



E001022

Memorandum

TO : Philip R. Lee, M.D., Assistant Secretary
for Health and Scientific Affairs

DATE: March 1, 1968

FROM : Associate Director, NIH, and Director
Division of Regional Medical Programs

SUBJECT: Regional Medical Programs--An Investment in Improved Health Care--Fiscal
Years 1969-1973

This memorandum augments the memorandum sent to you on February 16, 1968, which analyzed the projected need for Regional Medical Program grant funds through fiscal year 1973 on the basis of estimated net aggregate demand. In this memorandum we would like to set forth the objectives of Regional Medical Programs, the rationale for those objectives, and the outputs which are relevant to evaluating the progress toward the objectives. We have structured this document to a large extent in terms of the concept of the Planning, Programming, and Budgeting Systems. It is our view that this discussion of objectives justifies the investment of Federal funds projected in the February 16 memorandum.

Ultimate Objectives

The Surgeon General's Report to the President and the Congress on Regional Medical Programs states the goal of the Regional Medical Programs is ". . . 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 modern medical care for heart disease, cancer, stroke, and related diseases to be available to all." The ultimate achievement of Regional Medical Programs, therefore, has to be measured in terms of end-product outputs, such as changes in morbidity and mortality in these disease fields, and the impact on the quality of life. However, measuring such ultimate outputs is considered by most leading experts to be very difficult and, in most cases, impossible in terms of relating specific end results to specific inputs.

For example, the death rate for diseases of the heart declined three per cent for the period of January-November 1967 according to the National Center for Health Statistics. Deaths from strokes dropped 2½ per cent during the same period while deaths from cancer rose three per cent. Yet it would be very misleading to attribute any part of these changes to the initial activities of Regional Medical Programs. The Division of Regional Medical Programs is supporting studies to improve the capability of the Regional Medical Programs to evaluate activities in terms of effects on the health status of people. Several papers presented at the recent

Regional Medical Programs Conference-Workshop described such studies. But such end-product analysis is not yet developed to the point where it is useful either for projections for the next five years or for analysis of the effects of those initial investments during the five-year period. Furthermore, progress in reducing mortality from one chronic disease may have the overall effect of increasing the incidence of another ailment.

Interim Objectives

Because end-product analysis is not useful for our immediate purpose of reasonable projections of investment in Regional Medical Programs, we must adopt working hypotheses or assumptions. These assumptions serve as interim objectives for action and are valid bases for evaluating the progress of the program on an interim basis. We fully realize that these working hypotheses need to be tested as the program develops and modified as improved techniques and tools are developed for defining more precisely the effects of program activities.

Most of the major assumptions and constraints, which serve as the current basis for the development of Regional Medical Programs, are found in the authorizing legislation and the legislative history which led to the establishment of this program. These assumptions and constraints are relevant to this discussion of why a sizable investment of Federal funds for these purposes is justifiable at this time and why we can posit that the significant return on the marginal Federal dollar invested in this program at this time justifies increased investment during the next five years.

PL 89-239 assumes that a gap exists between the type of health services this society is capable of making available in these disease areas and the actual availability of such services to large segments of the population. The gap may be in terms of access to services or in terms of the quality of the services being provided. This gap may be widened in the coming years due to the continued advance of medical science unless specific action is taken to close the gap. Many different elements are relevant to closing the gaps and the mix of these elements is different for different areas of the Nation and for the various problems that comprise the gap. Therefore, these programs are to be developed on a regional basis with the flexibility in the national guidelines to permit each region to develop programs based on their particular needs and resources.

