In addition to training the nation’s physicians, academic medical centers train the majority of biomedical scientists in the United States. There are multiple training pathways for pursuing a career in medical research (MD, MD/PhD, or PhD), each of which contributes to building a diverse research workforce. While scientists pursue various careers that contribute to the research enterprise, it has become difficult for those who wish to pursue academic research careers to obtain permanent positions. The average age at which scientists receive their first federal independent research award is increasing (currently 42, 44, and 45 for PhD, MD/PhD, and MD recipients, respectively). This environment has led to research trainees becoming discouraged about their prospects for careers in research.

Biomedical PhD graduate training is mainly supported by NIH and other federal research grants, fellowships, and traineeships as well as from institutional funds. Biomedical graduate education has an enormous value to society, not only through the development of researchers, but also in the training of scientists who can apply analytic methods and critical thinking to a number of different jobs and sectors to support the research enterprise as a whole. Career paths taken by biomedical science PhDs include research across a variety of sectors, academic administration, law/policy, consulting, and writing. To address these trends, training programs are expanding their focus on data analysis, team science and collaborative research, and collecting more comprehensive information on training outcomes. In addition, the NIH Broadening Experiences in Scientific Training (BEST) program is supporting the development and dissemination of institutional career development training practices.

Over the last 40 years, the number of students supported through federal research grants and fellowships has almost tripled. However, the NIH training budget has remained largely flat since 2004. In 2001, in response to a report from the National Research Council, *Addressing the Nation’s Changing Needs for Biomedical Scientists* (2000), NIH expressed the importance of increasing stipends for graduate students and postdoctoral trainees supported under the National Research Service Award (NRSA) to reflect the high level of education and professional skills involved in biomedical research. However, for many years, those stipend levels remained flat or had small increases of only 1 or 2 percent. In response to the 2016 Department of Labor Overtime Final Rule under the Fair Labor Standards Act, NIH announced that it would increase the awards for postdoctoral NRSA recipients to levels above the new salary threshold.
Physician scientists who want to pursue research careers face some unique challenges. Unlike the pathway for PhD trainees, the training pathway for physician-scientists is not as clearly defined. However, there is an increasing prominence of early, well-structured training in basic science and clinical research in medical school curricula that includes the option to take one or more years to complete research projects. The risk remains that new physician scientists who want to pursue academic research careers will be unable to secure funding from NIH and will be drawn to more stable, well-paid job opportunities in private practice, thus decreasing the small pool of trained physician scientists. Maintaining a diverse academic research workforce continues to be a challenge. Although half of U.S. medical students and new biomedical PhDs are women, women continue to be underrepresented in the academic research workforce, particularly in leadership positions. Minority scientists are also significantly underrepresented in both the training pipeline and the research workforce. For example, a 2012 report from NIH indicates that only 1.1 percent of NIH principal investigators on research project grants in 2010 were black or African-American. Close collaboration between the member institutions of the AAMC, NIH, and other stakeholders is essential for developing strategies to promote a more diverse research workforce. The AAMC is supportive of the new NIH initiatives to enhance the diversity of the NIH-funded workforce: Building Infrastructure Leading to Diversity (BUILD), the National Research Mentoring Network (NRMN), and the Coordination and Evaluation Center (CEC).

**AAMC Policy Recommendations**

- The federal government must expand funding for NIH and other Department of Health and Human Services (HHS) agency grants to strengthen the research workforce. Sustained growth in the overall NIH budget would permit increases in the training budget and stipend levels.
- The AAMC and its member institutions strongly support high-quality education and training for a diverse medical research workforce that includes supportive mentoring, effective career guidance, and adequate financial support for all research trainees, as well as help in cultivating relevant skills.

**Related Issues**

- National Institutes of Health
- Diversity and Inclusion
- Physician Workforce Issues

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**Web Resource**

**AAMC Information on Medical Research**
www.aamc.org/initiatives/research