great to treat him right. But the trouble is so often that that is where our treatment has stopped.

All of us in this room believe that you should do everything to get a person back into the socioeconomic swing of things, but what are you doing about it? There are ways. We used to say, "Well, the laws are no good; we can't help a cancer patient

until five years." There are ways to take care of that.

I wish you could see the way New Jersey's DVA works with the State, the Federal people, and with the patients in the hospitals. They are doing a great job. New York is coming along, too. This takes a lot of Billy Graham approach, though. You can't do this overnight.

One of the most interesting and enlightening meetings I ever went to was one that Dr. Smith down in Jersey fielded. They had 500 practicing physicians in the middle of the week listening to the problems involved with getting the aid that is available at the community level, and it was great. And there are going to be more of those meetings.

They were a little surprised, as a matter of fact, how good a turnout it was. But they had spent a lot of time disseminating information about this, utilizing the many, many forms of communication. These are the things that we have got to do. We have got to get the people that may even be considered by some as just too busy making a living, but if you give them just the slightest notion that you want their ideas and you want them to help get this thing on the road, it works. And, of course, this is the heart of the whole Regional Medical Program. And it is a sermon that everyone is preaching that is working in this group.

There is another thing I think that is awfully important for surgeons to do, and some of us are doing it, but I don't think near enough of us are—and that is finding the time to help in the lay education program. There are parts of this country now where patients come in, and they are too far advanced even to consider as possibly being a cure. There are parts of this country where everybody has a radio, 70 percent of them have televisions, but in the local newspapers there is nothing on health. And on the television and in the radio programs, there is nothing on health. I think we need some comic books and things of this type. Because if people can be sold, if you can sell a population cigarettes, why can't you sell health prevention against these diseases?

We have worked hard, and a lot of money has been spent. But there certainly must be something more we can do. And I have found that if you put a surgeon on his guard to try to get him motivated, if you get this fellow going, he is almost as big a terror in this sort of thing as he is in the operating room.

Dr. ANDREWS. Neil Andrews, Ohio State University. When I was in Tucson at the AMA meeting, I had the opportunity to talk to Clif Mount and Bradigan about a program that is being done—and I think you alluded to this just a moment ago, by a number of organizations, including the College of Surgeons, the American Cancer Society, College of Chest Surgeons and others—in cancer registries if I remember correctly. Could you give us a progress report on that?

Dr. ROBBINS. There are two programs, I think, to which you might be alluding. One is the tumor registry program which has been going on for 30 years. We believe that if you are going to evaluate how a patient is doing or has done or how you as a physician are working, there should be some records kept.

Now, just to take the names and numbers and age and site and stage and so on, that's great. But if you just put that in a repository and never utilize it, it doesn't make any sense. And we have found administrations don't like to spend money on something that their staff doesn't use.

One of our main efforts through the regionalization program has been to try to get these records used in teaching exercises and in self-evaluation. I was asked to go to a 500-bed hospital in Westchester and give a talk on breast cancer. And I said I would love doing it, but I wouldn't go unless they had one of their men give their experience in what has been done and then I would be glad to discuss things.

Well, one of their men went into the tumor registry, and he found, although they had had several hundred breast cancers, primary cases, outpatients that they had operated, they didn't have a single one that had lived 5 years. And this man gave the 5-year survivals at the national level with negative nodes and positive nodes.

When I spoke I gave the usual definition of a specialist. Then I said, "Here are my slides; I am not going to use them. I am not going to show them. He has told the whole story, and I think it is up to you fellows to do a self-analysis and find what is wrong. Is it your followup or is it that a lot of you are doing slipshod operations and modified simple mastectomies?"

I didn't know if I were going to get out of the room or not, but two or three people came up to me and said, "This is what we have needed for a long time." And then I found there had been two or three people who had been trying to do this. They had put this particular hospital on notice that if they didn't get a clinical program along with their tumor registry, we weren't going to okay their tumor registry. We feel keeping records and not using them is not good.

The second part is the study that we have been designated to do on looking into a number of hospital activities to see if we can get ideas as to how they are doing things in the management of cancer patients. We will have a large bulk of information that can be passed on.

That is the Warren Cole Committee that is doing this work in conjunction with all the specialists, including those in the Acadamy of General Practice. In no way are we charged to set up standards. We are finding out a lot of things that are most interesting. In one hospital, we found they have wonderful horizontal communications, but the social service worker had never met the man who was in charge of the cancer program for that hospital. And the social

service worker had 16 master's degree social service workers working with her. This particular chief of the social service department had been in this hospital since 1952.

We also found that, although they didn't have a rehabilitation program and that the social service workers didn't actually know anything about what they were doing, the orthopods were doing a fantastically good job.

Those on medicine and those in the nursing area and those in the social service department said, "gee, we had better work together; we look sort of silly." All horizontal communications, no vertical communications.

Now, coming up with data of this type is not going to change the way medicine is practiced, but I think that it will make people utilize what they have. We have found that there are some hospitals who do not have an X-ray therapy department. But they have a regional arrangement so that their patients are getting excellent care. And certainly, we wouldn't say this was bad.

Dr. FARBER. At this time, I would like to call on Dr. Margaret Sloan to say something more about the American College of Surgeons' relationship with the division of Regional Medical Programs.

Dr. SLOAN. I would like to comment a little bit on what Dr. Robbins has just said and to set in proper perspective this activity which is now known as the Warren Cole Committee.

Section 907 of our legislation says that the Surgeon General shall establish and maintain a list or lists of medical facilities in the country staffed and equipped to provide the latest advances in the diagnosis and treatment of heart disease, cancer, and stroke, and to serve as training situations in these diseases.

It further says that the Surgeon General, in carrying out this activity, shall from time to time turn to appropriate national professional organizations in the country.

The division, in trying to determine how to respond to this part of the legislation, decided that as an initial step, it would be appropriate to consult with the national professional organizations of the country. We are thoroughly appreciative of the great sensitivity of the medical profession toward federally imposed standards, and we do not propose to develop federally imposed standards through this activity.

Knowing that the American College of Surgeons had already established the Cancer Commission, which included in its membership representatives of all the professional organizations in the country most closely involved in the diagnosis and treatment of cancer, we turned to the American College of Surgeons and asked their help in this undertaking. The Cancer Commission includes representatives of the American College of Surgeons, the American Medical Association, the American Academy of General Practice, all the surgical specialties, the American College of Radiology, the American College of Pathologists, and others.

And we have negotiated a contract with the American College of Surgeons to consider this field, to consider what should really be present in a medical facility which is going to do the kind of job we would all like to see in the diagnosis and treatment of cancer.

When these criteria, as we are calling them, or guidelines are available in the field of cancer, which we expect will happen sometime next summer, we propose to make them available to hospitals all over the country for their own internal guidance and to program coordinators and members of their staffs in the Regional Medical Programs.

Through the availability of these guidelines, we hope it will be easier to identify the gaps in the diagnosis and treatment of cancer, in the capability of a region to carry out good cancer diagnosis and treatment. This will be a guideline, both to hospitals in their development as better institutions for the future and a guide to Regional Medical Programs in trying to develop regionally the capability they will need to perform adequately in this area.

I believe that we have been very fortunate in persuading Dr. Warren Cole, who is known to all of you and has the respect of all of you, to chair the committee, representing all these professional organizations, which is struggling with this problem. They have developed a list of such guidelines. They are now testing them as to their feasibility in actual visits to various types of hospitals around the country. And if this works well and productively in the field of cancer, we propose to undertake similar activities in the field of heart disease and stroke.

Dr. COLLINS: Collins from Northwestern Ohio. I happen to be a pathologist in a community hospital providing service in pathology to several small community hospitals—let's say from 50 beds up. I have been impressed with the fact that in the smaller community hospitals, certainly in my area, there has been no long-term followup of cancer patients. Perhaps in a surgeon's own personal experience, he has followed them, but to my knowledge, there has been no collective experience. These cases may move from community to community.

With this background in my, let's say, puzzlement about how to work out a proper followup situation, I wonder if a regionwide tumor registry isn't the answer. Most hospital tumor registries I have been familiar with have been as Dr. Robbins has already cited—dead. The material goes into a file and nobody ever looks at it.

And I am very much disillusioned with the hospital tumor beds. I was very much impressed with Dr. Smart's presentation on the Salt Lake City, and I think it might be the answer. I don't know.

Dr. ROBBINS. You are a great straightman for Dr. Smart, and I am another of his straightmen and so is Andy Mayer of the College of Surgeons and so is Murray Copeland. We think this man has come closer to a workable sort of a regional tumor registry than anyone else that we know. And this is primarily because of one thing: He is doing quality controls and really working with the local hospital and its staff and giving them prestige and also giving them a product that they can use and understand. Mr. Chairman, maybe Dr. Smart might want to comment.

Dr. SMART: I believe that one of the most important things that we can do in improving the quality of cancer care at the present time is to follow the lead of the American Cancer Society and the American College of Surgeons in trying to make these hospital tumor registries really effective.

A tremendous amount of work has gone into the gathering of this data. And if we can induce physicians to followup their patients regularly . . . By "regularly," I mean every 6 months, preferably. I think it depends a little bit upon the type of malignancy they have, but they need to be followed.

Now I think a tumor registry must have a mechanism for relieving the tremendous amount of secretarial work. The problem at the present time in the community hospital tumor registry is this: A tremendous number of patients, tremendous number of variables, lots of different kinds of cancer, all different types of existence as far as survival is concerned, and yet, the secretary is not a statistician, she is not a physician, and even the physician is not a statistician and is unable to deal with the tremendous number of facets.

How can the American College of Surgeons or the Regional Medical Program or any other program simplify this tremendous number of facets? I think a meaningful computer program can actually service a great number of hospitals as individual hospitals and yet correlate the statistics that come from the health departments. It can account for all the deaths and immediately update all the registries simultaneously. It can pick up the patient that moves from one hospital to another or from one doctor to another. It can simultaneously, then, update the registry which will send out automated letters to doctors to remind them, at 6-month intervals, of certain patients. And, not only that, I believe that it is important also to be able to have some kind of action arm so that, if the patient is lost to that physician, we have some ethical way of approaching that patient.

And in our particular area, we have tried to develop an action arm through the public health department where we can utilize the public health nurses actually to visit the patient with the permission of the physician and say, "How is it that you haven't been going to your physician for a checkup? We feel that it is important that you do so. And if you are unhappy with him, let's find another one."

And I am anxious to see the American College of Surgeons in particular try not only to establish these cancer registries, but in some way to see if we can't develop a mechanism by which we can give them an individual hospital automated followup.

I think for about $50 a year that most community hospital registries could get a report of the survival curves on all their patients, listings of all their patients, and a listing to each individual physician of the patients that he has been following for that year. I think it could be done cheaply. I think it could be done effectively. And I think that these tumor registries which they have been pushing could actually be made to be a very effective tool in education and in research, as well as in saving patients' lives through followup.

Dr. ANDREWS. Dr. Farber, if I may just comment to my colleague from Lima, the department of health of Ohio State did until about 3 years ago maintain a central cancer registry. Unfortunately, this was unavailable as regards followup materials. So it was disbanded, and we at Ohio State now are attempting to put together an automated program such as Dr. Smart has stated so that we can make this available throughout our region as we have developed it.

Dr. WILBAR. Wilbar, West Virginia. I can't help but compare, as I listen here, the heart program and the cancer program. They run into difficulty in that in the heart program, there is a cardiologist who is the captain of the team; in the cancer program, there isn't any captain of the team. Many specialists are interested in cancer.

When it comes to getting adequate examination for cancer of the large bowel, I think one of the troubles is that the internist, the surgeon, the proctologist, the pathologist, the general practitioner, are interested, but nobody has the whole interest. The public health person is interested.

Maybe this is a shot from the blue, but we have specialties that deal with a very narrow part of medicine. Perhaps plastic surgery is one example. There is no specialty board for oncology or tumors, for cancer. Perhaps there should be such as we have for cardiology.

I wonder what the panel would think of that. I know it is sort of perhaps a new idea.

Dr. BRENNAN: The American Society for Clinical Oncology was formed approximately 3 or 4 years ago. One of the problems which immediately came up following the organization of that society, whose membership consisted largely of men who had been active in clinical research as opposed purely to the care of cancer patients, was an impetus on the part of the group toward the formation of a subspecialty board in oncology.

Well, I have found myself opposed to this idea. As a hematologist, I never found it necessary. The American Society for Hematology succeeded in doing all that we wanted it to do for us or we wanted to do for hematologists without going the route of the subspecialty board.

However, this does not detract from the fact that there must be a captain of the team in every institution. He should be, I suppose, in an old Latin way of expressing it, *primus inter pares,* the chairman or head of a group of equals, who consultatively deal with the management problem of the patient. As we know from all human affairs, there must exist a last place of responsibility and decision. Now, who that man should be will depend upon the staff of the institution itself. In some cases, it will be a surgeon who has a long and wide-based interest in cancer management. In others, it will be a radiologist. We have the Penrose Hospital captain sitting right next to us here. In other places, it will be an internist.

Our problem is that we don't realize the degree to which American medical institutions, the whole apparatus, has been around the problem of acute illness. And yet, we now are tying in stroke and cancer (I exclude heart from this problem) to deal with chronic illness in this acute care framework. And the whole apparatus has to be changed to fit chronic illness.

We have hurt ourselves with the idea that there are social needs and medical needs. Actually, there are only personal needs—needs of individual persons who are part of a social matrix the entire integrity of which is disrupted when the personal needs of individual members are not met.

In chronic illness, it is very obvious and clear that we have to respond in an altogether different way than we have before. We have to go outside the ranks of medicine as such to do this. These are not simply medical problems; they are also problems that require the skills of sociologists and social workers, the whole range of helping professions. And we need captains for these teams, but I don't think that we can identify them in terms of their medical specialities. We can't identify them in terms of where they came from in training. We can only identify them in terms of where they stand in competence, in interest and in concern at a particular time.

Dr. DEL REGATO. I would like to introduce a consideration in which I think all of you will have an interest. It is a fact that you would have easily confirmed that this country has a lesser number of cancer hospitals today than it had 30 years ago. And the reason is that the concept of a cancer hospital in this country has been a total, full-time staff type of approach to the treatment of cancer, with which the American medical profession as a whole doesn't go along very well. So this has been limited for the most part to the treatment of indigents or to outstanding research institutions.

I would like to point out to all of you the fact that there is a different approach which we undertook 20 years ago, and that now is being adopted in certain other areas than ours. It is the small cancer hospital in association with a large general hospital, the cancer hospital utilizing all of the advantages of the special institution and nevertheless utilizing the talents and facilities that are already there.

This is worthy of consideration in practically any city in the United States of any size because you already have talents there that can be used and do not need to be displaced in order to start a unit of cancer approach that will involve all of the skills that are necessary in pathology as well as in radiotherapy, chemotherapy, et cetera.

Dr. DAVIES: Dr. Davies, Memphis. I would like to address this question to Dr. Brennan. In making an appeal for an extended care facility, you pointed out that there are some 6,000 deaths from cancer in Detroit a year and that only 450 lives could be saved if you went the route of early detection and increased facilities for early diagnosis.

Doing a little arithmetic, since you said that the deaths come to about one out of 50 deaths in the country, I get a figure of some 7,000 people, lives, that could be saved in the country, which I think is a fairly sizable number.

Dr. BRENNAN. I believe that you could increase the salvage rate, the ultimate salvage rate, in cancer by using optimally the available detection facilities, not by 450, but by closer to 1,000 a year in the Detroit metropolitan area. My point was that if we brought up the level of accessibility of care and the quality of care for the indigent to that which holds presently for the nonindigent population in America today, we would save only 450.

Now, I don't believe that the private profession is utilizing detection methodology in an optimal way. And I agree with you, we need to look to detection and find intelligent ways of doing this.

We have experience with a cancer detection clinic which is 20 years old and which examines approximately 8,000 patients a year. And we know very well what the yield of these examinations can be. But one has to think in terms of priorities, I believe, too. And the overwhelming and crushing problem that is in front of us today is that, because we insist semantically in separating out social and medical needs and writing insurance programs for one and not for the other, we are ending up with a wastage of hospital facilities, a demoralization of the profession and the discouragement and despair of many patients and their families simply because we can't make the sociomedical product we need for chronically ill people in acute care institutions.

Let us try to understand, for example, why a doctor keeps his patient

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in the hospital when he isn't actively treating him any more. Why have so many of us over-used the Blue Cross? It is not because we are careless about the Blue Cross; it is because, in many instances, we recognize that the hospital is the only existing acceptable facility in which, in the totality of this patient's situation, we can reasonably say he should stay. This is a great problem.

Dr. STOREY. Storey, Philadelphia. I would like to ask a question that is related to the discussion that has just gone on, but I would specifically like to ask it of Dr. Smart. Specifically, it is whether or not you consider it practical to make cancer a reportable disease in any given region. What I have in mind with that is that we don't have too much difficulty getting information on mortality and we are able to get morbidity statistics through tumor registries of hospitals which have tumor registries, but we have great difficulty in finding out what the true incidence of any form of cancer is and what the prevalence of the disease is. And we also have great difficulty in finding out what the stage of cancer is in any given community at the time that it is diagnosed.

It seems to me this is critical information, and we have got to be able to get this. And we have discussed the possibility of the mechanism of making cancer a reportable disease as being a way of getting at this kind of information, but the general feeling among our people is that this is impossible; you would never be able to get the health care system at several levels at which it functions to cooperate in such a program.

Dr. SMART. Dr. Baylor of the National Cancer Institute is presently undertaking, again, beginning in January 1969, a 3-year study of ten cities and of two States to try to determine the incidence by having every physician pick up every single case within that area.

Now, how much the need is to do that in all areas of the country, I am uncertain. But I would say that in Utah and also in Montana and also in Idaho, it is a reportable disease, and they are getting reporting of about 10 percent of the cases. And the reason that they are getting reporting of only 10 percent of the cases is because they aren't giving anything back to the physician. They are requesting more and more work of him, but they are giving nothing back in return.

And the answer is that the reports have simply been filed on a desk in the health department and nothing has ever been done with them. The only incidence figures they have ever come out with are the incidence figures that have come from the Cancer Society where they say 285 patients per 100,000 are going to develop a malignancy.

We took the approach of hiring eight medical students and sending them out so survey all of the hospitals of the State. We went into every record room; we pulled every record, beginning with January 1966, up to the present time. We did get as close as we could, but we still didn't go to the practicing physician's office.

This was a very efficient method, and we were able to survey in a period of 8 weeks 41 hospitals in the State of Utah and 36 hospitals in the State of Wyoming with eight medical students in a period of 8 weeks. That is one way of getting at this thing.

Wyoming took a different approach. They said, "What we ought to do is make it a law." And they just passed the law in Wyoming that all pathologists must send a duplicate report of the histology of every case of malignancy to the State health department. And in the last 3 months, even though it has been a reportable disease by physicians for several years, in the last 3 or 4 months, they have picked up more cancer cases than they have in the entire 3 years previous. And that is a pretty efficient way of doing it.

Dr. FARBER. If you will permit me to make a few concluding remarks.

First, I do want to acknowledge the distinguished leadership which Dr. Robert Marston has given to his staff and to the country in this very great and important program. It is one of the most important moves, I believe, in the history of medicine in this country. We are grateful to him and to the splendid staff that he has brought to work with him in this important program.

We are grateful to our panelists here for their contributions to the problems of cancer in the Regional Program. I think it is quite clear to you that all of us will leave this room somewhat dissatisfied because there are so many problems that we would like to have discussed. If we can convey this to Dr. Marston, perhaps we can have another session in the not too distant future with much more time allotted for the discussion of many other problems which are concerned with cancer in the Regional Programs.

There are a few points I would like to make here because I think they are of some importance to our work which will go on before the next conference.

Mention was made by Dr. Brennan of that important segment of the population which is less favored than others. Of course, we are all deeply concerned in seeing to it that every man, woman, and child in the country has access to as fine methods of cancer diagnosis detection and diagnosis and then treatment, and finally rehabilitation, as any other man, woman, and child in the country.

But I would emphasize that if we did no more than carry on the kind of cancer diagnosis and treatment available today to patients who are in the favored group able to pay, we would not be doing our job. There are two more jobs to be done.

The first is to see to it that everyone, including the private patient, receives everything that medicine, surgery, and laboratory science has to offer today for their prolongation of

life and hopefully for their cure. I have figured and I am willing to defend these statistics, that if we applied everything that is known today to every patient in the country, including those in favorable economic circumstances and those who have no private doctors at all, we could save 100,000 patients this year of the 300,000 who are going to die of cancer.

I think this should be our immediate goal in the Regional Programs. We must be certain that when we initiate these programs, we must not permit Gresham's law of economics to operate. We must not have poor work pushing out good work in an attempt to spread this to everyone. We must raise the standard for private patients as well as for those who are less favored.

I think there are a few delusions under which we have operated in the past. One is that every doctor's office is a cancer detection center. That is impossible. We must not impose that load upon a general practitioner, who is not equipped by training or with the proper instrumentation or with the proper hospital backup, to accept the responsibility of telling a given person that he has or has not evidence of cancer.

To follow this along, I am glad that this was brought out by Dr. Robbins that no one doctor can take care of any one patient with cancer. There never was a time when any one doctor could do that.

This team approach is essential. It is a much abused term. I have used another term—the conception of total care of the patient which brings in everyone, every discipline, that might be of aid to the patient. I was pleased with this question about who is the leader of the team. The leader could be any one of the specialists mentioned and one more.

There is one speciality that could be added, Dr. Brennan. There was a man named James Ewing, and there was a man named Dusty Rhoads; both of them were pathologists, and they were leaders. What is important is that in this interdisciplinary approach to the entire problem of cancer treatment and cancer research, there must be someone who is highly skilled in his own discipline, who by his nature and interests has a broad view of the entire field of cancer and awareness of what it means to achieve goals of prevention and goals of cure. That man can come from any discipline. We must not permit any of the rules of craft unionism or the specialty boards to determine who will be the leader of a group interested in the patient with cancer.

We have to go back, not only to the hospital, but to the medical school to bring into the medical school the word "oncology" as an honorable term, representing a pursuit that brings in people from every discipline represented on the faculty of the medical school. And such a division of oncology in a medical school must be so created that it will not interfere with the development of the disciplines of biochemistry or internal medicine or surgery or pathology. It should detract from none of them, but bring additional strength to every one of these disciplines.

If we do that in every medical school, we will turn out doctors who are already accustomed to an interdisciplinary approach no matter what field the new doctor may enter.

I would say one final word here. We have gone through a period of discussion of continuing education, a matter of tremendous importance. We have also gone through a period of data collection, planning, and study. There is no question that this is a field of great importance. But these are supporting structures of the program that will lead us to the final goal of these Regional Medical Programs. That is the care of the patient. We must get to the patient as rapidly as possible without waiting for 5 or 10 years of study and planning.

We must help them and we must help the continuing education people. But with knowledge and resources of medicine in this country today, we can apply what is known by those who are more expert, more experienced, in cancer than those who have not worked in the field, to every patient of every doctor in the country and to every person who is sick with cancer, whether he has a doctor or not.

I would urge that we push ahead with planning which leads to the care of the patient. That's the goal, and that's what the Regional Medical Programs were created for. We must not be content with years and years of application to the base upon which we are going to build because there is so much that is known today that we can use for the benefit of those who do not have what is known to those who are most expert in this field. I would hope that we will have in the near future another conference of those interested in the problems of cancer related to the Regional Medical Programs, and that we will talk about more specific programs which can be instituted today and which hopefully will have been instituted by those of us who are here today to report on at the next conference.

PANEL DISCUSSION ON—

STROKE

Panel:
Nemat Borhani, M.D. (Chairman)
Professor of Internal Medicine and Chairman, Department of Community Health
University of California School of Medicine
Davis, Calif.

Clark H. Millikan, M.D.
Consultant in Neurology
Mayo Clinic
Rochester, Minn.

James F. Toole, M.D.
Professor and Chairman
Department of Neurology
Bowman Gray School of Medicine
Winston-Salem, N.C.

William A. Spencer, M.D.
Director, Texas Institute for Rehabilitation and Research
Houston, Tex.

Richard L. Masland, M.D.
Director, National Institute of Neurological Diseases and Blindness
National Institutes of Health

DR. BORHANI. The first item that we will cover this morning is the epidemiology and early detection of cerebrovascular diseases in the United States.

Disorders of the cerebral circulation, grouped together under the category of Cerebrovascular Diseases (ICD 330–334), rank third among leading causes of death in the United States; they are outranked only by arteriosclerotic heart disease and malignant neoplasms.

In 1965, a total of 201,057 persons died of cerebrovascular diseases, a rate of 104 per 100,000 population. The age-specific death rate increases with age, from 15.4 per 100,000 in the age group 35 to 44 to 430 per 100,000 in the age group 65 to 74 and 1322.2 per 100,000 in the age group 75 to 84. Death rates also vary among the races and between the two sexes, 96.3 for white males, 108 for white females, 113.5 for nonwhite males and 115.9 for nonwhite females.

Cerebrovascular diseases impose a multibillion dollar burden on the Nation's economy each year. The most recent data from the National Center for Health Statistics indicate that in 1962 the loss from the labor force reached 177,700 man-years at a cost of $701.8 million. The direct and indirect estimated cost of stroke in 1962 amounted to $1,147 million.

Nearly 50 percent of the direct cost of $211.6 million was for hospital care; more than half of the indirect cost or $468 million was associated with morbidity from cerebrovascular diseases.

The analysis of mortality data reveals that there exists a marked clustering in mortality from cerebrovascular diseases within the United States. The highest rates are found in the South Central and South Atlantic States and the lowest rates are in the Southwestern and Mountain States. It should be noted that the geographic clustering of cerebrovascular disease mortality in the United States does not, in general, conform to geographic distribution of mortality from arteriosclerotic heart disease.

The findings of the recently conducted National Cooperative Study on Mortality from Cerebrovascular Disease indicate that the observed geographic variations in mortality are real and not due to statistical artifacts.

More specifically, analysis of the death certificates for white males and females, age 45 to 69, from nine areas of the United States, representing high, intermediate, and low reported cerebrovascular disease death rates, showed that the difference in rates do not seem to be due to:

1. Coding differences in selection of the underlying cause of death on certificates that list cerebrovascular disease diagnosis,
2. Differences in certification practices by coroners or medical examiners,
3. Use of vague terminology, and
4. Large number of deaths attributed to cerebrovascular disease in nursing homes and outside of hospitals.

The findings of this study bring to focus the need for a comprehensive morbidity study to further explore the reasons for the geographic differences in mortality.

Unfortunately, not enough information is available on incidence of cerebrovascular disease in general populations. Those data which are available are difficult to compare.

The Middlesex County, Conn., study reported an annual incidence rate of 2.3 per 1,000 population of all ages. This incidence rate increased tremendously with age, from 4.1 per 1,000 in the age group 55 to 64 to 50 per 1,000 in the age group 85 and over.

In Framingham, Mass., among 5,106 men and women aged 30 to 62 years who were found to be free of both coronary heart disease and cerebrovascular disease during the initial examination, there occurred 90 cases of cerebrovascular diseases in 12 years of observation, an incidence rate of less than 2 per 1,000 per year. In Framingham, thrombotic brain infarction was by far the most common type of cerebrovascular disease, accounting for 63 percent of all such events. Hemorrhage into the brain was the least common (4 percent), but most lethal type of cerebrovascular disease.

As far as prevalence of cerebrovascular disease is concerned, the available data leave much to be desired. By and large it is believed that total prevalence of this disease in the United States is between 1 and 2 million. It should be emphasized that accurate data on prevalence of cerebrovascular disease are not available and are much needed.

In summary, the available data suggest that there is no appreciable sex differential in cerebrovascular disease, that Negroes experience more cerebral and subarachnoid hemorrhage than Caucasians, that increasing age and blood pressure are clearly related to the development of cerebrovascular disease, that hypercholesterolemia is associated with the risk of developing this disease only in the age group 30 to 49, and not thereafter and that there is some evidence relating cigarette smoking to cerebrovascular disease.

Major deficits in our knowledge of the occurrence and the nature of cerebrovascular disease are evident. Many aspects of the epidemiology of cerebrovascular disease need urgent systematic studies. Furthermore, as was reported by the President's Commission on Heart Disease, Cancer, and Stroke, many fundamental problems of physiology, pathology, neurology, neuropathology, circulatory dynamics, and blood clotting, to name only a few, need to be studied with respect to development of cerebrovascular diseases.

If intelligent programs aiming at the prevention and control of cerebrovascular disease are to be established, it is vital to:

1. Be able to distinguish between various types of cerebrovascular disease and their precursors,
2. Know accurately the mortality and case fatality of the various types of untreated cerebrovascular disease,
3. Ascertain the true incidence and prevalence as well as the magnitude of disability resulting from each type, and
4. Accurately assess existing therapeutic and rehabilitative resources and measures, as they may alter the natural history of various types of this disease in the community.

Once cerebrovascular disease has become manifest, its treatment is essentially limited to either surgical procedures, or acute supportive medications. Also with modern medicine, many patients anticipating cerebrovascular disease can be treated effectively to avert catastrophe; and, among those who have suffered severe attack, treatment can reduce or prevent chronic disability. It is commonly believed that all new and modern techniques of therapy and rehabilitation could, and indeed would, provide benefit to the patient, when intelligently applied. What is not known, however, is information regarding utilization of current knowledge in the medical community and how judiciously these measures are being applied to the cerebrovascular disease patient population as a whole.

Indeed, questions arise as to how effectively the medical community is utilizing the information already available with respect to cerebrovascular diseases. Are the high risk individuals being identified and to what extent the risk being altered? Are adequate diagnostic procedures and facilities being utilized? To what extent have current advances in the field become known to the practicing physician? What rehabilitation services are available, are they adequate, and how are they being utilized?

It is evident that there is a great need for basic reliable information to be collected. This must be done before any meaningful preventive or control measure could be applied. To me, these questions pretty well chart the way for the activities of the Regional Medical Programs throughout the country.

I think we can leave the epidemiology at this point and hear from our distinguished panel. The first member of the panel who is going to discuss the subject of various aspects of management of the acute phase of cerebrovascular disease is Dr. Clark Millikan.

Dr. MILLIKAN. If we start with the presumption that the Regional Medical Program is going to attempt to do something about stroke patients, it seems wise at least to discuss the matrix into which we may mold the stroke setting.

I am going to begin in terms of personnel and facilities because, after all, the core issue has to do with the kinds of people that are going to address themselves to the individual care of individual stroke patients, or the prevention of stroke in individuals, plus facilities, meaning all of the physical components, the two molded together into an organizational complex which might in this instance be called the RMP approach to the stroke program.

So we start also with the presumption that for a given region there will be centers of excellence, or a center of excellence, which must interrelate in terms of the original law to all portions and all communities and all persons of the region. I am going to start with the theoretically optimum center setting to demonstrate the complexity of the problem we are talking about, what kinds of persons or disciplines should be represented as far as the center is concerned.

Now, the word "should" was used advisedly. This is in a sense a theoretical concept, and you will see not many fulfill the criteria as the criteria are elaborated. Here is a list:

One, *Neurology.* Now, neurology might handle EEG, brain scans, and encephalography in a given setting, but often different personnel will be involved with some of those items.

