

Draft material for
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Federal Support of Medical Education

Of the many responsibilities shared by all members of the Congress of the United States, none is more important than the one I shall attempt to fulfill today.

I refer to the duty to render public reports on matters of national significance. There are several ways to do this. One of the best is direct, face-to-face discussion.

Because of the particular Congressional role I have held for many years, I believe I have a special obligation to conduct such discussions before groups of physicians.

When that group is within so distinguished an institution as the University of Pennsylvania Medical School, that obligation becomes, instead, a privilege.

In Philadelphia, a member of Congress cannot help but feel the presence of those early patriots who established the political foundations of the Republic. I am sure that physicians visiting this old city must, in similar fashion, feel the presence of John Morgan and William Shippen, who pioneered our great national structure of medical schools. Close behind these two we -- both the legislator and the physician of today -- can discern the heroic figure of Benjamin Rush, pioneer in mental health, who in spite of his busy schedule of medical practice and teaching, found time to help formulate the Declaration of Independence.

On down through the years we are reminded of other great physicians associated with this city and this school: men like Archer, Long, Osler, De Leon, and Barnes. Then we reach the contemporary scene and encounter figures such as Drs. Isidor Ravdin, Howard Rusk, Charles Mayo and E. Vincent Askey, who in the same tradition, combine the talents of teacher, researcher or practitioner of medicine with invaluable contributions to the larger national scene.

And thus I must blend my gratitude and pride for being chosen to present the annual lecture of the John Archer Society with a large portion of humility in the presence of a gathering which represents so vital a segment of our national history and of present-day imminence in medical science.

As Chairman of the Sub-Committee of the House which has responsibility -- among other things -- for the annual appropriations for the U. S. Public Health Service, my work obviously has a direct impact upon the scope and directions of Federal, State, and local public health programs and the very important research programs of the U. S. Public Health Service. Less well known among physicians is the fact that the actions of my Sub-Committee have had, cumulatively, a far-reaching impact on medical education.

When I first became a member of my Sub-Committee the research program of the Public Health Service was small, and limited principally to its own epidemiological and laboratory study of the communicable diseases. Funds for research grants and training awards to non-Federal investigators and institutions were relatively insignificant. This was but a reflection of the emphasis then being given to consolidating the great advances made against communicable diseases in the first three decades of the present century. Even then, however, the shape of our population and its environment was undergoing important changes, creating new health problems and needs for a new research effort.

Oversimplified, the two most significant changes were these:

(1) Emergence of the chronic disease problem: Because of reductions in morbidity and mortality from communicable diseases -- particularly among infants, children, and mothers -- more people were living longer, and therefore becoming more susceptible to the chronic diseases such as cancer, heart disease, arthritis and emotional disorders.

(2) Emergence of environmental health problem^s: The longer average life expectancy, together with improved economic conditions and other factors, had greatly expanded our population. The flowering of U. S. technology and industry concentrated more and more of these people in our cities. At the same time it introduced an entirely new set of health problems -- air and water pollution, ionizing radiations, food additives, a deluge of new drugs and synthetics, an alarming increase in accidents on the streets, in the factory, and in the home.

Thus, almost from the beginning of my service on the Sub-Committee, we have had to devote more and more attention to national research needs in these two areas of chronic diseases and environmental health.

Back around 1945 and 1946 we felt that the nation should begin learning more about the cause, prevention and treatment of chronic disease. This required some redirection and strengthening of the Public Health Service's own research. More important is the fact that expansion of research in universities and medical schools was considered imperative.

According to their own representatives, the size of the needed expansion was clearly beyond the resources of the universities, foundations, voluntary health agencies and other private sources. In concurrence with the advice of experts in and out of the Government, we determined that a gradual, year-by-year build-up of a Federal grants-in-aid program, would be required. The mechanism to be used was the National Institutes of Health of the Public Health Service -- an organization with experience in the granting field and a tradition of first-class medical and biological research.

So much for philosophy and background. Now let us look at what has happened. The simplest and quickest measurement is in terms of the dollars that have been spent to bring our Nation unquestioned world leadership in medical and biological science. Taking as our baseline the last pre-war year, the total national investment in this work has risen from about \$45 million in 1940 to around \$715 million in 1960. In 1940 Federal support of such research was 7 percent, or \$3 million. In 1960 the Federal share was 53 percent or about \$380 million, most of which was provided through the National Institutes of Health.

Here I should like to point out that although the percentage of non-Federal funds has greatly decreased in relation to Federal funds, there has, nevertheless, been a remarkable increase in the actual amount of non-Federal assistance to medical research -- from \$42 million in 1940 to an estimated \$335 million in 1960. It seems to me this affords clear proof that Federal funds have stimulated rather than suppressed private expenditures in medical research.

