Science and technology have always played a role in our nation's history. The founders of the American Republic regarded them as integral components of the society they sought to establish. In the early 1700s, Benjamin Franklin and his colleagues organized the American Philosophical Society to support the search for knowledge and thereby increase the comforts and pleasures of life (Smyth, 1905-1907). Thus, from our early beginnings, we have acted on the assumption that there is a relationship between science and an improved standard of living.

In last month's essay in this series, Christiansen stated that the American research university has been instrumental in producing scientists as well as basic knowledge and that this has led to the development of products and processes that are useful to society. As science and technology have advanced, the nation has relied increasingly on them to resolve issues related to national security, energy availability, food production, and the health of the individual. The benefits of science have been so marked, that the federal government has come to view the support of research and development as an important and necessary investment in the nation's well-being.

Nowhere have these benefits been more apparent than in health care. Research in this area has unraveled the mechanisms of complex physical and mental disease states, thus permitting the development of drugs and techniques that have led to prevention and cure. This has, in turn, led to a marked increase in the life expectancy for most Americans. We know much more than ever before about preventive, curative, and rehabilitative measures that contribute to health, and we attribute this improved understanding to biomedical research.

The success of our research and the high quality of our health care system have been made possible by a strong commitment to science by both the private and public sectors. The public has come to expect research to address the pressing problems of society and thus there has been a great interest in health-related research. Americans exert political pressure to support the funding of biomedical research by the government because they want resolutions to societal problems like AIDS, Alzheimer's disease, alcoholism, and schizophrenia (Norman, 1983).

The Government's Role in Health-Related Research

The government began to play a role in medical research in 1887 when the National Institutes of Health (NIH) were created in the form of a modest public health laboratory in Staten Island, New York. In 1937 NIH was relocated to Bethesda, Maryland. At that time, the National Cancer Institute was formed. In 1948, the National Heart Institute and the National Institute of Mental Health were established. (The National Institute of Mental Health left NIH in 1967 and is now a part of the Alcohol, Drug Abuse and Mental Health Administration [ADAMHA].) Eight other institutes were established, and NIH was on its way to becoming the single largest supporter and conductor of research and medicine in the life sciences. Other sections within the NIH

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are the Division of Research Resources (DRR), which contains the biomedical research support grant programs, the National Institute of General Medicine Sciences (NIGMS), which contains most of the NIH training programs, the National Institute of Allergy and Infectious Diseases (NIAID), the National Institute of Arthritis and Metabolism and Digestive Diseases (NIMDD), the National Institute of Child Health and Human Development (NICHD), the National Institute of Dental Research (NIDR), the National Institute of Environmental Health Sciences (NIEHS), the National Library of Medicine (NLM), and the National Institute on Aging (NIA) (Frederickson, 1981).

Each of these governmental components exerts its influence over research activity in the country through the administration of direct grants for research. Approximately 16,000 grants are in effect at any one time. The projects usually span 3 to 5 years, and the number of new awards is approximately 4,800 per year. The average cost of a project grant was $88,000 in fiscal year 1979. By 1981, it had risen to $108,000. Currently, approximately one in four grant applications is funded, creating a highly competitive environment (Frederickson, 1981).

In addition to NIH, other government agencies are involved in the funding and management of research, including the Department of Education, the Social Security Administration, and the Department of Defense. All government funding is dependent on congressional appropriations and, therefore, must be debated by the Congress of the United States.

### The Benefits of Application

Once the knowledge from health care research has been used to develop processes or products, it becomes necessary to evaluate these processes and products to determine their overall utility. The National Center for Health Care Technology (NCHCT) conducts, sponsors, and coordinates assessments of high-priority health care technologies. The assessments take into account the safety, efficacy, cost, cost-effectiveness, and the actual or potential social, economic, and ethical implications of particular health care technologies. NCHCT provides important information to the practicing and academic medical and scientific communities to maximize the benefits of health-related research (National Science Foundation, 1981).

Government-supported research, in combination with privately sponsored research, has resulted in striking reductions in mortality and morbidity. The functional status and the quality of life of those who have disabling diseases have been improved significantly. In addition, many health hazards have been identified, and thus the potential for harm has been reduced. It has been estimated that biomedical research yields benefits valued at 4 to 6 times its direct costs, thus providing an excellent return on investment (Mushkin, 1979).

### The New Need for Accountability

Research continues to be needed to generate basic knowledge about pathological conditions and recovery mechanisms. However, society is asking for more accountability in the development of technologies and in the use of new techniques and procedures. For example, it has been asserted that developments in new medical lifesaving technology have not been balanced with a concern for the quality of the life being sustained or the cost to the taxpayer. Thus, it is possible that more and more emphasis will be placed on the relationship between new technology and an improved quality of life.

Accountability for dollars spent affects health care in other ways. There is a general expectation that all health care must be based on scientific knowledge and that the safety and utility of procedures and techniques should be established by scientific research. Thus, the terms safe and effective connote a public expectation about health and medical services in this country. Americans are more apt to pay for health care services that are based on scientific research and have been validated through the use of scientific procedures. It is likely that health services will increasingly be evaluated on this basis.

### Implications for Occupational Therapy

The new health care system is demanding cost-effective services from all providers, including occupational therapy. To be accountable in the new environment, we need research; our profession must be committed to supporting graduate, postgraduate, and fellowship studies that provide persons with the necessary abilities and resources to generate new knowledge about occupation as well as to determine the effectiveness of our services. Both the American Occupational Therapy Association and the American Occupational Therapy Foundation are providing consultation, educational resources, and grant support to foster clinical research. In addition, faculty members in our educational programs are providing important help in ensuring that our services have met the standard of clinical evaluation.

The profession meets public expectations of scientific accountability in other ways as well. The importance of a juried professional literature cannot be overstated. The public expects the profession to determine standards of quality and to report validated as well as unsubstantiated techniques or procedures. If claims are being made regarding technology that have not been proven scientifically, it is the profession’s responsibility to address this problem. Once findings have been validated through critical discourse and debate, the profession bears a responsibility for disseminating this new knowledge to its practitioners.

Individual therapists, by virtue of their status as certified practitioners, also hold a public trust to seek, be aware of, and use scientific knowledge in an ethical manner, as reflected in the following principle:

> The occupational therapist shall accept responsibility for evaluating, developing, and refining service and the
body of knowledge and skills underlying the education and practice of occupational therapy, and at all times, protect the rights of subjects, clients, institutions, and collaborators. The work of others shall be acknowledged. (AOTA, 1983, p. 131)

Public policy has a decided influence on knowledge generation, dissemination, and application. In a changing environment, where economic factors have a profound impact on the practice environment, it will become increasingly difficult to set priorities exclusively for research. Therefore, research must be incorporated into clinical activities, and clinics must be viewed as laboratories for generating knowledge as well as environments for achieving improved function in our patients.

Is occupational therapy cost-effective? Can occupational therapy influence performance? The public expects answers to these questions, and the profession bears the responsibility for providing the answers. In the past, occupational therapy has relied on the medical and basic sciences for knowledge generation and scientific inquiry. But if our contribution to health care is to be unique, it is up to us to address the important questions about health, occupation, and human performance.

In the next essay in this series, "Research as Prologue and Epilogue to Professional Practice," Kenneth Ottenbacher will discuss in detail the importance of research to occupational therapy practice.

References