Two, *Neuroradiology,* for contrast studies. In some instances this involves scanning, or they handle echo, or may not, of course.

Three, *Medicine,* including Cardiology, the inspection, diagnosis, and therapy of hypertension, and hematology in reference to blood constituents. Now we have the business of the high hemoglobin raising its head, and what the meaning of this is going to be remains to be seen; obviously the diagnosis and long-term care of diabetes.

Four, *Surgery,* vascular and neurosurgery. Although there has been

considerable emphasis on the surgery of occlusive disease in the cervical portions of the cerebral circulation, we must reflect that differential diagnosis obviously includes other conditions inside the head, and when we get to the subject of hemorrhage, whether subarachnoid or intracerebral, we have a situation that falls into the province of the neurosurgeon. In some settings the neurosurgeon has become accomplished at doing peripheral vascular surgery. So number four is surgery.

The next one is *Rehabilitation.* And in the setting of the research center the whole concept of rehabilitation may have to be subdivided, as far as personnel is concerned—physical medicine, speech, and language pathology.

Nursing, and all the supporting structures that go around nursing, either in terms of prevention, prognosing stroke, or the completed stroke setting—this kind of personnel obviously is mandatory to the setting.

The next one I have put down is *Social Service.* The kind of personnel needed to the return of an individual to the community, the interrelationships between the cost structure of the patient and the patient's family—all of this must be worked out through persons involved in the social setting of a particular patient's problem.

Number eight, *Clinical Pathology.* This is the type of professional individual who heads the backup laboratory services which are mandatory for the research, training, and the actual practical care of patients in this setting. Now, recall I am discussing the most sophisticated of patients' setting, the center, the hub of the wheel. Clinical pathology, and here we see individuals who must in some instances look after brain scans, and others must of course take care of the clot lysis phases of the problem; chemistry in general, and in certain instances, tissue pathology.

I have put down the next one as the general area of *Secretarial.* This is the kind of supporting personnel that is mandatory to the filling out of the various kinds of forms, transcribing reports, et cetera.

We go on to number 10, *Neuropathology.*

Then I put *Epidemiology.* We are talking about the center now, for the study of the impact of the disorder on the community, the collection and analysis of data in reference to the spread of it and its possible meanings.

Number 12, *Neuro-ophthalmology.*

Number 13, *Neuropsychology.*

Number 14, for this center kind of business, Computer Methodology. It is fairly obvious as we get further into the 20th century that the use of computer technology and methodology is becoming a part of our everyday life.

Number 15 is a collection of items under so-called *Basic Science,* and here is experimental pathology, physics, mathematics, electronics, neurochemistry—a whole host of different kinds of people who well may need to be involved in the mix of research investigation at the level of the cerebrovascular research center.

And finally, 16. I have put down other administrative types of persons having to do with *Fiscal Arrangements,* the accomplishment of the attaining of various kinds of space, its remodeling, and that sort of thing.

You see how ridiculous this is in terms of taking care of Mr. Average American with a stroke. As Dr. Endicott said yesterday, $25 million for one cancer center that can handle a few hundred patients is not a realistic look at the problem of cancer in the United States.

So let's change our view a bit and say what is possible in a county community in Illinois, or in Missouri or in Florida, outside the immediate setting of the great medical center.

We might look at it from a different standpoint and say if we take the temporal profile of cerebrovascular disease where can we make an impact as we begin to structure organizational matrices for an attack on cerebrovascular disease?

Well, of course, as Dr. Masland emphasized yesterday, we turn to the matter of prevention and what kinds of personnel might be involved in a

community in screening and attempting to do something about prevention, and what kind of physical facility is necessary.

I have written down here that one of the key issues sooner or later must be that a physician be in the mix who knows something about the brain. For the moment let's temporarily discard the concept of the formal disciplinary distinction. There have been arguments among some of us at times about what kind of a discipline-oriented physician could really know something significant about the brain, but it has been a belief of some of us that we can train individuals in short-term training experience to at least become knowledgeable of some of the practical aspects and, theoretically, every physician should have this knowledge, or should have some ability in this regard, updated from time to time by continuing education techniques. So that some sort of physician, whether called formally and board-certified in neurology is not the issue at the moment.

In the first place, it is not possible for all the communities.

Dr. Masland, how many are certified in neurology now?

Dr. MASLAND. About 1,200.

Dr. MILLIKAN. Close to 1,500. You get the complexity of the problem and the impossibility of the problem in terms of distributing these people to make even administrative contact with every citizen in the United States.

The matter of the surgery at the so-called minimum level is an important matter. We start with some kind of individual who knows something about the brain—this may be an internist, this may be a man in general medicine who has had some special training experience—and if we are going to discuss practical prevention in terms of screening, then action, we have to get action.

Before closing I want to make a comment about this. We have to get inclusion of someone who knows something about vascular surgery, whether titled a neurosurgeon or a general surgeon with special training in vascular surgery.

I want to make a plea before closing—I don't know whether I will get strenuous objection from the panel or the audience or not. I want to make a plea that we do not construct matrices for the approach to the prevention of stroke in which we put vascular surgeons in an isolated setting to do the whole job. I think that as we see referred problem patients, that one of the commonest sources of problem patients come from settings where there has been a very, very vigorous surgical operative approach to the clotted arteries in the neck by people who have not yet had their lifetime medical experience enriched by finding out anything about the brain. And I personally believe that it is highly important that this surgery not only be conducted by individuals who are technically expert at handling the problems of vascular surgery, but who are working in conjunction, consultation, and full communication with some kind of person who knows something about the brain.

Perhaps we will have an opportunity later on to come back to further discussion of the matrix because there is a great deal more to be said about this.

Dr. BORHANI. Dr. James Toole will talk about intracranial hemorrhage.

Dr. TOOLE. Those of you who are experts will have to bear with me while I give you what I would consider a basic talk on hemorrhage within the head. Intracranial hemorrhage within the head occurs when an artery, a capillary, or a vein ruptures, allowing blood to spill into the surrounding tissues. Depending upon the site of the rupture, this spillage may result in the accumulation of a blood clot which can act as a mass compressing and displacing the adjacent structures and tissues and/or spasm of the arterial tree in which the rupture occurs, and lastly a reaction to the blood itself as in the chemical meningitis which occurs when there is a subarachnoid hemorrhage. Vessels may rupture because the walls are weakened by disease, occasionally, because the intraluminal pressure is excessive, or because of trauma which tears the vessels.

In many instances two, or even three, of these factors may occur in combination with one another. Whether the resulting clot enlarges depends upon many factors, only two of which are the clotting mechanism and the site of the bleeding. In some locations, bleeding seems to stop more quickly than others, and obviously if the clotting is abnormal, as in leukemia, or in a patient on anticoagulants, the bleeding may continue, when it would cease in normals.

Even though head injury represents a major cause of intracranial bleeding, I have decided today to consider only bleeding due to disease of the vessels, so-called spontaneous hemorrhage, with a very occasional allusion to the traumatic injuries which are such a great problem as causes of hemorrhage.

As mentioned earlier, bleeding may be arterial, capillary, or venous. Arterial blood, being under higher pressure, usually results in more massive bleeding with a more rapid evolution of events than does capillary or venous bleeding—obviously with some exceptions. Hemorrhage can occur from any site or from any artery or vein within the head—for example, vessels may rupture into the pituitary gland but some vessels rupture more frequently and as a result some structures are involved more often than others.

Again I want to emphasize that I am addressing this talk to those of you who have not studied the anatomy of the skull, the meninges, or brain.

First, I would like for you to consider the venous anatomy of the brain.

(Slide) You can see that the brain is covered by meninges, the dura

mater, the arachnoid, and the pia mater. Outside the dura you can see the middle meningeal artery and vein. Rupture of one or the other of these two vessels causes epidural hematoma—almost always the result of trauma to the overlying skull. At times a barely preceptible skull fracture causes rupture of artery or vein, with the rapid accumulation of a blood clot, which presses on the brain like a tumor. Evacuation of the blood clot removes the tumor and ligation of the vessels cures the patient, but delay even for an hour or two may be fatal.

Beneath the dura is the pia-arachnoid and between them are veins which, when ruptured, result in subdural hematoma, which is another mass lesion within the head caused by a blood clot. Bleeding in this instance is almost always venous so that the evolution of events is usually more chronic, often with insidiously progressive signs and symptoms.

(Slide) Here is an example of an accumulation of blood clots beside the temporal lobe. You can see that it presses up on the brain, displacing the structures which are ordinarily in the midline and resulting in displacement of the hemisphere and compression of the midbrain which ultimately caused the patient's death.

(Slide) The next form of intracranial hemorrhage which we will discuss briefly is the subarachnoid hemorrhage. In this disease, bleeding occurs within the pia-arachnoid and blood flows freely through the cerebral spinal fluid, up over the hemispheres and down around the brain stem into the spinal theca. Local blood clots accumulate, and this can act as a mass lesion, but most of the systemic signs are secondary to the reaction to blood in the cerebral spinal fluid. This results in acute headache, stiff neck, and change in level of consciousness. About half of the patients with subarachnoid have a ruptured aneurysm. The others are of unknown cause.

Most aneurysms arise from the arterial circle of Willis or the arteries which feed or arise from it. Aneurysms are thought to be congenital and to be the result of herniations of intima through congenital defects in the media. This herniation may be brought about by elevation in systemic arterial libad pressure.

Unfortunately, the development of an aneurysm cannot be anticipated. They hardly ever produce localizing signs or symptoms which one could utilize in mass screening programs to decide whether or not one might eventually have a subarachnoid hemorrhage. However, in the majority of people who have ruptured aneurysms, hypertension is found, which gives some hope that control of hypertension might result in reduced frequency of this disaster.

The next type of hemorrhage that I would like to discuss is hypertensive intercerebral hemorrhage. Recall that we have just discussed aneurysms of the circle of Willis and the major arteries at the base of the brain. There is another type of aneurysm which seems to develop in patients with sustained hypertension. These are microaneurysms which occur in the arterioles which penetrate the substance of the brain. These aneurysms are microscopic in size and appear to be a tortuosity of vessels, beads of outpouching. In some cases, these microaneurysms rupture and produce an intracerebral hemorrhage which destroys the parenchyma of the brain. Most people have felt there is very little to be done about these clots once the rupture has occurred, for it destroys structures, many of which are vital to normal function. Most occur in the region of the internal capsule, or in the thalamus—areas of the brain which are both very difficult for the neurosurgeon to approach.

The point to emphasize about all of these forms of intracranial hemorrhage is that all are better prevented than treated. Identification of patients who might suffer subarachnoid or intracerebral hemorrhage from either form of aneurysm is partly the identification of hypertensive patients and it is hoped that the control of hypertension would reduce the incidence of these tragic diseases. The traumatic forms of hemorrhage—epidural and subdural hematomata—are also better prevented than treated.

In summary, the most common forms of intracranial hemorrhage are those secondary to trauma to the head and hypertensive extracerebral hemorrhage. Each of these can be prevented at least in part, and the therapy for each is dependent upon having a properly trained group of people available, as was discussed by Dr. Millikan, with adequate equipment for the rapid management and initiation of the steps necessary to relieve the condition.

Dr. BORHANI. Dr. William Spencer will talk about the various aspects of rehabilitation in stroke.

Dr. SPENCER. I approached my part of this perhaps a little differently. We might entitle it "A Tale of a Noncategorical Approach to a Categorical Problem," because I think there is some question in your minds on the relationship of rehabilitation to RMP, either as physicians or as administrators or as people concerned with the administration of Regional Medical Programs.

What is the relationship of rehabilitation as a method of patient management to these various categorical problems? I suppose stroke is probably the most evident one, simply because the person with a completed stroke very often has problems of mobility or movement, and it is in the disturbances of movement that physical rehabilitation, at least in a medical sense, has had great utility and development.

Unfortunately, however, this leaves in your mind a residue which is not consistent with what is happening in rehabilitation medicine, and that is a realization that rehabilitation offers a way of planning for the management of an individual so that on the one hand it is possible to limit the de-

velopment of those conditions that will lead to his inability to function in a life responsibility, and on the other hand there are developing procedures and precise methods for better, more integrated use of a variety of health services, health services which help the individual achieve life adjustment.

There is another trend in rehabilitation which has particular importance to Regional Medical Programs, and that is: We are becoming aware more and more of the anticipatory elements of care of the individual. The movement of early care which considers the individual from a point of view of disability potential, from a point of view of the impact of his characteristics as a person, his living situation, his natural life space upon what happens to him in terms of survival and in terms of prognosis. This is something we have to be concerned with right from the very beginning.

Most of you probably think of rehabilitation as a "Humpty-Dumpty" operation, which is to put Humpty-Dumpty back together again after you have a catastrophic dissolution of every aspect of human behavior—a physical, personal, psychological, emotional, social, economic catastrophe. This is the way rehabilitation established itself in medicine. That was the meaning of the so-called third phase of medicine, and I think, too, perhaps this is the reason that rehabilitation was usually considered late in the course of disease and disability and didn't fit into the neat categories—disease categories, we are discussing.

What are the trends in this field? These suggest that aspect of rehabilitation as a model of extended care which has as its focus ultimately not only personal life adjustment but management of those conditions which will threaten the life of the individual and his ability to adapt and adjust.

First, in stroke we are seeing an improved ability to predict stroke proneness, as we have heard, by advances in the quality of the mathemathical predictive models, as they are called, that are being developed for estimating the likelihood of these conditions. I think this will improve increasingly in the near future so that right away we will be forced into having a process or a procedure to care for people who have a high risk of increased liability to these conditions.

Let me illustrate what I mean. On the one hand, in society we have proposed advanced automated health screening. Now, RMP is one of our few possible solutions to having a procedure or process to do something about those discovered once we identify the people who have increased risk. It is one thing to know it is going to happen. It is another thing to be prepared to do something about it, and I suspect that people believe we are giving attention to the latter more than the former, that they will assume we will do better diagnoses and hope that this is matched by an adequate backup of care.

In the rehabilitation context, what this means is that we are seeing improved ability to prognose what will happen to an individual as a consequence of stroke in the totality of his situation. We are learning better how to say whether the realistic outcome is going to be cure through natural recovery or improvement through usage of some definitive medical or surgical procedure, or whether it is likely that with a comprehensive and extended program of a highly intensive kind we can help this individual to adapt and adjust to nonresolvable neuroanatomical impairments. Fortunately these may not be paralleled by identical functional impairments, because the brain is so plastic. Alternatively we may predict whether maintenance of life, just simply sustenance of life is all that is going to happen, or whether there will be a continuing regression and dissolution of the person.

This is very important to know. Although we don't presently have these distinctions in those aspects of morbidity statistics, these should be the basis for our planning and our basis of deciding what can we do at a local community level or for us to consider at a central level of organization of health services. The implication of such studies is going to have tremendous impact on the organizational structure of health services.

Offsetting disability must be added to medical care as a part of the acute care process. The acute care process has to have built in procedures to anticipate the consequences of the long-term situation, to a greater extent in stroke perhaps than in any other condition.

We have learned from studies of ideally healthy men, simply immobilized under bed-rest circumstances, that there is rapid deterioration of the physiological capacity to adapt to the physical environment, and indeed even to the psychological environment. Irregardless of the pathology, the consequences of our circumstances of care, if they produce inactivity, immobility, and deprivation of sensory and motor input or experiences, problems will be created which we call the immobilization syndrome—leading to the disabilities which are equally as great and devastating as the original disease process and these can be offset.

The impact of this on care is that the reorganization of community hospital services to prevent disability, to prevent the effects of immobility and inactivity is an essential, realizable, early ingredient of what we can do in our RMP programs. We should put this up as a requirement of a satisfactory operational stroke program if we are going to make an impact on the complete stroke situation.

The next thing that this will do is to force us into a posture of having to define better triage and prediction of those who will benefit from intensive rehabilitative services and those who will be adequately managed and can benefit from available community service. We just have to face up to

this because there are not enough professionals for restorative services. There are only 600 physiatrists. There are probably fewer people than that with any substantial training and concern about this rehabilitation management process in other specialities.

The next thing is that we are seeing an evolution of institutionalization in rehab medicine. If you define broadly "institutionalization," it is the organization of collective human effort in a physical setting. In rehabilitation, this is essential, because if you need the assistances of many professions and many disciplines you have to integrate and coordinate what they do around the patient's needs, and as he changes.

This means that the institutional pattern of the intensive care, extended care of the severely disabled, is going to increase in the future rather than decrease if these accruing numbers are to be diminished. Some kind of model of relationships has to be developed between these institutional resources and the classic community resources of the hospital.

I don't think there are enough professional people or that there is enough money to model intensive rehabilitation centers in every community hospital as we have done with surgical suites. Not for a long time. Therefore, the teaching function of these specialized resources has to expand out of proportion unfortunately to the research and the care activities that they are doing if we are going to mount any kind of a program that will affect greater life adjustment success of the stroke person.

Finally, I think we are seeing a demand for a high rate of application of research findings in this evaluative prognostic process, and in this organizational aspect of care. The barriers are on the one hand that advances in molecular biology are less applicable to this situation of optimizing and providing better health care than we had hoped in our original planning in bridging the gap between research and its application. Paralleling a reorganization of health care services for stroke and other problems that have produced extended needs for care is the requirement that we must very rapidly understand these organizational features through health services research. This has not had in any sense the attention it needs, if we are going to be in a position to have good alternatives to suggest to one another. And I mean to one another, as I hope we will find out what every group is doing in rehab aspects of comprehensive patient management.

In conclusion, I think that rehabilitation medicine in some elements, particularly in the processes of evaluation of disturbed human function and in development of knowledge about how to understand adaptive behavior of the human in the situation of disease, particularly these chronic conditions, will offer to you in Regional Medical Programs a useful teaching and demonstrational model of comprehensive and extended care which we see as our distant goal and yet a realizable goal for our citizens who have stroke, including ourselves.

Dr. BORHANI. I will ask Dr. Masland to emphasize and expand on what he presented yesterday in terms of resources and activities throughout the country in the field of stroke.

Dr. MASLAND. Just to recapitulate briefly: I have urged that, recognizing that we must start with limited programs, our ultimate objective should be a total program for stroke.

Such a program comprises, first, facilities for the recognition of the stroke-prone individual, and for preventive measures applied to such individuals, highlighting particularly those with hypertension, with diabetes and with certain biochemical abnormalities. I mentioned yesterday that evidences of vascular disease may be observed in conjunctiva, and it has been mentioned today that a high level of hemoglobin appears to be found more commonly in the stroke-prone individual.

Secondly, we need centers for the sophisticated diagnosis of the stroke patient and centers within which there can be applied the modern surgical and medical methods of treatment of the acutely ill patient.

Next we must provide for prompt mobilization and effective remediation in an effort to achieve the maximum restoration of function in the stroke-disabled individual.

Finally we have the long-term problem of the life adjustment of such individuals, whether this is to be accomplished at home, in the local community, or ultimately in the long-term care institution.

We have indicated the resources which the institute has deveoped for this. I should point out that, as Dr. Millikan has so ably outlined, the neurologist per se is only one member of a much broader team. Somehow, however, there must be brought to bear on the stroke problem, especially at the phase of diagnosis and acute therapy, the capabilities of individuals who have knowledge and understanding of the function and symptomatology of the nervous system.

Fig. 1)* Here is our list of stroke research centers. Some of them are rather specialized:

Berkeley Center is primarily working with the epidemiology of stroke.

The Baltimore Center is also primarily epidemiology.

The center in Boston is concentrating on the management of aphasia.

The others, I think, are dealing with one or another aspect of the clinical characteristics of stroke.

(Fig. 2)* These are individual research projects. These we have indicated only to point out that here are individuals who have an interest in some aspect of the stroke problem. However, many of these are of a fundamental research nature, and they may have little relevance to the practical problem of dealing with the stroke patient.

*See pages 60–65.

(Fig. 3)* This shows the centers where there is a study of the subarachnoid hemorrhage and intracranial aneurysms. And you will notice in each of these maps there is a disturbing paucity of activity west of the Mississippi.

(Fig. 4)* Here is the cooperative study of the value of hypotensive agents in the prevention of stroke. This is a study in which a group of patients with hypertension are managed. They are being given hypotensive agents to see whether they will in fact reduce the frequency of stroke. We are hopeful that this will prove to be the case.

(Fig. 5)* This is the study supported by the Heart Institute, focused primarily on the surgical management of stroke through surgery of the intracranial arteries. It is now a random study in which some are treated surgically and some medically.

(Fig. 6)* I should have mentioned yesterday that there are two types of training programs. We do have seven programs specifically directed toward the problem of stroke. Most of these are general neurological training centers whose men will certainly be knowledgeable and helpful regarding the differential diagnosis and treatment of stroke.

I also failed to mention yesterday two important elements in this program of training. Within several of our stroke research centers we have recruited nurses who are skillful in neurological nursing, and in collaboration with the Bureau of Health Manpower, fellowships are being provided for nurses to be trained in neurological nursing within these centers. If you want to have some nurses trained in the specifics of neurological nursing, the Bureau of Health Manpower can be helpful. The officials to contact are Dr. Jessie M. Scott, Director, Division of Nursing, Bureau of Health Manpower, or Dr. Faye Abdellah, Chief, Research Grants Branch, Division of Nursing.

Secondly, within our training programs, a number of centers are providing special postgraduate training, in the management of stroke. If you have a man in your community who wants to become more expert in the diagnosis and management of stroke, he can receive a 3- or 6-month or 1-year fellowship—in effect, a residency—within which he can receive special training in the problem of stroke.

Dr. BORHANI. I would like to open the floor to discussion and questions.

Dr. HEUSTIS. A. E. Heustis, Michigan. The panel has told us about the things we might expect in the larger centers. But I have a hypothetical case, gentlemen, a community of 100,000, a good cadre of board-specialized internists and surgeons and no neurologists, an orthopedic surgeon with a yen toward rehabilitation, a special part of a hospital with an interest in rehabilitation. What really can this place do, both for the physicians in the community and for the physicians in the surrounding area and for patients, from a real practical standpoint?

Dr. TOOLE. One thing I would point out to you is the guide for setting up a stroke program which has just been distributed by the American Heart Association. Dr. Millikan, Chairman of the Council on cerebrovascular disease, and a variety of experts have worked to put together a manual for just such a community as you describe: How to mobilize community activity, what to do, whom to recruit, and how to get some action started. This is called "A Guide for Affiliates and Chapters in the Stroke Program."

Dr. MILLIKAN. I would like to get in on that hypothetical question. Was one of the conditions no neurologist?

Dr. HEUSTIS. No neurologist.

Dr. MILLIKAN. I would put in a strong plug, then, for having some person in the grouping, that you did presume would go some place for some short-term training experience, specifically referable to stroke.

I don't know how other members of the panel would feel about this. I would guess that an internist-type individual might be the one. I wouldn't want to fully earmark this as a disciplinary requirement. Some individual might be selected for 3, 6 months of experience on an active stroke demonstration unit or an active stroke service. Then that person could become the leader for developing the on-going activity in your community of 100,000.

Dr. MASLAND. In a community of 100,000 there would be a tremendous opportunity for such an individual who had received even that rather modest amount of additional competence. You might even consider taking two people—a medically oriented and a surgically oriented person. Training programs are available for each within which, in a relatively brief period of time of practical experience, they can become knowledgeable in the newest methods of diagnosis and management. Stipends are available to make it possible for a person to do this without a complete financial loss.

Dr. HUNT. Hunt, Virginia. I think many neurologists in many communities, because of the magnitude of the problem, are really unwilling to begin the task. Where can be a focal point? Or what is a good focal point where the neurologist in the community can begin to approach the problem without this total commitment?

Dr. SPENCER. Well, what was proposed in the question before was what can be done in a community hospital which has some array of specialists, and which has some interest, apparently, in looking at the problem of stroke in that community.

On the one hand, a great deal of attention has been given to how you would build up the diagnostic capability for this group. And I agree that with short-term training, the most interested and susceptible physician and physicians may be cap-

*See pages 60–65.

tured to do this kind of functional evaluation and comprehensive patient management planning and guidance.

But I think the problem is—what emphasis should the diagnostic training or educational experience have? Should it be in respect to triage or sorting of those people that will require very elaborate and complex surgical procedures, for instance, versus those that can be probably quite well managed in that institution itself?

Now, I think you have to therefore assess each individual institution's capabilities as well as their goals in coming up with a plan of education which is acceptable to the people involved. I think you have also got to parallel this with a functional evaluation unit in a community hospital directed by a physician, perhaps part-time, in a community, a practicing physician who is supported and trained for a period of perhaps a month in an intensive rehabilitation center so he learns the methodology of functional evaluation.

Probably you will find a physical therapist in that hospital, and develop such an evaluation unit as a supportive service to the physicians and to the hospital so you can begin the triage process.

Dr. MILLIKAN. The question had to do with how to get going in a community. I would like to suggest as soon as you get home you get going on this; and this does not require elaborate personnel. There is a neat cross-over—hypertension as a crossing bond between heart and stroke. I would suggest that you can whomp up the hypertension bit and get a screening program going. You are probably aware of the activities of one Joseph Wilber, who has had an interesting experience in Atlanta in a smaller community in the southeast, where they have done a hypertension screening. This is now reported in the literature. The idea being to find out those individuals in the community who have hypertension and to get them into the hands of their local physicians without changing the whole format of practice in that situation.

We all realize, even if you have a neurologist, individuals vary in terms of their professional disease-oriented interest, and you may or may not have someone who is considerably interested in the problem of stroke, or someone who has a bit of time. But if you use a larger item such as hypertension—and I am relating this now to prevention and screening—why, you can begin a program with existing personnel, training laymen and other individuals to do screening as far as blood pressure observation is concerned, the initial taking of blood pressure, and get something going.

Dr. EVANS. I would like to address this question to Dr. Spencer. Bill, I would suspect that there are more people in the home and other institutions—not in hospitals—the kind you are talking about—so would you address yourself to the role of nursing, social work, visiting nurses associations and community health organizations, their involvement? This is not just a hospital situation.

Dr. SPENCER. I was going to say, the third element that you definitely could consider is what we would call out-of-hospital extended care. And here the visiting nurse associations—in a community of that size I will bet there is one or——

Dr. EVANS. Probably four.

Dr. SPENCER. All right, four. Unfortunately, what has happened in these is that the physician is not experienced in how to use them, so it is not a part of his treatment decision making. But capability, with proper planning for this functional evaluation and the inclusion of community agencies in this planning process around individual patients, should allow the development of proper usage of such things as can be done. And there are many things which can be done in the home setting also. But I think the problem is what he said—how do you get this going? I suggested that concept of evaluation units. Physicians are familiar with and accept laboratories, heart stations, and things of this sort. Can we sneak in consideration for function and have it under a physician, so you can have physician-to-physician referral of consultation? Then you may gradually introduce the other disciplines that are concerned with comprehensive patient management, that exist and are continually telling us, "Our problem is lack of optimal timing of physician referral."

Dr. EVANS. And continued supervision.

Dr. SPENCER. I think realistically, too, we have to look at the adequacy of our various care sponsors' methods of reimbursement for services to allow this to happen.

Dr. BORHANI. I see in the audience we have Dr. Carroll Quinlan, who is the chief of the Stroke Control program.

Dr. QUINLAN. I am sure many of you are familiar with the Heart Disease Control program. For those of you who are not, we are an operating branch of the National Center for Chronic Disease, and we have recently changed our name to Heart Disease and Stroke Control program, more or less to emphasize our interest in the problem of stroke.

It might seem confusing to you who perhaps are new in Regional Programs, how we may differ from the National Institutes of Health. The Institutes by and large, as Dr. Masland pointed out, are working in the area of fundamental basic research. Our laboratory by and large is the community. We are working in the same areas in which you are working.

Our purpose is to do research and development on ways to put to work those discoveries made by the Institutes and other areas of fundamental research. There are certain activities in which we are presently engaged, in which I think perhaps you might have a direct interest.

We are at the present time inaugurating a national system of stroke registries. We are doing this for several different reasons. One, we are interested in the nature and extent of the stroke problem. This, as you know, is very poorly defined, both nationally and locally, and I would commend the idea of a stroke registry to each one of you, because it seems to me that if you are not aware in your own region of the nature and the extent of the stroke problem, it is going to be a very difficult one to attack.

Now, as pointed out by Dr. Lilienfeld yesterday, registries have a number of different purposes, and very valuable ones. First of all, they are most important in planning and programing. Secondly, they are a very good instrument for management. And thirdly, and perhaps most importantly, they are very important in evaluating the effect of your program.

All of you are beginning to start community programs. I think that it is well to sound a note of caution, and that is this—that sooner or later, perhaps in several years, you are going to be called upon to justify your program, and I think if you have inaugurated this, and know the nature and extent of the problem, you will be able to see what effect your program has had.

We are working in a number of other different areas. We work by contract and by assignees. In our exhibit upstairs we outlined in written form the various activities in which we engage. We would be very happy to work with any of you in your region in planning in any way that we can.

Dr. SPARKMAN. Would Dr. Masland comment on the nurse training programs, please?

Dr. MASLAND. This is a new program which is just getting underway. Several of the stroke clinical research centers have very competent nursing staffs. We have felt that these people who are recruited and maintained primarily to support the research activities should also be made available for the training of other nurses in the techniques and problems of neurological nursing. In order to accomplish this we have established a collaboration with the Bureau of Health Manpower, which is providing fellowships for nurses to receive training in a well-organized training program of the stroke research centers. The place for you to contact would be the Bureau of Health Manpower.

Dr. SOLOWAY. Dr. Faye Abdellah would be the one to contact on this.

Dr. LEVIN. David Levin, Central New York Advisory Board, School of Social Work. I wanted to make an observation that all of the changes that are taking place which we see here, social and rehabilitation services divisions, in terms of welfare planning, will mean that you have a resource in the communities. One of the questions I would like to address to Dr. Millikan and Dr. Spencer is how you can really involve the kind of planning that is taking place on a local level, because each of the social workers in the public agency now will have bracketed into its name everything that comes from Washington and from the State office of rehabilitation. There is a tremendous army of helpers, and I was wondering about your experience, or your proposals—how to involve them?

Dr. SPENCER. People get involved best around an effort to solve a problem which is of larger scope than any one of them can handle. I didn't get to detail further this concept of a functional evaluation unit in a hospital. It certainly should include the vocational counselor and the welfare worker from that community hospital concerned with these kinds of problems. The evaluation process and the commitment process, which has to follow up what services are going to be committed by whom, is the place for their participation. Again, the problem is how you get this into our system of medical care under the physician's direction and coordination and integration. This is precisely what he is not trained to do. So all you can do is try to use this evaluative consultative device or something that is familiar to the doctor. The diagnostic evaluative process which expands his activities and which includes in terms of human function, including social function, may give him real help around a real patient that is his responsibility and produce the desired result.

Then the next thing that may be practical is to back up these functional units with live communication links with the resources that can give the more sophisticated decision supportive service, at least to help the staff in these units to define the patient that is beyond their scope of management. That is going to require two-way video and audio linkages. This isn't as expensive as people think. On a line-of-sight basis we can do it now for $4,000 per terminal, and we have done it experimentally. I am talking about two-way video and two-way audio.