Most of these Federal funds have been appropriated for research and training related to specific diseases such as cancer, arthritis, neurological disorders, cardiovascular diseases, and the like. However, very sizable amounts have, of necessity, gone into study of basic medical and biological questions. Overall, the great bulk of the research up until now has been oriented toward laboratory rather than clinical phases.

As to results, a gathering such as this would know, far better than I, of the remarkable array of new concepts, drugs and procedures that have already come forth. You, better than I, know of the still greater advances which lie ahead simply because the greatest part of the work of the past decade has been of a fundamental nature and therefore provides the building material for tomorrow's new clinical developments and the substance of tomorrow's medical education.

The rewards of this national investment in medical research and research manpower have been great not only in new knowledge, but in the enhancement of the research and laboratory science components of medical education. The research construction program has had the same effect on the physical plants of our schools.

Now I must look at the other side of the coin. The very scope and vigor of our national research effort, not only in biology and medicine, but in many other scientific fields, has either created, intensified, or at least revealed certain problems.

It is easy for us to forget the national proliferation in these other fields of science, paralleling the growth in biomedicine, but involving vastly greater Federal funds. These other research interests of the Federal government also have had to be advanced primarily through project grants and contracts, largely with the same institutions who are the mainstay of our health-related research.

I am sure you are familiar with the administrative problems; with the rigidities; and with the tendency toward creation of imbalances between research and teaching functions that have been reported from many institutions, as resulting from the volume of project research.

I have heard it said that our national concentration on direct project research grants and contracts carries an inherent danger of causing the universities to lose control over such factors as the relative emphasis their faculties shall give to fundamental versus applied research. Some authorities feel the very independence of many universities is threatened.

These possibilities are a matter of grave concern to my Committee, as I know they are also to other segments of the Congress having similar interests in preserving a healthy research and educational structure in our nation.

As one approach to a redress of the present trend as it relates to medically oriented research, the Congress recently authorized NIH to explore methods for a new program of general research grants to universities and similar institutions. These general grants would augment rather than replace the project grant system. Our thought was that reasonably large sums made available for institutions to use as they saw fit, in meeting particular internal problems, would help them achieve their own institutional goals, objectives and standards of excellence.

The Congress has not yet approved the details of this new grants program. However, the principle is sound and the need seems to be well-established. I am hopeful that something concrete will be forthcoming in the near future.

Another problem growing out of the emphasis on laboratory research during the past decade has been the need for more funds, facilities and projects for clinical research. To meet this need a new clinical research facility grants program was established last year by NIH as a result of recommendations by the Congress.

Totally, the program aims to provide support for a variety of basic and clinical research efforts on a broad variety of diseases and fundamental biomedical problems. The similar clinical facility programs of the NIH categorical Institutes are to be concerned primarily with a particular type or group of diseases, such as heart disease or cancer.

Behind the original Congressional action were the considerations that (1) clinical research has been insufficient because of a lack of adequate means to provide the careful observation and control needed for research in the complexities of human biology; and (2) that valuable research in animals or chemical laboratories often has not been carried over into studies in human patients because of a lack of proper research facilities and conditions. One of the principal reasons for these deficiencies has been the high costs of clinical research.

A clinical research facility is defined as a resource within a medical institution, aimed at enhancing the quality and quantity of clinical investigations. It is a discrete physical unit or research ward of about 10 to 20 beds in a hospital, but apart from the general care wards, with a stable, well-trained nursing and dietetic staff to provide precise control and observation, and with directly supporting specialized laboratory facilities.

The grant funds pay for the renovation and equipment of the centers, the costs of the care of research patients (including specialized nursing, diet kitchens, and other services), supporting laboratories and certain staff salaries.

In these facilities, scientists can carry on coordinated investigations in a wide range of diseases and basic scientific problems. NIH cites as an example of such cooperative work, the problem of transplanting human tissues and organs. Advances in both the basic sciences, such as chemistry and immunology, and in the clinical sciences, such as surgery and internal medicine, are necessary before important advances can be made in transplantation techniques.

Good progress has been made in getting this clinical program under way. First-year grants averaging about a half-million dollars each have been awarded to 19 institutions in every part of the country. A number of other very promising applications is being studied by NIH and its advisory groups and action on these should be forthcoming soon.

Aid to Medical Education

While not created by the large-scale investment in medical research, the third problem I wish to discuss was intensified by it. Furthermore, the continuation and future expansion of that research effort will be jeopardized if this third problem is not solved. And finally, full public benefit from the results of the medical research program will depend to a significant degree on how well that problem is solved.

I refer to impending deficits in both the quantity and quality of new physicians that our country must have if we are to maintain and improve our present high standards of medical practice.

Studies made by my Committee and by other responsible groups over the past 2 or 3 years indicate that our medical schools are losing ground in the competition for superior college students.

