Summary of Report

on

FEDERAL SUPPORT OF MEDICAL RESEARCH

by the

COMMITTEE OF CONSULTANTS ON MEDICAL RESEARCH

to the

SUBCOMMITTEE ON APPROPRIATIONS
DEPARTMENTS OF LABOR, AND HEALTH, EDUCATION, AND WELFARE

COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE

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SUMMARY

The United States today is experiencing the development of a medical research program of a vigor and productivity unparalleled in history. This phenomenon is a typically American enterprise combining private and governmental efforts in successful collaboration. As a result, our pool of trained manpower has been greatly expanded; we have developed many well-equipped laboratories, and our background of knowledge as a basis for further progress has been enormously enriched. Most important, Federal funds have been provided without interference with the freedom of the research and teaching institutions or of the individual investigators.

The great advances already forthcoming from this program justify the expectation that, through medical research, the span of useful, enjoyable life can be still further lengthened, and that the benefit to society of longer, healthier, and more productive lives will be far greater than the cost of the research required to reach that goal.

The magnitude of the problems of disease and disability confronting our people today is still so vast as to be beyond the comprehension of most of us. The nature of our enemies has shifted from the communicable diseases to the chronic disorders, and especially to cardiovascular-renal disease, cancer, mental illness, and other problems predominating in the older age group which has been greatly increased in numbers. Aside from the unhappiness and tragedy represented in the incidence rates of these conditions, we should remember that the present cost of disease and disability to our nation is estimated as at least $35 billion a year. Only through medical research and the application of its findings can these losses be reduced.

The people of the United States have demonstrated through their Congress and through their private voluntary contributions that they consider it essential and urgent to support a determined attack on the dread diseases. Such an attack will require the full mobilization of the Nation's potential for medical research. This can only be achieved with substantial financial support, a major part of it from the Federal Government.

The Committee of Consultants on Medical Research was constituted in response to a resolution passed by the Committee on Appropriations of the United States Senate on June 23, 1959. It was asked "to determine whether the funds provided by the Government for research in dread diseases are sufficient and efficiently spent in the best interests of the research for which they were designated...(and to) take into account the facilities, the experts, the laboratories, the availability of private funds and all other factors including the possible impact which the recruitment of those engaged in research enter into such a study of research efforts."

The findings and recommendations of this Committee are presented in the following report and are summarized briefly below.

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I. ADEQUACY OF FEDERAL SUPPORT OF MEDICAL RESEARCH[1]

The funds provided by the Federal Government in support of medical research over the past 15 years have been substantial. Although generously increased in recent years, they have not kept pace with new opportunities in research which have developed, largely as a result of the very advances which the funds expended in the past have generated. They are still not sufficient to assure the full utilization of the Nation's present potential for an attack on dread disease, and the current level of support is far from adequate to permit the great advances essential for the future.

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[1] The terms "medical research" and "medical education and training" are broadly interpreted by the Committee to include educational, research, and research training activities in such institutions as schools of medicine, osteopathy, dentistry, and public health, universities with strong programs in the life sciences, independent hospitals, and research institutes. The term "practice of medicine" is intended to include the practice of dentistry and osteopathy.

II. EFFECTIVENESS OF UTILIZATION OF FEDERAL FUNDS APPROPRIATED FOR MEDICAL RESEARCH

Considering the Federal research program as a whole, the funds appropriated by the Congress for the support of research on major disease problems have been expended by Federal agencies with remarkable efficiency. The National Institutes of Health, which Congress has made its principal instrument for the disbursement of funds for medical research, has developed an extremely successful system for review and approval of applications for research grants, training grants, and fellowships. This plan, relying on close supervision of outstanding scientists, has assured consistently high standards for the research supported, gained the confidence of the scientific community and maintained the traditional freedom of both institutions and investigators.

In the expanding program of medical research which the Committee foresees for the future, new methods must be developed for the administration of funds which will continue to preserve the freedom of the investigator and the integrity of the educational and research institutions, and which will be able to deal with new organizational patterns of research to be described subsequently. In large new programs the Congress should be encouraged to authorize funds on a two-year basis (or more) to allow time for effective planning and the recruitment of appropriate personnel.

