

A STATEMENT IN SUPPORT OF  
RESEARCH AND TRAINING IN ANESTHESIOLOGY  
and  
THE DIVISION OF GENERAL MEDICAL SCIENCES  
of  
THE NATIONAL INSTITUTES OF HEALTH

to

SENATOR LISTER HILL  
Chairman  
Subcommittee on Departments of Labor and  
Health, Education and Welfare of  
The Committee on Appropriations,  
United States Senate

by

E.M. PAPPER, M.D.

Professor and Chairman of the Department of Anesthesiology  
Columbia University College of Physicians and Surgeons  
and  
Director of the Anesthesiology Service  
The Presbyterian Hospital  
New York City

Member:

Surgery Study Section, NIH  
Consultant, Pharmacology Training Committee, NIH  
American Society for Clinical Investigation  
American Society for Pharmacology and  
Experimental Therapeutics  
Halsted Society  
American Association for Thoracic Surgery  
Past President, Association of University Anesthetists  
Committee on Anesthesia, National Research Council  
Vice-President, American Society of Anesthesiologists  
Author of two textbooks and more than 140 publications  
in medical and scientific journals

AND

BY

ROBERT D. DRIPPS, M. D.

Professor and Chairman of the Department of Anesthesiology  
University of Pennsylvania  
and  
Director of the Anesthesiology Service  
Hospital of the University of Pennsylvania  
Philadelphia, Pennsylvania

Member:

Pharmacology Training Committee, NIH  
American Society for Clinical Investigation  
American Society for Pharmacology and  
Experimental Therapeutics  
President, Halsted Society  
American Surgical Association  
Past President, Association of University Anesthetists  
Chairman, Committee on Anesthesia, NRC  
Civilian Consultant, Surgeon General, U.S. Army  
Author of two text books and more than 100 publications  
in medical and scientific journals

The Honorable Lister Hill  
Senate Office Building  
Washington, D. C.

Dear Senator Hill:

Your interest in and support of measures designed to improve the public health are well known throughout the nation. Your distinguished committee's accomplishments in the shaping of policy and the provision of financial support to research and training in the medical sciences are clearly recognized and overwhelmingly approved. In the further implementation of the dedication of the people of the United States to solving problems of health and disease, we respectfully submit this letter and its thoughts for your consideration.

The Need for the Support of the Science and Practice of Anesthesiology

We wish to call attention most respectfully to the need to provide impetus to the development of new basic knowledge and better care for patients through improving the science and clinical practice of anesthesiology. We appear for this purpose on behalf of the American Society of Anesthesiologists, a society which numbers almost 7,000 physicians who specialize in anesthesiology and on behalf of the Association of University Anesthetists whose membership contains most of the anesthesiologists whose work is in research and education in this special field.

Anesthesiology has a great impact in the immediate and long term welfare of patients. It stands astride many clinical and basic science disciplines and could become the bridge among them if properly supported and developed. A few examples of the importance of this work to the public health will be useful:

1. The mortality and morbidity associated with anesthesia. According to the National Health Survey there were 10 million operations, including 4 million obstetrical deliveries in 1957-58. This means that at least one person in fifteen of the population was anesthetized for a surgical operation in 1957-53. Based on this volume of operations and the incidence of death due to anesthesia (1 in 1560) established by a survey in ten university hospitals and published in the Beecher-Todd report <sup>2/</sup> there are at least 6600 deaths a year. The death rate in obstetrics due to anesthesia has been estimated at between two and six thousand per year. There are also 24,000 deaths annually due to errors in surgery. These 30,000 to 40,000 anesthetic and surgical deaths constitute a substantial public health problem. Taken together with a morbidity incidence which cannot be estimated with accuracy, the problem assumes even greater proportions.

Application of the scientific method should permit one to approach this problem with some likelihood of success. Clinical impression must be supplanted by fact. Among a host of factors requiring study is an analysis of the advantages and disadvantages of various anesthetic agents and techniques.

Desperately ill individuals as well as reasonably healthy persons must be anesthetized. Safety for these patients must be increased. A host of additional problems related to the operating room experience require attention, but space does not permit their detailed enumeration.