During the current fiscal year approximately 10,000 predoctoral fellowships in the physical, life, and social sciences, psychology, engineering, the arts, humanities and education will be awarded by four Federal agencies -- the Department of State, the National Science Foundation, the Office of Education and the National Institutes of Health.

These fellowships provide a stipend of from \$1,800 to \$2,500, plus \$500 allowance for each dependent, and travel allowances. Full tuition is paid to the institution which the recipient chooses to attend, and, in some instances an additional subsidy to the institution is provided.

We all know that college enrollments are rapidly increasing. However, the number of college students applying to medical schools has dropped at a time when the number of college graduates has been increasing. Furthermore, the quality of applicants is said to be decreasing. These trends offer a serious threat to the necessary increase in the number of physicians in the future. It is a threat also to the quality of future graduates.

Against this decline of medical school applications is the widely held belief that, today, this country has a relative shortage of medical manpower. We believe that shortage will become acute in the years ahead unless action is taken.

One of the several expert committees that have been studying this problem reported last year that it found four principal reasons for the impending physician shortage:

- (1) the tremendous increase in population in the past 20 years -- from 132 million in 1940 to 180 million in 1960;
- (2) we have not expanded our production of physicians at a sufficient rate to meet the needs for medical care of the increasing population in addition to the augmented needs for teaching and research;
- (3) the shift in the U.S. population distribution resulting in a greater percentage of the very young and very old who require the greatest amount of medical care;
- (4) the demand for health services resulting from our rising standard of living, wide expansion of hospital and medical insurance, and the increasing health-consciousness of our people.

In addition there are such factors as the great length and cost of medical training and the fact that many other satisfying and intellectually stimulating scientific careers with high prestige and adequate financial reward have developed during the past 20 years.

This same study found the average cost of 4 years of medical school to be approximately \$11,600 for those graduating in 1959. Since scholarship support has been meager, many students hesitate to shoulder a large loan, and the curriculum is so demanding that few students can carry a part-time job without considerable sacrifice of time needed for their studies. Thus the choice of medicine as a career has been to a considerable extent influenced by financial factors, and many promising college graduates who would have liked to study medicine have been discouraged.

To help remedy this situation it has become apparent to me that (1) the Federal government must provide direct assistance to the teaching functions of medical and related schools; (2) that the Federal government should supplement private, industrial, and State sources in providing scholarship, fellowship, and loan assistance to medical and dental students as it now does to Ph.D. candidates in the basic sciences; and (3) it should relieve the serious financial and administrative imbalances between the research and teaching functions of the medical schools.

Several legislative proposals now being studied in the Congress are designed to meet these needs. I would like to describe very briefly my own bills which I believe would go a long way toward helping meet our national requirements in this area.

pg. 23 On January 25 of this year I introduced a bill which would provide for a 10-year program of grants for education in the fields of medicine and dentistry to be administered by the U.S. Public Health Service. Under this program each accredited degree-granting medical and dental school would receive a block grant of \$100,000 each year, together with \$500 for each student, plus \$500 additional for each student enrolled in excess of average past enrollment.

For schools providing only one, two or three years of professional training in medicine or dentistry, block grants of \$25,000, \$50,000, and \$75,000 respectively would be awarded. With these funds the schools could meet the costs of establishing, maintaining or enlarging their teaching staffs and of maintaining, acquiring and operating the necessary equipment.

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I should like to emphasize that these funds are intended primarily to meet the costs of new or expanded instruction programs. Special training projects outside the regular curriculum which are financed with other public funds or private grants are excluded. The same exclusion applies to the costs of research and to the operations of any hospitals.

My bill applies a few conditions for institutional eligibility for Federal grants that I believe you will agree are entirely reasonable and desirable:

- (1) The school must be either a public or a non-profit private institution located within the United States.
- (2) The school must provide reasonable opportunity for the admission of out-of-State students.
- (3) During the period it is receiving Federal payments, the school must make every reasonable effort to maintain its income for operating expenses from sources other than the Federal government at a level equal to that which existed before receiving the Federal funds. In the case of a new school, similar efforts should be made to obtain such non-Federal operating income at the highest possible level.
- (4) The school will submit from time to time such reports as the Surgeon General may reasonably require to assure that these purposes are being carried out.

To advise the Surgeon General on the policies and regulations under which the program would operate, there would be established a National Council on Education for Health. The Surgeon General would be ex-officio chairman and the Commissioner of Education an ex-officio member. The Council membership would include ten leaders in the fields of health sciences, education, or public affairs. Four of the ten would be persons actively engaged in an appropriate field of professional education.