III. IMPACT OF EXPANDING FEDERAL PROGRAM

A. Effect on Medical Schools

The impact of the Federal program in support of medical research on medical teaching has been extremely beneficial and has been largely responsible for an improvement in standards of medical training. The number of teachers has increased and the research facilities of the institutions have been greatly improved. The proportion of teachers participating in research has risen, medical students have been inspired by the atmosphere of inquiry created by the research in progress, and the medical graduate of today has a much better conception of the possibilities and practical contributions of research than did the graduate of a generation ago.

However, the expanded program has posed problems for the medical schools, chief of which is the mounting cost to the institutions of the research undertaken by its staff. On all research grants supported through the National Institutes of Health the payment of the costs of research incidental to its performance is limited to 15 percent of the total direct costs. This is not sufficient in most institutions, and the deficit has to be met by diverting funds from other important needs. The National Institutes of Health is the only Federal agency making research grants which is under such restriction. The Committee recommends strongly that this unfair discrimination be remedied by permitting the National Institutes of Health, like other Federal agencies, to pay either the full costs of research as determined by a cost analysis formula, or a fixed flat rate, whichever is lower. The Committee believes that at the present time the flat rate should be set at 25 percent of the total direct costs.

Other methods recommended for strengthening the medical schools include institutional grants, the construction of health educational facilities, an increase in training programs, and the provision of additional stable career opportunities in academic medicine.

B. Effect on Medical Practice

The expanding program of medical research has made tremendous contributions to medical practice in terms of new knowledge, techniques, and methods of treatment, and has been a prime factor in raising the standard of medical care to the highest level ever achieved. Through the findings of medical research, the doctor of today has been equipped with powerful ammunition for the treatment of disease--ammunition which has enormously magnified his effectiveness as compared with that of the doctor of a generation ago.

Moreover, some of the training programs of the National Institutes of Health have trained psychiatrists, neurologists, ophthalmologists, and other specialists who were previously in short supply, so that our population is more adequately supplied with physicians competent in these specialties than ever before.

These gains have more than compensated for a limited diversion of physicians from practice to research and teaching and for the developing quantitative shortage of medical manpower.

C. Effect on Non-Federal Sources of Support

The Federal program has served as a stimulus rather than a deterrent to non-Federal sources of financial support of medical research. The annual contributions of the foundations, the voluntary health agencies, industry, and the states have all increased markedly in the past 15 years. The great diffusion of health knowledge to the public from both Federal and non-Federal programs has been mutually beneficial, and the greater consciousness of the needs of medical research on the part of the public has resulted in both an increase in support of medical research through the foundations and voluntary health agencies and an increased determination on the part of the taxpayers to support medical research through their tax dollars. In addition, the matching fund programs of the Hill-Burton hospitals and of Health Research Facilities Construction have served as a stimulus to non-Federal sources to contribute still more generously.

IV. STATUS OF MEDICAL MANPOWER

A. Number of Physicians

The United States, with a rapidly expanding population and an increasing demand for medical service, faces a growing shortage of physicians and dentists. The Committee recommends strongly that the measures outlined in the Bane Report be implemented at the earliest possible date, namely: (1) the expansion of existing schools to the maximum extent compatible with maintenance of high standards of training; (2) the establishment of two-year schools to fill the vacancies existing in the third-year classes of our present schools because of dropouts in the first and second years; and (3) the construction of approximately 20 new four-year medical schools and 22 new dental schools. It should be emphasized that, no matter what measures we take today, the number of graduates through 1963 is fixed by the number now enrolled.

Because of the long leadtime required to build a medical school and graduate its first class, the Committee strongly recommends support of pending legislation which proposes that the Health Research Facilities Construction Act be amended to include the construction of health educational facilities, and that funds be authorized over a 10-year period at an initial rate of $60 million per year to support the Federal share of a long-range program of renovation, expansion, and new construction of schools of medicine, dentistry, and public health.

B. Recruitment of Physicians

There has been a decrease in the number of young people choosing medicine as a career at a time when the number of college graduates is increasing. This is a serious development if we are to increase the number of our medical graduates by 3600 per year by 1975, as recommended in the Bane Report. The most important reasons for this apparent loss in popularity of medicine are the great length and high cost of medical training. The Federal Government is extending a large measure of fellowship support to every field of higher education in the sciences except medicine. Many young men and women who might have applied to medical school have therefore taken the shorter and less expensive route of a career in the basic sciences, the number enrolled having risen markedly in the past five years. This situation should be remedied by an intensive information program at the high school and college levels to acquaint young people with the challenge, opportunities, and rewards of a career in medicine, and by a strong Federal program to supplement private and state sources of funds in providing extensive scholarship support for medical students.

