Executive Summary

This report, the eleventh in a series on national needs for biomedical and behavioral research scientists, appears at a time of contradictions. On the one hand, improvements in health resulting from biomedical and behavioral research are increasingly apparent: the sharp decline in the death rate from AIDS, great improvements in survival rates from heart disease, and more effective treatments for cancer, among others. Advances in the understanding of many diseases, including those of the nervous system, promise rapid progress in prevention and management.

On the other hand, it is increasingly difficult for new scientists to establish independent research careers. Every year there is considerable disparity between the number of new Ph.D.s, particularly in the basic biomedical sciences, and available positions for faculty and other research professionals. The need is growing for clinical scientists who can help translate research findings into improvements in health. Yet the economic barriers to establishing a clinical research career are formidable, and clinical research itself is increasingly difficult to carry out as medical care becomes progressively more cost conscious.

Moreover, the composition of the research workforce and the focus of its work do not adequately address some of the nation's needs. For example, although medically underserved minority populations are rapidly increasing, the number of research personnel who seek to address their health problems is not growing commensurately.

CHARGE TO THE COMMITTEE

Against this background, the National Institutes of Health (NIH) asked the Committee on National Needs for Biomedical and Behavioral Scientists to assess the need for National Research Service Award training grants and fellowships and the need for new research personnel in the biomedical, behavioral, and clinical sciences. Specifically, the committee was charged with:

- estimating the current and future supply of scientists;
- estimating the future demand for scientists;
- utilizing estimates of the future demand for scientists and information about the current balance between supply and demand to develop recommendations for the appropriate size of the NRSA program and the overall production of research personnel; and
- developing recommendations for improving the NRSA program.

FINDINGS AND RECOMMENDATIONS

The committee concentrated on the three broad fields of biomedical, behavioral, and clinical research, with dental, nursing, and health services research included in the latter category. A number of the committee's recommendations were based on the results of a demographic analysis of the research workforce. This analysis considered such factors as the average age of current investigators in the biomedical and behavioral sciences, the number of Ph.D.s expected to join the workforce in the years ahead, and the likely effect of retirements and deaths. The committee also reviewed such indicators of short-term demand as trends in faculty and industry hiring and perceptions of the job market by recent Ph.D.s.

As described in Chapter 2, the committee found that the number of new Ph.D.s awarded annually in the basic biomedical sciences is well above that needed to

keep pace with growth in the U.S. economy and to replace those leaving the workforce as a result of retirement and death. Moreover, many recent entrants to the biomedical workforce are working in postdoctoral or other temporary positions. **From its review of these and other trends in the education and employment of basic biomedical scientists, the committee concluded that research training and overall Ph.D. production in these fields should not be increased.**

In its assessment of the behavioral and social science workforce in Chapter 3, the committee found that the number of new Ph.D.s awarded annually in these fields is also sufficient to keep pace with growth in the U.S. economy and to replace those leaving the workforce as a result of retirement and death. Job prospects for new Ph.D.s in the behavioral and social sciences have improved since the early 1990s, but faculty hiring is still below the levels of the late 1980s. The extent to which these findings apply to the portion of the behavioral and social science workforce that focuses on health research is less clear, but the committee found no reason to believe that circumstances differ for this group of investigators. **As a result of its review of trends in the education and employment of behavioral and social scientists, the committee also concluded that research training and overall Ph.D. production in these fields should not be increased.**

In its examination of the clinical research workforce, described in Chapter 4, the committee found two disparate trends. Since 1975, Ph.D.s awarded in clinical science fields have increased at a rate faster than in the biomedical or behavioral sciences. Though data on M.D.s, dentists, and other health care doctorates in clinical research available to the committee were much more limited than on Ph.D.s, there was clear evidence of a decline in the number of M.D.s conducting research. The mounting indebtedness of medical students and other economic disincentives are likely contributing factors. **Its review of trends in the composition of the clinical research workforce led the committee to recommend that Ph.D. production in the clinical science fields not be increased but that efforts to train and retain physicians be intensified until the decline in the numbers has been reversed and the clinical research workforce includes substantially more M.D.s than is now the case.**

As discussed in Chapters 2 and 3, the committee concluded that while the number of Ph.D.s produced annually in the biomedical and behavioral sciences should not increase, enormous opportunities exist for more broadly trained investigators. Unlike research grants, where the focus is appropriately on the quality of research, NRSA programs permit attention to and monitoring of the breadth and quality of the training that students and fellows receive. **Because of the successful career outcomes of NRSA participants and the program's tradition of multidisciplinary training, the committee recommended that the NIH gradually expand its funding of NRSA training grants and fellowships and proportionately reduce its funding of graduate research assistantships.**

As noted throughout the report and addressed in more detail in Chapter 5, the committee found African Americans, Hispanics, and Native Americans to be greatly underrepresented among Ph.D.s and health professionals in the research workforce. Meanwhile, the health problems of the nation's growing underrepresented minority populations are not receiving adequate attention. Addressing these problems will require both more minority scientists in biomedical and behavioral research and more minority and nonminority investigators turning their attention to disparities in health. **To ensure that the composition of the research workforce and the focus of its work address the nation's needs, the committee urges the NIH, the Agency for Healthcare Quality and Research, and the Health Resources and Services Administration to more carefully examine the results of existing policies and programs intended to increase the diversity of the research workforce. Only those that are effective merit continuation or increase. Further, the committee recommends that the agencies support activities to improve opportunities for minority students in secondary schools, an educational level outside the scope of the existing NRSA program.**

As discussed in Chapter 5, the committee recognizes that achieving these goals will require the NIH, the Agency for Healthcare Quality and Research, and the Health Resources and Services Administration to consolidate and increase their oversight of research training and training-related activities. **The committee believes that enhanced oversight of research training will lead to the preparation of a workforce that better reflects the nation's needs and more scientists who are prepared for the increasingly interdisciplinary nature of research.**

The committee appreciates the profound benefits that have accrued to the nation as a result of NRSA training programs. Although NRSA funding now ac-

counts for the training of a much smaller share of the nation's biomedical, clinical, and behavioral science workforce than when the program began, the NIH, the Agency for Healthcare Quality and Research, and the Health Resources and Services Administration continue to have a great influence on the quality and quantity of health research personnel trained in the U.S. The committee believes that the steps summarized above, and described in more detail in Chapters 2 through 5, will help these agencies to broaden their training activities and thereby address more comprehensively the health problems of today and tomorrow.