It can be done now. There are already networks for visual communication developing rapidly by industry and by national educational television. We have even got a satellite kicked out by NASA which the International Radio Relay League built. We don't have anything like this in medicine for medical care and scientific communication which is ridiculous in the space age.

If you support these community institutions as, already, experiments are showing you can, with two-way communication assistance, so that when they have problems, they have somebody to see and talk to, present their problems to, then you have the beginning of next element in education. I think this is a valid concept. We know at least that there is real interest in it on the part of the community hospitals.

And the other thing, as Dr. Evans pointed out, being realistic in terms

of the problem, the first is to identify the resources we have got by real, indepth analysis of communities other than our own, like this hypothetical community of 100,000. You may be astounded as to what is there in care resources, and their susceptibility and willingness to change. The problem is we haven't produced or demonstrated visibly enough successful examples or methods, organizational methods, and of procedures which these people can use and need that they haven't been trained in.

I assure you, assessment of functions in the interpretive sense is not simple. I can give you a specific instance. If you get a vital capacity value expressed as a percent normal of lung capacity, what does it mean in terms of that patient's ability to tolerate the energy expenditure of his natural life activities? Is it a significantly deviated measurement or not? That is what I mean by functional evaluation. You have to interpret measurements in terms of individual functional capacities, and the patient's demands. That is not trivial, but this can be done. This is what the doctor is interested in as an antidote to the laboratory measurement explosion and the patient will benefit.

Dr. Toole. One aspect which hasn't been mentioned, and I just throw it out, is education of the family into being involved. We are talking about our provision of care to this passive person and his passive family. My attitude is involvement of the family and mobilization of members of it to provide as much of what we have been talking about as possible. And a huge emphasis has to be placed upon the methods by which the people are taught.

Also, another aspect of this that I have been interested in is redesign of the home. Very seldom does a physician or other interested person actually go into the patient's home and see him in his own setting.

These two aspects we should not forget. Perhaps the most practical thing is such a simple thing as a good architect or someone who knows how to make a person mobile and productive in his own home.

Dr. Borhani. I think that we can summarize today's session: There are two issues which were emphasized, and they are not mutually exclusive.

First of all, as is evident, there is a great need for basic, reliable information on the magnitude of the problem and the resources available in the community for systematic planning of effective programs of prevention and control of the cerebrovascular diseases.

And secondly, there is a need for a systematic application of our knowledge and resources in terms of preparation of the community and building on the resources already in existence in various communities.

I think that these two issues pretty well chart the way for the Regional Medical Programs throughout the country.

I would like to emphasize that we should not go on and develop stroke programs without really taking our time and spending as much time as needed—and this will differ from community to community and from region to region—to learn what is really needed in our region. I think it is essential that we spend enough time and develop a systematic program activity that we know exactly, be it in the hypothetical community of 100,000 that Dr. Heustis mentioned or whatever region we are working in. What are the resources really available? What is the nature of the problem in that community? And what kind of prevention, control and rehabilitation program is already in existence there that we can build on?

Nobody can tackle this problem alone. No program can do it alone. And, as you heard yesterday and today, there are many Federal Government programs, State programs, and I am sure, local programs that are already in existence. There are many people in various disciplines of health already doing various activities in this particular field. There are organizations, voluntary health organizations, and official organizations, public agencies, that are doing certain things.

I think it is incumbent upon us to bring these things into focus in the region where we would like to develop a program for stroke, and to take advantage of the resources and funds available.

Two specific questions have really bothered me for a long time, and I hope that the Regional Medical Programs will direct themselves to answering these questions. I mentioned already, in the introductory remarks I made, the variations in the geographic mortality of stroke in various States in the country. We are planning to pursue further activities with the support from NINDB, NHI, Heart and Stroke Control, and the Regional Medical Programs and all the various Federal Government agencies that can help us, to chart some kind of a program to finally learn about the nature of the disease throughout the country. Finally, I think in every region it is important for us to learn what the proportion is of the stroke cases who never get to the hospital. Dr. Spencer put it at something around 80 percent.

I think it is very important, if we are really talking about controlling cerebrovascular disease, controlling death, and morbidity from this disease, that we must know, because if we concentrate in our hospitals and centers, and these patients never get to the hospital, then we are just losing the battle before it is started.

Secondly, we must know about the nature of the problem. I think again this must be done on the regional basis, and I can guarantee you that the national data on the epidemiology will provide useful data and, although they can be helpful, they will not be as helpful as the kind of data that you will collect in your own region, because national data will differ from place to place.

I think it is very important for us to develop a systematic program of surveillance—call it registry or whatever you want—a program which will tell the people in charge of the region of the nature of stroke in that region, the incidence, the prevalence, the socioeconomic classes of victims, the age groups, and race groups and all the various characteristics, that so tremendously affect the outcome of this disease in various parts of the country.

I would think that there is a tremendous opportunity for the Regional Medical Programs to bind all existing programs together, and to build on them a true program of control so that the people will benefit. And I am sure this will be done.

GROUP DISCUSSIONS ON . . . .

HEALTH MANPOWER—REVIEW OF COMMISSION REPORT

REGIONALIZATION

URBAN PROBLEMS

RELATED FEDERAL PROGRAMS

HEALTH SERVICES RESEARCH

CONTINUING EDUCATION AND TRAINING, FOR WHAT?

DATA COLLECTION AND REGISTRIES

HOSPITALS

COMMUNITY INVOLVEMENT

OPERATIONAL PROGRAM DEVELOPMENT

The group discussions, held simultaneously on Wednesday and Thursday, January 17 and 18, 1968, involved panelists who represented various aspects of the subject areas covered. These sessions were scheduled to provide conferees the opportunity to voice their own ideas and exchange thoughts in each of the 10 topics of common interest.

The reports that follow were written by members of the staff of the division of Regional Medical Programs, who attended and recorded each of the sessions. To preserve the flavor of the group discussions as they developed, the content and singular style of each report have been maintained essentially as submitted by the recorder.

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GROUP DISCUSSION TOPIC A: "HEALTH MANPOWER—REVIEW OF COMMISSION REPORT"

Discussants:

James C. Cain, M.D. (Moderator)
Consultant in Medicine
The Mayo Clinic
Rochester, Minn.

Leonard Fenninger, M.D.
Director, Bureau of Health Manpower
Public Health Service

C. H. William Ruhe, M.D.
Director, Division of Medical Education
American Medical Association
Chicago, Ill.

A. N. Taylor, Ph. D.
Dean, School of Related Health Services
Chicago Medical School
Chicago, Ill.

Dwight Wilbur, M.D.
President-Elect
American Medical Association
San Francisco, Calif.

Recorder:

Veronica L. Conley, Ph. D.
Education Specialist
Division of Regional Medical Programs

Each discussant reviewed those aspects of the "Report of the National Advisory Commission on Health Manpower" of pertinence to his specific area of interest and expertise.

Dr. Dwight Wilbur discussed four issues covered in the Report—the supply of physicians, relicensure of health professionals, foreign physicians, and peer review. Dr. Wilbur supported the recommendation that the numbers of medical schools and of students should be increased. He agreed that Federal funds toward the support of medical education are desirable, provided the expansion in numbers is accompanied by improvement in the quality of educational programs.

On the issue of relicensure of health professionals, a highly controversial one over a period of years, it was noted that the Report recommended that relicensure be further considered by appropriate organizations and agencies. The public seems to generally support the concept of relicensure as a guarantee of good quality care. A review of current State Licensing Board procedures was stressed as essential since health manpower is a national asset, and mobility between States should be assured through reciprocity.

Dr. Wilbur stressed that the responsibility for and authority over foreign physicians should reside in educational institutions. These physicians, he said, should be required to have the same qualifications and pass exams comparable to U.S. physicians.

The importance of peer review at the local level was emphasized. The American Medical Association and other medical societies have assumed responsibility for the general improvement of the quality of medical education. The public is generally unaware of the extent to which the peer review process is already underway. Research is needed to formulate criteria by which physicians' performance and patient care can be measured.

Dr. Ruhe commented on two points in regard to financial support for students. The need for some support of medical education is now generally accepted. Complete support by the Federal Government of medical education is supported by some as a means of bringing in students from the lower economic levels of society. This is a controversial issue which current statistics fail to support. The implied criticism of the medical curriculum in the Report is not justified in view of the constant review and change in the curriculum conducted by medical educators. Relicensure has been discussed sporadically since 1932. The emphasis should be on motivation of physicians through appropriate continuing education efforts to improve their practice. Only then should relicensure be seriously considered.

In regard to the Report, Dr. Taylor stated that the title implies equal consideration of all health professionals when in fact it is devoted primarily to physicians. The recommendation that education of health personnel be assumed by universities is questioned in view of the current trend by these institutions to remove the education of such professionals from their curricula.

Dr. Fenninger commented that the Report addressed itself to the need to improve the health of individuals and of patients as the reason for a system of care and health services. The public has demands and expectations of services by health personnel beyond what can be supplied. The Report pointed to long- and short-term issues which include quality and quantity of care, use of skills, public education, and increase in resources.

During the question and answer period there was lively discussion on such issues as Regional Medical Programs and their peer review mechanism, the improvement of medical education through the programs, criteria to judge quality of medical practice, and the determination of medical manpower needs and better utilization of manpower.

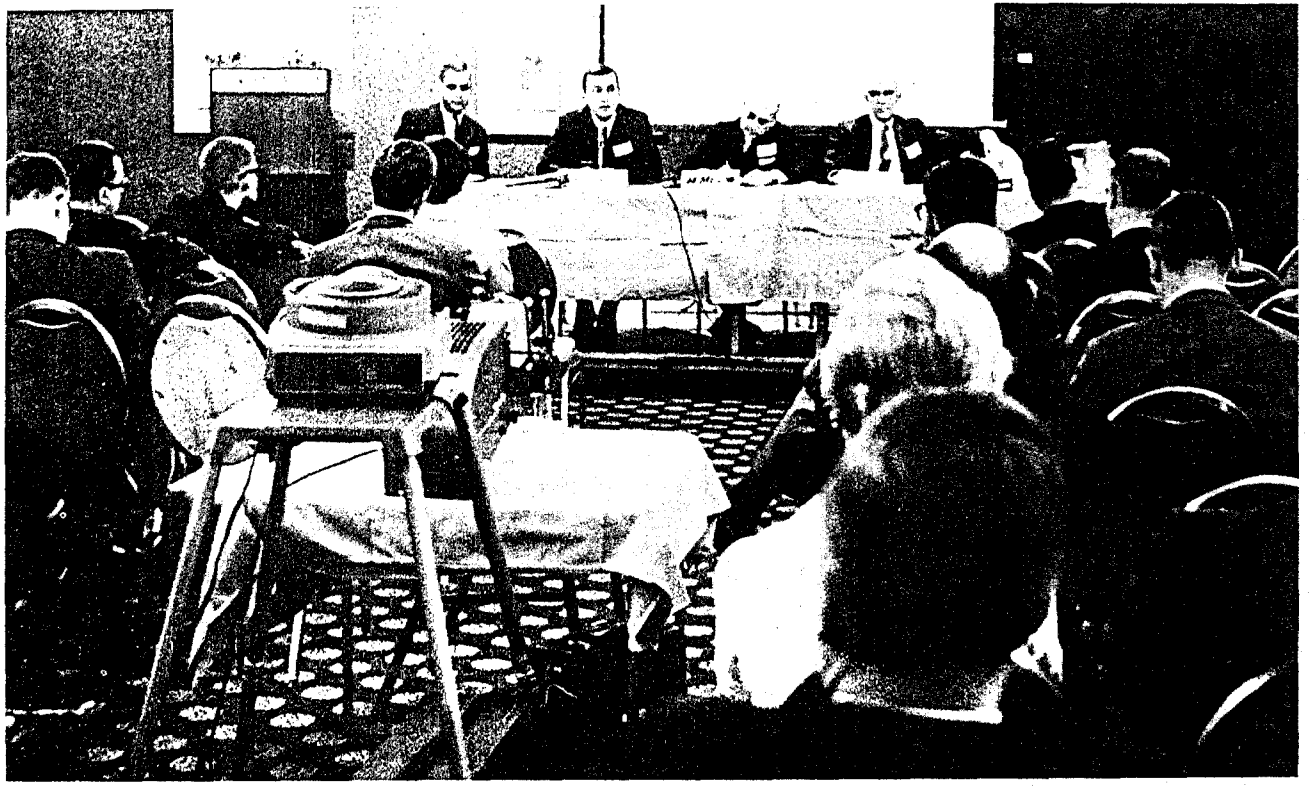
GROUP DISCUSSION TOPIC B: "REGIONALIZATION"

Discussants:
Lester Breslow, M.D. (Moderator)
Professor of Health Administration and Chairman, Health Services Division, School of Public Health University of California at Los Angeles
Los Angeles, Calif.

Walter J. McNerney
Executive Director
Blue Cross Association
Chicago, Ill.

William R. Willard, M.D.
Vice President
University of Kentucky Medical Center
Lexington, Ky.

Recorder:
Roland L. Peterson
Chief, Planning Branch
Division of Regional Medical Programs



The discussion addressed itself to the questions: What is regionalization? What problems does it pose? How can it be achieved?

Regionalization was defined by Dr. Willard as implying linkages among health resources and as a process of getting people involved and appropriate planning begun.

The functional aspect of regionalization was particularly stressed. It was pointed out that there might be different bases of regionalization for differing purposes. Dr. Sparkman said that "regions" for patient care and continuing education well might differ. Even patient care might require different "regions," as in the case of acute coronary care versus cancer therapy. While the functional aspect was clearly recognized, others emphasized that geography and people are fundamental to regionalization.

Mr. McNerney pointed out that there had been many failures in regionalization. The resistance to regionalization was historical and widespread, and included libraries and schools. Speaking from his own experience, he cited the reasons for the failure of an attempt in the past at regionalization of hospitals in upper Michigan. Some of these reasons were:

Attitudinal.—Too often the institutions involved in regionalization were more interested in autonomy and building up their own strength as an alternate to linking together with others.

Economic.—There were no incentives.

Administrative.—The administrative underpinnings were ad hoc and incidental rather than continuing and substantial.

Speaking from the audience, Dr. Charles Lewis of the Kansas Program, saw the principal problem of regionalization as one of social enginering. He was seconded by Mr. McNerney,

who pointed out that little is known about the social engineering and administrative aspects of regionalization. The medical center, he observed, is essentially an authoritarian setting. Regionalization will require negotiation and compromise and entering the realm of "brutal politics."

Dr. Breslow felt that involvement might prove to be the solution. He noted that getting the nontechnicians and nonprofessionals to come to grips with the problem is perhaps necessary, since the former have too many vested and embedded interests.

Mr. McNerney felt that regionalization must take into account community needs and must have structure. Successful regionalization requires a delicate balance of the two.

Dr. Breslow was optimistic about the future for health regionalization. He based this on—

- greater experience in this regard, particularly with regard to area-wide health facilities planning;
- a greater commitment to the concept of and need for regionalization. At the time of the passage of Hill-Burton, there were a few farsighted individuals but little widespread commitment;
- physicians and others, and not just hospitals, are now involved. He cited the number of practitioners who had become involved in Regional Medical Programs;
- a greater public understanding for the need of regionalization;
- increasingly sophisticated technology.

Dr. Willard said that if medical centers and other institutions see Regional Medical Programs only as an opportunity or additional resource to do some things they have always wanted to do, then neither Regional Medical Programs nor regionalization will be successful.

GROUP DISCUSSION TOPIC C: "URBAN PROBLEMS"

Discussants:

Paul Ward (Moderator)
Executive Director
California Committee on Regional Medical Programs
San Francisco, Calif.

Roger O. Egeberg, M.D.
Dean, School of Medicine
University of Southern California
Los Angeles, Calif.

Frank Lloyd, M.D.
Director of Research
Methodist Hospital of Indiana
Indianapolis, Ind.

Anne R. Somers
Industrial Relations Section
Princeton University
Princeton, N.J.

Ray E. Trussell, M.D.
Director, School of Public Health and Administrative Medicine
Columbia University
New York, N.Y.

Recorder:

Stephen J. Ackerman
Associate Director for Planning and Evaluation
Division of Regional Medical Programs

The moderator, Mr. Paul Ward, opened the session by pointing out the distinct differences between rural and urban areas in the solution of the problem of delivery of quality health care to people, and defining the purpose of the session as focusing on the contributions that Regional Medical Programs can make to the solution of the urban problem. The following are highlights of comments by the panel members:

Mrs. Anne Somers:

The medical establishment has both the opportunity and responsibility to make significant contributions to the solution of the problem of urban health.

We know more of the internal channels of the heart vessels on the one hand, and the canals on the planet Venus on the other, than we do about the back alleys of our ghettos.

Special aspects of urban problems in New Jersey are:

- Increasing immigration of rural poor from the South to city ghettos.
- Outmigration of physicians.
- Vacuum of leadership in academic medicine.
- The great potential and promise of Regional Medical Programs—"to build a bridge of service between science and the people."

Hopeful developments in New Jersey:

- The organization of the Department of Community Affairs under leadership of Paul Ylvisaker, which little by little is translating pangs of conscience about the needs of the inner city into

substantive action.

Emergence of interests and leadership action from academic medicine through the stimulation and organization of Regional Medical Programs.

Specific move in New Jersey to have its program develop leadership in communitywide planning for delivery of quality medical care by bringing together the leadership of the medical establishment with the leadership of the urban community, including the inner city, through the cooperation of the Department of Community Affairs.

Dr. Roger Egeberg:

The need for emphasis on availability of care rather than a priority of concern for quality.

The need to change the focus from the provider's standpoint to that of the consumer's, and to change the patterns so that the services are provided as the people want them and can really use them.

Regional Medical Programs must be concerned with regionalization, subregionalization, sub-subregionalization, and perhaps, sub-sub-subregionalization, in order to fit the care to the needs of the persons to be served, rather than force people into the mold of the producers.

All of the concepts about development of new systems of care and the use of new types of paramedical and subprofessional health personnel are within the scope of the programs, where resides responsibility to use them in finding the solutions to these problems.

Dr. Frank Lloyd:

Regional Medical Programs can do well by helping to plan a comprehensive program with the delivery of services in the urban areas.

By excluding Negro physicians from hospital privileges, and from educational programs in the health professions (Indiana freshman class has two), the leadership potential of Negro health professionals in the solution of these urban health care problems is removed. It is of prime urgency that these deficiencies be reversed.

We are wasting health manpower by making mandatory unnecessary training. Unskilled personnel can be trained to do health jobs but it must come from bottom up.

Paul Ward:

To secure the desired changes in the delivery of health care and the utilization of nonprofessional health aides, etc., requires the application of strong pressure behind the division of Regional Medical Programs in Washington and State, regional, and local health officials in the field. The built-in resistance of multiple vested interests makes progressive action unlikely without such firm counterpressure.

Dr. Ray E. Trussell:

Problems in urban areas are much greater and must get a good deal of publicity if persons with fiscal control are to react.

Regional Medical Programs can make a contribution to overcome lack of understanding on urban problems through participation of the scientific community which can provide scientific data to help public officials.

Neither Regional Medical Programs nor any other program can bridge the gap between need and service without major public decisions about what can be done.

Some problems and questions raised in floor discussion were:

How can ideas and information be gotten from people in the ghettos and how can those people be involved in planning?

Recognizing the need to involve the underprivileged consumer, how can leadership be developed among these groups?

The problem of Negro rejection of Negro professional leadership puts these people in the uncomfortable position of being needed but not wanted.

With regard to the Piel Commission Report in New York which tended to preserve two care systems, one for the poor and one for the others, the problem of the political realities of an existing large body of civil service employment forces continues in city hospitals.

The problem continues of securing professional acceptance of the use of subprofessional health personnel in positions of responsibility.

How can Regional Medical Programs help underprivileged physicians without staff privileges become part of the system?

GROUP DISCUSSION TOPIC D: "RELATED FEDERAL PROGRAMS"

Discussants:

Daniel I. Zwick (Moderator)
Associate Director for Program Management
Health Services Office
Community Action Program
Office of Economic Opportunity

James H. Cavanaugh, Ph. D.
Director, Office of Comprehensive Health Planning
Office of the Surgeon General
Public Health Service

Donald R. Chadwick, M.D.
Director, National Center for Chronic Disease Control
Bureau of Disease Prevention and Environmental Control
Public Health Service

Carruth Wagner, M.D.
Director, Bureau of Health Services
Public Health Service

Eugene Veverka
Division of Medical Care Administration
Bureau of Health Services
Public Health Service

Recorder:

Leroy G. Goldman
Program Policy Specialist
Division of Regional Medical Programs

Each discussant briefly described the principal programs and activities of the agency he represented, and went on to discuss the relationship between that agency and Regional Medical Programs.

Regarding the programs of the Division of Medical Care Administration, Dr. Veverka emphasized that the division and Regional Medical Programs shared the same goal of bringing the best possible care to everyone in need in the most effective and efficient manner. The division, he noted, is cooperating with the Department of Housing and Urban Development in the provision of mortgage loans for group practice facilities. Additionally, the division is concerned with both health manpower and facility needs, and hopes to dovetail these concerns with the activities of Regional Medical Programs in these same areas.

Dr. Cavanaugh described the five major areas of the Comprehensive Health Planning legislation (Public Law 89–749) and reported on its progress to date. The first three segments of this legislation deal principally with State and areawide health planning. These include formula grants to States for comprehensive health planning, project grants for local and areawide health planning, and project grants for training, studies, and demonstrations of health planning. The final two segments deal with the provision of health services through both the formula and project grant mechanisms on a noncategorical basis.

Dr. Chadwick described the role of the National Center for Chronic Disease Control as being of most importance in the transition between activities of the categorical institutes of the National Institutes of Health and the operational activities of Regional Medical Programs. As such, its role has been one of demonstrating the efficacy of newly developed techniques based upon the growth of biomedical knowledge.

Dr. Wagner described the Bureau of Health Services as the focal point for the organization and delivery of health services. It, therefore, is concerned with the development of self-organizing processes to effect this organization and delivery which include the planning process, consultation, and certain certification procedures.

Mr. Zwick in describing the Neighborhood Health Center program of the Office of Economic Opportunity highlighted the relationships between that program and Regional Medical Programs. Specifically, he noted, it is the poor who suffer the most as a result of the gap between knowledge and application. Additionally, he described the common interest of both programs in developing alternative models in the organization and delivery of health services.

During the question and answer portion of the session, the principal focus was on the relationships between Regional Medical Programs and the Comprehensive Health Planning Program, particularly at the local-regional level. Several persons reported on the developing experience in different parts of the country in implementing these two programs in concert.

GROUP DISCUSSION TOPIC E: "HEALTH SERVICES RESEARCH"

Discussants:

Paul Sanazaro, M.D. (Moderator)
Director, Division of Education
Association of American Medical Colleges
Evanston, Ill.

Morris E. Collen, M.D.
Director, Department of Medical Methods Research
The Permanente Medical Group
Oakland, Calif.

Caldwell B. Esselstyn, M.D.
Associate Director
New York Metropolitan Regional Medical Program
New York, N.Y.

John Thompson
Professor of Public Health and Director, Program in Hospital Administration
Yale University Medical School
New Haven, Conn.

John Williamson, M.D.
Division of Medical Care and Hospitals
The Johns Hopkins University School of Hygiene and Public Health
Baltimore, Md.

Recorder:

Richard F. Manegold, M.D.
Associate Director for Program Development and Research
Division of Regional Medical Programs

The discussion of this panel fell into the following five general areas, and were discussed in this framework:

- Essential nature of health services research.
- The inherent problems and strategy of data collection.
- The problems of evaluation.
- A consideration of the priorities in establishing areas for research.
- The special problems and opportunities in health service research presented by Regional Medical Programs.

Health services research.—The components of health services research have been identified by Dr. Kerr White as descriptive, analytical, experimental, and evaluative. The initial stage is reportorial and describes the "health system" as it exists. The analytical phase depends upon establishing hypotheses and then appropriate data collection. The experimental phase, one which presently is largely undeveloped, depends on testing models and manipulating variables. Finally, evaluation, which although not research per se, is inherent in research and requires methodologies.

Health services research was briefly differentiated from operation research and operations research. Operation research depends on the collection of specific data for establishing policy and management decision. Operations research and its component systems analysis depends upon the development of a mathematical model and appropriate manipulation. Health services research is applied research involving a variety of medical and social disciplines and the application of all manner of methodologies to the complex problems of health care.

Data collection.—Major problems in health services relate to data collection. These problems include acquisition, availability or sources, comprehensiveness, validity, timeliness, and use. Clearly, the quantitation of health services research depends on the validity and comprehensiveness of the data base.

A data base has five characteristics: It must be comprehensive; it must relate to reality; it must be timely; it must be available; and it

must be used. For the most part, available data are not comprehensive. Thus, although there are data on the incidence of diseases (so many/population) there is only fragmentary information on "service time." ("Service time" is information on the number of patients in the health system with a given condition.) Our present data lack, therefore, is information on prevalence.

Evaluation.—Evaluation poses special problems. What should be evaluated? What can reasonably be evaluated? What are the regional responsibilities in evaluation and what are the national responsibilities?

In many instances end result evaluation cannot be the measure. Regional Medical Programs deals basically with chronic diseases that will not promptly yield to changes in management. Further, because of the annual increments in the population at risk gross mortality and morbidity statistics may not show significant changes.

Evaluation is a two stage process. First criteria must be established and then a professional judgment must be made. Were the criteria attained? In these terms evaluation can be established on the basis of expert judgment of what should be the expected mortality, the morbidity, and the cure rate. A comparison between expectation and reality then leads to an examination of the realities of the expectations, the deficiencies in health care, or both.

Although long-term evaluative goals pose time difficulties, intermediate goals can be set. These include measures of better resource allocation, better utilizations, improved and more relevant educational programs.

Conventional wisdom may be used to bridge the science service gap. Clearly, not all "latest" advances are advances and some plainly are not feasible. Many "new" procedures do not stand the test of use. Others, "heart transplants" for instance, clearly are not when first developed feasible for the system. Thus, conventional wisdom can dictate to some degree what should be and can then be measured, evaluated.

Research priorities.—Certain areas in the health field will yield greater results in the health service field. Some population groups, usually upper middle class, now have good health care services. Conversely, the poor and many rural areas do not have adequate health care. Thus, priorities for research in these areas of health care offer obvious prompt payoffs.

Special opportunities for health service research.—Regional Medical Programs, by involving the various components of the health system, offer special research advantages. Health service objectives may be established; educational and service programs designed to serve these ends; finally, evaluation can test the effectiveness of the innovation.

Regional Medical Programs offer to the health service researcher a laboratory. They inherently tend to stimulate both the proper questions and the quest for the solutions.

GROUP DISCUSSION TOPIC F: "CONTINUING EDUCATION AND TRAINING, FOR WHAT?"

Discussants:

Patrick B. Storey, M.D. (Moderator)
Professor and Chairman
Department of Community Medicine
Hahnemann Medical College
Philadelphia, Pa.

Luther Christman, Ph. D.
Dean, School of Nursing
Vanderbilt University
Nashville, Tenn.

George E. Miller, M.D.
Director, Office of Research in Medical Education
University of Illinois
Chicago, Ill.

A. N. Taylor, Ph. D.
Dean, School of Related Health Services
Chicago Medical School
Chicago, Ill.

Recorder:

Alexander M. Schmidt, M.D.
Chief, Continuing Education and Training Branch
Division of Regional Medical Programs

Dr. Storey opened with a very brief statement listing the purpose of Regional Medical Programs: To improve medical services in a region and link them to patients; the Conference-Workshop: To allow a

comparison of notes among Regional Medical Programs representatives; and the Discussion Groups: To help each other with specific problems of making continuing education efforts relevant to program goals.

Dr. Storey asked if anyone had a problem for discussion of the group; there was an instantaneous and vigorous demand for the floor. The next hour and a half plus was occupied by an exchange among resource persons and attendees, numbering more than 100 and filling the room beyond its seating capacity. The following summary of questions and discussions reflect that exchange:

Q. Dr. Miller has said we already had enough continuing education, and that we didn't need any more. What did he mean?

A. (Dr. Miller) I have said we have enough information. We are drowning in information. What we need is not more information or ways of disseminating the information, but a method of establishing priorities of what a physician needs. We must help a learner (physician, etc.) to want, then obtain, and then use what he actually needs. This is the major issue.

Studies have been done as to what a physician thinks he needs, or what he wants; but such are, by and large, invalid, as they are based on his own opinion. This often represents what he is comfortable about, or even what he knows already.

Some attempts have been made to help a physician discover for himself what he actually needs. Examples: AMA national plan, etc. What is needed is educational diagnosis, and not treatment (more courses). We have entirely too much treatment.

Q. Can a physician (or other) teach himself? What is the role of teaching machines, TV tape, etc.?

A. The problem with self-instruction is that one tends to study what he is most comfortable with. Also, his objectives are too often inappropriate. If a golfer wants to improve his score, he can read and work out by himself, but he will get little or no better, and maybe worse. He must get professional help from a golf pro.

Self-education in medicine is the same, in a way. At some point a professional educator must help set objectives, and help one to decide what he is really missing, and what he therefore really needs. To accomplish this, the student must reveal his ignorance—this is often a painful process. TV tape is like a book, and we have books now. The problem is really what the content should be.

Q. How, then, is one to motivate a physician (or other) to learn? (About three-quarters of the discussion revolved around this one point, motivation.)

A. Motivation is tied to need. If one discovers what he really needs, motivation should not be too great a problem. We use what is known about the learning process all too little (psychology of learning, etc.). Like the golfer, who gets from a golf pro what he needs and applies it immediately to his benefit, medical education should give to a physician what he needs, when he needs it, in a convenient way and at a convenient time, in a palatable form. It (the content) must have the characteristic of being applicable to what the learner does, and applicable the next day.

One major problem now is with basic medical education. The medical student spends time in a series of closed systems, each with a finite end point, usually with some sort of exam passed at the end. The practice of a profession is open-ended, without the built-in motivations of exams, etc. Therefore, the medical student must be indoctrinated from the beginning of his medical education to be a self-motivated learner. He must be taught to use the various self teaching aids available like books, TV tape, etc. What makes us think that our practitioners know how to use these things now, just because Regional Medical Programs can buy them and put them out for use?

Medical students should be taught to be critical self-learners, perhaps by the process of evaluating what their professors believe and know.

It is commonly said that the medical school atmosphere of peer judgment is healthy and should be taken out to the community. But the fallacy here is that while the academic surgeon may accept the give-and-take regarding surgery, he gets pretty irritated about being questioned about biochemistry. The validity of academic peer judgment and its applicability outside the school need study.

The experience of the American College of Physicians with the physician's self-inventory would suggest that physicians aren't reluctant to find out about themselves, at least if they are fairly sure there is no built-in penalty.

Any doctor really wants to do what he does well, or at least as well as his peers.

Perhaps the physician is overworked and tired, and a bit disillusioned.

Q. Does the system interfere?

A. Yes, indeed. First of all, most of the medical system, especially the administrative system, is 19th century. This interferes with everything.

