ADDRESSING THE NATION’S CHANGING NEEDS FOR BIOMEDICAL AND BEHAVIORAL SCIENTISTS

Committee on National Needs for Biomedical and Behavioral Scientists

Education and Career Studies Unit

Office of Scientific and Engineering Personnel

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Preface

This congressionally mandated report on the training of biomedical and behavioral researchers reviews the recent production and current supply of scientists and is the eleventh in a series that began in 1975. It makes recommendations for the size and scope of the National Research Service Award (NRSA) training program in the years ahead. Unlike earlier studies, it also considers research training mechanisms other than NRSA training grants and fellowships. As a result, this report devotes a great deal of attention to the balance between NRSA and non-NRSA training activities and the coordination between the two.

In addition, the report stresses the need for research training programs to keep pace with changes in the organization of science and the economic and social realties of health care. In contrast to the technical and methodological advances in biomedical and behavioral research that are routinely incorporated into research training programs, changes in the organization of science, the delivery of health care, and the nation's demography pose more difficult challenges. Addressing these challenges, which have a bearing on research training overall, will require the active involvement of the National Institutes of Health, the Agency for Healthcare Research and Quality, and the Health Resources and Services Administration to collectively take a more active role in research training.

In particular, the agencies responsible for research training must seek more effective ways to draw greater numbers of physicians and other health care professionals into research careers, to attract and prepare future investigators to address disparities in health status, and to ensure that more investigators in all fields are prepared to conduct interdisciplinary health research.

The report was crafted by a committee of eleven, drawn from the fields of biomedical, behavioral, and clinical research, labor economics, and demography and for the most part represents the consensus of their views. One of our members, however, has offered a personal statement on funding for research and research training in the behavioral and social sciences; his views can be found in Appendix F.

The report also reflects the contributions of numerous others who generously shared their time and expertise. More than a hundred contributors responded to the committee’s invitation to submit written comments on research training in the health sciences; their responses are summarized in Appendix C. Many others met with the committee or its chair to provide information and offer suggestions. Among the latter were Norman Anderson, Andrea Baruchin, Carol Bazell, David Blumenthal, Marvin Cassman, John Eisenberg, Suzanne Feetham, Susan Gerbi, Patricia Grady, Steven Hyman, Alan Kraut, Al Lazen, Richard McIntosh, David Nathan, John Norvell, Georgine Pion, Howard Schachman, Harold Slavkin, and Ellen Stover.

The committee is especially grateful to six scientists in training who candidly shared their experiences, including their struggles, in becoming independent investigators: Regis Krah, Krishna Mallik, John Otridge, Julie Ann Sosa, James Rowlett, and Marc Weisskopf. We wish them great success in their careers.

This report was made possible by funding from the National Institutes of Health and the willingness of
scores of staff members throughout the National Institutes of Health, the Agency for Healthcare Research and Quality, and the Health Resources and Services Administration to provide valuable information. At the National Institutes of Health, we are particularly indebted to Walter Schaffer, the project officer, for his patient guidance and good counsel, Deputy Director Ruth Kirschstein for her generosity with her thoughts and her time, and Robert Moore and Carol Bleakley of the Office of Reports and Analysis for the graciousness with which they fulfilled our repeated requests for data.

The committee owes special thanks to Don McMaster and his colleagues at Quantum Research Corporation for their skillful data analyses and to the staff members of many professional associations and societies who readily and generously shared their extensive knowledge. Among the groups providing information to the committee were the American Association of Colleges of Nursing, the American Dental Association, the American Medical Association, the American Psychological Association, the American Psychological Society, the Association for Health Services Research, the Association of American Medical Colleges, the Association of American Dental Schools, the Association of American Universities, the American Society for Cell Biology, the Council of Graduate Schools, and the Federation of American Societies for Experimental Biology.

Much information in this report is drawn from national surveys of doctoral scientists conducted under the direction of the National Science Foundation, with funding from a number of federal agencies, including the National Institutes of Health. The use of these data, of course, does not imply National Science Foundation endorsement of our research methods or conclusions.

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the NRC’s Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making the published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their participation in the review of this report: Ralph M. Garruto, State University of New York at Binghamton; Ira Herskowitz, University of California, San Francisco; Lyle V. Jones, University of North Carolina, Chapel Hill; William J. Koopman, University of Alabama at Birmingham; Georgine M. Pion, Vanderbilt University; Samuel H. Preston, University of Pennsylvania; Shirley M. Tilghman, Princeton University; Jean D. Wilson, University of Texas Southwestern Medical Center; and Tadataka Yamada, SmithKline Beecham Corporation. While these reviewers provided constructive comments and suggestions, it must be emphasized that responsibility for the final content of this report rests entirely with the authoring committee and the institution.

The National Research Council staff members who contributed to this study are too numerous to acknowledged in a brief preface. We are especially indebted to Rodolfo Bulatao for the tirelessness and good grace with which he carried out the demographic analyses and drafted Appendix D of this report. James Voytuk ably generated volumes of data on behalf of the committee and patiently lent his expertise to their interpretation. Julie Parker, Edvin Hernandez, Peggy Petrochenkov, and Shirel Smith all cheerfully dedicated long hours to the preparation and production of this report.

Finally, a few words about Jennifer Sutton, the study director. The committee knows well (and I far more) that this report is in very large part attributable to her competence, thoughtfulness, seemingly inexhaustible energy, good humor, and tireless and effective management of the obstacles that arose, and warm and generous relations with the many on whom we called.

Howard Hiatt
Chair
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