C. Manpower for Research

The Committee disagrees emphatically with those who hold that further expansion of the medical research effort of the country is impossible because of the shortage of manpower. Physicians and dentists constitute less than half of the professional personnel engaged in research. Since the number of Ph.D. graduates is increasing rapidly and the number of supporting personnel is almost limitless, and since modern equipment and techniques have enormously magnified the productivity of the individual investigator, the present relative shortage of physicians and dentists is not a limiting factor on the expansion of our research effort. The manpower is available for a remarkable growth of the present program.

V. GOVERNMENT AGENCIES OTHER THAN THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Government agencies have made distinguished contributions to our store of medical knowledge, and the provision of adequate support for their programs of medical research is basic both to their special research needs and to a full national medical research effort. This applies particularly to the Public Health Service and its research arm, the National Institutes of Health. It also applies to the Department of Defense, Veterans Administration, National Science Foundation, and the Atomic Energy Commission.

The Committee finds that there are excellent research opportunities in the hospitals of the three branches of the Armed Services and of the Veterans Administration which are not being fully utilized because of lack of funds. The Committee considers this most unfortunate because a strong research program in a hospital has been found one of the most potent stimuli to the staff in maintaining the highest standard of medical care. Moreover, these hospitals can make an important contribution to research on major disease problems.

The most serious deficiency of the medical research programs of the Department of Defense at present is in the special medical research institutes of the Services. Here the level budgets of recent years and the rising costs of research caused by inflation have forced a reduction in personnel and have prevented the purchase of needed supplies and equipment until the research productivity of these institutes is being gradually reduced. Adequately supported these fine facilities, built at the taxpayers' expense, would be capable of making a tremendous contribution to the special research needs of the respective Services, as well as to research on serious disease.

The Committee has therefore recommended a substantial increase in the medical research budgets of the three Armed Services and the Veterans Administration for fiscal year 1961.

VI. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE

The Committee has refrained from specific recommendations regarding the divisions of the Department of Health, Education, and Welfare other than the National Institutes of Health. The Public Health Service has just completed a study aimed at reorganization of its administrative structure in order to centralize closely related activities and prevent overlapping functions. The Committee hopes that the new pattern will permit more effective coordination of research and policy in the fields of environmental health and problems of aging.

VII. THE NATIONAL INSTITUTES OF HEALTH

After reviewing extensively the organization and programs of the National Institutes of Health, the Committee wishes to add its praise to that of all other professional groups which have studied this agency, and to express confidence that the remarkably dedicated and competent staff will meet the challenge of the larger programs in the future with the same wisdom and flexibility it has shown in the past.

The greatest difficulty of the National Institutes of Health at the present time is in regard to personnel. In the top administrative and scientific posts there are today many gaps which it has been impossible to fill with competent people. This is chiefly because the salary structure for such positions is no longer in a favorable competitive position with medical schools and industry, and because the manpower base of the Public Health Service is too small to provide enough individuals of high competence from within the Commissioned Corps to staff the Bureau of Medical Services, the Bureau of State Services, the Office of the Surgeon General, and the National Institutes of Health.

The Committee has therefore recommended (1) an increase in the salary ceiling for specially qualified scientific and other professional personnel authorized by Section 208 (g) of the Public Health Service Act and in the number of these positions allotted to the National Institutes of Health; (2) that a larger proportion of the top-ranking personnel be recruited from outside the Public Health Service; and (3) that Section 214 of the Public Health Service Act be amended to permit assignment of a limited number of commissioned officers to the Civil Service system.

The second greatest requirement is for more office space to permit all units of the National Institutes of Health at present dispersed in various distant office buildings to return to the National Institutes of Health campus where they can carry out their duties more effectively in collaboration with the rest of the staff.

Other space needs include a building for the intramural programs of the National Institute of Neurological Diseases and Blindness and the National Institute of Mental Health, a physical biology building, and development of the Animal Farm.

Of special interest is the urgent need for an international conference center which would provide facilities for holding multilingual conferences and working seminars in the field of medical research. Such a building would serve as a symbol of the role the Committee believes the National Institutes of Health should play in international medical affairs and would greatly aid such activities.