The economics of post-anesthetic disability and morbidity are equally important. If, through better anesthesia, we could reduce the length of recovery by only two days per patient, we would restore at least 24 million man days to the economy. The saving this improvement could effect is at least \$480 million annually, assuming that it costs \$20 a day to care for a surgical patient. The saving of patient days would also help provide more beds for those who need it in the older age groups.

2. Anesthesiology's extra-operating room contributions. The anesthesiologist is singularly qualified by education and orientation to advance our understanding of illness outside of the operating room. He can add much to comfort and longevity in such areas as respiratory inadequacy, asphyxia of the newborn, poisonings, the management of the unconscious patient and the mechanism and treatment of pain. Academic anesthesiologists have an obligation to train physicians and others to assume certain responsibilities in these matters, so that in the absence of an anesthesiologist more intelligent care can be provided than is often currently available.

In the United States there are approximately 8 million sufferers from respiratory problems. The increasing age of the population will be followed by an even greater number, as pulmonary emphysema and heart disease become evident. Certain industrial practices contribute to the total. The great advances in surgery of the heart, lungs and brain make for postoperative problems in breathing. The anesthesiologist's knowledge of intermittent positive airway pressure, of the increased alveolar ventilation made possible by preventing turbulent air flow, of the bronchodilator properties of certain drugs, and of the mechanical aspects of ventilators permit him to cure some of these patients, to postpone progress of disease in many, and to improve the majority. The impact of this on the older age groups, and on even young patients with bronchial asthma, pulmonary fibrosis and emphysema and polycystic disease can be enormous.

3. Critical shortage of anesthesiologists. There is a critical shortage of anesthesiologists to administer anesthetics, teach other physicians the science and art of anesthesia and conduct research in this field. The public health problems posed by anesthesia and the contributions to the sick which can be made by anesthesiologists require additional specialists in the field. Only 40% of the number needed are now available. As short as is the supply of practitioner anesthesiologists, even more critical is the shortage of scientifically trained anesthesiologists and teachers of anesthesiology. The latter can be developed only within a university atmosphere, and only after certain problems peculiar to the practice of anesthesia have been solved.

#### Organization and Financing of Training and Research in Anesthesiology

1. Care of patients. The finest care must be provided all patients requiring anesthesia. This care must be analyzed critically and information so obtained passed on for the benefit of all. The institution and its staff should bear the responsibility of financial support for the clinical staff involved in the care of the sick. Extramural N.I.H support, somewhat analogous to that provided in the Clinical Research Center concept, is justified for those efforts devoted to clinical research in anesthesiology in carefully selected institutions.

2. Training of teachers. Programs designed to develop educational skills in physicians are indicated. The need for teachers has far exceeded the supply and the gap will widen if present medical schools admit larger classes, or if new schools are created. Both possibilities have been proposed. Financial support is needed for the salaries of teachers and the provision of educational aids.

3. Research. Studies of the mechanism of action of anesthetics have developed information of a fundamental nature on the nature of protoplasmic activity, the reactivity of cells and the metabolism of tissues. Hypotheses in these basic areas are doomed to slow maturation unless long-

range support of competent individuals is available in order to provide them with the proper background in biochemistry, physiology, pharmacology, physics and higher mathematics.

#### Financial Support for Anesthesiology

In order to accomplish these important goals it is necessary to provide adequate funds for anesthesiology. We respectfully suggest that at least \$1 million be allotted for the training of research anesthesiologists, \$1.5 million for the support of scientific research in anesthesiology, and at least \$1.5 be provided for the support of program grants for the fiscal year 1962 in the budget of the Division of General Medical sciences. This request, if approved, would permit great acceleration in the development of competent anesthesiologists and the new knowledge that is needed.

The administration of the needs of anesthesiology is properly the province of the Division of General Medical Sciences since anesthesiology is concerned with basic research, the training of teachers and scientists, and the coalescence of these functions in direct application to the care of patients.