Many different types of activity are relevant to closing the gap between our current health system and the availability of high quality

care to all. Major elements are stated in the law:

1) Research and development into better means for making the advances of medical science more readily available to the population in need of these benefits;

2) Training, including continuing education, which can help close acute gaps in manpower, create new types of manpower for evolving health functions, retrain existing manpower for the changes of function brought about by advances in knowledge, and can upgrade the quality of existing manpower as it is currently utilized in the health system;

3) Demonstrations of patient care, which serve to integrate into the total system improved techniques and mechanisms for prevention, diagnosis, treatment and rehabilitation, which provide the means for extensive involvement of our health manpower and institutions in the process of improving health care capability.

Most importantly, the law makes clear that these activities are to be considered part of, and contributors to, the evolution of a system which establishes and strengthens, on a regional basis, functional relationships among the elements of the health system. The law assumes that cooperation of all essential elements of the health resources in a region is an essential means of coping with the complexities of specialization, high cost, manpower needs, and educational training needs which are the by-products of the dynamic advances of medical science. In overcoming the fragmentation and insularity of health resources, it is desirable to establish a continuing relationship with the research and teaching environment of the medical center, the patient care activities involving the community hospital and practicing physician, and other health organizations and agencies. The law assumes that only through such regional arrangements can the health status of the patient benefit fully from the accomplishments of medical science.

The assumptions include major constraints. First, the development of the programs is constrained by limitations of manpower resources and by the availability of strong and imaginative leadership. Overall manpower limitations and, in some cases, shortages of physical space for new activities, demand the development of solutions to the target problems within these resource constraints.

Another vital constraint is the necessity of moderating the rise in medical care costs. The sharp rise in costs requires that means be found to accomplish improvements in health care capability with extensive attention to moderating the increased cost of the improvements, including the utilization of the advances of medical science and technology to provide superior care at equal or reduced cost.

Another significant constraint provided in the law is the development of Regional Medical Programs through a voluntary cooperative approach. The Regional Medical Programs may stimulate and foster improvements in the health care system and establish terms and conditions for participation in activities of Regional Medical Programs, but the programs may not coerce existing institutions and activities into conformance with the Regional Medical Programs.

A final major constraint is the lack of a basis of experience and knowledge which can guide the developments of Regional Medical Programs. The scarcity of existing relevant models calls for the application of the experimental approach to the development of Regional Medical Programs.

The Process of Regionalization

Dr. Lester Breslow, in a talk at the recent Conference-Workshop, said, "To those concerned with the improvement of health care in this country, regionalization has become the order of the day." In the revised Guidelines for Regional Medical Programs we have chosen to describe the overall mechanism for achieving the goal of Regional Medical Programs as a process of regionalization. This process encompasses the development of the activities described above on a regional basis and reviews those activities in a framework where they contribute to an improved organization and delivery system on a regional basis. Excerpts from the revised Guidelines describing the major elements of this process are attached to this memorandum (see Attachment I).

The Primary Output Measure - Improving the Organization and Quality of Health Care

The progress of Regional Medical Programs during the next five years can properly be measured on the basis of the assumptions which are explicit and implicit in the authorizing legislation. The primary output measure becomes therefore the extent to which the Regional Medical Program is achieving the functional process of regionalization that can be expected to improve the organization and quality of health care. There are some difficulties in developing precise uniform measures of organizational changes or modifications in the attitudes and behavior of health institutions, organizations, and practitioners; yet progress in modifying the attitudes of the participants in the health endeavor should have a very great impact on the improved efficiency and effectiveness of the total health care system. The emergence of new patterns of attitudes and relationships in the health field assumes very major importance when it is realized that significant improvements in the organization and delivery of health services within the constraint of minimum coercive power are to

a large degree dependent upon modification of present attitudes and patterns of relationships. Solutions to many of the particular problems of closing the gap between potential and practice depend upon a regional approach that effectively utilizes many elements of the health care system, and requires patterns of organization of health care resources that make efficient utilization of expensive capital facilities, scarce manpower, or realize the full potential of the new technology. Because a regional medical program provides the framework for such a process of regionalization, it is appropriate that the primary output be measured in terms of improved organization and delivery of health services.