A companion bill was introduced by me on the day after this first bill was offered. This second legislative proposal is designed to provide Federal funds which would stimulate and supplement non-Federal scholarship funds for medical and dental students. Each state wishing to participate would establish a Commission on medical and dental scholarships, or designate an existing agency to serve as the State Commission. The Commission would develop a plan covering certain broad eligibility requirements which are spelled out in my bill, and which stipulates that the annual stipend paid any individual would not exceed \$1,250 of Federal funds or one half the amount of the total awarded to the student. My plan also provides that, insofar as possible, 75 percent of Federal funds awarded the State Commission must be used for medical and 25 percent for dental scholarships.

Another important requirement is that the State Commission review annually the educational progress being made by each scholarship recipient.

To finance this program the bill calls for an appropriation of \$5 million for the first fiscal year beginning July 1, 1961; \$10 million for the next fiscal year; and an equal amount for the next eight years.

The Surgeon General will be advised on policies, regulations and administration of this program by a National Advisory Committee on Medical and Dental scholarships. This group will include the Surgeon General, who shall also serve as Chairman, the Commissioner of Education, and ten members appointed by the Secretary of Health, Education, and Welfare. Three of these shall be recognized authorities in the field of professional education, three shall be teachers or practitioners in medicine or dentistry, and four shall represent the general public.

Since my bills were introduced, others having the same general objectives have been proposed in response to the request made by President Kennedy in his health message of February 9 that over the next decade the capacity of medical schools be increased by 50 percent and of dental schools by 100 percent.

I am particularly impressed with a provision of one of these which would help expand teaching facilities of our medical schools by means of matching grants of Federal money for construction purposes. This provision follows in principle the methods under which the research facilities of the schools and universities have been helped to expand by Federal grants in recent years. This particular bill would also extend and strengthen this latter program of research construction for another three years, an action I heartily approve.

I believe the needs for strengthening the medical schools in their teaching function are so clearly apparent that this Congress will take affirmative action of some kind. Whatever that action may be, I will do all in my power to make certain that it does not lead to Federal control.

Now I would like to discuss briefly the impact upon graduate and continuing medical education of these existing programs of Federal aid to medical and biological research, including the recently initiated clinical research facilities program.

NIH and the American Hospital Association have recently completed part of a study on how much research is being conducted in hospitals throughout the country. They found that in 1958, over \$125 million was being spent on research in more than 850 hospitals -- one out of every eight in the United States. Twenty-three averaged \$2 million apiece; 58 averaged over 1/2 million; 62 averaged about \$158,000 on research; and 145 were spending over \$50,000 annually.

Now my Committee has been told by experts that clinical research in a hospital setting is a very painstaking and precise matter. Care and study of the research patient demands much more of the physician-investigator, of the interns and residents, and of every hospital department than does the care of the usual non-research patient.

We also understand that the viewpoints and methods of scientific inquiry acquired by students and house officers participating in laboratory and clinical research enhances their ability to practice a superior kind of medicine throughout the rest of their professional lives.

The surprising amount of clinical research already in progress in hospitals and the large expansion now being undertaken should, in my opinion, not be overlooked in any consideration of the impact of research on medical education.

Of the same nature, but perhaps to a different degree, is the impact of the new knowledge resulting from these research programs on the continuing education of physicians having little direct exposure to the organized research process itself.

It seems to me their already difficult task of keeping up with the latest scientific developments in clinical medicine will become even more difficult. In this connection it would appear that more study should be given to improved and expanded methods of medical communication. I expect the professional societies and the medical centers will need to develop more and better kinds of short refresher courses and symposia; more extensive use of new educational media such as closed circuit TV programs may have to be explored.

All of these concerns would seem to be applicable in even greater measure to the schools in their need to keep their curricula abreast of the rapidly expanding flood of new knowledge.

This brings me back to the need for direct Federal aid to the medical schools and to the greater numbers of superior students needed by medicine and the nation.

I accept the proposition that medical research, medical practice and medical education are interdependent, and that anything affecting one in an important way will have discernible effects on the other two.

The medical research potential and performance of our country has been greatly enhanced, so much so that it bears little resemblance to what existed before.

With respect to medical practice, the new knowledge and tools coming out of that research already have added greatly to the physician's ability to help his patients. Still greater advances are in prospect.

Thus it follows that the third component -- medical education -- will have to be helped if we expect it to keep in balance with research and practice, and with the needs of our exploding population.

The Federal government should not be expected to do the whole job. But it should do its share by reinforcing the efforts of the medical profession and the schools, the foundations and other important elements of our society having a direct interest in maintenance of medical education.

I am committed to the principle that teaching at every level and in every field of science must remain free of central domination. It must retain flexibility to meet rapidly changing scientific patterns and the particular needs of diverse geographical areas. Also, it must truly reflect the wishes of the scientific and academic community. All of these requisites are served best when governmental financial responsibility is shared by non-governmental funds and interests, and is guided by non-governmental advice. My bills stress this factor, and I believe, reflect the wishes of all who know the importance of maintaining the integrity of the teaching of medicine and science.