#### The Establishment of a National Institute of General Medical Sciences

The recommendations made last year in the report, "Federal Support of Medical Research" submitted by the Committee of Consultants on Medical Research<sup>12</sup> reflect their deep concern and thorough understanding of the problems involved in the encouragement, stimulation, and support of research and training in the health field as a national effort. We strongly concur with their belief that the growing emphasis upon and recognition of the importance of basic biomedical research to the entire health field requires a more direct administrative focus which can be obtained only through the establishment by Congress of a full-fledged institute devoted to this crucial area. Such an institute would then be co-equal with the other institutes comprising the National Institutes of Health of the U. S. Public Health Service.

The division of General Medical Sciences has served since July, 1958 as the primary administrative mechanism for the strengthening of this nation's research and training in the health sciences fundamental to medicine. Its funds are provided under Appropriations Title, "General Research and Services", N.I.H. It has provided the initial recognition on the part of the U.S. Public Health Service of the need to learn more about the fundamental physiological and biochemical processes of man and more about the nature of life itself, and it deserves now to attain the status of an institute; such an institute might be named the National Institute of General Medical Sciences. This work is of crucial importance to the advancement of medicine, more so in recent years because of the definition of new disease conditions, the development of new drugs and other new forms of therapy and

the discovery of previously unexplored areas of fundamental knowledge which now must be studied.

### Basic Research and the Training of Scientists

Grants awarded through the Division of General Medical Sciences have been both for the support of specific basic research projects and for improving and increasing the supply of biomedical scientists adequately trained in the disciplines and technics of modern biological and medical research. The shortage of competent, well-trained biomedical research scientists is increasing, as is the shortage of all types of personnel required for the maintenance and improvement of the peoples' health. Consequently, efforts must be intensified and broadened to increase this nation's total capacity for the production and application of new knowledge fundamental to the whole field of medicine. Research grant funds have been used for important work which is not supported through the extramural programs of the categorical disease institutes. These projects are typically directed towards the larger problems of human biology which underlie or are associated with disease. They are also concerned with the "minor" specialties so important to the national health but often forgotten. Anesthesiology is among those important fields which should be supported by the Division. Such broad basic researches also afford the best training ground for scientific recruits, hence the two major functions of the Division are interdependent.

In recent years many studies have been made of the problems which center on the advancement of health by basic research, and on increasing the production of better trained scientists. The Congress has provided increasing support for basic research because of growing recognition of the long-range impact of such an approach on the practical problems of health improvement. It is now apparent that each of our great medical triumphs has been made possible by basic research done at an earlier time, and seldom with any appreciation of how it would, some day, permit the prevention or cure of human disease.

### Intramural Programs

Insofar as an intramural program for an "Institute of General Medical Sciences" is concerned, off-site development of collaborative research and training facilities, analogous but not identical with the intramural programs of the present institutes, could be undertaken gradually with the full cooperation of our great universities.

The research challenge posed by disease and disability will increase rather than decrease during the next decade. The doing of research itself becomes more complex requiring higher skills, a broader range of scientific disciplines and increasingly complicated instrumentation. The division of General Medical Sciences has served as the principal focus in the Public Health Service for

broadly based medical and biological research, but there are administrative and substantive problems as to working relationships and coordination between this division, the institutes, and the other parts of the Public Health Service. Recruitment, retention, training and career development of highly qualified staff, as well as the creation and maintenance of the most productive research environment involve special needs and mechanisms served best by the establishment of an appropriate institute. These are some of the principal reasons why the immediate strengthening of the structure of the National Institutes of Health is deemed so important.

### Conclusion

The rapid growth of the Division's research and training programs and the well demonstrated need for further intensification justify that earnest consideration be given to the conversion of the Division into an Institute, so as to provide the Congress with a better and more direct mechanism for implementation of this vital part of its health program.

Respectfully submitted,

/s/ E. M. Papper, M.D.

/s/ R. D. Dripps, M.D.

<sup>1/</sup> Report of the Committee of Consultants on Medical Research to the Subcommittee on Departments of Labor and Health, Education, and Welfare of the Committee on Appropriations, United States Senate, Eighty-Sixth Congress, Second Session.

<sup>2/</sup> Beecher, N. K., and Todd, DCP.: Study of Deaths Associated with Anesthesia and Surgery Based on Study of 599,548 Anesthesias in 10 institutions, Ann. Surg. 140:2-35 (July) 1954.