During this period of time overall progress is being measured in terms of improved organization and delivery of health services, the individual regional medical programs and the Division are devoting considerable effort to the development of better tools for the measurement of the effects of program activities in end-product terms, such as changes in morbidity, mortality, or other measures of health status, and the application of these tools to the activities of regional medical programs.. (See Attachment II for some examples of these efforts.) While improved measuring techniques are being developed and their application tested, the evaluation processes are already underway in regional medical programs. These program evaluations in terms of improvements in the quality of health care will continue to rest, to a large degree, on criteria established through the consensus of best professional judgment. Such criteria will, of course, be applicable to individual activities within the regional medical program, and will not constitute a common index of effect by which the total progress of the regional medical program can be measured.

Additional Outputs

The stimulation of improvements in the organization of health services does not, however, totally encompass the valid output measures of the effects of regional medical programs. These outputs result from the planning and implementation of the individual regional medical programs, and the specific activities undertaken by any regional medical program will vary in composition and amount from region to region. Therefore, as the programs emerge into the operational phase, it will be possible to describe these additional outputs with increasing specificity. Examples in the following categories can be identified at this time (see Attachment II for a fuller description of examples actually occurring in regional medical programs):

- 1) Some of the activities of the regional medical programs may be defined as research and development in health services. These research and development activities may be in different methods of organizing

health resources, in the development and testing in actual community use new diagnostic and treatment techniques previously confined to the laboratory environment, research and development in the technique of evaluation of medical care, research into improved techniques for education and training in the health professions, cost-benefit analyses, and the development of new technologies that can moderate increased medical costs.

2) The training activities of regional medical programs will result in outputs which can be measured in terms of additional numbers and improved effectiveness of health manpower. These outputs can include the development of new types of health manpower, the filling of particular manpower gaps, and the improved effectiveness of existing health manpower through programs of continuing education. These activities justify a considerable level of investment because the improved effectiveness of health manpower should logically increase the efficiency of the health care system as given inputs of manpower resources result in greater outputs measured in end-product terms.

3) Demonstrations of patient care in regional medical programs generate outputs in terms of the delivery of health services and the prevention and control of disease.

All of these additional outputs are occurring and will occur within Regional Medical Programs, but these additional outputs will take place within an action framework that influences the improved organization and delivery of health services. Therefore, the multiple outputs will have a synergistic effect in terms of improved health care.

Factors Affecting the Level of Investment

In order to make a decision concerning an appropriate level of investment in these programs a number of factors should be examined:

1) All elements of the health system are relevant to the purposes of the Regional Medical Programs. In order to achieve the purposes, the impact of RMP activities has to be felt at numerous points in the system with extensive involvements in the activities of the programs. The magnitude of this task can be seen in the numbers of elements that should be affected by the programs, including the 5700 general hospitals, 100 medical schools, 285,000 practicing physicians, 640,000 nurses and many other health organizations and institutions. Since the total stream of activity is so great, any activity intended to bring about modifications and improvements in the total system requires sufficient extra funds to accomplish these modifications. In order for any effects to be seen or measured this basic investment level must be considerable, and an investment below this minimum level might be substantially wasted since the opportunity to demonstrate the validity of the assumptions on which these

programs are based would be lost. It is not likely that there is a direct proportional relationship between investment and return until this critical mass of initial funding is exceeded. In launching these new programs the initial investments must be considered as risk capital with a considerable potential payoff. The extent to which the investment achieves its expectations can only be given a full evaluation if the initial capital is sufficient.

2) The return on the funds invested to date seems to be considerable in terms of the preliminary informed judgments that the Regional Medical Programs have prospects for making significant progress toward their goals. This was the conclusion of the Surgeon General's Report to the President and the Congress and the conclusion is strengthened by the recent Conference-Workshop on Regional Medical Programs. The initial return justifies additional investment, especially since much of the initial progress has taken place in anticipation of that further investment. There is evidence that the return of marginal dollars invested in these purposes continues to be high when measured by the achievement of interim objectives.