Secondly, role perceptions interfere all the time. A study of patient care was done at the University of Illinois (Dr. Miller) and it was found that role perceptions and misperceptions effectively blocked team-oriented educational efforts. The doctor always had to lead the team, a nurse couldn't do this or that, etc.

Yet, team teaching, based on the care of a patient, is probably vital. Too little of this is done any place, and probably must be begun in medical schools. But if the "For what?" is for the care of the patient, then the education must be centered there, and the real needs must be the patient needs, and this must be the orientation, not what a physician wants or what a teacher wants to teach.

GROUP DISCUSSIONS TOPIC G: "DATA COLLECTION AND REGISTRIES"

Discussants:

Abraham M. Lilienfeld, M.D. (Moderator)
Professor and Chairman
Department of Chronic Diseases
The Johns Hopkins University School of Hygiene and Public Health
Baltimore, Md.

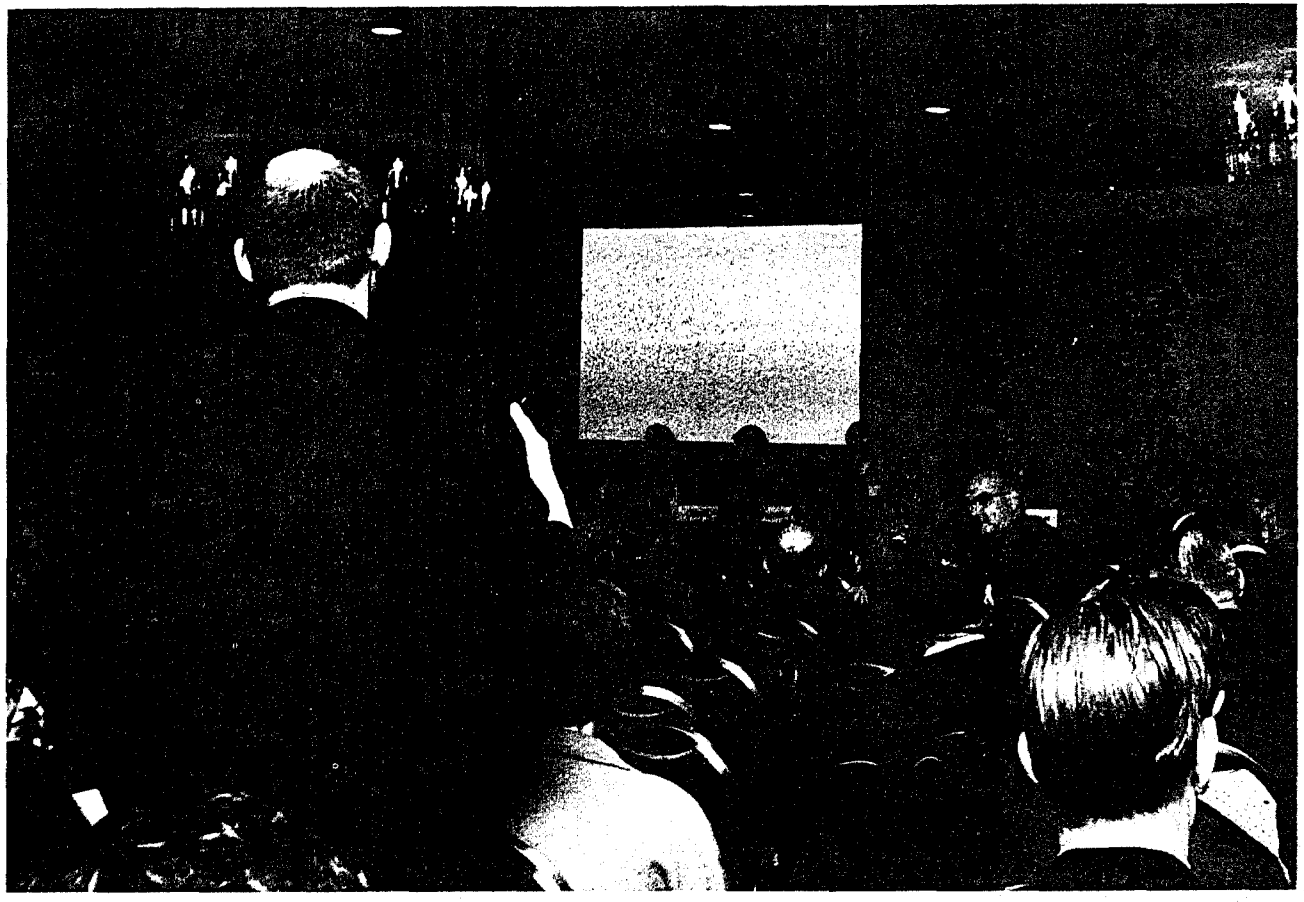
James F. King, Jr.
Office of Program Planning and Evaluation
Office of the Surgeon General
Public Health Service

Andrew Mayer, M.D.
Assistant Director
American College of Surgeons
Chicago, Ill.

John E. Wennberg, M.D.
Program Coordinator
Northern New England Regional Medical Program
Burlington, Vt.

Recorder:

Maurice E. Odoroff
Assistant to the Director for Health Data
Division of Regional Medical Programs



The panel organized its discussion around the following three areas: The use of 1970 census data as a basis for planning; the use of cancer registries for planning and evaluation; and data collection for use in evaluation.

Use of 1970 census data for Regional Medical Program planning.—The Census Bureau is now testing its procedure in New Haven, Conn., in preparation for gathering 1970 census data. This presents an opportunity to obtain information useful for regional medical purposes by aggregating small areas' data for such relevant items as the demographic characteristics and socioeconomic data. There are three general uses of these census data:

Use for defining population and their characteristics to isolate concentration of problems amenable to special social research. These data also permit determining the political jurisdiction.

It permits matching health data to census data and thus record linkage between health data and social and economic characteristics as a basis for providing service.

It permits selecting special samples to do intensive studies by

matching information from local sources between health agencies and with other local data, such as housing, economic characteristics and social unrest.

Use of registries for planning and evaluation.—Cancer registries are a tool for planned data collection on a continuing basis. The primary objective of a cancer registry is improved patient care. The registry must meet this criteria or else it is worthless. The two major types of cancer registries are hospital-based registries and population-based central registries. The aim of the hospital-based registry is followup of cancer patients, defined as returning for examination to discover possible spread to new sites or for concurrent disease. The central registry is epidemiologic in emphasis aimed at determining incidence and prevalence and survival rates for cancer patients.

Concern was expressed with the trend within the Regional Medical Programs for establishing central registries. The concentration needs to be at the local level because a central registry is no better than the quality of data received from hospital-based registries. Moreover, there needs to be considerable motivation at the local level for good quality data to be achieved.

Data collection for evaluation.—Evaluation was defined as evaluation of medical care to determine gaps in medical care; evaluation of Regional Medical Programs in terms of stated program objectives and how they are met; and evaluation of specific projects.

Evaluation is essentially a value judgment and relates to criteria developed for these objectives. Objectives are expressed in terms of evaluation procedures. The art of evaluation involves discovery of indicators or measures which allow their assessment. These requirements present difficulties in defining objectives in terms susceptible to analytic assessment because objectives must be expressed in terms of mortality and morbidity and efficiency of medical care. The major problem is to find or develop indicators which sufficiently measure morbidity. The problem of measuring morbidity is further complicated by the fact that certain diseases give rise to several morbid conditions. The development of inclusive indicators require a scheme for measurement and a scheme for quantifying and evaluating one condition against the other, and the development of a summary set of indicators of "net morbidity."

The requirements to define the types, amounts, and interrelationship of morbidity is a major problem involving a research effort beyond the capacity of Regional Medical Programs.

Mortality and efficiency of medical care are more easily measured. The failure to develop a full set of indicators for morbid states implies that the complete set of issues involved in the objectives of the program are not considered in the analysis.

GROUP DISCUSSION TOPIC H: "HOSPITALS"

Discussants:

D. Eugene Sibery (Moderator)
Executive Director
Greater Detroit Area Hospital Council
Detroit, Mich.

Pearl R. Fisher, R.N.
Administrator
Thayer Hospital
Waterville, Maine

John W. Kauffman
Administrator
Princeton Hospital
Princeton, N.J.

Edward H. Noroian
Executive Director
Presbyterian University Hospital
Pittsburgh, Pa.

Recorder:

Richard F. Manegold, M.D.
Associate Director for Program Development and Research
Division of Regional Medical Programs

Emphasis in the discussion was first placed on the basic purpose of Regional Medical Programs. Following this, attention was directed to the changing role of hospitals in health care and the hospitals' unique advantages for fulfilling this role. With this background, a consensus developed, although there were dissenters, that in general hospital administrators as a profession were not sufficiently involved in the programs in their regions. Consideration was given to the proper methods for involvement of hospitals and the proper involvement of hospital administrators in Regional Medical Programs at the regional and national level.

The following are directions the discussions went and areas they covered:

The goal of the program is to improve patient care through cooperative arrangements. These arrangements will, if effective, change the behavior of the providers of care, and thereby the goal of the program will be approached.

The hospital is the major community institution with the potential of focusing the energies of the provider of care. Hospitals, in this sense, have changed their perceptions from episodic care to community and comprehensive care. For this latter role hospitals have unique strengths.

These strengths are several-fold. First, the hospital represents one of the community's major resources for organized and personalized health care. As such, there is necessarily a community concern. There is, if not always the reality, at least the potential for professional, paramedical, and health education. There is, also, the experience in organizing the providers of care into effective teams. There is the

economic focus for developing the necessary resources. Finally, in the hospital administrator, himself, there is the management competence experience in developing plans and putting them into operation.

In spite of these significant resources, the participants were generally concerned that hospital administrators were seemingly only marginally involved. Several strategies for involvement were suggested. These included the development of local advisory groups as in Georgia and the coincident need to develop areawide planning councils.

One somewhat thorny problem related to institutional vested interest arose. On the one hand, some agreed that these interests should be diluted for the total community concern. New mechanisms of financing using formulas for reasonable cost and charges will mitigate some of the competitive forces. On the other hand, several urged that vested interests were indeed the source of institutional and professional excellence. At best, one could hope to coordinate these interests but should hesitate to dampen them.

Finally, the poor attendance at the Conference-Workshop and the discussion itself were discussed. The fact was that fewer than 2 percent of the total conferees at the meeting were hospital administrators. Recognition was given to the fact that greater attendance at both the panel discussion and the Conference might be proper. Equal recognition was given that the reasons for this seemingly poor attendance might be explored. If, indeed, the low census of hospital administrators was symptomatic of inadequate involvement of administrators, correction of the causes would strengthen Regional Medical Programs.

In closing the session, the interest of the division in establishing greater liaison with national and State organizations representing hospitals was voiced and noted.

GROUP DISCUSSION TOPIC I: "COMMUNITY INVOLVEMENT"

Discussants:

Robert M. Cunningham, Jr. (Moderator)
Editor
Modern Hospital Magazine
Chicago, Ill.

Alan C. Davis
Science Editor
American Cancer Society
New York, N.Y.

Howard Ennes, M.P.H.
Assistant Vice President for Community Services and Health Education
The Equitable Life Assurance Society
New York, N.Y.

Pierre C. Fraley
Director of Information
Greater Delaware Valley Regional Medical Program
Philadelphia, Pa.

Marc J. Musser, M.D.
Program Coordinator
North Carolina Regional Medical Program
Durham, N.C.

Recorder:

Edward M. Friedlander
Assistant to the Director for Communications and Public Information
Division of Regional Medical Programs

It being generally agreed that community or consumer involvement is indispensable to success in promotion of a Regional Medical Program, the following issues rapidly emerged in the group's discussion:

Community involvement for what?
Community involvement of whom?
Who is the consumer? Patients or physicians?
Do the community representatives really represent the consumers?
The difficulty of identifying qualified lay leaders.
The difficulty of explaining what Regional Medical Programs are.

Howard Ennes asked for "consumer modulation," later translated as "community health citizenship" in application. "The times," Ennes said, "demand intensified 'consumer modulation' of health care activities, including those related to goal-setting, resource allocation, priorities determination . . . in short, all aspects of the delivery of health services, their costs, and related community decisionmaking."

Health care programs for the community must pass a "4–A test, he said. "Are they: Appropriate, Available, Accessible, Acceptable?"

"I suggest," said Ennes, "the urgent need for a nationwide partnership to create a concept of 'community health citizenship'—an effort to be joined in by governmental and private sectors, by professional and lay groups, by all levels of activity—Federal, State, local." The object would be to focus on the responsibility

of the individual to know and make the most of himself, to utilize health services, and to participate constructively in community health decisionmaking. In this direction, "we have (literally) done next to nothing."

Pierre C. Fraley introduced the "for what?" Fraley pointed out that "the means need to justify and accomplish the desired end." Fraley cited the example of Pap smear testing in New York City. Whether the free screening station was installed in a midtown department store or moved up to Harlem, it tended to attract the same intelligent, highly motivated, not-so-poor class of women, mainly white and mainly Jewish. He suggested that the goals of community involvement should be to increase knowledge, to change attitudes or motivation, and to change behavior.

Describing "the successful application of a public information program" in the "State of Franklin," a seven-county rural area in southwest North Carolina, Dr. Marc J. Musser emphasized the "right man" principle in obtaining community involvement.

"The initial public information program was carried on by virtually one man, on a person-to-person basis," said Musser. "This man is a psychologist and member of the faculty of Western Caroline University at Cullowhee. . . . It was clear to him that the seven counties . . . working together, could do far more to solve their mutual problems than each county working independently. His personal interest and drive were contagious among the various area leaders, and . . . he worked successfully with them in establishing the State of Franklin Health Council, Inc. . . . the first organized health planning group." This effort preceded the North Carolina Regional Medical Program, and involved 4,000 persons in seminars on community health problems.

Alan C. Davis, discussing the difficulty of explaining what a Regional Medical Program is, described it as the first public program in the health care field to involve the practicing physician. Davis warned against bringing in professionals only: "It's the consumers we are ultimately aiming at," and advised against superimposing concepts or set standards from on high, "Let the people do it."

In the discussion, Fraley, joined by Dr. Stanley W. Olson from the audience, protested the assumption that the patient is the consumer in Regional Medical Programs. "The physician is the consumer," said Fraley. Olson pointed out that Regional Medical Programs emphasize working through established groups and does not provide direct service to consumers, i.e., patients.

From the audience, Dr. Henry T. Clark discussed the problem of identifying quality in lay leaders. "Those who may get involved often have no knowledge of the processes involved in community organization and action," he said.

A New Jersey discussant pointed out that the chosen representatives do not necessarily represent the actual consumers. Musser put in a plug for the political science book, "Rulers and Ruled," as a good source of information on the nature and complexities of forming working relationships between what someone called, "Us and all them."

From her experience with promotion of citizens' health groups in western Pennsylvania, Sister M. Ferdinand advised: "At their first meeting, they don't know what they want. Let them get rid of their frustrations. Then you have them involved."

Whether Regional Medical Programs are designed to help patients or help doctors help patients, there seemed to be no disagreement with the unidentified voice from the back of the room: "The program will be judged by improvement in medical care."

GROUP DISCUSSION TOPIC J: "OPERATIONAL PROGRAM DEVELOPMENT"

Discussants:

Charles E. Lewis, M.D. (Moderator)
Program Coordinator
Kansas Regional Medical Program
Kansas City, Kans.

C. Hilmon Castle, M.D.
Program Coordinator
Intermountain Regional Medical Program
Salt Lake City, Utah

T. A. Duckworth
Chairman, Regional Advisory Group
Wisconsin Regional Medical Program
Wausau, Wis.

Albert E. Heustis, M.D.
Program Coordinator
Michigan Regional Medical Program
East Lansing, Mich.

Donal R. Sparkman, M.D.
Program Coordinator
Washington-Alaska Regional Medical Program
Seattle, Wash.

Recorder:

Richard B. Stephenson, M.D.
Associate Director for Operations
Division of Regional Medical Programs

The discussion was opened by the panel participants briefly reviewing their own regional experiences

with developing operational status. The meeting was then thrown open for general questions and discussion.

The general area of how to handle both the generation and review of operational proposals was discussed from several aspects, beginning with the involvement of local action groups of various kinds through differing levels of technical or scientific review to final regional advisory group action. Although there was considerable variation in the detailed approach, there was general agreement as to the overall methodology of handling and the necessity of involvement at the different levels.

The relationship of planning to operational activities was explored from several different angles. The question was raised as to whether planning should be directed primarily toward regionalization or toward the categorical objectives of improving care of health disease, cancer, stroke, and related diseases. It was agreed that planning should do both, but that the primary thrust was toward the concept of regionalization as the way in which to accomplish the categorical objectives, with the spin-off of a general upgrading of health care being both desirable and inevitable.

Reemphasized in a number of different ways was the importance of a continued strong planning activity as a program moves into an operational phase together with recognition of the greater flexibility inherent in the operational grant as contrasted with the purely planning grant.

There was also general recognition of the importance of acquiring either a critical mass or of reaching a critical point in the planning process together with the need for concomitant evaluation as an ongoing part of planning.

Additional points touched on included the usefulness of the fruits of previous planning activities such as Hill-Burton and similar activities; the desirability of involving early in the planning process persons with expertise outside the medical profession itself; and the fact that the regions as identified for the purposes of initial planning grants would in fact be made to regions and not to individual institutions within the region.

Finally, it was reemphasized that "there were many roads to Rome," and that it was neither the intent nor the desire at either the local or the national level for there to be uniformity or conformity to some master scheme for regions to become operational, but that diversity and flexibility were clearly in order.

A NONPROFESSIONAL LOOKS AT REGIONAL MEDICAL PROGRAMS

Irving J. Lewis
Deputy Assistant Director
Bureau of the Budget
Office of the President

I am pleased to have this opportunity to be at the Conference-Workshop on Regional Medical Programs. I always welcome an occasion to show to an unbelieving public that the men in the Budget Bureau do not wear green eye shades or sit upon high stools in their counting houses. In a recent talk at this same hotel, Dr. Ivan Bennett, Deputy Director of the Office of Science and Technology and one of my principal mentors in the health field, described us in these words:

"Some of you, I know, have had experience with the Bureau of the Budget, where, since the multiple-crack system does not exist and there are no fissures that allow for penetration of local interests into national policy decisions to influence decision-making and allocation of resources, one has recourse only to putting together a balanced, persuasive, and factual argument. It is with real respect and admiration that I say that here are the beady-eyed, hard-nosed skeptics, receptive to opinion but demanding iron-clad factual details—a demand which for me, and indeed, all of my colleagues who have been exposed to it in depth, has meant a reorientation of thinking, a new level of objectivity, and above all, a lasting respect for a much-maligned and little understood executive agency."

I quote Ivan at length so that I may publicly accept his compliments while at the same time deny that we are beady-eyed, and hope that we are better understood as a result of his efforts. Also, despite our passion for anonymity, we now find that the stage on which Federal programs are played has become so vast that we do have to allow for a few occasions which permit us to see local interests at work, or, as we say at the Bureau, the real world. For it is to help in shaping this real world that presidential goals, policies, purposes, and proposals are eventually fused into what is termed "the program of the President." It is the translation of that program into dollar terms which leads us in the Budget Bureau to pursue the facts, to question the purposes of programs, to analyze—alas, all too imperfectly—their costs and benefits, so that the decisionmaker—in our case, the President—can look at alternatives and evaluate relative payoffs from different kinds of public investments.

As availability of public funds for public purposes becomes tighter, the need for questioning is heightened. Our thirst for knowledge is quickened as we understand that when budget decisions are made we are affecting not only your hard-earned personal income but also the way in which society utilizes its people and its natural or physical resources, and the services or social purposes which these resources produce. The allocation process is never ending—the larger the Federal budget the greater the responsibility that Government assumes to channel and direct its resources according to rational choices.

I have no crystal ball to tell me how large the level of Federal spending will be or ought to be. I would only be speculating, and I would be especially speculative if I engaged in the game of "what if we had no Vietnam?" The level will remain high, however, and the competition for the dollars increasingly acute. This acute competition means that we in the Budget Bureau must concern ourselves with the goals and objectives and the hoped-for results of health and other programs. We try to refuse to go along with the proposals that shoot from the hip.

What I am saying is that while we in the Budget Bureau have no special wisdom or formulas for sorting out our budgetary goals and priorities, the President wants his program to be tuned to the problems of our society and the need for developing solutions to those problems. He wants his final choices to be not only good choices, but better than other proposals to accomplish the same end, and to show better returns for the same investment of public funds. To be sure, the budgetary process is neither clear cut nor infallible, and, as I have indicated, our analytical techniques are still probably not as solid as we would like.

Still, I hope you will accept that this budgetary effort is no simple accounting task, but one in which after we fall back exhausted—incidentally, that will occur for 1969 very shortly—we have helped the President find a balance first, among the national goals of national security, foreign affairs, education, health, abolition of poverty, environmental quality, recreation, housing, transportation, science and technology, and so on; and second, among the programs most likely in action to give him progress toward these goals. There is never enough to go around, and it is little wonder that Maurice Stans, President Eisenhower's last budget director, called budgeting the uniform distribution of dissatisfactions.

There is ample room to demonstrate that the worth of social investment is subject to qualifiable assessment. There is rather a widespread effort today in the Government to produce these assessments, going under such names as systems analysis or program planning and budgeting. Thus, investment in education is said to be more than socially "good"—we say it is economically productive, and we can even say by how much. We can, by better analysis, show that the rehabilitation of the handicapped is not only socially useful but economically advantageous. In medical science, similar reasoning can and

has been applied to show favorable cost/benefit and cost/effectiveness ratios—for example, it has been done in studies in the Department of Health, Education, and Welfare of the health of the poor and the health of children.

But let me quickly hasten to disabuse you of any idea that budgeting and its associated decisionmaking is strictly for budget professionals. This is no system of push buttons or whirring magnetic tapes. Public policy is still made in the political arena, and it is in this arena that the budgetary decisions are made.

A better grasp of the role of public expenditures in creating social assets does not by itself tell us when to spend or how much to spend. Our pluralistic society responds to pluralistic demands whether they are supported by a dispassionate array of facts and figures or not. Many human needs clamor for passionate attention, and many problems cry out for solutions as neglected areas of public concern. Certainly, our planning and analytical capability is not great enough to have given us in so short a time rationality to develop our present array of Federal human resource programs. About 459 such programs are described in the annual catalog of Federal assistance programs produced by the Office of Economic Opportunity. I commend this catalog to your attention. It may help you not only to find out whether there is a grant program to finance your favorite project, but it will also rather forcibly impress upon you the sweep of Government activity in the social field.

The use of the phrase "human resources" has become fashionable in today's intellectual parlance, but I think it signifies that the programs grouped under this banner constitute a new type of governmental effort, not to be compared with social legislation of the past—either the New Freedom of Wilson or the New Deal of Roosevelt. That legislation—fair labor standards, child labor laws, food and drug controls, unemployment insurance, social security, to mention a few—reflected a simpler social philosophy that Government should provide a basic underpinning by interdicting various behavior patterns or by providing certain minimum income quarantees. Today, the revolution of rising expectations in the less developed world is paralleled by unrest in our own society, and Government is responding by provision of services on a very broad front. The 89th Congress alone produced 21 new health programs, 17 new educational programs, 15 new economic development programs, 12 new programs to meet problems of cities, and four new manpower programs.

From our early days, we Americans have been a "practical" people. And so our society tends to bring into being human resource programs that are targeted to specific action areas. These may be categories of disease or specific population groups, and—I may add—are too often controlled by

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the professional specialists. Too often, the professional insists on assumptions, approaches, programs, or technology of universal applicability. Lest we "dehumanize" human resource programs, may I stress that the primary focus of Government in managing this array of programs ought to be on the individual no matter who he is—underprivileged, poor, aged, migrant, veteran, child, mother, nonwhite, retarded, rural, uneducated, or other statutory category.

These programs, and I include Regional Medical Programs, have created a new dimension for Federal management and for relations with the private sector and State and local governments. Unfortunately, for those who approach governmental relations simply, no one has contrived a simple formula for the execution of these programs. On the contrary, we have adopted, probably not always consciously, the approach of pragmatic experimentation. There is not always time to wait for the perfect solution. So, we grope toward it, accepting some risks. We place a high premium on close cooperation and a flow of information among equals, and, above all, we are willing to see institutional change come about in many forms. We have had to try to move more and more decisionmaking out into the field, recognizing that coordination of programs cannot all be achieved by Federal action. The benefits of decentralization, however, must be accompanied by the costs of anomalies, diversity, inconsistency, and even downright error. But deep-rooted social and economic problems are complex in nature and cannot be attacked by simple-minded, single-shot approaches.

In his report to the President and the Congress on Regional Medical Programs, the Surgeon General set forth at length a number of issues and problems which face the Regional Medical Programs. Some derive from characteristics of the general health setting in this country—for example, its essentially voluntary and private nature, the magnitude and complexity of what is often termed a $43 billion industry, manpower limitations, and rising medical costs. Others relate

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to the law itself—definition of a region, significance of disease categories, use of advisory groups, dissemination of information relating to advances in diagnosis and treatment, and others.

In time, these and other issues will be dealt with in the public, executive, and legislative forum. But, as I see Regional Medical Programs in the context that I discussed earlier—our problem of allocating resources of men, money, and materials—its prime worth to our society will be in its capacity for improvement of our system—or systems—of medical care for the people served. Let me stress the word "medical" because too often in the past in this country we have used "health" as a euphemism for medical in view of our unwillingness to confront on a public level the problems of medical care.

By now it is established that Government has set its face in the direction of tackling the problem of assuring to all its citizens the access and availability of high quality medical care. I regard as idle the discussion whether we mean such care is a right, like public education, or a privilege. The goal is clear, and if we are serious about it, we must constantly make painful choices as to where we will put our moneys and equally painful decisions on how to arrange our institutions.

I do not anticipate that we will experience major trade-offs in Government spending between previously well-funded activities that were of less public controversy—such as biomedical research and academic science— and new activities designed to finance and make available the medical knowledge we have. However, it is also clear that extremely high on the health agenda is the distribution of our medical knowledge—what we call the organization and delivery problem. I think that it is in solving this problem and in bringing medical care to people that the Regional Medical Programs potential lies.

Medicare and medicaid alone account for over $8 billion of the Federal expenditures of $15 billion for health programs. They have virtually eliminated financial barriers for the aged and have made it possible for poor and near-poor in three-fourths of our States to receive an increasing volume of medical services. These landmark laws of 1965 are accompanied by others in maternal and child health.

Ironically, many people—and especially medical professionals—are troubled over this outpouring of Federal funds to diminish the financial burden of paying for medical care, and they are rightly troubled, because with demand for medical care now effective, as the economists say, the pressure is on the profession to deliver. In addition, of course, there is the vocalized but as yet not effective demand of citizens not yet covered—for example, the disabled, the migrants, or the rural and urban poor not eligible for medicaid. None of us needs to be an economist to know that when more funds are poured into the arena for purchase, the selling system must be more efficient or its supply must be enlarged or the infusion of funds may simply be eaten up by price inflation. Debate continues—and I am no expert—on the extent to which medicare contributed to rising medical costs, but the rising costs are with us and therefore spur us to examine our system of medical care.

Many speak of Regional Medical Programs as a unifying focus for the health resources of a region, linking patient, physician, hospital, and medical centers to provide the latest advances of knowledge to the people in this region. But health functions are a continuum, and Regional Medical Programs will have to consider the problems of distribution, cost and organization of health care. I would think that, because of the tremendous scope of heart disease, cancer, stroke, and related diseases, the task of improving organization and delivery of medical care through Regional Medical Programs has to be viewed in the context of comprehensive health services and not in a narrowly based disease approach.

This task will have, in the long run, serious implications for medical centers and medical schools. The comfort of biomedical research and individual case treatment or teaching may be replaced for many by the raging controversies over medical care costs, doctors' fees, etc. "Interesting medicine" may become not disease-oriented, but the area of organizing the system of care. Of course, another impact, still only seen in general terms, will be seen in the need for production of more doctors faster. The President's Health Manpower Commission recommended that we develop economic incentives to make this possible. Oliver Cope wrote somewhat despairingly of this problem of medical education a few months ago in *Harper's Magazine*. I would hope that in time we could overcome his despair by responding to the prod of the Commission.

Through the National Center for Health Services Research and Development, Regional Medical Programs will get invaluable assists through a rising level of supporting investigations and experiments. Another significant actor on the scene is the "Partnership for Health," and I guess we still have to establish with more clarity how we want this experiment to tie in with Regional Medical Programs. There is a tendency to regard this program as just another State support program. This is an error in judgment, and you will find that it is regarded here in Washington as a pilot program of some significance. It is a major breakthrough in changing the proclivities of professionals and their executive and legislative supporters to opt for narrowly-based categorical programs. There is a serious effort afoot in this town to create more manageable packages which permit the local private and public

sector to act decisively while preserving the right of the Federal Government to establish priorities of national significance.

In the Budget Bureau we have read with considerable interest the Surgeon General's priority statement for Partnership for Health issued in November. This priority statement is very topical, and I suggest that it has great meaning for many of you. This statement establishes three budget priorities that are relevant to Regional Medical Programs:

First: The requirement for comprehensive health care, directed to individuals and families, not diseases;

Second: Improvement of the health status of the indigent; and

Third: Use and training of neighborhood residents and involvement of neighborhood residents in planning and implementation of health projects.

I would only bore you were I to recite statistics about the health status of the poor. The evidence of unusual disease and high prevalence of ill health identifies them as a high-risk population. While the middle and upper classes in this opulent society have a malaise and uncertainty about their own lives, the health status of the poor is part and parcel of that complex called poverty which is much greater than just lack of income. It is what Colin McLeod, in his recent AAMC address, eloquently called "the lack of hope that one can ever rise beyond the despair of being forever a hewer of wood and a drawer of water; it is the despair of being unable to aspire to the expression of his potential as a human being; it is the despair of having no future except that of mean survival in misery loaded enclaves surrounded by an opulent society."

There has now been mounted in the Office of Economic Opportunity a program by the "medical radicals," as Marion Sanders calls them, of Neighborhood Health Centers. Today, 46 centers are in operation or to be funded, and medical schools at all levels are in the business. This is more than an incidental change in attitude. It is recognition that the Nation's health business lies in making medical care available to all, and the role of medical schools and centers is crucial in this. May I, as a layman, suggest that heart, stroke, cancer, and related diseases—significantly related or not—will be found among the poor in the neighborhood health centers. Undoubtedly, many medical schools are or will be deeply involved in both Regional Medical Programs and neighborhood centers and both programs should profit from each other.

If I am right that Regional Medical Programs has not been sufficiently concerned thus far with the problems of the poor, I can extend this lack of concern to the cities generally. Not that I ignore the rural poor. The Breathitt Commission reminds us most forcibly that urban poverty has deep roots in rural poverty. But the crisis of the cities is a human resources crisis and the cities are where we will find most starkly the poverty of which Colin McLeod spoke.

