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Mentorship matters for the biomedical workforce

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Abstract

The mentorship of early-career scientists is necessary to their individual career success and the future of the biomedical research enterprise as a whole. Recently launched NIH programs and tools aim to facilitate this important type of training.

As scientists, we have the opportunity to make new discoveries that contribute to fundamental knowledge and improve people's health and quality of life through our research. But we also influence lives by fostering the careers of the less experienced investigators with whom we interact on a daily basis. We shape their professional development by mentoring them on how to be productive researchers who contribute to both science and the community.

Being a mentor goes beyond supervising lab projects and teaching sound experimental design. It includes training less experienced investigators how to conduct research ethically and with integrity. It includes advising on potential career paths, providing networking and collaboration opportunities and helping new researchers navigate the research funding process. Seasoned scientists can attest that breadth of knowledge is just as important as depth, and they can encourage mentees to develop a range of professional skill sets.

Biomedical research needs scientists who can effectively translate and communicate its intricacies and value to many stakeholders, such as journalists, advocates, members of industry, policy makers and the general public. Good mentors transfer these skills to their mentees. We can show young investigators how valuable they are to the future of science. They are the next generation of great ideas, further propelling us toward our goal of advancing the scientific enterprise and improving health.

In the last decade, more graduate students and postdoctoral fellows are supported by research grants, not just career- or training-focused awards. In 2011, 65% of full-time graduate students supported by the US National Institutes of Health (NIH) received funding from research assistantships, compared to 60% in 2001. This speaks to the evolving landscape of biomedical workforce support and the need to reaffirm the importance of both formal and informal mentorship, as students and postdocs on research grants may not receive the formal mentorship that is part of NIH-sponsored training programs.

The NIH's extramural and intramural programs have long recognized the importance of mentorship in research training. The agency offers mentored career ('K') awards for research career development under the guidance of an experienced mentor or mentoring

team. For these and most pre- and post-doctoral fellowship ('F') awards, mentors provide a statement of support in the application that describes their mentoring plans and provide progress report updates throughout the duration of the award. Similarly, the NIH's institutional training ('T') review criteria ensure that reviewers will consider both the training records of the proposed mentors and historical trainee outcomes.

The NIH has a robust intramural research training program where trainees at all levels—from high school students through postdoctoral and clinical fellow—come to the NIH to pursue research and seek research mentors. The training resources, such as videos and panel discussion webcasts, are also available to those outside of the NIH. Among the diverse career-related topics they cover are mentorship and how to choose mentors.

In 2012, a working group of the NIH Advisory Council to the Director examined ways to support a sustainable and diverse biomedical workforce. The group discussed the need for strong mentorship and appreciation of the diversity of scientific career options that trainees may choose. In response to these recommendations, the NIH launched several new programs and policy changes to further enhance training of future scientists.

One of these is the Broadening Experiences in Scientific Training (BEST) award program started last year by the NIH to help institutions develop programs to expose trainees—both graduate students and postdocs—to the multitude of career paths utilizing PhD training. Programs such as this intend to create a culture change by enhancing appreciation for different scientific career options and diversifying the training experiences of graduate students and postdocs. Through the BEST program, trainees are connected to mentors in research-related fields and participate in much-needed opportunities for professional growth.

Another new program aims to enhance diversity within the biomedical workforce specifically through mentorship. The NIH-supported National Research Mentoring Network will engage individuals from many research disciplines to serve as mentors and link them to mentees who are at a wide array of career stages, ranging from undergrads to early-career faculty members. It will also provide training for mentors and networking and professional opportunities for mentees.

NIH-wide initiatives are complemented by programs developed by NIH institutes and centers. For example, the National Institute of General Medical Sciences recently announced Innovative Programs to Enhance Research Training (IPERT) to encourage creative new educational activities for students, postdocs and early-career faculty. IPERT focuses on courses for skills development such as problem solving and leadership, structured mentoring activities to promote career planning, and outreach programs such as evidence-based science education.

The NIH is facilitating mentorship by promoting individual development plans, or IDPs, which it encourages institutions to begin reporting in progress reports submitted this October and going forward. An IDP is a living document that maps out approaches for developing skills that help an individual identify and achieve short- and long-term career goals. The IDP process can facilitate communication between faculty mentors and trainees. We have encouraged grantee organizations to develop an institutional policy requiring an IDP for

graduate students and postdocs supported by *any* NIH grant, not just training grants and fellowships. Many academic institutions already use IDPs, and the NIH is cognizant of administrative burdens on scientists and research administrators, so it allows flexibility for grantee institutions to choose the IDP format that is the best fit for their community. IDPs will be meaningful only if mentors and mentees make full use of their potential as career development tools. I hope our grantees join as full partners in this effort.

The training of the biomedical workforce has always been an integral part of the NIH mission, and through its infrastructure of funding opportunities and other initiatives, the agency hopes to champion a culture of mentorship in the research community. It takes just one good mentor to influence the career of a new investigator; it takes a robust culture of mentorship across the research community to strengthen, sustain and diversify the entire biomedical research enterprise.

Biography

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