3) The costs of the various types of activities that are being undertaken in Regional Medical Programs provides some indication of the magnitude of expenditures that are required for such activities as: the organizational infrastructure of the Regional Medical Program including the planning and evaluation capability as well as systems for the gathering, and analysis of, data on the health care system; educational activities which must reach nearly all of the current pool of health manpower; demonstrations of patient care that are sufficiently distributed geographically and are supported at a level that can catalyze improvements in the total health care systems; and the development and exploration of new means for organizing health care and for utilizing new technologies. It should be stressed that these types of activities are unlikely to be supported at a sufficient level to accomplish these purposes within the existing organizational, institutional, and financing frameworks of the health care system. Therefore, these purposes can only be achieved by some additional investment external to the current sources of financing of health care.

Conclusion

There are two approaches that can reasonably be adopted to determine the actual amount of initial investment that will generate significant progress towards the goals of Regional Medical Programs within the next five years.

The estimated net aggregate demand of the Regional Medical Programs, as outlined in the memorandum on February 16, is an appropriate basis

for investment decisions in the initial stages of this program. These demands are generated through a regional process that is determining regional goals and priorities and which take into consideration the various resource constraints within the regions. Until experience is gained and evaluated this estimated demand, after careful review and evaluation by the review process at the national level, might constitute the most reasonable estimate of the investment needed to provide a basis for determining whether a program based on these assumptions can achieve its goals.

Since this program has many experimental aspects and since previous models do not provide much information on which to base investment decisions, it is also reasonable to view the projected investment for the next five years as a level of effort based on a proportion of the funding for the total health care system which this investment is intended to influence. This initial level of effort could be viewed as the investment necessary to make productive change, especially for accomplishing improved quality and distribution of care. If the total national investment in health by 1973 is running at a level in excess of 60 billion dollars per year, the effects of investment through Regional Medical Programs should be measured in terms of improvements in the system, not just in terms of units of activity purchased with the funds. As an initial level-of-effort investment decision, the proposed authorizations through fiscal year 1973 constitute less than 1 per cent of the total annual national expenditures on health.

Therefore, we believe that the estimates provided in the memorandum of February 16 are a reasonable basis for projecting the investment in Regional Medical Programs at this time.


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Attachments

CHAPTER II

THE NATURE AND POTENTIAL OF REGIONAL MEDICAL PROGRAMS

GOAL - IMPROVED PATIENT CARE

Chapter I places the Goal of Regional Medical Programs in its historical context and gives a fuller perspective to Section 900 of the Act (see Appendix I), which defines the Goal in detail. In abbreviated form, the Goal is described in the Surgeon General's Report 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."

MEANS - THE PROCESS OF REGIONALIZATION

Note: Regionalization can connote more than a regional cooperative arrangement, but for the purpose of Guidelines, the two terms will be used interchangeably. The Act uses "regional cooperative arrangement," but "regionalization" has become a more convenient synonym.

A regional cooperative arrangement 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, or a regional cooperative arrangement, 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. This interaction should occur within the operational activities as well as in the total program. The geographic boundaries of a region serve to define the population for which each regional program will be concerned and responsible. This concern and responsibility should be matched by responsiveness, which is effected by providing the population with a significant voice in the regional program's decision-making process.

It 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. In some instances, this may require inter-regional cooperation between two or among several regional programs.