For too long our society has invested resources in only the physical aspects of the city, but the Model Cities program is ample testimony that human and social needs are the dominant theme today. Sixty-three cities have been selected for first generation grants under this top priority program, designed to improve the quality of urban life, declared by Congress to be the most critical domestic problem facing the United States. These 63 cities now have the initiative by law to develop programs for selected neighborhoods so as to remove or arrest blight and decay, to make marked progress in reducing social and educational disadvantages, ill health, underemployment, and enforced idleness, and to provide educational, health, and social services necessary to serve the poor in the Model City area. You should be aware that this is a program run through the Department of Housing and Urban Development, but that HUD places primary reliance on other agencies for evaluating the human resources program proposals of these Model Cities plans.

The Model Cities program, born in the inspiration of a few, dealing with the institutional arthritis of Federal, State, and local bureaucracies and frustrated by the professionalism in health, education, and welfare, may yet turn out to be our boldest experiment. Regional Medical Programs tries to develop, on the basis of local initiative, new institutions and techniques to solve health problems. In a sense, Model Cities is Regional Medical Programs writ large upon the total human resources scene.

The Model Cities program has another lesson for Regional Medical Programs—the necessity of citizen participation in program development and his access to the decision-making process. There are many roles which we can attempt to define as being logical and effective for the private citizen in health affairs. Hospital trustee or planning body member are obvious roles. Not so obvious and perhaps somewhat more nebulous is the role of the private citizen as a member of the board of directors of a regional medical program. I know many of you are thinking about this role of the citizen which, incidentally, would parallel the consumer representation found in the Partnership for Health program. In any case, the nonprofessional role in planning a regional medical program warrants expansion and the community members, to play this role, will have the responsibility for asking a number of unpleasant questions about the quality of the medical care in a region, the availability and accessibility of comprehensive health services, or the usefulness of Regional Medical Programs in inhibiting the rate of cost increase in medical care.

May I suggest, however, that there is another consumer role which must

be considered. It is an inevitable role if human resources programs are to reach the people whom they are designed to serve. I am speaking here of the citizen in the neighborhood who will not be satisfied with past patterns of consumer representation, but wishes rather through neighborhood organizations to make his views known. The requirement of participation of the citizens in the neighborhood in determining the programs which serve them is found increasingly in Federal law, Model Cities and Office of Economic Opportunity being only highlight examples. The prescription of the participation may vary in differing statutes as may its administration in practice. But one thing is certain: The voice of the citizen consumer will be heard at the grassroots level in the deliberations affecting his future.

The need of community involvement and citizen participation is unfamiliar to the medical profession, which has survived a long time in this country under the slogan, "You are the doctor." But Paul Ylvisaker very astutely pointed out at last year's conference in this hotel that the Regional Medical Programs has too narrow a professional base, and he stated that, if the health professions do not become consumer oriented, "within 2 years your medical schools will be picketed by a combination of the American Mayors Federation and CORE. And I wonder," he said, "if your medical faculties are ready for that experience."

Not too long ago Public Broadcast Laboratories televised the sharply polarized views of the police and the militant Black Power advocates regarding law enforcement by police. It was a fairly chilling experience for the advocates of moderation. But I found provocatively thoughtful the minister from Atlanta who calmly told a nationwide audience that all our social, education, and health efforts were hampered by an essentially negative attitude of Americans toward the poor and the Negro. If we expect human resources programs, including Regional Medical Programs, to realize their investment potential to serve human beings, the professional's attitude must be one that not only permits him to help the poor and Negro, as he did in the past eras of social legislation, but also motivates him to urge their involvement and give them access to the decisionmaking process. That is our goal in Model Cities, Office of Economic Opportunity, and Partnership for Health. It should be no less in Regional Medical Programs.

May I thank you for this opportunity to be present at this Conference, and wish you well in your endeavors.

REMARKS

Honorable Melvin R. Laird
Member, U.S. House of Representatives
State of Wisconsin

I came here to learn, and I have been listening to the morning sessions with a great deal of interest. It is true that I have served on the Health, Education, and Welfare Appropriations Committee ever since this department was created, working very closely with the gentleman on the other side of the aisle, John Fogarty, who was my closest and dearest friend in the Congress. We had a very great association together for some 16 years.

I know that he would be proud of the progress that the Regional Medical Program has made in a very short period of time. And the fine report on this conference which I was privileged to hear from you, Doctor, I think speaks well for this program.

When we made the first appropriation for this program, of course, we were concerned about the delivery of the research benefits which we had funded at an ever increasing rate for a period of some 12 to 13 years, the delivery of these research benefits and research findings to a limited number in the medical manpower field. But the purpose of this program was to see that medical services in the hands of a very limited medical manpower group could get to patients in the various regions of our country and the use of this medical manpower could be a fuller use, fuller utilization, more effective.

Because, as we went forward into the future, we could see that it wasn't just a question of doctor shortages, but it was a question of shortages in every area of medical manpower. And the Regional Program could move in the direction of making better use of the limited supply which we had on hand and which we foresaw for the decades of the seventies and eighties.

HONORABLE MR. LAIRD

And I think the progress that has been made that has come from these discussions and your report, Dr. Coggeshall, on the work that has gone on here at this conference shows that this program is finally getting started. It has got a long way to go, but at least, you are defining the problem.

* * *

APPENDICES . . . .

APPENDIX 1

CONFERENCE-WORKSHOP PROGRAM

THEME: ISSUES FOR REGIONAL MEDICAL PROGRAMS IN THE IMPROVEMENT OF HEALTH CARE

WEDNESDAY, JANUARY 17

8 a.m. REGISTRATION — Concourse

FOCUS ON THE ISSUES

8:30–10:30 a.m. PLENARY SESSION — International Ballroom West

Chairman: STANLEY W. OLSON, M.D.,
Chairman, Coordinators' Steering Committee and
Coordinator, Tennessee Mid-South Regional Medical Program

Quality and Availability of Health Care for Heart Disease, Cancer, Stroke, and Related Diseases in the Future as Related to:

- Science and Service
  CARLETON CHAPMAN, M.D.,
  Dean, Dartmouth Medical School,
  Hanover, N.H.
- Regionalization
  LESTER BRESLOW, M.D.,
  Professor of Health Administration and Chief,
  Division of Health Services,
  UCLA School of Public Health
  Los Angeles, Calif.
- Development of Personal Health Service
  DWIGHT L. WILBUR, M.D.,
  President-Elect,
  American Medical Association,
  San Francisco, Calif.

11 a.m.–12 Noon PLENARY SESSION (continued) — International Ballroom West

Quality and Availability of Health Care for Heart Disease, Cancer, Stroke, and Related Diseases in the Future as Related to:

- The Population

Chairman: ROGER O. EGEBERG, M.D.,
Dean, School of Medicine,
University of Southern California,
Los Angeles, Calif.

Panel: RAY E. TRUSSELL, M.D.,
Director, School of Public Health and Administrative Medicine,
Columbia University,
New York, N.Y.

FRANK P. LLOYD, M.D.,
Director, Medical Research,
Methodist Hospital,
Indianapolis, Ind.

AMOS JOHNSON, M.D.
Garland, N.C.

12 Noon–6 p.m. DEMONSTRATIONS—EXHIBITS — Terrace

Special demonstrations and exhibits which reflect regional and other related activities have been arranged and will be opened and manned during this period.

See Appendix A of this printed program for listing of demonstrations and exhibits and their locations.

1:30–3:30 p.m. SERIES I—PAPERS ON REGIONAL ACTIVITIES AND IDEAS

Selected 15-minutes papers presenting highlights of regional activities and ideas now being developed in the regions will be presented on the following schedule in adjacent rooms permitting and encouraging conferees to develop a preselected schedule so that they can move from room to room at 20-minute intervals to hear those papers in which they have the most related interest:

Starting time		*Meeting rooms on concourse level*					
1:30	Papers	1	7	13	19	25	30B
1:50	Papers	2	8	14	20	26	30C
2:10	Papers	3	9	15	21	27	"
2:30	Papers	4	10	16	22	28	"
2:50	Papers	5	11	17	23	29	"
3:10	Papers	6	12	18	24	30A	"

See appendix B for detailed listing of papers, speakers and room location.

3:45–5:15 p.m. SESSION I—DISCUSSION GROUPS

Insofar as possible, discussion subjects are related to preceding papers and in some cases paper presenters are included as discussants.

TOPIC A "Health Manpower—The Commission Report"
TOPIC B "Regionalization"
TOPIC C "Urban Problems"
TOPIC D "Related Federal Programs"
TOPIC E "Health Services Research"

See Appendix C for listing of participants and room location.

THURSDAY, JANUARY 18

REGIONAL MEDICAL PROGRAMS INTO ACTION

8:30–10 a.m. PLENARY SESSION — International Ballroom West

Chairman: ROBERT G. LINDEE,
Co-Chairman, Conference-Workshop on Regional Medical Programs,
Assistant Dean, Stanford University School of Medicine,
Palo Alto, Calif.

Division of Regional Medical Programs Reports on:

- Progress and Issues
  ROBERT Q. MARSTON, M.D.,
  Associate Director, National Institutes of Health, and
  Director, Division of Regional Medical Programs.
- A New Emphasis
  ALEXANDER M. SCHMIDT, M.D. (presenter),
  Chief, Continuing Education and Training Branch,
  Division of Regional Medical Programs.
  RICHARD F. MANEGOLD, M.D.,
  Associate Director for Program Development and Research,
  Division of Regional Medical Programs.
- Operations Research
  ROBERT BUCHER, M.D. (presenter),
  Dean, Temple University School of Medicine and
  Consultant to the Division of Regional Medical Programs.
  JACK HALL, M.D.,
  Director of Medical Education,
  Methodist Hospital, Indianapolis, Ind., and
  Consultant to the Division of Regional Medical Programs.
  HERBERT P. GALLIHER, Jr., Ph. D.,
  Professor of Industrial Engineering,
  University of Michigan, and
  Consultant to the Division of Regional Medical Programs.
  MAURICE E. ODOROFF,
  Assistant to the Director for Health Data,
  Division of Regional Medical Programs.

10:30–12:30 p.m. PLENARY SESSION (continued) — International Ballroom West

Chairman: JOHN A. GRONVALL, M.D.,
Co-Chairman, Conference-Workshop on Regional Medical Programs,
Associate Director and Associate Dean,
University of Mississippi Medical Center,
Jackson, Miss.

A National View of New Developments in:

- Heart Disease
  DONALD S. FREDRICKSON, M.D.,
  Director, National Heart Institute,
  National Institutes of Health.
- Cancer
  KENNETH M. ENDICOTT, M.D.,
  Director, National Cancer Institute,
  National Institutes of Health.
- Stroke
  RICHARD L. MASLAND, M.D.,
  Director, National Institute of Neurological Diseases and Blindness,
  National Institutes of Health.

12:30–6 p.m. DEMONSTRATIONS—EXHIBITS — Terrace

Special demonstrations and exhibits which reflect regional and other related activities have been arranged and will be opened and manned during this period.

See Appendix A of this printed program for listing of demonstrations and exhibits and their locations.

1:30–3:30 p.m. SERIES II—PAPERS ON REGIONAL ACTIVITIES AND IDEAS

Selected 15-minute papers presenting highlights of regional activities and ideas now being developed in the regions will be presented on the following schedule in adjacent rooms permitting and encouraging conferees to develop a preselected schedule so that they can move from room to room at 20-minute intervals to hear those papers in which they have the most related interest:

Starting time		*Meeting rooms on concourse level*				
1:30	Papers	31	37	43	49	55
1:50	Papers	32	38	44	50	56
2:10	Papers	33	39	45	51	57
2:30	Papers	34	40	46	52	58
2:50	Papers	35	41	47	53	59
3:10	Papers	36	42	48	54	60

See Appendix B for detailed listing of papers, speakers and room location.

3:45–5:15 p.m. SESSION II—DISCUSSION GROUPS

Insofar as possible, discussion subjects are related to preceding papers and in some cases paper presenters are included as discussants.

TOPIC F "Continuing Education and Training, For What?"
TOPIC G "Data Collection and Registries"
TOPIC H "Hospitals"
TOPIC I "Community Involvement"
TOPIC J "Operational Program Development"

See Appendix C for listing of participants and room location.

FRIDAY, JANUARY 19

8:30–10 a.m. PANEL DISCUSSIONS

To permit the conferees to relate the presentations on Heart Disease, Cancer, and Stroke given at the Plenary Session on Thursday morning, and participate in a discussion of their relationship to Regional Medical Programs, three concurrent panels are scheduled:

HEART DISEASE — Lincoln Room

Chairman: JESSE EDWARDS, M.D.,
President, American Heart Association,
Charles T. Miller Hospital,
St. Paul, Minn.

Panel: THEODORE COOPER, M.D.,
Associate Director,
National Heart Institute,
National Institutes of Health.

SAMUEL M. FOX III, M.D.,
Chief, Heart Disease Control Program,
National Center for Chronic Disease Control,
Bureau of Disease Prevention and Environmental Control.

WILLIAM LIKOFF, M.D.,
President, American College of Cardiology,
Hahnemann Medical College,
Philadelphia, Pa.

CAMPBELL MOSES, M D ,
Medical Director,
American Heart Association,
New York, N.Y.

CANCER — Thoroughbred Room

Chairman: SIDNEY FARBER, M.D.,
President-Elect,
American Cancer Society and Director of Research,
Children's Cancer Research Foundation,
Boston, Mass.

Panel: MICHAEL J. BRENNAN, M.D.,
Scientific and Medical Director,
Michigan Cancer Foundation,
Detroit, Mich.

JUAN DEL REGATO, M.D.,
Director,
Penrose Cancer Hospital,
Colorado Springs, Colo.

KENNETH M. ENDICOTT, M.D.,
Director,
National Cancer Institute,
National Institutes of Health.

GUY F. ROBBINS, M.D.,
Director of Planning,
Memorial Hospital for Cancer and Allied Diseases,
New York, N.Y.

STROKE — Hemisphere Room

Chairman: NEMAT BORHANI, M.D.,
Professor of Internal Medicine and Chairman,
Department of Community Health,
University of California School of Medicine,
Davis, Calif.

Panel: RICHARD L. MASLAND, M.D.,
Director, National Institute of Neurological Diseases and Blindness,
National Institutes of Health.

CLARK H. MILLIKAN, M.D.,
Consultant in Neurology,
Mayo Clinic,
Rochester, Minn.

WILLIAM A. SPENCER, M.D.,
Director, Texas Institute for Rehabilitation and Research,
Houston, Tex.

JAMES TOOLE, M.D.,
Professor and Chairman,
Department of Neurology,
Bowman Gray School of Medicine,
Winston-Salem, N.C.

SUMMING UP AND LOOKING AHEAD

10:30 a.m.–12 Noon PLENARY SESSION — International Ballroom West

Chairman: PAUL D. WARD,
Incoming Chairman, Coordinators' Steering Committee, and
Coordinator, California Regional Medical Program.

- Conference-Workshop Summary of Issues

LOWELL T. COGGESHALL, M.D.,
Vice President Emeritus,
University of Chicago.

- Address by . . .

IRVING LEWIS,
Deputy Assistant Director,
Bureau of the Budget,
Office of the President.

- Closing Remarks by . . .

PHILIP R. LEE, M.D.,
Assistant Secretary for Health and Scientific Affairs,
U.S. Department of Health, Education, and Welfare.

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12 Noon ADJOURNMENT

APPENDIX A

LISTING OF DEMONSTRATIONS AND EXHIBITS

WEDNESDAY, JANUARY 17, 1968
THURSDAY, JANUARY 18, 1968

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12 Noon–6 p.m. DEMONSTRATIONS—EXHIBITS

Special demonstrations and exhibits which reflect regional and other related activities have been arranged and will be opened and manned during this period. The following list indicating location on Terrace Level or in Park Suite Rooms includes number or letter of exhibit, the name of the exhibitor, and some descriptive information on each exhibit.

TERRACE LEVEL

[Exhibit No.] and exhibitor	Description and (exhibit contact)
[1] Greater Delaware Valley Regional Medical Program	Maps and charts depict the need and method for subregionalization of a "mega-region." (Mr. Ward Bentley)
[2] Western New York Regional Medical Program	A 4-panel display of how a region is acting to improve patient care. (Mr. Anthony Zerbo)
[3] Missouri Regional Medical Program	A dual display. One includes photographic panels illustrating various operational projects now underway in this region. The other is a scale model of the comprehensive medical care facility now being built in Smithville, Mo., the site of one project. (Miss Annette Eberley)
[4] Tennessee Mid-South Regional Medical Program	3-panel display of nursing care showing how efforts of physicians and nurses for superior care can be achieved by vertical organization as opposed to the fragmenting effects of horizontal organization. (Dr. Stanley Olson)
[5] North Carolina Regional Medical Program and Commission on Professional and Hospital Activities	A cooperative exhibit indicating data on acute coronary occlusion from 44 hospitals in North Carolina. (Dr. Virgil Slee)
[6] Colorado-Wyoming Regional Medical Program	A dual exhibit. One section is an exhibit which indicates development of this program. Combined with this will be a videotape presentation showing how this program plans to use videotape units for continuing education. (Mr. Robert Vestal)
[7] Heart Disease Control Program of National Center For Chronic Disease Control	A dual exhibit. One is a descriptive display of the type of work done in the Standardization and Reference Laboratories of this program and location of the laboratories participating in standardization programs for drugs used in treatment of heart disease. The other is a display of computer analysis of electrocardiograms. (Dr. Gerald Cooper)
[8–9] Rochester Regional Medical Program in Conjunction With the Heart Disease Control Program of National Center For Chronic Disease Control	Models of various available types of coronary care units, including that in operation in this Regional Program. (Mrs. Jane Hansen)
[10] Cancer Control Program of National Center For Chronic Disease Control	Entitled "Stop Oral Cancer," this visual exhibit highlights special forms of detection and treatment of this type of cancer. (Dr. Richard L. Hayes)
[11] Rehabilitation Services Administration	A 4-panel display describing the services of vocational rehabilitation. (Mr. Tom Brubeck)
[12] National Heart Institute of the National Institutes of Health	Detailing some related programs of the Institute, this exhibit will emphasize its coronary drug project to evaluate lipid-lowering drugs in acute coronary disease. (Mr. Donald Bradley)
[13] Washington-Alaska Regional Medical Program	An exhibit designed to explain this program and by a special device provide the opportunity to identify the mortality rate in the three categorical diseases in the various parts of the State of Washington and compare them. Also included is an arrhythmia simulator which permits physicians to test themselves in diagnosis and treatment of acute cardiac problems. (Mrs. Marion Johnson)
[14] North Carolina Regional Medical Program in Conjunction With the National Institute of Neurological Diseases and Blindness of the National Institutes of Health	An exhibit detailing the stroke control program now underway at the Bowman-Gray School of Medicine. (Dr. James Toole)
[15] Intermountain Regional Medical Program	A 7-part exhibit including a description of this program; description of use of highly portable videotape recording system; illustration of this region's effort to establish a "regenerative" continuing education program; examples of organizational planning; visualization of importance of two types of data collection; and demonstration of scope and method of this Region's two-way radio network. (Mr. Charles Akerlow)

[Exhibit No.] and exhibitor	Description and (exhibit contact)
[16] National Institute of Neurological Diseases and Blindness of the National Institutes of Health	Exhibit consists of information and a map indicating the location of Stroke Research Center, Training Programs and Aneurysm Studies established and underway throughout the country. (Mr. Robert Hinkel)
[17] National Cancer Institute of the National Institutes of Health	An exhibit demonstrating the activities and location of Cancer Research Centers and Clinical Cancer Training Centers established and underway throughout the country. (Mrs. Pauline Wall)
[18] Bureau of Health Manpower	A 3-panel exhibit describing the organization, function and activity of this Bureau and its relationship to the delivery of health care. (Mr. Wayne M. Bard)
[19] American Cancer Society	A visual display of professional educational printed materials related to various types of cancer. (Mr. Walter James)
[20] Chronic Respiratory Disease Control Program of the National Center for Chronic Disease Control	Materials describing diagnosis, treatment, and related activities in emphysema and chronic bronchitis will be displayed and available. (Mrs. Shelie Lengel)
[21] American Heart Association	Materials detailing the activities of this Association as they relate to Regional Medical Programs and an example of how a State association is working with one Regional Medical Program will be available in this exhibit area. (Miss Placide Schriever)
[22] Iowa Regional Medical Program	Diagrams showing interrelationship between this program and health planning groups in the region. (Dr. Willard A. Krehl)
[23] Louisiana Regional Medical Program	Display includes original drawings for slide presentation describing the development and activities of this program. (Dr. J. A. Sabatier)
[24] Office of Program Planning of the Surgeon General	This exhibit of maps developed by computer shows census data by small geographic area for possible use in Regional Medical Program planning. (Mr. James King, Jr.)
[25] Mountain States Regional Medical Program	A visual description of the use of questionnaires to gain planning information and data from the region for use in developing this program. (Dr. Alfred Popma)
[26] West Virginia Regional Medical Program	A visual explanation of initial activities and people concerned in the development of the planning phase of this program. (Dr. C. L. Wilbar)
[27] Division of Medical Care Administration of the Bureau of Health Services	A 3-panel exhibit visualizing automated multiphasic screening ranging from patients themselves to the use of the computer. (Miss Grace Osgood)
[28] American Medical Association	Exhibit visualizes the areas of responsibility, available resources, and other health organizations that should be involved with Regional Medical Programs. (Dr. Howard Doan)
[29] Division of Regional Medical Programs	The standard exhibit currently being used at large national meetings and a newly developed smaller easily transportable and usable replica to be made available for smaller local, area, and regional meetings on request. (Mr. Frank Karel III)

[Exhibit No.] and exhibitor	Description and (exhibit contact)
[30] Veterans Administration	This exhibit visualizes the long-range VA hospital replacement and relocation program, providing some idea of future facilities that should be included in regional planning. (Mr. Howard Armstrong)
[31] Michigan Regional Medical Program	Describing "Project Echo" (Evidence for Community Health Organization), this exhibit visually details an on-going environmental appraisal and interviews to assess current health status and needs of the population of this region. (Mrs. Betty Tableman)

PARK SUITE ROOMS

[Exhibit letter] room exhibitor	*Description and (exhibit contact)*
[A] *Bancroft Room* California Regional Medical Program	Display portion portrays the development of this program in the new University of California School of Medicine at Davis. The demonstration section shows the medical television programs being carried out at the University of California, Los Angeles. (Harry O. Bain and Dr. Donald Brayton)
[B] *Chevy Chase Room* Kansas Regional Medical Program	Specially selected slide presentation of elements of this program designed to be used to inform and encourage cooperation of various groups within this region. (Dr. Charles Lewis)
[C] *Chevy Chase Room* Oklahoma Regional Medical Program	A demonstration of the U.S. Air Force Computer-Based Worldwide System for Continuing Medical Education—as adapted to the Oklahoma program. (Col. Owen G. Birtwistle)
[D] *DuPont Room* Greater Delaware Valley Regional Medical Program	A presentation of the systems analysis approach to planning as utilized in this region. TO BE PRESENTED ON THURSDAY ONLY. (Dr. G. Angelides)
[E] *Edison Room* Wisconsin Regional Medical Program	(1) The display portion shows the screening mechanism used in this program as a basis for decisionmaking on elements of operational programs. (2) The demonstration portion covers the Dial Access Medical Library Service now in operation in this region. (Mr. Roy Ragatz)
[F] *Farragut Room* National Library of Medicine	A demonstration of the medical television system in operation from the Audiovisual Center of the National Library of Medicine in Atlanta to affiliated hospitals in various parts of the city. (Mr. John Argyle King)
[G] *Jackson Room* National Naval Medical Center	A demonstration of the development and use of audiovisual materials in medical education. (Ensign T. Galbreath)
[H] *Kalorama Room* Clinical Center of the National Institutes of Health	A 15-minute film demonstrating the automated computerized clinical laboratory of the clinical center and the possible application of such a system to hospitals on a regional basis. TO BE GIVEN ONLY AT 3 P.M. WEDNESDAY AND THURSDAY. (Dr. George Z. Williams and Dr. John Otis)
[I] *Independence Room* Division of Nursing of Bureau of Health Manpower	Preliminary information and examples of instructional systems for training nurses for intensive coronary care units and open heart surgery. Based upon educational projects sponsored by the Division of Nursing at Presbyterian-University of Pennsylvania Hospital by Dr. Laurence Meltzer and at Ohio State University by Rita Chow. (Miss Florence Reynolds)

APPENDIX B

LISTING OF 15-MINUTE PAPERS ON REGIONAL ACTIVITIES AND IDEAS

PAPERS BY ASSIGNED NUMBER

WEDNESDAY, JANUARY 17, 1968

Paper No.	*Title, author, and (region)*	*Time and location*
1	"Health Evaluation Studies Utilizing a Multiphasic Screening Center Operating in Cooperation with a Comprehensive Health Care Program for Persons in an Urban Poverty Area." LLOYD ELAM, M.D. (Tennessee Mid-South)	1:30 p.m. Lincoln Room East

Paper No.	Title, author, and (region)	Time and location
2	"Provision of Optimum Clinical Laboratory Services for 3,000,000 People." DAVID SELIGSON, M.D. (Connecticut)	1:50 p.m. Lincoln Room East
3	"Biochemical Screening in Missouri." JAMES T. PACKER, M.D. and HUBERT J. VAN PEENEN, M.D. (Missouri)	2:10 p.m. Lincoln Room East
4	"A Regional Utilization, Patient Information and Statistics System." JOHN D. THOMPSON (Connecticut)	2:30 p.m. Lincoln Room East
5	"Flanner House Multiphasic Screening Program." HARVEY FEIGENBAUM, M.D. (Indiana)	2:50 p.m. Lincoln Room East
6	"Experiment to Test and Implement a Model of Patient Care in Hospitals." LUTHER CHRISTMAN, PH. D. (Tennessee Mid-South)	3:10 p.m. Lincoln Room East
7	"The Use of a Multi-Media Approach to Enhance the Learning of Health Science Personnel." WILLIAM G. COOPER, M.D. (Colorado-Wyoming)	1:30 p.m. Lincoln Room West
8	"Use of a Telephone Network for Continuing Education." RICHARD H. LYONS, M.D. (Central New York)	1:50 p.m. Lincoln Room West
9	"Communication Research Unit." WILLIAM STEPHENSON (Missouri)	2:10 p.m. Lincoln Room West
10	"Community Information Coordinator." WARD L. OLIVER, M.D. (Albany, N.Y.)	2:30 p.m. Lincoln Room West
11	"Development of Receptive Attitudes Toward New Ideas." JOHN S. GILSON, M.D. (Intermountain)	2:50 p.m. Lincoln Room West
12	"The Impact of RMP on Hard Core Poverty Areas." PAUL D. WARD (California)	3:10 p.m. Lincoln Room West
13	"The Role of the Voluntary Health Agencies in the Regional Medical Program in Iowa." WILLARD A. KREHL, M.D. (Iowa)	1:30 p.m. Military Room
14	"Small Community Planning." TASKER K. ROBINETTE (Washington-Alaska)	1:50 p.m. Military Room
15	"Coordination of Comprehensive Health Planning and Regional Medical Program Activities in Western Pennsylvania, 1967." E. WAYNE MARTZ, M.D. and HOWARD HOUGH (Western Pennsylvania)	2:10 p.m. Military Room
16	"Complementary Relationship Between Iowa Regional Medical Program—Comprehensive Health Planning and Voluntary Comprehensive Health Planning: A Necessary Accomplishment." JOHN C. BARTLETT, M.A., LL.B. (Iowa)	2:30 p.m. Military Room
17	"Problems in Developing the Role of Medical Schools in a Regional Medical Program." VINCENT dePAUL LARKIN, M.D. (New York Metropolitan)	2:50 p.m. Military Room
18	"The Role of a School of Public Health in a Developing Regional Medical Program." EDWARD COHART, M.D. (Connecticut)	3:10 p.m. Military Room
19	"Watts-Willowbrook Regional Medical Program." DONALD J. BRAYTON, M.D. (California)	1:30 p.m. Hemisphere Room
20	"Council of Regional Planning Directors and Administrators." JOSEPH J. MASON, JR. (Alabama)	1:50 p.m. Hemisphere Room
21	"Development of Relationship Between the Medical Association of the State of Alabama and the Alabama Regional Medical Program." J. O. FINNEY, M.D. (Alabama)	2:10 p.m. Hemisphere Room
22	"The Sub-Regional Concept and Liaison Staff." WILLIAM C. SPRING, JR., M.D. and WARD BENTLEY (Greater Delaware Valley)	2:30 p.m. Hemisphere Room
23	"The Delineation of Sub-Regional Health Service Areas as a Basic Step in Regional Medical Planning." CONRAD SEIPP, M.D. (Connecticut)	2:50 p.m. Hemisphere Room
24	"Regional Advisory Group and Review Process." CHARLES E. LEWIS, M.D. (Kansas)	3:10 p.m. Hemisphere Room
25	"A Proposed Circuit Postgraduate Program in Heart Disease, Cancer, Stroke and Related Diseases in the Oregon Region." M. ROBERTS GROVER, M.D. (Oregon)	1:30 p.m. Thoroughbred Room
26	"The Information and Education Resource Support Unit." JOHN N. LEIN, M.D. (Washington-Alaska)	1:50 p.m. Thoroughbred Room
27	"Unusual Programs for Continuing Education of Physicians at Grassroots Level." C. L. WILBAR, JR., M.D. (West Virginia)	2:10 p.m. Thoroughbred Room
28	"Community-Centered Continuing Medical Education." C. HILMON CASTLE, M.D. (Internmoutain)	2:30 p.m. Thoroughbred Room

Paper No.	Title, author, and (regior)	Time and
29	"Survey of Continuing Education of the Physicians in Metropolitan Washington." THOMAS W. MATTINGLY, M.D., LEONARD CHIAZZE, JR., SC.D., and MAL XAVIER (Metropolitan Washington, D.C.)	2:50 p.m. Thoroughbred Room
30A	"Approaches to Evaluation of a Regional Medical Program." CALDWELL B. ESSELSTYN, M.D. (New York Metropolitan)	3:10 p.m. Thoroughbred Room
30B	"Systems Approach to Planning." ANGELO P. ANGELIDES, M.D., LARRY McGOWAN, M.D., ARTHUR STANKOVICH (Greater Delaware Valley)	1:30 p.m. DuPont Room
30C	"Informal Discussion on Systems Analysis." HERBERT P. GALLIHER, JR., PH. D. (Professor, University of Michigan)	1:50 p.m. DuPont Room