Under problems of organization, the Committee has recommended institute status for the Division of General Medical Sciences and a special council separate from the National Advisory Health Council.

Among the administrative patterns which will be needed for the larger programs of the future, the Committee has recommended program grants, institutional grants, a greater allocation of funds to general or categorical clinical research centers and to special resource centers, and a greater use of collaborative programs in situations in which these are clearly indicated.

VIII. PROJECTIONS

The mobilization of the Nation's medical research potential for a determined attack on the problems of disease and disability will require the full utilization of all research resources available.

In the case of the Armed Services and the Veterans Administration, more generous appropriations will permit the development of vigorous research programs in those hospitals in which they are now inadequate or lacking, and the realization of the great opportunities for major research contributions in the medical research institutes of the Services.

The Atomic Energy Commission should be given the full support required to carry out its research mission in the field of radiation biology and the prevention and treatment of radiation damage and sickness in man.

The National Science Foundation should receive increased appropriations to safeguard the area of basic research which, by greatly augmenting our store of knowledge, will provide a base from which many new avenues of research will open, some inevitably leading to valuable applications in medicine. The important programs supported by the National Science Foundation to improve the standards of science teaching in the secondary schools and colleges should be greatly expanded and with enthusiasm. These, more than any other measures, will help in the recruitment of young people into the sciences.

Research pertinent to medicine undertaken in the Department of Agriculture, the National Space Agency, and the Food and Drug Administration must not be neglected, and these organizations will be involved in an intensified program of environmental health under the supervision of the Public Health Service. Proposals for a soundly based program in environmental health will soon be forthcoming from the Public Health Service and should receive the most serious consideration and ample support.

Projections for the National Institutes of Health

A resolute attack on the dread diseases will require a level of medical research expenditures each year from both Federal and non-Federal sources combined which will be sufficient to give adequate support to all research judged to be of high quality and potential productivity by competent scientific advisers after careful and critical review.

At the rate of growth of research potential indicated by the rising number of new research grant applications of high quality received each year by the National Institutes of Health and by the increasing number of scientists in the research training programs, this attack will require substantial advances in the level of support each year until a reduction becomes possible as these programs are successful in the attack on disease.

In considering the future budgetary needs of the National Institutes of Health the Committee has recognized (1) that major infusions of funds into the Federal program through the National Institutes of Health in the past have been readily absorbed and have resulted in a great increase in research potential and performance, and (2) that the National Institutes of Health staff has shown great ability to administer wisely the funds entrusted to it and great ingenuity and flexibility in adapting administrative patterns to changing needs.

The Committee has divided its consideration of the future requirements of the National Institutes of Health into two sections: (1) the continuation of the present program and (2) new areas which should receive greater emphasis in the future.

A study of the growth of the National Institutes of Health research grant program in recent years has led the Committee to the conclusion that a conservative estimate of the funds required to support (1) continuing commitments and supplemental requests, (2) the increase in new research grant applications anticipated over the number received in 1960, and (3) a 10 percent increase in the allowance for the costs of research on National Institutes of Health research grants, would total approximately $300 million in fiscal year 1961.

The need for growth in the training grant program to supply the teachers and investigators required for the future is readily apparent. Expansion is essential at various levels: in the hospitals, universities, and research institutes to improve the training for academic careers and to develop certain types of specialists still in short supply; at the predoctoral level to encourage and help support medical students interested in research and academic medicine; and also at the college level to recruit more college students into the medical sciences. The Committee has recommended an increase in the training programs of $57 million to a total of $132 million. This sum would include (1) $14 million for training grants approved but unpaid in fiscal year 1960, (2) approximately $20 million for expansion of the training programs, and (3) $22.7 million to complete the adjustment of all continuation training grants to a forward notification basis. The last is a non-recurring item which actually does not represent an additional cost to the Government but merely advances the time of payment of funds.

For fellowship support an increase of $7.9 million to a total of $22.5 million is recommended: (1) to award fellowships approved, but unpaid in fiscal year 1960; (2) to award new fellowships from a greatly expanded list of applicants; (3) to expand the Senior Fellowship program to include clinical research; (4) to develop special fellowships in preparation for careers in academic medicine; (5) to increase the number of part-time fellowships which give encouragement and support to research-oriented medical students; and (6) to increase the number of foreign fellowships.