Finally, it also constitutes a mechanism for coordinating its categorical program with other health programs in the region so that their combined effect may be increased and so that they contribute to the creation and maintenance of a system of comprehensive health care within the entire region.¹

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It is not the intent of a Regional Medical Program grant to supplant either Federal or non-Federal sources of support for various activities related to achieving its purpose. Rather, the Regional Medical Program provides an opportunity to introduce activities which draw upon and effectively link activities already supported, or supportable in the future, through other sources. Current examples of other Federal programs that provide essential inputs into the health resources of the Region are: other activities of the National Institutes of Health, particularly the National Heart Institute, National Cancer Institute, and National Institute of Neurological Diseases and Blindness; other constituents of the Department of Health, Education, and Welfare particularly the Comprehensive Health Planning and Services Program in the Office of the Surgeon General, the Bureau of Disease Prevention and Environmental Control, the Bureau of Health Manpower, the Bureau

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, or cooperative arrangements, 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. While these seven elements in the process will be described and discussed separately, in practice they are interrelated, continuous and often occur simultaneously.

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 implementation 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.

The Act states these Regional Advisory Groups must include "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." To ensure a maximum opportunity for success, the composition of the Regional Advisory Group also should 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 socioeconomic groups which will be served by the Regional Program.²

of Health Services, the Social Security Administration, the Office of Education, and the Social and Rehabilitation Service; and other Government agencies, particularly the Office of Economic Opportunity, the Model Cities Program of the Department of Housing and Urban Development, and the Veterans Administration. New sources of possible support for activities related to a Regional Medical Program should be considered during both the planning and operational phases.

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The Regional Advisory Group should provide overall advice and guidance in the planning and operational Program, from the initial steps onward.

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Identification of Needs and Opportunities - A Regional Medical Program must identify the needs regarding 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 may be defined 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 with the Region.

Among various identified needs there also are often relationships which, when perceived, offer even greater opportunities for solutions. The danger of "project vision," which is akin to tunnel vision, must be guarded against.

In examining the problem of coronary care units throughout its Region, for example, a Regional Program may recognize that the more effective approach would be to consider the total problem of the treatment of myocardial infarction patients within the Region. This broadened approach on a regional basis enables the Regional Program to consider the total array of resources within its Region in relationship to a comprehensive program for the care of the myocardial infarction patient. Thus, what was a concern of individual hospitals about how to introduce coronary care units has been transformed into a project or group of related projects with much greater potential for effective and efficient utilization of the Region's resources to improve patient care.

Assessment of Resources - As part of the process of regionalization, a Region must have continuously updated inventory of existing resources and 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

It should be actively involved in the review and guidance and in the coordinated evaluation of the ongoing planning and operating functions.

- 2. It should be constituted to encourage cooperation among the institutions, organizations, health personnel, and state and local health agencies such as the health planning bodies being established under the Comprehensive Health Planning Program, Public Law 90-174. It should be concerned with continuing review of the degree of relevance of the planning and operational activities to the objectives of the Regional
- 3. Medical Program and particularly with the effectiveness of these activities in attaining the goal of improved patient care. The Advisory

process of creating an entirely new inventory. Information sources include state and local health planning agencies, hospital and medical associations, and voluntary agencies. The inventory provides a basis for informed judgments and priority setting on activities proposed 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 - 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 defined at the beginning of this Chapter, and achievement of these objectives should have an effect in the Region felt far beyond the focal points of the individual activities. This can be one of the greatest contributions of Regional Medical Programs. The completion of a new project to train nurses to care for cancer patients undergoing new combinations of drug and radiation therapy, for example, should benefit cancer patients and should provide additional trained manpower for many hospitals in the Region. But the project also should have challenged the Region's nursing and hospitals communities to improve the continuing and in-service education opportunities for nurses within the Region.

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.

Implementation - The purpose of the preceding steps has been to provide a base and imperative for action. In the creation of an initial

Group does not have direct administrative responsibility for the Program, but the clear intent of the Congress was that the Advisory Group would insure that the Regional Medical Program is planned and developed with the continuing advice and assistance of a group which is broadly representative of the health interests of the Region. The Advisory Group is expected to prepare an annual statement giving its evaluation of effectiveness of the regional cooperative arrangements established under the Regional Medical Program.

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 which 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 that 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 procedures.

- 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 regionalization, 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.