THURSDAY, JANUARY 18, 1968

Paper No.	Title, author, and (region)	Time and location
31	"A Study of Physician Office Practice in the Connecticut Region." DONALD RIEDEL, PH. D. and ORVAN W. HESS, M.D. (Connecticut)	1:30 p.m. Lincoln Room East
32	"Consumer Health Care Survey." LAWRENCE J. SHARP, PH. D. (Washington-Alaska)	1:50 p.m. Lincoln Room East
33	"Continuum of Long Term Care in a Local Health Service Area." E. RICHARD WEINERMAN, M.D. (Connecticut)	2:10 p.m. Lincoln Room East
34	"Involvement of Local Hospitals in the Regional Medical Program by the Appointment of Local Hospital Advisory Groups." J. GORDON BARROW, M.D. (Georgia)	2:30 p.m. Lincoln Room East
35	"The Regional Medical Program as a Means of Increasing the Morale of the Family Doctor." ROGER BOST, M.D. (Arkansas)	2:50 p.m. Lincoln Room East
36	"Community Hospital Learning Centers." FRANK M. WOOLSEY, JR., M.D. (Albany, N.Y.)	3:10 p.m. Lincoln Room East
37	"Experiences with a Stroke Care Demonstration Unit." ROBERT R. SMITH, M.D. (Mississippi)	1:30 p.m. Jefferson Room East
38	"System for Clinical Data Collection and Analysis in Patients with Acute Myocardial Infarction." C. HILMON CASTLE, M.D. (Intermountain)	1:50 p.m. Jefferson Room East
39	"Cost Benefit Analysis." JOHN E. WENNBERG, M.D. (Northern New England)	2:10 p.m. Jefferson Room East
40	"Comprehensive Cardiovascular Care Unit." GLENN O. TURNER, M.D., CECIL R. AUNER, M.D. and JOHN J. McKINSEY, M.D. (Missouri)	2:30 p.m. Jefferson Room East
41	"Dataphone EKG Consultation: A Model for Extension of Medical Center Services to Community Hospitals." JOHN B. HERMANN (Nebraska-South Dakota)	2:50 p.m. Jefferson Room East
42	"Experience with the WARMP Mock-up Coronary Care Unit." STEPHEN YARNALL, M.D. (Washington-Alaska)	3:10 p.m. Jefferson Room East
43	"Nursing in the Regional Medical Programs-Alliance for Better Patient Care." HESTER THURSTON (Kansas)	1:30 p.m. Military Room

Paper No.	Title, author, and (regior)	Time and
44	"Continuing Nursing Education Using University Hospital Nursing Service Training Facilities." (Mrs.) MARGARET SOVIE (Central New York)	1:50 p.m. Military Room
45	"Health Manpower Survey of Western New York." Harry A. SULTZ, JOHN FORTUNE, JOSEPH FELDMAN, SPERO MOUTSATSOS (Western New York)	2:10 p.m. Military Room
46	"Guest Resident Program." GEORGE ROBERTSON, M.D. (Maine)	2:30 p.m. Military Room
47	"Continuing Education Performance Deficits." CLEMENT BROWN, M.D. (Greater Delaware Valley)	2:50 p.m. Military Room
48	"Skeleton Program in Continuing Education and Clinical Research." WILLIAM H. McBEATH, M.D. (Ohio Valley)	3:10 p.m. Military Room
49	"An Experimental Model in Organization of a Regional Medical Program." RICHARD F. HAGLUND (Intermountain)	1:30 p.m. Hemisphere Room
50	"Multi-Project Planning." WILLIAM R. THOMPSON (Washington-Alaska)	1:50 p.m. Hemisphere Room
51	"A Systems Approach to Regional Medical Program Planning." DAVID H. GUSTAFSON, PH. D. (Wisconsin)	2:10 p.m. Hemisphere Room
52	"Development of a Regional Medical Program Data Source Book." LOUISE BELL (Western Pennsylvania)	2:30 p.m. Hemisphere Room
53	"Clinical Data Collection with a Purpose." HOMER WARNER, M.D. (Intermountain)	2:50 p.m. Hemisphere Room
54	"The Design and Dissemination of Data Collecting Instruments." LAURA G. LARSON, R.N. (Mountain States)	3:10 p.m. Hemisphere Room
55	"A Cooperative Project for the Care of Cancer Patients by Memorial Hospital for Cancer and Allied Diseases." GUY F. ROBBINS, M.D. (New York Metropolitan)	1:30 p.m. Thoroughbred Room
56	"Cooperative Community Health Program." EDWARD L. BURNS, M.D. (Northwestern Ohio)	1:50 p.m. Thoroughbred Room
57	"Community Cancer Coordinator." WILLIAM P. NELSON, M.D. (Albany, N.Y.)	2:10 p.m. Thoroughbred Room
58	"Cancer Training and Continuing Education and Computerized Tumor Registry." CHARLES SMART, M.D. (Intermountain)	2:30 p.m. Thoroughbred Room
59	"Assurance of Adequate Therapy Following Detection of Cervical Carcinoma." JOHN B. PHILLIPS, M.D. (Albany, N.Y.)	2:50 p.m. Thoroughbred Room
60	"Coordinating High Energy Radiation Therapy for 35 General Hospitals." JOHN IVES (Connecticut)	3:10 p.m. Thoroughbred Room

PAPERS BY TIME AND LOCATION OF PRESENTATION

WEDNESDAY, JANUARY 17, 1968

Starting time	Title, author, and (region)	Paper No.	Location
1:30 p.m.	"Health Evaluation Studies Utilizing a Multiphasic Screening Center Operating in Cooperation with a Comprehensive Health Care Program for Persons in an Urban Poverty Area." LLOYD ELAM, M.D. (Tennessee Mid-South)	1	Lincoln Room East
	"The Use of a Multi-Media Approach to Enhance the Learning of Health Science Personnel." WILLIAM G. COOPER, M.D. (Colorado-Wyoming)	7	Lincoln Room West
	"The Role of the Voluntary Health Agencies in the Regional Medical Program in Iowa." WILLARD A. KREHL, M.D. (Iowa)	13	Military Room
	"Watts-Willowbrook Regional Medical Program." DONALD J. BRAYTON, M.D. (California)	19	Hemisphere Room
	"A Proposed Circuit Postgraduate Program in Heart Disease, Cancer, Stroke, and Related Diseases in the Oregon Region." M. ROBERTS GROVER, M.D. (Oregon)	25	Thoroughbred Room
	"Systems Approach to Planning." ANGELO P. ANGELIDES, M.D., LARRY McGOWAN, M.D., ARTHUR STANKOVICH (Greater Delaware Valley)	30B	Dupont Room

Starting time	*Title, author, and (region)*	*Paper No.*	*Location*
1:50 p.m.	"Provision of Optimum Clinical Laboratory Services for 3,000,000 People." DAVID SELIGSON, M.D. (Connecticut)	2	Lincoln Room East
	"Use of a Telephone Network for Continuing Education." RICHARD H. LYONS, M.D. (Central New York)	8	Lincoln Room West
	"Small Community Planning." TASKER K. ROBINETTE (Washington-Alaska)	14	Military Room
	"Council of Regional Planning Directors and Administrators." JOSEPH J. MASON, JR. (Alabama)	20	Hemisphere Room
	"The Information and Education Resource Support Unit." JOHN N. LEIN, M.D. (Washington-Alaska)	26	Thoroughbred Room
	"Informal Discussion on Systems Analysis." HERBERT P. GALLIHER, JR., PH. D. Professor, University of Michigan	30C	Dupont Room
2:10 p.m.	"Biochemical Screening in Missouri." JAMES T. PACKER, M.D. and HUBERT J. VAN PEENEN, M.D. (Missouri)	3	Lincoln Room East
	"Communication Research Unit." WILLIAM STEPHENSON (Missouri)	9	Lincoln Room West
	"Coordination of Comprehensive Health Planning and Regional Medical Program Activities in Western Pennsylvania, 1967." E. WAYNE MARTZ, M.D. and HOWARD HOUGH (Western Pennsylvania)	15	Military Room
	"Development of Relationship Between the Medical Association of the State of Alabama and the Alabama Regional Medical Program." J. O. FINNEY, M.D. (Alabama)	21	Hemisphere Room
	"Unusual Programs for Continuing Education of Physicians at Grassroots Level." C. L. WILBAR, JR., M.D. (West Virginia)	27	Thoroughbred Room
2:30 p.m.	"A Regional Utilization, Patient Information and Statistics System." JOHN D. THOMPSON (Connecticut)	4	Lincoln Room East
	"Community Information Coordinator." WARD L. OLIVER, M.D. (Albany, N.Y.)	10	Lincoln Room West
	"Complementary Relationship Between Iowa Regional Medical Program—Comprehensive Health Planning and Voluntary Comprehensive Health Planning: A Necessary Accomplishment." JOHN C. BARTLETT, M.A., LL. B. (Iowa)	16	Military Room
	"The Sub-Regional Concept and Liaison Staff." WILLIAM C. SPRING, JR., M.D. and WARD BENTLEY (Greater Delaware Valley)	22	Hemisphere Room
	"Community-Centered Continuing Medical Education." C. HILMON CASTLE, M.D. (Intermountain)	28	Thoroughbred Room
2:50 p.m.	"Flanner House Multiphasic Screening Program." HARVEY FEIGENBAUM, M.D. (Indiana)	5	Lincoln Room East
	"Development of Receptive Attitudes Toward New Ideas." JOHN S. GILSON, M.D. (Intermountain)	11	Lincoln Room West
	"Problems in Developing the Role of Medical Schools in a Regional Medical Program." VINCENT dePAUL LARKIN, M.D. (New York Metropolitan)	17	Military Room
	"The Delineation of Sub-Regional Health Service Areas as a Basic Step in Regional Medical Planning." CONRAD SEIPP, M.D. (Connecticut)	23	Hemisphere Room
	"Survey of Continuing Education of the Physicians in Metropolitan Washington." THOMAS W. MATTINGLY, M.D., LEONARD CHIAZZE, JR., SC.D., and MAL XAVIER (Metropolitan Washington, D.C.)	29	Thoroughbred Room

Starting time	*Title, author, and (region)*	*Paper No.*	*Location*
3:10 p.m.	"Experiment to Test and Implement a Model of Patient Care in Hospitals." LUTHER CHRISTMAN, PH. D. (Tennessee Mid-South)	6	Lincoln Room East
	"The Impact of RMP on Hard Core Poverty Areas." PAUL D. WARD (California)	12	Lincoln Room West
	"The Role of a School of Public Health in a Developing Regional Medical Program." EDWARD COHART, M.D. (Connecticut)	18	Military Room
	"Regional Advisory Group and Review Process." CHARLES E. LEWIS, M.D. (Kansas)	24	Hemisphere Room
	"Approaches to Evaluation of a Regional Medical Program." CALDWELL B. ESSELSTYN, M.D. (New York Metropolitan)	30A	Thoroughbred Room

PAPERS BY TIME AND LOCATION OF PRESENTATION

THURSDAY, JANUARY 18, 1968

Starting time	*Title, author, and (region)*	*Paper No.*	*Location*
1:30 p.m.	"A Study of Physician Office Practice in the Connecticut Region." DONALD RIEDEL, PH. D. and ORVAN W. HESS, M.D. (Connecticut)	31	Lincoln Room East
	"Experiences with a Stroke Care Demonstration Unit." ROBERT R. SMITH, M.D. (Mississippi)	37	Jefferson Room East
	"Nursing in the Regional Medical Programs-Alliance for Better Patient Care." HESTER THURSTON (Kansas)	43	Military Room
	"An Experimental Model in Organization of a Regional Medical Program." RICHARD F. HAGLUND (Intermountain)	49	Hemisphere Room
	"A Cooperative Project for the Care of Cancer Patients by Memorial Hospital for Cancer and Allied Diseases." GUY F. ROBBINS, M.D. (New York Metropolitan)	55	Thoroughbred Room
1:50 p.m.	"Consumer Health Care Survey." LAWRENCE J. SHARP, PH. D. (Washington-Alaska)	32	Lincoln Room East
	"System for Clinical Data Collection and Analysis in Patients with Acute Myocardial Infarction." C. HILMON CASTLE, M.D. (Intermountain)	38	Jefferson Room East
	"Continuing Nursing Education Using University Hospital Nursing Service Training Facilities." (Mrs.) MARGARET SOVIE (Central New York)	44	Military Room
	"Multi-Project Planning." WILLIAM R. THOMPSON (Washington-Alaska)	50	Hemisphere Room
	"Cooperative Community Health Program." EDWARD L. BURNS, M.D. (Northwestern Ohio)	56	Thoroughbred Room
2:10 p.m.	"Continuum of Long-Term Care in a Local Health Service Area." E. RICHARD WEINERMAN, M.D. (Connecticut)	33	Lincoln Room East
	"Cost Benefit Analysis." JOHN E. WENNBERG, M.D. (Northern New England)	39	Jefferson Room East
	"Health Manpower Survey of Western New York." HARRY A. SULTZ, JOHN FORTUNE, JOSEPH FELDMAN, and SPERO MOUTSATSOS (Western New York)	45	Military Room
	"A Systems Approach to Regional Medical Program Planning." DAVID H. GUSTAFSON, M.D. (Wisconsin)	51	Hemisphere Room
	"Community Cancer Coordinator." WILLIAM P. NELSON, M.D. (Albany, New York)	57	Thoroughbred Room
2:30 p.m.	"Involvement of Local Hospitals in the Regional Medical Program by the Appointment of Local Hospital Advisory Groups." J. GORDON BARROW, M.D. (Georgia)	34	Lincoln Room East
	"Comprehensive Cardiovascular Care Unit." GLENN O. TURNER, M.D., CECIL R. AUNER, M.D., and JOHN J. McKINSEY, M.D. (Missouri)	40	Jefferson Room East

Starting time	*Title, author, and (region)*	*Paper No.*	*Location*
2:30 p.m.	"Guest Resident Program." GEORGE ROBERTSON, M.D. (Maine)	46	Military Room
	"Development of a Regional Medical Program Data Source Book." LOUISE BELL (Western Pennsylvania)	52	Hemisphere Room
	"Cancer Training and Continuing Education and Computerized Tumor Registry." CHARLES SMART, M.D. (Intermountain)	58	Thoroughbred Room
2:50 p.m.	"The Regional Medical Program as a Means of Increasing the Morale of the Family Doctor." ROGER BOST, M.D. (Arkansas)	35	Lincoln Room East
	"Dataphone EKG Consultation: A Model for Extension of Medical Center Services to Community Hospitals." JOHN B. HERMANN (Nebraska-South Dakota)	41	Jefferson Room East
	"Continuing Education Performance Deficits." CLEMENT BROWN, M.D. (Greater Delaware Valley)	47	Military Room
	"Clinical Data Collection with a Purpose." HOMER WARNER, M.D. (Intermountain)	53	Hemisphere Room
	"Assurance of Adequate Therapy Following Detection of Cervical Carcinoma." JOHN B. PHILLIPS, M.D. (Albany, New York)	59	Thoroughbred Room
3:10 p.m.	"Experience with the WARMP Mock-up Coronary Care Unit." STEPHEN YARNALL, M.D. (Washington-Alaska)	42	Jefferson Room East
	"Community Hospital Learning Centers." FRANK M. WOOLSEY, JR., M.D. (Albany, New York)	36	Lincoln Room East
	"Skeleton Program in Continuing Education and Clinical Research." WILLIAM H. McBEATH, M.D. (Ohio Valley)	48	Military Room
	"The Design and Dissemination of Data Collecting Instruments." LAURA G. LARSON, R. N. (Mountain States)	54	Hemisphere Room
	"Coordinating High Energy Radiation Therapy for 35 General Hospitals." JOHN IVES (Connecticut)	60	Thoroughbred Room

APPENDIX C

LISTING OF PARTICIPANTS AND LOCATION OF DISCUSSION GROUPS

WEDNESDAY, JANUARY 17

SESSION I—DISCUSSION GROUPS 3:45–5:15 p.m.

Lincoln Room East

TOPIC A "Health Manpower—Review of Commission Report"

Moderator: *JAMES C. CAIN, M.D.,
Consultant in Medicine,
The Mayo Clinic,
Rochester, Minn.

Discussants: LEONARD FENNINGER, M.D.,
Director, Bureau of Health Manpower,
Public Health Service.

ELEANOR LAMBERTSON, ED.D.,
Director, Division of Nursing Education,
Teachers' College,
Columbia University,
New York, N.Y.

C. H. WILLIAM RUHE, M.D.,
Director, Division of Medical Education,
American Medical Association,
Chicago, Ill.

*DWIGHT WILBUR, M.D.,
President-Elect,
American Medical Association,
San Francisco, Calif.

Recorder: CECILIA CONRATH,
Assistant to Chief,
Continuing Education and Training Branch,
Division of Regional Medical Programs.

**Members of the National Advisory Commission on Health Manpower.*

Military Room

TOPIC B "Regionalization"

Moderator: ROBERT SIGMOND,
Executive Director,
Hospital Planning Association of Allegheny County,
Pittsburgh, Pa.

Discussants: LESTER BRESLOW, M.D.,
Professor of Health Administration and Chairman,
Health Services Division,
School of Public Health,
University of California at Los Angeles,
Los Angeles, Calif.

WALTER J. McNERNEY,
Executive Director,
Blue Cross Association,
Chicago, Ill.

WILLIAM R. WILLARD, M.D.,
Vice President,
University of Kentucky Medical Center,
Lexington, Ky.

Recorder: ROLAND PETERSON,
Chief, Planning Branch,
Division of Regional Medical Programs.

Lincoln Room West

TOPIC C "Urban Problems"

Moderator: PAUL WARD,
Executive Director,
California Committee on Regional Medical Programs,
San Francisco, Calif.

Discussants: ROGER O. EGEBERG, M.D.,
Dean, School of Medicine,
University of Southern California,
Los Angeles, Calif.

FRANK LLOYD, M.D.,
Director of Research,
Methodist Hospital of Indiana,
Indianapolis, Ind.

ANNE R. SOMERS,
Industrial Relations Section,
Princeton University,
Princeton, N.J.

RAY TRUSSELL, M.D.,
Director, School of Public Health and Administrative Medicine,
Columbia University,
New York, N.Y.

Recorder: STEPHEN ACKERMAN,
Associate Director for Planning and Evaluation,
Division of Regional Medical Programs.

Hemisphere Room

TOPIC D "Related Federal Programs"

Moderator: DANIEL I. ZWICK,
Associate Director for Program Management,
Health Services Office,
Community Action Program,
Office of Economic Opportunity.

Discussants: JOHN W. CASHMAN, M.D.,
Director, Division of Medical Care Administration,
Bureau of Health Services,
Public Health Service.

JAMES H. CAVANAUGH, PH. D.,
Director, Office of Comprehensive Health Planning,
Office of the Surgeon General,
Public Health Service.

DONALD R. CHADWICK, M.D.,
Director, National Center for Chronic Disease Control,
Bureau of Disease Prevention and Environmental Control
Public Health Service.

CARRUTH WAGNER, M.D.,
Director, Bureau of Health Services,
Public Health Service.

Recorder: LEROY GOLDMAN,
Program Policy Specialist,
Division of Regional Medical Programs.

Thoroughbred Room

TOPIC E "Health Services Research"

Moderator: PAUL SANAZARO, M.D.,
Director, Division of Education,
Association of American Medical Colleges,
Evanston, Ill.

Discussants: MORRIS E. COLLEN, M.D.,
Director,
Department of Medical Methods Research,
The Permanente Medical Group,
Oakland, Calif.

CALDWELL B. ESSELSTYN, M.D.,
Associate Director,
New York Metropolitan Regional Medical Program,
New York, N.Y.

JOHN THOMPSON,
Professor of Public Health and Director,
Program in Hospital Administration,
School of Public Health,
Yale University,
New Haven, Conn.

JOHN WILLIAMSON, M.D.,
Division of Medical Care and Hospitals,
The Johns Hopkins University School of Hygiene and Public Health,
Baltimore, Md.

Recorder: RICHARD MANEGOLD, M.D.,
Associate Director for Program Development and Research,
Division of Regional Medical Programs.

THURSDAY, JANUARY 18

SESSION II—DISCUSSION GROUPS 3:45–5:15 p.m.

Jefferson Room East

TOPIC F "Continuing Education and Training, For What?"

Moderator: PATRICK B. STOREY, M.D.,
Professor and Chairman,
Department of Community Medicine,
Hahnemann Medical College,
Philadelphia, Pa.

Discussants: LUTHER CHRISTMAN, Ph. D.,
Dean, School of Nursing,
Vanderbilt University,
Nashville, Tenn.

GEORGE E. MILLER, M.D.,
Director, Office of Research in Medical Education,
University of Illinois,
Chicago, Ill.

A. N. TAYLOR, Ph. D.,
Dean, School of Related Health Services,
Chicago Medical School,
Chicago, Ill.

Recorder: ALEXANDER M. SCHMIDT, M.D.,
Chief, Continuing Education and Training Branch,
Division of Regional Medical Programs.

Thoroughbred Room

TOPIC G "Data Collection and Registries"

Moderator: ABRAHAM M. LILIENFELD, M.D.,
Professor and Chairman,
Department of Chronic Diseases,
School of Hygiene and Public Health,
Johns Hopkins University,
Baltimore, Md.

Discussants: JAMES F. KING, JR.,
Office of Program Planning and Evaluation,
Office of the Surgeon General,
Public Health Service.

ANDREW MAYER, M.D.,
Assistant Director,
American College of Surgeons,
Chicago, Ill.

HARVEY SMITH. Ph. D.,
Director, Research, Survey and Evaluation,
University of North Carolina,
Chapel Hill, N.C.

JOHN E. WENNBERG, M.D.,
Coordinator,
Northern New England Regional Medical Program,
Burlington, Vt.

Recorder: MAURICE E. ODOROFF,
Assistant to the Director for Health Data,
Division of Regional Medical Programs.

Military Room

TOPIC H "Hospitals"

Moderator: D. EUGENE SIBERY,
Executive Director,
Greater Detroit Area Hospital Council,
Detroit, Mich.

Discussants: PEARL FISHER, R.N.,
Administrator,
Thayer Hospital,
Waterville, Maine.

JOHN W. KAUFFMAN,
Administrator,
Princeton Hospital,
Princeton, N.J.

EDWARD H. NOROIAN,
Executive Director,
Presbyterian University Hospital,
Pittsburgh, Pa.

Recorder: RICHARD MANEGOLD, M.D.,
Associate Director for Program Development and Research,
Division of Regional Medical Programs.

Hemisphere Room

TOPIC I "Community Involvement"

Moderator: ROBERT M. CUNNINGHAM, JR.,
Editor,
Modern Hospital Magazine,
Chicago, Ill.

Discussants: ALAN C. DAVIS,
Science Editor,
American Cancer Society,
New York, N.Y.

HOWARD ENNES, M.P.H.,
Assistant Vice President for Community Services and Health Education,
The Equitable Life Assurance Society,
New York, N.Y.

PIERRE C. FRALEY,
Director of Information,
Greater Delaware Valley Regional Medical Program,
Philadelphia, Pa.

MARC J. MUSSER, M.D.,
Coordinator,
North Carolina Regional Medical Program,
Durham, N.C.

Recorder: EDWARD M. FRIEDLANDER,
Assistant to the Director for Communications and Public Information.
Division of Regional Medical Programs.

Lincoln Room East

TOPIC J "Operational Program Development"

Moderator: CHARLES E. LEWIS, M.D.,
Coordinator,
Kansas Regional Medical Program,
Kansas City, Kans.

Discussants: C. HILMON CASTLE, M.D.,
Coordinator,
Intermountain Regional Medical Program,
Salt Lake City, Utah.

T. A. DUCKWORTH,
Chairman, Regional Advisory Group,
Wisconsin Regional Medical Program,
Wausau, Wis.

ALBERT E. HEUSTIS, M.D.,
Coordinator,
Michigan Regional Medical Program,
East Lansing, Mich.

DONAL R. SPARKMAN, M.D.,
Coordinator,
Washington-Alaska Regional Medical Program,
Seattle, Wash.

Recorder: RICHARD STEPHENSON, M.D.,
Associate Director for Operations,
Division of Regional Medical Programs.

APPENDIX 2

COORDINATORS' STEERING COMMITTEE REGIONAL MEDICAL PROGRAMS

STANLEY W. OLSON, M.D.,
(Chairman)
Program Coordinator, Tennessee Mid-South Regional Medical Program
Professor of Medicine,
Vanderbilt University,
Nashville, Tenn.

C. HILMON CASTLE, M.D.,
Program Coordinator,
Intermountain Regional Medical Program,
Associate Dean and Chairman,
Department of Postgraduate Education,
University of Utah,
Salt Lake City, Utah.

JAMES T. HOWELL, M.D.,
Member, National Advisory Council on Regional Medical Programs,
Executive Director,
Henry Ford Hospital,
Detroit, Mich.

MARC J. MUSSER, M.D.,
Program Coordinator,
North Carolina Regional Medical Program,
Durham, N.C.

WILLIAM C. SPRING, JR., M.D.,
Program Coordinator,
Greater Delaware Valley Regional Medical Program,
Wynnewood, Pa.

J. MINOTT STICKNEY, M.D.,
Program Coordinator,
Northlands Regional Medical Program,
Rochester, Minn.

PAUL D. WARD,
Program Coordinator,
California Regional Medical Program,
San Francisco, Calif.

APPENDIX 3

REGISTERED CONFERENCE PARTICIPANTS

ABDELLAH, Dr. Faye G.
Chief, Research Grants Branch
Division of Nursing
Public Health Service

ADAMS, Wright, M.D.
Executive Director
Illinois Regional Medical Program

AKERLOW, Charles W.
Director, Media Services
Intermountain Regional Medical Program

ALEXANDER, Chauncey A.
Assistant Director for Program Development—Area IV
University of California, Los Angeles
California Regional Medical Program

ALLRED, J. D., M.D.
Assistant Coordinator
Maryland Regional Medical Program

AMOS, James R., M.D.
State Health Department of North Dakota
North Dakota Regional Medical Program

ANDERSON, Elmer A., M.D.
Medical Director
John Wesley Hospital
Los Angeles County Department of Hospitals

ANDERSON, H. William
Assistant Director
Arkansas Regional Medical Program

ANDERSON, Ivan D.
Director of Research
Kansas Blue Cross-Blue Shield
Kansas Regional Medical Program

ANDERSON, Otis L., M.D.
Assistant Manager
Washington, D.C., Office of American Medical Association

ANDERSON, Philip C., M.D.
Special Assistant to the Director
National Institutes of Health

ANDREWS, Neil C., M.D.
Coordinator
Ohio Valley Regional Medical Program

ANGELIDES, Angelo P., M.D.
Director of Medical Education
The Lankenau Hospital of Philadelphia
Greater Delaware Valley Regional Medical Program

ARBONA, Guillermo, M.D.
Professor of Preventive Medicine and Public Health
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TAPP, Jesse W., Jr., M.D.
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THOMAS, John F., M.D.
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THOMPSON, Dana
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THOMPSON, John D.
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THOMPSON, W. R.
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University of Tennessee
Subcommittee on Stroke
Memphis Regional Medical Program

VAUN, William S., M.D.
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Monmouth Medical Center
Greater Delaware Valley Regional Medical Program

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WALL, Pauline
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WARD, Paul D.
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California Regional Medical Program

WARLICK, William J.
Project Director
South Carolina Regional Medical Program

WARNER, Homer R., M.D.
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Intermountain Regional Medical Program
Latter Day Saints Hospital

WEBB, Dennis R.
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U.S. Department of Defense

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Administrative Assistant to the Associate Director
New Mexico Regional Medical Program

WEIL, Clifton C.
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Flint Goodrich Hospital of New Orleans

WEINBERG, Harry B., M.D.
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Oklahoma Regional Medical Program

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American Society of Internal Medicine

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University of Arkansas Medical Center

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University Hospital, Boston

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Ohio Regional Medical Program

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Case Western Reserve University

WILBAR, Charles L., Jr., M.D.
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West Virginia Regional Medical Program

WILBUR, Dwight, M.D.
President-Elect
American Medical Association

WILKINS, Robert J.
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Northlands Regional Medical Program

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Ohio Valley Regional Medical Program

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Video Engineering Company, Inc.
Washington, D.C.

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Albany Regional Medical Program

WRIGHT, Jane C., M.D.
Coordinator for New York Medical College
New York Metropolitan Regional Medical Program

WU, Dr. S. Y.
Professor of Economics
University of Iowa

WURZEL, Edward M., M.D.
Executive Director
American Association of Medical Clinics

XAVIER, Mal
Administrative Assistant
Metropolitan Washington, D.C., Regional Medical Program

YAKEL, Ruth M.
Executive Director
The American Dietetic Association

YARNALL, Stephen R., M.D.
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Washington-Alaska Regional Medical Program
University of Washington Hospital

YATES, William M.
Administrative Assistant
Tennessee Mid-South Regional Medical Program

YOUNG, James R.
Information Officer
West Virginia Regional Medical Program

YUNG, E. V., M.D.
Director, Survey and Planning
Oregon Regional Medical Program

ZWICK, Daniel I.
Associate Director of Program Management
Office of Economic Opportunity

APPENDIX 4

DIRECTORY OF REVIEW COMMITTEE AND NATIONAL ADVISORY COUNCIL ON REGIONAL MEDICAL PROGRAMS

REGIONAL MEDICAL PROGRAMS REVIEW COMMITTEE

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Western Interstate Commission for Higher Education
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Tuskegee Institute, Ala. 36088

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Yale University Medical School
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Executive Secretary
Mrs. Martha L. Phillips
Chief, Grants Review Branch
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NATIONAL ADVISORY COUNCIL ON REGIONAL MEDICAL PROGRAMS

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Mack I. Shanholtz, M.D.
State Health Commissioner
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Richmond, Va. 23219

Ex Officio Member
William H. Stewart, M.D. (Chairman)
Surgeon General
Public Health Service
9000 Rockville Pike
Bethesda, Md. 20014

APPENDIX 5

DIRECTORY OF DIVISION OF REGIONAL MEDICAL PROGRAMS

OFFICE OF THE DIRECTOR

Immediate Office:

Robert Q. Marston, M.D.	Director.
Karl D. Yordy	Deputy Director.
Margaret H. Sloan, M.D.	Associate Director for Organizational Liaison.
Maurice E. Odoroff	Assistant to Director for Health Data.
Leroy G. Goldman	Program Policy Specialist.
Eva M. Handal	Committee Management Officer.
Elizabeth F. Fuller	Secretary to Director.

Office of Executive Officer:

Charles Hilsenroth	Executive Officer.
Nicholas G. Cavarocchi	Financial Management Officer.
Robert L. Quave	Administrative Officer.
Norman E. Prince, Jr	Personnel Officer.
Anna V. Windsor	Budget Analyst.
Lorraine H. Hughes	Administrative Assistant.
Mary J. McCormack	Office Services Supervisor.

Office of Communications and Public Information:

Edward M. Friedlander	Assistant to Director for Communications and Public Information.
Frank Karel III	Public Information Officer.
Judith J. Fleisher	Public Information Specialist.
Ellen D. Carter	Public Information Specialist.
Simone D. Biren	Editor.

OFFICE OF ASSOCIATE DIRECTOR FOR PLANNING AND EVALUATION

Stephen J. Ackerman	Associate Director for Planning and Evaluation.

Planning Branch:

Roland L. Peterson	Chief.
Thomas Kinser	Program Analyst.
Theodore L. Koontz, Jr.	Program Analyst.
Lyman G. Van Nostrand	Program Analyst.

Evaluation Branch:

Rhoda Abrams	Program Analyst.
Arthur B. Hiatt, Jr	Program Analyst.
Suzanne G. Paul	Program Analyst.
Laura J. Shouse	Program Analyst.
Mary A. Teller	Program Anaylst.
Edward S. Walsh	Program Analyst.