The intramural program is considered to be approaching its optimal size and further growth should be necessary only in the improvement of equipment and research resources and allowance for the rising costs of research. An exception will be the new facilities proposed for the intramural programs of the Institutes of Neurological Diseases and Blindness and Mental Health. The Clinical Center is functioning smoothly and is making outstanding contributions. It is for the most part excellently equipped but needs some minor additions. A total of $107 million is recommended for all direct operations, $11.4 million more than in fiscal year 1960. Under a separate appropriation $4.4 million is recommended for planning and construction.

One of the Nation's greatest needs now is for the construction of facilities for both medical research and education. The Committee has recommended that the authorization for Health Research Facilities Construction be extended for five years after the present expiration date and that the level of appropriation be increased from $30 million to $50 million per year. Furthermore, it has recommended modification of the Health Research Facilities Construction Act to include multipurpose buildings for research and teaching when the teaching activities are closely related to the research performed. Because the need for these facilities is so great in some areas where matching funds are exceptionally difficult to obtain, the Committee has recommended some modification of the 50-50 matching formula in cases of clear justification and urgent need, according to criteria to be established by the National Advisory Council on Health Research Facilities.

There are seven areas or programs in which the Committee believes new or increased emphasis should be placed in the future. These include: (1) general and categorical clinical research centers; (2) primate centers and other animal resources; (3) modernization and supplementation of medical libraries in relation to research; (4) communications research; (5) instrumentation research; (6) increased opportunities for stable academic careers, and (7) increased support of international medical research. The funds required for these programs would represent a further increase of $87,500,000.

In the opinion of the Committee, the most promising and challenging program of those mentioned is the establishment of clinical research centers, both general and categorical, which will afford opportunity for a multidisciplined attack on disease problems supported by all the necessary skills, techniques, and equipment which modern medicine can provide, and with bed support assured while the patients are under study. These centers will afford the most comprehensive, refined, professionalized, and productive study of disease yet imagined. The center concept has been received with great enthusiasm across the country, and there is no question but that it answers a long unmet need which was only brought into focus when funds were made available for a start on this program in the first session of the Congress.

Another type of center strongly advocated by the Committee would be oriented around a specific resource or approach. These would include primate centers and other special animal resources, special facilities for biophysical measurement, computer centers for data processing, biostatistical analysis, communications research and translation, etc. Most of these resource facilities are too costly to be established in relation to an individual project or program grant, or even to a single school or research institute, and it is therefore proposed that these be established on a regional basis with major Federal support. These facilities would be available to qualified investigators from the research institutions of that area, but one institution would carry the main responsibility for administration. Support will have to come primarily from the Federal Government and funds for such centers are included in the additional $87,500,000 recommended by the Committee for areas of special emphasis.

In summary, the Committee believes that the present programs of the National Institutes of Health could use effectively in fiscal year 1961 the sum of $576,500,000 for the orderly growth and development of its present program, or an increase of $176,500,000 over the present year's appropriation. Seven new areas justifying special emphasis would add an additional $87,500,000, making a total budget of $664,000,000, or $264,000,000 more than the current appropriation of $400,000,000.

Under separate appropriations the budget should also include $4,400,000 for intramural planning and construction at the National Institutes of Health, $50,000,000 for Health Research Facilities Construction (an increase of $20,000,000 over the present level) and $60,000,000 to initiate a program of Health Educational Facilities Construction.

This level of support would assure the effective utilization of the Nation's present potential for medical research and would allow the growth which the Committee believes necessary. The appropriation of less than the amount suggested may mean a consequent postponement of the time when answers to major disease problems could become available.

In consideration of the growing demand for medical care of our expanding population, the increasing health consciousness of our people and their realization that health can be improved through medical research, and taking into account the growth in knowledge, manpower, and facilities which seems certain to occur, the Committee believes that by 1970 the total support of medical research in the United States will probably require the expenditure of $3 billion, of which more than $2 billion will in all likelihood come from the Federal Government. If the economy grows, as now seems probable, at a rate of 4 to 5 percent per year, we may attain a gross national product of over $775 billion by 1970 and should have the resources to achieve a medical research program of this magnitude.

Thus the Committee concludes that if adequate support is provided, the great advances in the medical sciences which this country has witnessed in the past 60 years, remarkable though they are, will prove to be only the prologue to the great human drama which will be played in the battle against disease and disability during the decades immediately ahead.