Evaluation implies carrying out 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 meetings 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.

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Criteria - Evaluation of Regional Medical Programs - The criterion for judging the success of a Region in implementing the process of regionalization is the degree to which it can be demonstrated that the Regional Program has implemented the seven essential elements discussed in this Chapter: involvement, identification of needs and opportunities, assessment of resources, definition of objectives, setting of priorities, implementation, and evaluation.

Ultimately, the 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 improved care for heart disease, cancer, stroke, and related diseases.

EXAMPLES OF ACTIVITIES

Regional Medical Programs, as cooperative endeavors for improving the organization and quality of health services in these disease fields generate a variety of desirable and interrelated outputs in addition to this primary output. Indeed, some of these additional outputs are attainable only through such cooperative ventures. Many of these additional outputs of program activities can be included in three general categories; (a) Research and development in health services; (b) Manpower training; and (c) Actual delivery of services, including prevention, detection, and control of disease and its sequellae.

Examples of actual program activities illustrate the diversity of outputs:

(a) Research and Development in Health Services

In developing their plans the regional medical programs have indicated that if the goal of improved organization and delivery of health care is to be met, some entirely new means must be developed, and then accepted by those rendering care. Many regions are using research talent in investigating new means for improving health care by testing them in the actual practice of medicine.

1. Temporary but life-threatening disorders of breathing, heart beat, blood pressure, etc. often accompany heart attack and stroke. The region containing one of the Nation's most sophisticated computer centers for monitoring such disorders has linked four community hospitals to the computer center at the Latter Day Saints Hospital in Salt Lake City, and is studying ways by which automated monitoring may be extended to all hospitals in the Region.
2. The Intermountain Region and the University of Michigan Department of Industrial Engineering together are describing the functions of specialized units for the care of patients with heart attacks. Using systems and operations research techniques, both theoretic and actual model "coronary care units" will be constructed, allowing for the most efficient and effective development of these units throughout the Nation.
3. To survive cancer, patients must be treated rapidly, vigorously, and optimally. Physicians must not lose sight either of their patients or of the latest advances in therapy. Four regions are now experimenting with computerized registries of cancer patients. Physicians treating cancer patients will regularly receive reports listing their patients and the type of cancer, the progress of the patient and a comparison of his progress with optimal progress, and the best types of therapy then available for that particular type of patient and cancer.

4. Vermont is experimenting with a systems approach to analyzing the costs of medical care rendered within the Region. The use of modern analytical techniques to study, for example, population distribution, disease incidence, treatment patterns, and economic benefits of treatment will allow decisions to be made which best fit the Region's particular economic constraints and the general constraint imposed by the necessity of moderating the increase in the cost of health care.

(b) Manpower Training

Concern with service of any type leads immediately to a consideration of manpower needs including the more efficient and effective utilization. Regional Medical Programs has a direct charge to "improve generally the health manpower of the nation." This has led to consideration of kind, number, and quality of health manpower. Educational activities improving quality are important to Regional Medical Programs, but somewhat unexpected were the needs demonstrated by Regions to seek new kinds and numbers of health manpower. Shortages of personnel have resulted in two interesting experiments:

1. Metropolitan New York City, having a shortage of trained manpower but a surfeit of disadvantages and potentially employable persons in its midst, is studying ways of developing health careers, training programs, and finally, placement programs for those trained.

2. The Colorado-Wyoming Region, with a similar manpower shortage but no untrained labor force upon which to draw, has developed a different solution.

Colorado estimates that fewer than 15 percent of its residents having high blood pressure are either identified or being treated adequately. Since the required mass-screening program would be too great an effort for the Region's physicians, nurses are being specially trained as "nurse-practitioners," fully competent to conduct a sophisticated screening program.