Statistics and Analysis Branch:

Mary V. Geisbert	Public Health Analyst.
Loren D. Hellickson	Public Health Analyst.
Leah Resnick	Public Health Analyst.
Jackie M. Rosenthal	Statistical Assistant.

OFFICE OF ASSOCIATE DIRECTOR FOR OPERATIONS

Richard B. Stephenson, M.D.	Associate Director for Operations.

Operations Staff:

Ira R. Alpert	Operations Officer.
Robert C. Anderson	Operations Officer.
Vincent J. Carollo, M.D.	Operations Officer.
John R. Hamilton, III, M.D.	Operations Officer.
Robert M. O'Bryan, M.D.	Operations Officer.
Alphonse Strachocki	Operations Officer.

Grants Management Branch:

James Beattie	Chief.
Thomas J. McNiff	Grants Management Officer.
Gerald L. Teets	Grants Management Officer.
George F. Hinkle	Grants Management Officer.
Arthur Curry	Grants Management Specialist.
Donald M. Fox	Grants Management Specialist.

Grants Review Branch:

Martha L. Phillips	Chief.

Grants Review Section:

Peter A. Clepper	Public Health Advisor.
Robert E. Jones	Public Health Advisor.
Patricia K. McDonald	Public Health Advisor.
Harold F. O'Flaherty	Scientific Grants Assistant.
Jessie F. Salazar	Public Health Advisor.

Grants Operations Section:

Lorraine M. Kyttle	Head.

OFFICE OF ASSOCIATE DIRECTOR FOR PROGRAM DEVELOPMENT AND RESEARCH

Richard F. Manegold, M.D.	Associate Director for Program Development and Research.

Continuing Education and Training Branch:

Alexander M. Schmidt, M.D.	Chief.
Phyllis E. Carnes, Ph. D.	Education Specialist.
Veronica L. Conley, Ph. D.	Education Specialist.
Cecilia C. Conrath	Assistant to Chief.
David W. Golde, M.D.	Training Consultant.
Frank L. Husted, Ph. D.	Head, Education Research Group.
Elsa J. Nelson	Health Services Officer.
Herbert O. Mathewson, M.D.	Training Consultant.
Marjorie L. Morrill	Public Health Advisor.
Rebecca R. Sadin	Public Health Advisor.
Sarah J. Silsbee	Public Health Advisor.
Jack J. Schneider, M.D.	Training Consultant.
John C. Tapp, M.D.	Training Consultant.
Charlotte F. Turner	Education and Training Specialist.

Regional Health Services Branch:

Philip A. Klieger, M.D.	Head, Clinical Programs Section.

APPENDIX 6

DIRECTORY OF REGIONAL MEDICAL PROGRAMS

The Directory lists Regional Medical Programs for which planning or operational grants have been awarded or which are in earlier stages of development.

Regions were defined for planning purposes in the planning applications. State designations do not necessarily indicate that the regions are coterminous with State boundaries. The original definitions of the regions may be modified on the basis of experience.

Awarded as of April 26, 1968.

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Name of Region	Bi-State	California	Central New York	Colorado-Wyoming
Preliminary Planning Area	Eastern Missouri and Southern Illinois	California	Syracuse, New York and 15 surrounding counties	Colorado and Wyoming
Estimated Population	4,775,000	19,160,000	1,760,000	2,200,000
Coordinating Headquarters	Washington University School of Medicine	California Committee on Regional Medical Programs	Upstate Medical Center, State University of New York at Syracuse	University of Colorado Medical Center
Program Coordinator	William H. Danforth, M.D. Vice Chancellor for Medical Affairs Washington University 660 South Euclid Avenue St. Louis, Mo. 63110 (tel: 314-361-6400, ext. 3013)	Paul D. Ward Executive Director California Committee on Regional Medical Programs Room 304 655 Sutter Street San Francisco, Calif. 94102 (tel: 415-771-5432)	Richard H. Lyons, M.D. Director, Regional Medical Program of Central New York 750 East Adams Street Room 1500 State University Hospital Syracuse, N.Y. 13210 (tel: 315-473-5600)	Paul R. Hildebrand, M.D. University of Colorado Medical Center 4200 East Ninth Avenue Denver, Colo. 80220
Program Director				Howard W. Doan, M.D. University of Colorado Medical Center 4200 East Ninth Avenue Denver, Colo. 80220 (tel: 303-394-7506)
Chairman, Regional Advisory Group	G. Duncan Bauman Business Manager St. Louis Globe-Democrat 710 North 12th Street St. Louis, Mo. 63101	Roger O. Egeberg, M.D. Dean, School of Medicine University of Southern California 2025 Zonal Avenue Los Angeles, Calif. 90033	Wilfred W. Westerfeld, M.D. Acting President Upstate Medical Center 766 Irving Avenue Syracuse, N.Y. 13210 (tel: 315-473-4513)	John J. Conger, Ph. D. Vice President for Medical Affairs and Dean, School of Medicine University of Colorado 4200 East Ninth Avenue Denver, Colo. 80220
Grantee	Washington University School of Medicine	California Medical Education and Research Foundation	Research Foundation of State University of New York	University of Colorado Medical Center
Effective Starting Date of Planning Grant	April 1, 1967	November 1, 1966	January 1, 1967	January 1, 1967
Amount of Planning Grant	$603,965	$1,575,096 (1st year) $2,974,497 (2d year)	$289,522 (1st year) $268,634 (2d year)	$361,984 (1st year) $339,605 (2d year)
Effective Starting Date of Operational Grant				
Amount of Operational Grant				

Name of Region	Connecticut	Florida	Georgia	Greater Delaware Valley
Preliminary Planning Area	Connecticut	Florida	Georgia	Eastern Pennsylvania and portions of New Jersey and Delaware
Estimated Population	2,925,000	6,000,000	4,510,000	8,200,000
Coordinating Headquarters	Yale University School of Medicine and University of Connecticut School of Medicine	Florida Advisory Council, Inc.	Medical Association of Georgia	University City Science Center
Program Coordinator	Henry T. Clark, Jr., M.D. Program Coordinator Connecticut Regional Medical Program 272 George Street New Haven, Conn. 06510 (tel: 203-776-6872)	Samuel P. Martin, M.D. Provost, J. Hillis Miller Medical Center University of Florida Gainesville, Fla. 32601 (tel: 904-376-3211, ext. 5377)	J. W. Chambers, M.D. Coordinator for Georgia Regional Medical Program Medical Association of Georgia 938 Peachtree Street NE. Atlanta, Ga. 30309 (tel: 404-876-7535)	George Clammer, M.D. Wynnewood House 300 East Lancaster Avenue Wynnewood, Pa. 19096 (tel: 215-649-4100)
Program Director			J. Gordon Barrow, M.D. Director for Georgia Regional Medical Program Medical Association of Georgia 938 Peachtree Street N.E. Atlanta, Ga. 30309 (tel: 404-875-0701)	
Chairman, Regional Advisory Group	Arthur M. Rogers Director of Traffic Scovill Manufacturing Company 99 Mill Street Waterbury, Conn. 06720	H. Phillip Hampton, M.D. 1 Davis Boulevard Tampa, Fla. 33606 (tel: 813-253-0991)	Arthur P. Richardson, M.D. Dean, School of Medicine Emory University Atlanta, Ga. 30322	Glen R. Leymaster, M.D. Dean, Woman's Medical College of Pennsylvania 3300 Henry Avenue Philadelphia, Pa. 191
Grantee	Yale University School of Medicine	Florida Advisory Council, Inc.	Medical Association of Georgia	University City Science Center
Effective Starting Date of Planning Grant	July 1, 1966	November 1, 1967	January 1, 1967	April 1, 1967
Amount of Planning Grant	$406,622 (1st year) $338,513 (2d year)	$240,000	$240,098 (1st year) $555,079 (2d year)	$1,531,494
Effective Starting Date of Operational Grant				
Amount of Operational Grant				

Name of Region	Connecticut	Florida	Georgia	Greater Delaware Valley
Preliminary Planning Area	Connecticut	Florida	Georgia	Eastern Pennsylvania and portions of New Jersey and Delaware
Estimated Population	2,925,000	6,000,000	4,510,000	8,200,000
Coordinating Headquarters	Yale University School of Medicine and University of Connecticut School of Medicine	Florida Advisory Council, Inc.	Medical Association of Georgia	University City Science Center
Program Coordinator	Henry T. Clark, Jr., M.D. Program Coordinator Connecticut Regional Medical Program 272 George Street New Haven, Conn. 06510 (tel: 203-776-6872)	Samuel P. Martin, M.D. Provost, J. Hillis Miller Medical Center University of Florida Gainesville, Fla. 32601 (tel: 904-376-3211, ext. 5377)	J. W. Chambers, M.D. Coordinator for Georgia Regional Medical Program Medical Association of Georgia 938 Peachtree Street NE. Atlanta, Ga. 30309 (tel: 404-876-7535)	George Clammer, M.D. Wynnewood House 300 East Lancaster Avenue Wynnewood, Pa. 19096 (tel: 215-649-4100)
Program Director			J. Gordon Barrow, M.D. Director for Georgia Regional Medical Program Medical Association of Georgia 938 Peachtree Street N.E. Atlanta, Ga. 30309 (tel: 404-875-0701)	
Chairman, Regional Advisory Group	Arthur M. Rogers Director of Traffic Scovill Manufacturing Company 99 Mill Street Waterbury, Conn. 06720	H. Phillip Hampton, M.D. 1 Davis Boulevard Tampa, Fla. 33606 (tel: 813-253-0991)	Arthur P. Richardson, M.D. Dean, School of Medicine Emory University Atlanta, Ga. 30322	Glen R. Leymaster, M.D. Dean, Woman's Medical College of Pennsylvania 3300 Henry Avenue Philadelphia, Pa. 191
Grantee	Yale University School of Medicine	Florida Advisory Council, Inc.	Medical Association of Georgia	University City Science Center
Effective Starting Date of Planning Grant	July 1, 1966	November 1, 1967	January 1, 1967	April 1, 1967
Amount of Planning Grant	$406,622 (1st year) $338,513 (2d year)	$240,000	$240,098 (1st year) $555,079 (2d year)	$1,531,494
Effective Starting Date of Operational Grant				
Amount of Operational Grant				

Name of Region	Hawaii	Illinois	Indiana	Intermountain
Preliminary Planning Area	Hawaii	Illinois	Indiana	Utah, and portions of Wyoming, Montana, Idaho, and Nevada
Estimated Population	740,000	10,895,000	5,000,000	2,220,000
Coordinating Headquarters	University of Hawaii College of Health Sciences	Coordinating Committee of Medical Schools and Teaching Hospitals of Illinois	Indiana University School of Medicine	University of Utah School of Medicine
Program Coordinator	Masato Hasegawa, M.D. Suite 105 *Medical Arts Building* 1010 South King Street Honolulu, Hawaii 96822 (tel: 808-944-8499)	Leon O. Jacobson, M.D. Dean of Biological Sciences Chairman, Coordinating Committee of Medical Schools and Teaching Hospitals of Illinois 950 East 59th Street Chicago, Ill. 60637 (tel: 312-MU4-6100)	Robert B. Stonehill, M.D. Indiana University Medical Center 1100 West Michigan Street Indianapolis, Ind. 46207 (tel: 317-639-8492)	C. Hilmon Castle ,M.D. Associate Dean and Chairman Department of Postgraduate Education University of Utah College of Medicine 50 North Medical Drive Salt Lake City, Utah 84112 (tel: 801-322-7901)
Program Director	William D. Graham, M.D. Deputy Director Hawaii Regional Medical Program Leahi Hospital Honolulu, Hawaii 96822	Wright R. Adams, M.D. Executive Director Illinois Regional Medical Program 122 South Michigan Avenue Suite 939 Chicago, Ill. 60603 (tel: 312-939-7307)		
Chairman, Regional Advisory Group	Wilson P. Cannon, Jr. Senior Vice President Bank of Hawaii P.O. Box 2900 Honolulu, Hawaii 96802	Oglesby Paul, M.D. Professor of Medicine Northwestern University School of Medicine Passavant Hospital 303 East Superior Street Chicago, Ill. 60611 (tel: 312-WH4-4200)	George T. Lukemeyer, M.D. Associate Dean, Indiana University School of Medicine Indiana University Medical Center 1100 West Michigan Street Indianapolis, Ind. 46207 (tel: 317-639-8877)	Kenneth B. Castleton, M.D. Dean, University of Utah College of Medicine University of Utah Medical Center Salt Lake City, Utah 84112 (tel: 801-322-7211, ext. 7201)
Grantee	University of Hawaii College of Health Sciences	University of Chicago	Indiana University Foundation	University of Utah College of Medicine
Effective Starting Date of Planning Grant	July 1, 1966	July 1, 1967	January 1, 1967	July 1, 1966
Amount of Planning Grant	$108,006 (1st year) $194,771 (2d year)	$336,366	$384,750 (1st year) $497,837 (2d year)	$456,415 (1st year) $363,524 (2d year)
Effective Starting Date of Operational Grant				April 1, 1967
Amount of Operational Grant				$2,038,123 (1st year) $2,215,234 (2d year)

Name of Region	Iowa	Kansas	Louisiana	Maine
Preliminary Planning Area	Iowa	Kansas	Louisiana	Maine
Estimated Population	2,755,000	2,275,000	3,660,000	975,000
Coordinating Headquarters	University of Iowa College of Medicine	University of Kansas Medical Center	Louisiana State Department of Hospitals	Medical Care Development, Inc.
Program Coordinator	Willard A. Krehl, M.D., Ph. D. 308 Melrose Avenue University of Iowa Iowa City, Iowa 52240 (tel: 319-353-4843)	Charles E. Lewis, M.D. Chairman, Department of Preventive Medicine and Community Health University of Kansas Medical Center 39th and Rainbow Boulevard Kansas City, Kans. 66103 (tel: 919-AD6-5252, ext. 271)	E. Lee Agerton Director Louisiana State Department of Hospitals 655 North Fifth Street Baton Rouge, La. 70804	Manu Chatterjee, M.D. Program Coordinator Maine Regional Medical Program 295 Water Street Augusta, Maine 04322 (tel: 207-622-7566)
Program Director			Joseph A. Sabatier, Jr., M.D. Program Coordinator Louisiana Regional Medical Program Claiborne Towers Roof 119 South Claiborne Avenue New Orleans, La. 70112 (tel: 504-522-5678)	
Chairman, Regional Advisory Group	Harry B. Weinberg, M.D. Iowa Heart Association 1333 West Lombard Street Davenport, Iowa 52804	George A. Wolf, Jr., M.D. Provost and Dean, School of Medicine University of Kansas Medical Center Rainbow Boulevard at 39th Street Kansas City, Kans. 66103	Charles B. Odom, M.D. Past President Louisiana State Medical Society 134 North 19th Street Baton Rouge, La. 70002	Merle S. Bacastow, M.D. President Medical Care Development, Inc Director of Medical Education Maine Medical Center Portland, Maine 04102
Grantee	University of Iowa College of Medicine	University of Kansas Medical Center	Louisiana State Department of Hospitals	Medical Care Development, Inc.
Effective Starting Date of Planning Grant	December 1, 1966	July 1, 1966	January 1, 1967	May 1, 1967
Amount of Planning Grant	$291,348 (1st year) $290,591 (2d year)	$197,945 (1st year) $281,627 (2d year)	$490,448 (1st year) $454,445 (2d year)	$193,909 (1st year) $204,709 (2d year)
Effective Starting Date of Operational Grant		June 1, 1967		
Amount of Operational Grant		$699,852		

Name of Region	Maryland	Memphis Medical Region	Metropolitan Washington, D.C.	Michigan
Preliminary Planning Area	Maryland	Western Tennessee, Northern Mississippi, and portions of Arkansas, Kentucky, and Missouri	District of Columbia and contiguous counties in Maryland (2) and Virginia (2)	Michigan
Estimated Population	3,685,000	2,425,000	2,160,000	8,585,000
Coordinating Headquarters	Steering Committee of the Regional Medical Program for Maryland	Mid-South Medical Council for Comprehensive Health Planning, Inc.	District of Columbia Medical Society	Michigan Association for Regional Medical Programs, Inc.
Program Coordinator	William S. Spicer, Jr., M.D. Acting Coordinator *Maryland Regional Medical Program* 550 North Broadway Baltimore, Md. 21205 (tel: 301-955-7444)	James W. Culbertson, M.D. Professor and Cardiologist Department of Internal Medicine College of Medicine University of Tennessee 858 Madison Avenue Memphis, Tenn. 38103 (tel: 901-JA6-8892, ext. 437)	Thomas W. Mattingly, M.D. Program Coordinator Metropolitan Washington, D.C. Regional Medical Program District of Columbia Medical Society 2007 Eye Street N.W. Washington, D.C. 20006 (tel: 202-223-2230)	Aibert E. Heustis, M.D. 1111 Michigan Avenue Suite 200 East Lansing, Mich. 48823 (tel: 517-351-0290)
Program Director				
Chairman, Regional Advisory Group	William J. Peeples, M.D. Commissioner Maryland State Department of Health 301 West Preston Street Baltimore, Md. 21201	Frank M. Norfleet Vice President *Parts, Inc.* 601 South Dudley Memphis, Tenn. 38104	Clayton Ethridge, M.D. Associate Dean, School of Medicine 901 23d Street N.W. Washington, D.C. 20037	William N. Hubbard, Jr., M.D. Dean, School of Medicine University of Michigan 1335 Catherine Street Ann Arbor, Mich. 48104 (tel: 313-764-8175)
Grantee	*The Johns Hopkins University*	University of Tennessee College of Medicine	District of Columbia Medical Society	Michigan Association for Regional Medical Programs, Inc.
Effective Starting Date of Planning Grant	January 1, 1967	April 1, 1967	January 1, 1967	June 1, 1967
Amount of Planning Grant	$518,443 (1st year) $412,227 (2d year)	$173,119	$203,790 (1st year) $216,322 (2d year)	$1,294,449
Effective Starting Date of Operational Grant			March 1, 1968	
Amount of Operational Grant			$418,318	

Name of Region	Mississippi	Missouri	Mountain States	Nebraska-South Dakota
Preliminary Planning Area	Mississippi	Missouri, exclusive of St. Louis	Idaho, Montana, Nevada, and Wyoming	Nebraska and South Dakota
Estimated Population	2,350,000	4,605,000	2,160,000	2,110,000
Coordinating Headquarters	University of Mississippi Medical Center	University of Missouri School of Medicine	Western Interstate Commission for Higher Education	Nebraska State Medical Association
Program Coordinator	Guy D. Campbell, M.D. Mississippi Regional Medical Program University of Mississippi Medical Center 2500 North State Street Jackson, Miss. 39216 (tel: 601-362-4411)	Vernon E. Wilson, M.D. Executive Director for Health Affairs University of Missouri Columbia, Mo. 65201 (tel: 314-449-2711)	Kevin P. Bunnell, Ed.D. Associate Director Western Interstate Commission for Higher Education University East Campus 30th Street Boulder, Colo. 80302 (tel: 303-443-2111, ext. 6342)	Harold Morgan, M.D. Program Coordinator Nebraska-South Dakota Regional Medical Program 1408 Sharp Building Lincoln, Nebr. 68503 (tel: 402-432-5427)
Program Director		George E. Wakerlin, M.D. Director, Missouri Regional Medical Program Lewis Hall 406 Turner Avenue Columbia, Mo. 65301 (tel: 314-449-2711)	Alfred M. Popma, M.D. Program Director Mountain States Regional Medical Program 525 West Jefferson Street Boise, Idaho 83702 (tel: 208-342-4666)	
Chairman, Regional Advisory Group	Not identified	Nathan J. Stark Group Vice President Operations Hallmark Cards, Inc. 25th and McGee Trafficway Kansas City, Mo. 64108	George D. Humphrey, M.D. President Emeritus University of Wyoming P.O. Box 3067, University Station Laramie, Wyo. 82070	Robert J. Morgan, M.D. President Nebraska State Medical Association 916 West 10th Street Alliance, Nebr. 69301
Grantee	University of Mississippi Medical Center	University of Missouri School of Medicine	Western Interstate Commission for Higher Education	Nebraska State Medical Association
Effective Starting Date of Planning Grant	July 1, 1967	July 1, 1966	November 1, 1966	January 1, 1967
Amount of Planning Grant	$454,206	$398,556 (1st year) $324,254 (2d year)	$876,855 (1st year) $1,082,107 (2d year)	$350,339 (1st year) $349,367 (2d year)
Effective Starting Date of Operational Grant		April 1, 1967	March 1, 1968	
Amount of Operational Grant		$2,887,903 (1st year) $3,484,039 (2d year)	$206,913	

Name of Region	New Jersey	New Mexico	New York Metropolitan Area	North Carolina
Preliminary Planning Area	New Jersey	New Mexico	New York City and Westchester, Nassau, and Suffolk Counties	North Carolina
Estimated Population	7,000,000	1,005,000	11,480,000	5,030,000
Coordinating Headquarters	New Jersey Joint Committee for Implementation of Public Law 89-239	University of New Mexico School of Medicine	Associated Medical Schools of Greater New York	Association for the North Carolina Regional Medical Program
Program Coordinator	Alvin A. Florin, M.D. New Jersey Regional Medical Program 88 Ross Street East Orange, N.J. 07018 (tel: 201-675-1100)	Reginald H. Fitz, M.D. Dean, School of Medicine University of New Mexico 900 Stanford Drive N.E. Albuquerque, N. Mex. 87106 (tel: 505-277-2321)	Vincent de Paul Larkin, M.D. New York Academy of Medicine 2 East 103d Street New York, N.Y. 10029 (tel: 212-427-4100)	Marc J. Musser, M.D. Executive Director North Carolina Regional Medical Program Teer House 4019 North Roxboro Road Durham, N.C. 27704 (tel: 919-477-8685)
Program Director		Irvin E. Hendryson, M.D. University of New Mexico 900 Stanford Drive N.E. Albuquerque, N. Mex. 87106		
Chairman, Regional Advisory Group	Joseph R. Jehl, M.D. President The Medical Society of New Jersey 315 West State Street Trenton, N.J. 08618	Not identified	Vernon Stutzman Regional Medical Program New York Academy of Medicine 2 East 103d Street New York, N.Y. 10029	George W. Paschal, Jr., M.D. President, Medical Society of State of North Carolina 1110 Wake Forest Road Raleigh, N.C. 27604
Grantee	Foundation for the Advancement of Medical Education and Research in New Jersey	University of New Mexico	Associated Medical Schools of Greater New York	Duke University
Effective Starting Date of Planning Grant	July 1, 1967	October 1, 1966	June 1, 1967	July 1, 1966
Amount of Planning Grant	$297,466	$449,736 (1st year) $553,270 (2d year)	$967,010	$435,851 (1st year) $773,674 (2d year)
Effective Starting Date of Operational Grant				March 1, 1968
Amount of Operational Grant				$1,510,796

Name of Region	North Dakota	Northeastern Ohio	Northern New England	Northlands
Preliminary Planning Area	North Dakota	12 counties in Northeastern Ohio	Vermont and three counties in Northeastern New York	Minnesota
Estimated Population	640,000	4,170,000	570,000	3,580,000
Coordinating Headquarters	University of North Dakota	Case Western Reserve University	University of Vermont College of Medicine	Minnesota State Medical Association Foundation
Program Coordinator	Theodore H. Harwood, M.D. Dean, School of Medicine University of North Dakota Grand Forks, N. Dak. 58201 (tel: 701-777-2514)	Frederick C. Robbins, M.D. Dean, School of Medicine Case Western Reserve University 2107 Adelbert Road Cleveland, Ohio 44106	John E. Wennberg, M.D. Program Coordinator Northern New England Regional Medical Program University of Vermont College of Medicine 25 Colchester Avenue Burlington, Vt. 05401 (tel: 802-864-4511, ext. 244)	Winston R. Miller, M.D. 375 Jackson Street Saint Paul, Minn. 55101 (tel: 612-224-4771)
Program Director	Willard Wright, M.D. Program Director North Dakota Regional Medical Program 1600 University Avenue Grand Forks, N. Dak. 58201			
Chairman, Regional Advisory Group	Lee A. Christoferson, M.D. The Neuro-Psychiatric Institute 700 First Avenue South Fargo, N. Dak. 58102	Irvine H. Page, M.D. Consultant Emeritus Cleveland Clinic Division of Research 2050 East 93d Street Cleveland, Ohio 44106	Edward C. Andrews, M.D. Dean, College of Medicine University of Vermont 25 Colchester Avenue Burlington, Vt. 05401	O. L. Nelson, M.D. Chairman, Advisory Group Northlands Regional Medical Program 601 Medical Arts Building Minneapolis, Minn. 55402
Grantee	North Dakota Medical Research Foundation	Case Western Reserve University	University of Vermont College of Medicine	Minnesota State Medical Association Foundation
Effective Starting Date of Planning Grant	July 1, 1967	January 1, 1968	July 1, 1966	January 1, 1967
Amount of Planning Grant	$188,010	$285,783	$316,186 (1st year) $702,504 (2d year)	$370,904 (1st year) $529,250 (2d year)
Effective Starting Date of Operational Grant				
Amount of Operational Grant				

Name of Region	Northwestern Ohio	Ohio State	Ohio Valley	Oklahoma
Preliminary Planning Area	20 counties in Northwestern Ohio	Central and southern two-thirds of Ohio (61 counties, excluding Metropolitan Cincinnati area)	Greater part of Kentucky and contiguous parts of Ohio, Indiana, and West Virginia	Oklahoma
Estimated Population	1,360,000	4,680,000	6,000,000	2,500,000
Coordinating Headquarters	Medical College of Ohio at Toledo	Ohio State University College of Medicine	Ohio Valley Regional Medical Program	University of Oklahoma Medical Center
Program Coordinator	C. Robert Tittle, Jr., M.D. 2313 Madison Avenue Toledo, Ohio 43624 (tel: 419-248-6201)	Neil C. Andrews, M.D. Assistant Dean, College of Medicine Ohio State University 410 West 10th Avenue Columbus, Ohio 43210 (tel: 614-293-5344)	William H. McBeath, M.D. Director, Ohio Valley Regional Medical Program 1718 Alexandria Drive Lexington, Ky. 40508 (tel: 606-255-6684)	Kelly West, M.D. Professor and Head, Department of Continuing Education University of Oklahoma Medical Center 800 Northeast 13th Street Oklahoma City, Okla. 73104 (tel: 405-CE 2-8561)
Program Director				
Chairman, Regional Advisory Group	Edward L. Burns, M.D. Northwestern Ohio Regional Medical Program 2313 Madison Avenue Toledo, Ohio 43624	Richard L. Meiling, M.D. Dean, College of Medicine Ohio State University 410 West 10th Avenue Columbus, Ohio 43210 (tel: 614-293-5344)	Louis Wozar President and General Manager Tait Manufacturing Company 500 Webster Street Dayton, Ohio 45404 (tel: 513-224-9871)	James L. Dennis, M.D. Director and Dean University of Oklahoma Medical Center 800 Northeast 13th Street Oklahoma City, Okla. 73104
Grantee	Medical College of Ohio at Toledo	Ohio State University College of Medicine	The University of Kentucky Research Foundation	University of Oklahoma Medical Center
Effective Starting Date of Planning Grant	January 1, 1968	April 1, 1967	January 1, 1967	September 1, 1966
Amount of Planning Grant	$309,180	$126,182	$346,760 (1st year) $407,238 (2d year)	$177,963 (1st year) $282,100 (2d year)
Effective Starting Date of Operational Grant				
Amount of Operational Grant				

Name of Region	Oregon	Puerto Rico	Rochester	South Carolina
Preliminary Planning Area	Oregon	Puerto Rico	Rochester, New York and 11 surrounding counties	South Carolina
Estimated Population	2,000,000	2,670,000	1,270,000	2,600,000
Coordinating Headquarters	University of Oregon Medical School		University of Rochester School of Medicine and Dentistry	Medical College of South Carolina
Program Coordinator	M. Roberts Grover, M.D. Director, Continuing Medical Education University of Oregon Medical School 3181 Southwest Sam Jackson Park Road Portland, Oreg. 97201 (tel: 503-228-9181, ext. 519)	A. Nigaglioni, M.D. Chancellor, School of Medicine University of Puerto Rico San Juan, P.R. 00905 (tel: 174-723-5210)	Ralph C. Parker, Jr., M.D. Clinical Associate Professor of Medicine School of Medicine and Dentistry University of Rochester 260 Crittenden Boulevard Rochester, N.Y. 14620 (tel: 716-473-4400, ext. 3112)	J. C. Chambers, M. D. Medical College of South Carolina 55 Doughty Street Charleston, S.C. 29403 (tel: 803-723-9411)
Program Director				
Chairman, Regional Advisory Group	Herman A. Dickel, M.D. Member, Council of Medical Education Oregon Medical Association 511 Southwest 10th Avenue Portland, Oreg. 97205	Not identified	Frank Hamlin Papec Machine Company Shortsville, N.Y. 14548	William M. McCord, M.D., Ph. D. President, Medical College of South Carolina 80 Barre Street Charleston, S.C. 29401
Grantee	University of Oregon Medical School		University of Rochester School of Medicine and Dentistry	Medical College of South Carolina
Effective Starting Date of Planning Grant	April 1, 1967	Application under review	October 1, 1966	January 1, 1967
Amount of Planning Grant	$219,168 (1st year) $231,125 (2d year)		$306,985 (1st year) $318,286 (2d year)	$123,527 (1st year) $379,246 (2d year)
Effective Starting Date of Operational Grant	March 1, 1968		March 1, 1968	
Amount of Operational Grant	$221,191		$343,749	

Name of Region	Susquehanna Valley	Tennessee Mid-South	Texas	Tri-State
Preliminary Planning Area	27 counties in Central Pennsylvania	Eastern and Central Tennessee and contiguous parts of Southern Kentucky and Northern Alabama	Texas	Massachusetts, New Hampshire, and Rhode Island
Estimated Population	2,140,000	2,700,000	10,875,000	7,010,000
Coordinating Headquarters	Pennsylvania Medical Society	Vanderbilt University School of Medicine and Meharry Medical College	University of Texas	Medical Care and Educational Foundation, Inc.
Program Coordinator	Richard B. McKenzie 3806 Market Street P.O. Box 541 Camp Hill, Pa. 17011 (tel: 717-761-3252)	Stanley W. Olson, M.D. Professor of Medicine Vanderbilt University Clinical Professor of Medicine Meharry Medical College 110 Baker Building 110 21st Street South Nashville, Tenn. 37203 (tel: 615-255-0692)	Charles A. LeMaistre, M.D. Vice-Chancellor for Health Affairs University of Texas Main Building Austin, Tex. 78712 (tel: 512-GR 1-1434)	Leona Baumgartner, M.D. Medical Care and Educational Foundation 22 The Fenway Boston, Mass. 02115 (tel: 617-262-3040)
Program Director			Spencer G. Thompson, M.D. Regional Medical Program of Texas Suite 724 Sealy-Smith Professional Building Galveston, Tex. 77550 (tel: 713-505-2425)	
Chairman, Regional Advisory Group	Raymond C. Grandon, M.D. Secretary Dauphin County Medical Society 131 State Street Harrisburg, Pa. 17101	Thomas P. Kennedy, Jr. President, Executive Committee Health and Hospital Planning Council Vanderbilt University Medical Center Hospital Board St. Thomas Hospital P.O. Box 449 Nashville, Tenn. 37203	John F. Thomas, M.D. Committee on Cancer Texas Medical Association 918 East 32d Street Austin, Tex. 78705	Mac V. Edds, Jr., Ph. D. Division of Medical Sciences Brown University President, Medical Care and Educational Foundation, Inc. 22 The Fenway Boston, Mass. 02115
Grantee	Pennsylvania Medical Society	Vanderbilt University	University of Texas	Medical Care and Educational Foundation, Inc.
Effective Starting Date of Planning Grant	June 1, 1967	July 1, 1966	July 1, 1966	December 1, 1967
Amount of Planning Grant	$263,530	$265,841 (1st year) $524,738 (2d year)	$1,271,013 (1st year) $1,577,612 (2d year)	$439,037
Effective Starting Date of Operational Grant		February 1, 1968		
Amount of Operational Grant		$1,630,304		