3. To increase the availability of trained manpower, Regions are designing new attractions for "professional drop-outs": split shifts for nurses--broader career opportunities and opportunities for career shifts by allied health workers-- and new types of on-the-job refresher courses are being offered.
4. Through a cooperative effort of Los Angeles County, UCLA, USC, the Charles E. Drew Medical Society (a component of the National Medical Association), and the California Regional Medical Program, a new community hospital and postgraduate medical education program is being planned for the Watts area of Los Angeles, California.

(c) Delivery of Services

While actual care of patients is not a primary activity of any Region, many projects do result in the delivery of high quality services, including prevention, detection, and control of diseases:

1. The legislative authority for "demonstrations of patient care" results in the best of care being given to a number of patients. Prior to the establishment of the Mississippi Regional Medical Program, no hospital beds were available to the large number of indigent negro or white patients with non-hemorrhagic stroke, nor were neurologic specialists available to render expert care. The establishment, through the Mississippi Regional Medical Program, of a four-bed unit at the University of Mississippi for the demonstration and teaching of comprehensive care for the stroke patient, is resulting in an example of excellent care being available for the first time which will favorably influence the quality of care provided to a large segment of the population of the state.
- 2.. The Tennessee-Mid South Region has responded to a specific need of Meharry Medical College and a nearby Neighborhood Health Center, sponsored by the Office of Economic Opportunity, for efficient and rapid screening of patients for a variety of disorders. With the expert assistance of Vanderbilt University, a multiphasic screening laboratory is being planned. While the major question to be answered by this project is the best method to screen a large population for specified disorders, answering the question will result in the much needed detection and subsequent treatment of disease in the population to be served.
3. Two Regions, Washington-Alaska and Tennessee Mid-South, have recognized that computation of the precise dose of radiation required by a patient with a certain type of cancer is a difficult and complex process. While the actual therapy can be administered by technicians, the machine settings, the skin area to be included by the radiation, and other factors can be calculated only by a few specially trained physicians, often not to be found even where treatment facilities exist.

Two Regions, on opposite sides of the nation, have developed computer programs for error-free dose calculations, and are extending this service by telephone links between hospitals and the computer. This has resulted in the optimal treatment of many more cancer patients.

A variety of projects have related to detection or control of disease, thus, in making available to their patients the latest advances in diagnosis and treatment. Regions have recognized new techniques in identifying populations at risk, and the population with early, and therefore more treatable, disease.

1. Well Child Clinics, Head Start Programs, and practicing physicians' offices are the resources for cardiologic consultation and case finding in Georgia. Children with early and previously unsuspected heart disease are identified and brought into programs of prophylaxis, vocational and educational guidance. Thus, a program initially identifying children with cardiac difficulties expands to fulfill the total physical and social needs of the child.
2. The Advisory Committee to the Surgeon General on Urban Health Affairs stated: "The time has passed when action to provide (comprehensive personal health) services could be carried out by compartmentalized institutions and isolated units. Now it is necessary for the various public and private components to assure effective delivery of all health services needed by each individual." Multiphasic screening program initiated in Tennessee Mid-South Regional Medical Program and other Regions will identify patients not only with heart disease, cancer, stroke, malnutrition, obesity, and diabetes, but also those with tendencies to diabetes, with hyperlipemic states, genital and cervical dysplasias, and others. To so label patients will create a demand for a "second-generation" response, and compel an unpredictable expansion of the program if patient needs are to be served and patients are to be afforded "the latest advances in the diagnosis and treatment of diseases."
3. In Iowa, a program is developing for the detection, management, and rehabilitation of patients with a high risk of having a stroke or who have already had one. This program, carried out by a team of physicians, nurses, and physical therapists, consists primarily of consultation services and continuing education for health workers. The team will regularly visit various parts of the state. With broadened perception of the potential for earlier detection, for more aggressive therapy, and for meaningful rehabilitation, the incidence of stroke and resulting impairment is expected to decline. The imagination and innovative energies of that Region are certain to multiply programs not yet implemented.