Name of Region	Virginia	Washington-Alaska	West Virginia	Western New York
Preliminary Planning Area	Virginia	Washington and Alaska	West Virginia	Buffalo, New York and 7 surrounding counties
Estimated Population	4,535,000	3,360,000	1,800,000	1,935,000
Coordinating Headquarters	Medical College of Virginia and University of Virginia School of Medicine	University of Washington School of Medicine	West Virginia University Medical Center	School of Medicine, State University of New York at Buffalo, in cooperation with the Health Organization of Western New York
Program Coordinator	Kinloch Nelson, M.D. Dean, Medical College of Virginia 1200 East Broad Street Richmond, Va. 23219 (tel: 703-M14-9851)	Donal R. Sparkman, M.D. Associate Professor of Medicine School of Medicine University of Washington AA 312 University Hospital Seattle, Wash. 98105 (tel: 206-543-8540)	Charles L. Wilbar, Jr., M.D. West Virginia Regional Medical Program West Virginia University Medical Center Morgantown, W. Va. 26506 (tel: 304-293-4511)	John R. F. Ingall, M.D. Director, Regional Medical Program for Western New York School of Medicine, State University of New York at Buffalo Buffalo, N.Y. 14214 (tel: 716-833-2726, ext. 32, 50)
Program Director	Eugene R. Perez, M.D. Program Director Virginia Regional Medical Program 700 Building, Suite 1025 700 East Main Street Richmond, Va. 23219 (tel: 703-643-6631)			William E. Chalecke, M.D. R.D. 2 Horton Road Jamestown, New York 14701 (tel: 716-483-1840)
Chairman, Regional Advisory Group	Mack I. Shanholtz, M.D. State Commissioner of Health State Department of Health Bank and Governor Streets Richmond, Va. 23219	Donal R. Sparkman, M.D. Associate Professor of Medicine School of Medicine University of Washington AA 312 University Hospital Seattle, Wash. 98105 (tel: 206-543-8540)	Clark K. Sleeth, M.D. Dean, School of Medicine West Virginia University Medical Center Morgantown, W. Va. 26506	Douglas M. Surgenor, M.D. Dean, School of Medicine State University of New York at Buffalo 101 Capen Hall Buffalo, N.Y. 14214 (tel: 716-831-2811)
Grantee	University of Virginia School of Medicine	University of Washington School of Medicine	West Virginia University Medical Center	Research Foundation of the State University of New York
Effective Starting Date of Planning Grant	January 1, 1967	September 1, 1966	January 1, 1967	December 1, 1966
Amount of Planning Grant	$545,454	$266,248 (1st year) $655,148 (2d year)	$150,798 (1st year) $208,910 (2d year)	$149,241 (1st year) $383,717 (2d year)
Effective Starting Date of Operational Grant		February 1, 1968		March 1, 1968
Amount of Operational Grant		$1,032,003		$357,761

Name of Region	Western Pennsylvania	Wisconsin
Preliminary Planning Area	Pittsburgh, Pennsylvania and 28 surrounding counties	Wisconsin
Estimated Population	4,200,000	4,190,000
Coordinating Headquarters	University Health Center of Pittsburgh	Wisconsin Regional Medical Program, Inc.
Program Coordinator	Francis S. Cheever, M.D. Dean, School of Medicine University of Pittsburgh M-240 Scaife Hall 3550 Terrace Street Pittsburgh, Pa. 15213 (tel: 412-621-1006)	John S. Hirschboeck, M.D. Wisconsin Regional Medical Program, Inc. 110 East Wisconsin Avenue Milwaukee, Wis. 53202 (tel: 414-272-3636)
Program Director		
Chairman, Regional Advisory Group	Dan J. Macer President, Veterans Administration Hospital University Drive Pittsburgh, Pa. 15240	T. A. Duckworth Senior Vice President Employers Insurance of Wausau 407 Grant Street Wausau, Wis. 54402
Grantee	University Health Center of Pittsburgh	Wisconsin Regional Medical Program, Inc.
Effective Starting Date of Planning Grant	January 1, 1967	September 1, 1966
Amount of Planning Grant	$340,556 (1st year) $326,765 (2d year)	$344,418
Effective Starting Date of Operational Grant		September 1, 1967
Amount of Operational Grant		$630,149

APPENDIX 7

PUBLIC LAW 89-239
89TH CONGRESS, S. 596
OCTOBER 6, 1965
AN ACT

Heart Disease, Cancer, and Stroke Amendments of 1965

To amend the Public Health Service Act to assist in combating heart disease, cancer, stroke, and related diseases.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Heart Disease, CANCER, STROKE, AND RELATED

SEC. 2. The Public Health Service Act (42 U.S.C., ch. 6A) is amended by adding at the end thereof the following new title:

"TITLE IX—EDUCATION, RESEARCH, TRAINING, AND DEMONSTRATIONS IN THE FIELDS OF HEART DISEASE, CANCER, STROKE, AND RELATED DISEASES

"Purposes

"SEC. 900. The purposes of this title are—

"(a) Through grants, to encourage and assist in the establishment of regional cooperative arrangements among medical schools, research institutions, and hospitals for research and training (including continuing education) and for related demonstrations of patient care in the fields of heart disease, cancer, stroke, and related diseases:

"(b) To afford to the medical profession and the medical institutions of the Nation, through such cooperative arrangements, the opportunity of making available to their patients the latest advances in the diagnosis and treatment of these diseases; and

"(c) By these means, to improve generally the health manpower and facilities available to the Nation, and to accomplish these ends without interfering with the patterns, or the methods of financing, of patient care or professional practice, or with the administration of hospitals, and in cooperation with practicing physicians, medical center officials, hospital administrators, and representatives from appropriate voluntary health agencies.

"Authorization of Appropriations

"SEC. 901. (a) There are authorized to be appropriated $50,000,000 for the fiscal year ending June 20, 1966, $90,000,000 for the fiscal year ending June 30, 1967, and $200,000,000, for the fiscal year ending June 30, 1968, for grants to assist public or nonprofit private universities, medical schools, research institutions, and other public or nonprofit private institutions and agencies in planning, in conducting feasibility studies, and in operating pilot projects for the establishment of regional medical programs of research, training, and demonstration activities for carrying out the purposes of this title. Sums appropriated under this section for any fiscal year shall remain available for making such grants until the end of the fiscal year following the fiscal year for which the appropriation is made.

"(b) A grant under this title shall be for part or all of the cost of the planning or other activities with respect to which the application is made, except that any such grant with respect to construction of, or provision of built-in (as determined in accordance with regulations) equipment for, any facility may not exceed 90 per centum of the cost of such construction or equipment.

"(c) Funds appropriated pursuant to this title shall not be available to pay the cost of hospital, medical, or other care of patients except to the extent it is, as determined in accordance with regulations, incident to those research, training, or demonstration activities which are encompassed by the purposes of this title. No patient shall be furnished hospital, medical, or other care at any facility incident to research, training, or demonstration activities carried out with funds appropriated pursuant to this title, unless he has been referred to such facility by a practicing physician.

"Definitions

"SEC. 902. For the purposes of this title—

"(a) The term 'regional medical program' means a cooperative arrangement among a group of public or nonprofit private institutions or agencies engaged in research, training, diagnosis, and treatment relating to heart disease, cancer, or stroke, and, at the option of the applicant, related disease or diseases; but only if such group—

"(1) is situated within a geographic area, composed of any part or parts of any one or more States, which the Surgeon General determines, in accordance with regulations, to be appropriate for carrying out the purposes of this title;

"(2) consists of one or more medical centers, one or more clinical research centers, and one or more hospitals; and

"(3) has in effect cooperative arrangements among its component units which the Surgeon General finds will be adequate for effectively carrying out the purposes of this title.

"(b) The term 'medical center' means a medical school or other medical institution involved in postgraduate medical training and one or more hospitals affiliated therewith for teaching, research, and demonstration purposes.

"(c) The term 'clinical research center' means an institution (or part of an institution) the primary function of which is research, training of specialists, and demonstrations and which, in connection therewith, provides specialized, high-quality diagnostic and treatment services for inpatients and outpatients.

"(d) The term 'hospital' means a hospital as defined in section 625(c) or other health facility in which local capability for diagnosis and treatment is supported and augmented by the program established under this title.

"(e) The term 'nonprofit' as applied to any institution or agency means an institution or agency which is owned and operated by one or more nonprofit corporations or associations no part of the net earnings of which inures, or may lawfully inure, to the benefit of any private shareholder or individual.

"(f) The term 'construction' includes alteration, major repair (to the extent permitted by regulations), remodeling and renovation of existing buildings (including initial equipment thereof), and replacement of obsolete, built-in (as determined in accordance with regulations) equipment of existing buildings.

"Grants for Planning

"SEC. 903. (a) The Surgeon General, upon the recommendation of the National Advisory Council on Regional Medical Programs established by section 905 (hereafter in this title referred to as the 'Council'), is authorized to make grants to public or nonprofit private universities, medical schools, research institutions, and other public or nonprofit private agencies and institutions to assist them in planning the development of regional medical programs.

"(b) Grants under this section may be made only upon application therefor approved by the Surgeon General. Any such application may be approved only if it contains or is supported by—

"(1) reasonable assurances that Federal funds paid pursuant to any such grant will be used only for the purposes for which paid and in accordance with the applicable provisions of this title and the regulations thereunder;

"(2) reasonable assurances that the applicant will provide for such fiscal control and fund accounting procedures as are required by the Surgeon General to assure proper disbursement of and accounting for such Federal funds;

"(3) reasonable assurances that the applicant will make such reports, in such form and containing such information as the Surgeon General may from time to time reasonably require, and will keep such records and afford such access thereto as the Surgeon General may find necessary to assure the correctness and verification of such reports; and

"(4) a satisfactory showing that the applicant has designated an advisory group, to advise the applicant (and the institutions and agencies participating in the resulting regional medical program) in formulating and carrying out the plan for the establishment and operation of such regional medical program, which advisory group includes practicing physicians, medical center officials, hospital administrators, representatives from appropriate medical societies, voluntary health agencies, and representatives of other organizations, institutions, and agencies concerned with activities of the kind to be carried on under the program and members of the public familiar with the

need for the services provided under the program.

"Grants for Establishment and Operation of Regional Medical Programs

"SEC. 904. (a) The Surgeon General, upon the recommendation of the Council, is authorized to make grants to public or nonprofit private universities, medical schools, research institutions, and other public or nonprofit private agencies and institutions to assist in establishment and operation of regional medical programs, including construction and equipment of facilities in connection therewith.

"(b) Grants under this section may be made only upon application therefor approved by the Surgeon General. Any such application may be approved only if it is recommended by the advisory group described in section 903(b)(4) and contains or is supported by reasonable assurances that—

"(1) Federal funds paid pursuant to any such grant (A) will be used only for the purposes for which paid and in accordance with the applicable provisions of this title and the regulations thereunder, and (B) will not supplant funds that are otherwise available for establishments or operation of the regional medical program with respect to which the grant is made;

"(2) the applicant will provide for such fiscal control and fund accounting procedures as are required by the Surgeon General to assure proper disbursement of and accounting for such Federal funds;

Records.

"(3) the applicant will make such reports, in such form and containing such information as the Surgeon General may from time to time reasonably require, and will keep such records and afford such access thereto as the Surgeon General may find necessary to assure the correctness and verification of such reports; and

"(4) any laborer or mechanic employed by any contractor or subcontractor in the performance of work on any construction aided by payments pursuant to any grant under this section will be paid wages at rates not less than those prevailing on similar construction in the locality as determined by the Secretary of Labor in accordance with the Davis-Bacon Act, as amended (40 U.S.C. 276a—276a-5); and the Secretary of Labor shall have, with respect to the labor standards specified in this paragraph, the authority and functions set forth in Reorganization Plan Numbered 14 of 1950 (15 F.R. 3176; 5 U.S.C. 133z-15) and section 2 of the Act of June 13, 1934, as amended (40 U.S.C. 276c).

"National Advisory Council on Regional Medical Programs

Appointment of members.

"SEC. 905. (a) The Surgeon General, with the approval of the Secretary, may appoint, without regard to the civil service laws, a National Advisory Council on Regional Medical Programs. The Council shall consist of the Surgeon General, who shall be the chairman, and twelve members, not otherwise in the regular full-time employ of the United States, who are leaders in the fields of the fundamental sciences, the medical sciences, or public affairs. At least two of the appointed members shall be practicing physicians, one shall be outstanding in the study, diagnosis, or treatment of heart disease, one shall be outstanding in the study, diagnosis, or treatment of cancer, and one shall be outstanding in the study, diagnosis, or treatment of stroke.

Term of office.

"(b) Each appointed member of the Council shall hold office for a term of four years, except that any member appointed to fill a vacancy prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term, and except that the terms of office of the members first taking office shall expire, as designated by the Surgeon General at the time of appointment, four at the end of the first year, four at the end of the second year, and four at the end of the third year after the date of appointment. An appointed member shall not be eligible to serve continuously for more than two terms.

Compensation.

"(c) Appointed members of the Council, while attending meetings or conferences thereof or otherwise serving on business of the Council, shall be entitled to receive compensation at rates fixed by the Secretary, but not exceeding $100 per day, including traveltime, and while so serving away from their homes or regular places of business they may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5 of the Administrative Expenses Act of 1946 (5 U.S.C. 73b-2) for persons in the Government service employed intermittently.

Applications for grants, recommendations.

"(d) The Council shall advise and assist the Surgeon General in the preparation of regulations for, and as to policy matters arising with respect to, the administration of this title. The Council shall consider all applications for grants under this title and shall make recommendations to the Surgeon General with respect to approval of applications for and the amounts of grants under this title.

"Regulations

"SEC. 906. The Surgeon General, after consultation with the Council, shall prescribe general regulations covering the terms and conditions for approving applications for grants under this title and the coordination of programs assisted under this title with programs for training, research, and demonstrations relating to the same diseases assisted or authorized under other titles of this Act or other Acts of Congress.

"Information on Special Treatment and Training Centers

"SEC. 907. The Surgeon General shall establish, and maintain on a current basis, a list or lists of facilities in the United States equipped and staffed to provide the most advanced methods and techniques in the diagnosis and treatment of heart disease, cancer, or stroke, together with such related information, including the availability of advanced specialty training in such facilities, as he deems useful, and shall make such list or lists and related information readily available to licensed practitioners and other persons requiring such information. To the end of making such list or lists and other information most useful, the Surgeon General shall from time to time consult with interested national professional organizations.

Report to President and Congress

"SEC. 908. On or before June 30, 1967, the Surgeon General after consultation with the Council, shall submit to the Secretary for transmission to the President and then to the Congress, a report of the activities under this title together with (1) a statement of the relationship between Federal financing and financing from other sources of the activities undertaken pursuant to this title, (2) an appraisal of the activities assisted under this title in the light of their effectiveness in carrying out the purposes of this title, and (3) recommendations with respect to extension or modification of this title in the light thereof.

"Records and Audit

"SEC. 909. (a) Each recipient of a grant under this title shall keep such records as the Surgeon General may prescribe, including records which fully disclose the amount and disposition by such recipient of the proceeds of such grant, to total cost of the project or undertaking in connection with which such grant is made or used, and the amount of that portion of the cost of the project or undertaking supplied by other sources, and such records as will facilitate an effective audit.

"(b) The Secretary of Health, Education, and Welfare and the Comptroller General of the United States, or any of their duly authorized representatives, shall have access for the purpose of audit and examination to any books, documents, papers, and records of the recipient of any grant under this title which are pertinent to any such grant."

SEC. 3. (a) Section 1 of the Public Health Service Act is amended to read as follows:

"SECTION 1. Titles I to IX, inclusive, of this Act may be cited as the 'Public Health Service Act'."

(b) The Act of July 1, 1944 (58 Stat. 682), as amended, is further amended by renumbering title IX (as in effect prior to the enactment of this Act) as title X, and by renumbering sections 901 through 914 (as in effect prior to the enactment of this Act), and references thereto, as sections 1001 through 1014, respectively.

APPROVED OCTOBER 6, 1965, 10:15 A.M.

Legislative History:

House Report No. 963 accompanying H.R. 3140 (Comm. on Interstate and Foreign Commerce).
Senate Report No. 368 (Comm. on Labor and Public Welfare).
Congressional Record, Vol. 111 (1965):
June 25: Considered in Senate.
June 28: Considered and passed Senate.
Sept. 23: H.R. 3140 considered in House.
Sept. 24: Considered and passed House, amended, in lieu of H.R. 3140.
Sept. 29: Senate concurred in House amendments.

APPENDIX 8

REGULATIONS REGIONAL MEDICAL PROGRAMS MARCH 18, 1967

SUBPART E—GRANTS FOR REGIONAL MEDICAL PROGRAMS

(Added 1/18/67, 32 FR 571.)

AUTHORITY: The provisions of this Subpart E issued under sec, 215, 58 Stat. 690, sec. 906, 79 Stat. 930; 42 U.S.C. 216, 299f, Interpret or apply secs. 900, 901, 902, 903, 904, 905, 909, 79 Stat. 926, 927, 928, 929, 930, 42 U.S.C. 299, 299a, 299b, 299c, 299d, 299e, 299i.

☐ 54.401 APPLICABILITY.

The provisions of this subpart apply to grants for planning, establishment, and operation of regional medical programs as authorized by Title IX of the Public Health Service Act, as amended by Public Law 89–239.

☐ 54.402 DEFINITIONS.

(a) All terms not defined herein shall have the meaning given them in the Act.

(b) "Act" means the Public Health Service Act, as amended.

(c) "Title IX" means Title IX of the Public Health Service Act as amended.

(d) "Related diseases" means those diseases which can reasonably be considered to bear a direct relationship to heart disease, cancer, or stroke.

(e) "Title IX diseases" means heart disease, cancer, stroke, and related diseases.

(f) "Program" means the regional medical program as defined in section 902(a) of the Act.

(g) "Practicing physician" means any physician licensed to practice medicine in accordance with applicable State laws and currently engaged in the diagnosis or treatment of patients.

(h) "Major repair" includes restoration of an existing building to a sound state.

(i) "Built-in equipment" is equipment affixed to the facility and customarily included in the construction contract.

(j) "Advisory group" means the group designated pursuant to section 903(b)(4) of the Act.

(k) "Geographic area" means any area that the Surgeon General determines forms an economic and socially related region, taking into consideration such factors as present and future population trends and patterns of growth; location and extent of transportation and communication facilities and systems; presence and distribution of educational, medical and health facilities and programs, and other activities which in the opinion of the Surgeon General are appropriate for carrying out the purposes of Title IX.

☐ 54.403 ELIGIBILITY.

In order to be eligible for a grant, the applicant shall:

(a) Meet the requirements of section 903 or 904 of the Act;

(b) Be located in a State;

(c) Be situated within a geographic area appropriate under the provisions of this subpart for carrying out the purposes of the Act.

☐ 54.404 APPLICATION.

(a) *Forms.* An application for a grant shall be submitted on such forms and in such manner as the Surgeon General may prescribe.

(b) *Execution.* The application shall be executed by an individual authorized to act for the applicant and to assume on behalf of the applicant all of the obligations specified in the terms and conditions of the grant including those contained in these regulations.

(c) *Description of program.* In addition to any other pertinent information that the Surgeon General may require, the applicant shall submit a description of the program in sufficient detail to clearly identify the nature, need, purpose, plan, and methods of the program, the nature and functions of the participating institutions, the geographic area to be served, the cooperative arrangements in effect, or intended to be made effective, within the group, the justification supported by a budget or other data, for the amount of the funds requested, and financial or other data demonstrating that grant funds will not supplant funds otherwise available for establishment or operation of the regional medical program.

(d) *Advisory group; establishment; evidence.* An application for a grant under section 903 of the Act shall contain or be supported by documentary evidence of the establishment of an advisory group to provide advice in formulating and carrying out the establishment and operation of a program.

(e) *Advisory group; membership; description.* The application or supporting material shall describe the selection and membership of the designated advisory group, showing the extent of inclusion in such group of practicing physicians, members of other health professions, medical center officials, hospital administrators, representatives from appropriate medical societies, voluntary agencies, representatives of other organizations, institutions and agencies concerned with activities of the kind to be carried on under the program, and members of the public familiar with the need for the services provided under the program.

(f) *Construction; purposes, plans, and specifications; narrative description.* With respect to an application for funds to be used in whole or part for construction as defined in Title IX, the applicant shall furnish in sufficient detail plans and specifications as well as a narrative description, to indicate the need, nature, and purpose of the proposed construction.

(g) *Advisory group; recommendation.* An application for a grant under section 904 of the Act shall contain or be supported by a copy of the written recommendation of the advisory group.

☐ 54.405 TERMS, CONDITIONS, AND ASSURANCES.

In addition to any other terms, conditions, and assurances required by law or imposed by the Surgeon General, each grant shall be subject to the following terms, conditions, and assurances to be furnished by the grantee. The Surgeon General may at any time approve exceptions where he finds that such exceptions are not inconsistent with the Act and the purposes of the program.

(a) *Use of funds.* The grantee will use grant funds solely for the purposes for which the grant was made, as set forth in the approved application and award statement. In the event any part of the amount paid a grantee is found by the Surgeon General to have been expended for purposes or by any

methods contrary to the Act, the regulations of this subpart, or contrary to any condition to the award, then such grantee, upon being notified of such finding, and in addition to any other requirement, shall pay an equal amount to the United States. Changes in grant purposes may be made only in accordance with procedures established by the Surgeon General.

(b) *Obligation of funds.* No funds may be charged against the grant for services performed or material or equipment delivered, pursuant to a contract or agreement entered into by the applicant prior to the effective date of the grant.

(c) *Inventions or discoveries.* Any grant award hereunder in whole or in part for research is subject to the regulations of the Department of Health, Education, and Welfare as set forth in Parts 6 and 8 of Title 45, as amended. Such regulations shall apply to any program activity for which grant funds are in fact used whether within the scope of the program as approved or otherwise. Appropriate measures shall be taken by the grantee and by the Surgeon General to assure that no contracts, assignments, or other arrangements inconsistent with the grant obligation are continued or entered into and that all personnel involved in the supported activity are aware of and comply with such obligation. Laboratory notes, related technical data, and information pertaining to inventions or discoveries made through activities supported by grant funds shall be maintained for such periods, and filed with or otherwise made available to the Surgeon General or those he may designate at such times and in such manner as he may determine necessary to carry out such Department regulations.

(d) *Reports.* The grantee shall maintain and file with the Surgeon General such progress, fiscal, and other reports, including reports of meetings of the advisory group convened before and after award of a grant under section 904 of the Act, as the Surgeon General may prescribe.

(e) *Records retention.* All construction, financial, and other records relating to the use of grant funds shall be retained until the grantee has received written notice that the records have been audited unless a different period is permitted or required in writing by the Surgeon General.

(f) *Responsible official.* The official designated in the application as responsible for the coordination of the program shall continue to be responsible for the duration of the period for which grant funds are made available. The grantee shall notify the Surgeon General immediately if such official becomes unavailable to discharge this responsibility. The Surgeon General may terminate the grant whenever such official shall become thus unavailable unless the grantee replaces such official with another official found by the Surgeon General to be qualified.

☐ 54.406 AWARD.

Upon recommendation of the National Advisory Council on Regional Medical Programs, and within the limits of available funds, the Surgeon General shall award a grant to those applicants whose approved programs will in his judgment best promote the purposes of Title IX. In awarding grants, the Surgeon General shall take into consideration, among other relevant factors the following:

(a) Generally, the extent to which the proposed program will carry out, through regional cooperation, the purposes of Title IX, within a geographic area.

(b) The capacity of the institutions or agencies within the program, individually and collectively, for research, training, and demonstration activities with respect to Title IX.

(c) The extent to which the applicant or the participants in the program plan to coordinate or have coordinated the regional medical program with other activities supported pursuant to the authority contained in the Public Health Service Act and other Acts of Congress including those relating to planning and use of facilities, personnel, and equipment, and training of manpower.

(d) The population to be served by the regional medical program and relationships to adjacent or other regional medical programs.

(e) The extent to which all the health resources of the region have been taken into consideration in the planning and/or establishment of the program.

(f) The extent to which the participating institutions will utilize existing resources and will continue to seek additional nonfederal resources for carrying out the objectives of the regional medical program.

(g) The geographic distribution of grants throughout the Nation.

☐ 54.407 TERMINATION.

(a) *Termination by the Surgeon General.* Any grant award may be revoked or terminated by the Surgeon General in whole or in part at any time whenever he finds that in his judgment the grantee has failed in a material respect to comply with requirements of Title IX and the regulations of this subpart. The grantee shall be promptly notified of such finding in writing and given the reasons therefor.

(b) *Termination by the grantee.* A grantee may at any time terminate or cancel its conduct of an approved project by notifying the Surgeon General in writing setting forth the reasons for such termination.

(c) *Accounting.* Upon any termination, the grantee shall account for all expenditures and obligations charged to grant funds: *Provided,* That to the extent the termination is due in the judgment of the Surgeon General to no fault of the grantee, credit shall be allowed for the amount required to settle at costs demonstrated by evidence satisfactory to the Surgeon General to be minimum settlement costs, any noncancellable obligations incurred prior to receipt of notice of termination.

☐ 54.408 NONDISCRIMINATION.

Section 601 of Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d, provides that no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. Regulations implementing the statute have been issued as Part 80 of the Title 45, Code of Federal Regulations. The regional medical programs provide Federal financial assistance subject to the Civil Rights Act and the regulations. Each grant is subject to the condition that the grantee shall comply with the requirements of Executive Order 11246, 30 F.R. 12319, and the applicable rules, regulations, and procedures prescribed pursuant thereto.

☐ 54.409 EXPENDITURES BY GRANTEE.

(a) *Allocation of costs.* The grantee shall allocate expenditures as between direct and indirect costs in accordance with generally accepted and established accounting practices or as otherwise prescribed by the Surgeon General.

(b) *Direct costs in general.* Funds granted for direct costs may be expended by the grantee for personal services, rental of space, materials, and supplies, and other items of necessary cost as are required to carry out the purposes of the grant. The Surgeon General may issue rules, instructions, interpretations, or limitations supplementing the regulations of this subpart and prescribing the extent to which particular types of expenditures may be charged to grant funds.

(c) *Direct costs; personal services.* The costs of personal services are payable from grant funds substantially in proportion to the time or effort the individual devotes to carrying out the purpose of the grant. In such proportion, such costs may include all direct costs incident to such services, such as salary during vacations and retirement and workmen's compensation charges, in accordance with the policies and accounting practices consistently applied by the grantee to all its activities.

(d) *Direct costs; care of patients.* The cost of hospital, medical or other care of patients is payable from grant funds only to the extent that such care is incident to the research, training, or demonstration activities supported by a grant hereunder. Such care shall be incident to such activities only if reasonably associated with and required for the effective conduct of such activities, and no such care shall be charged to such funds unless the referral of the patient is documented with respect to the name of the practicing physician making the referral, the name of the patient, the date of referral, and any other relevant information which may be prescribed by the Surgeon General. Grant funds shall not be charged with the cost of—

(1) Care for intercurrent conditions (except of an emergency nature where the intercurrent condition results from the care for which the patient was admitted for treatment) that unduly interrupt, postpone, or terminate the conduct of such activities.

(2) Inpatient care if other care which would equally effectively further the purposes of the grant, could be provided at a smaller cost.

(3) Bed and board for inpatients in excess of the cost of semiprivate accommodations unless required for the effective conduct of such activities. For the purpose of this paragraph, "semiprivate accommodations" means two-bed, three-bed, and four-bed accommodations.

☐ 54.410 PAYMENTS.

The Surgeon General shall, from time to time, make payments to a grantee of all or a portion of any grant award, either in advance or by way of reimbursement for expenses to be incurred or incurred to the extent he determines such payments necessary to carry out the purposes of the grant.

☐ 54.411 DIFFERENT USE OR TRANSFER: GOOD CAUSE FOR OTHER USE.

(a) *Compliance by grantees.* If, at any time, the Surgeon General determines that the eligibility requirements for a program are no longer met, or that any facility or equipment the construction or procurement of which was charged to grant funds is, during its useful life, no longer being used for the purposes for which it was constructed or procured either by the grantee or any transferee, the Government shall have the right to recover its proportionate share of the value of the facility or equipment from either the grantee or the transferee or any institution that is using the facility or equipment. The Government's proportionate share shall be the amount bearing the same ratio to the then value of the facility or equipment, as determined by the Surgeon General, as the amount the Federal participation bore to the cost of construction or procurement.

(b) *Different use or transfer; notification.* The grantee shall promptly notify the Surgeon General in writing if at any time during its useful life the facility or equipment for construction or procurement of which grant funds were charged is no longer to be used for the purposes for which it was constructed or procured or is sold or otherwise transferred.

(c) *Forgiveness.* The Surgeon General may for good cause release the grantee or other owner from the requirement of continued eligibility or from the obligation of continued use of the facility or equipment for the grant purposes. In determining whether good cause exists, the Surgeon General shall take into consideration, among other factors, the extent to which—

(1) The facility or equipment will be devoted to research, training, demonstrations, or other activities related to title IX diseases.

(2) The circumstances calling for a change in the use of the facility were not known, or with reasonable diligence could not have been known to the applicant, at the time of the application, and are circumstances reasonably beyond the control of the applicant or other owner.

(3) There are reasonable assurances that other facilities not previously utilized for Title IX purposes will be so utilized and are substantially the equivalent in nature and extent for such purposes.

☐ 54.412 PUBLICATIONS.

Grantees may publish materials relating to their regional medical program without prior review provided that such publications carry a footnote acknowledging assistance from the Public Health Service, and indicating that findings and conclusions do not represent the views of the Service.

☐ 54.413 COPYRIGHTS.

Where the grant-supported activity results in copyrightable material, the author is free to copyright, but the Public Health Service reserves a royalty-free, nonexclusive, irrevocable license for use of such material.

☐ 54.414 INTEREST.

Interest or other income earned on payments under this subpart shall be paid to the United States as such interest is received by the grantee.

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