

Study finds minority trainees are up, but not minority faculty

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Despite increasing numbers of underrepresented minority (URM) trainees in the biomedical sciences, there is a persistent shortage of URM faculty who are involved in basic biomedical research at medical schools.

A team of Vanderbilt investigators examined the entire training pathway of potential [faculty](#) candidates to identify points of greatest loss of URM trainees. They report Jan. 16 in *PLOS ONE* two key points of loss: during undergraduate education and in transition from postdoctoral fellowship to tenure-track faculty. The authors suggest focusing additional interventions on these stages of faculty development.

"Even though there have been gains in the number of minorities getting PhDs, the diversity of the faculty at medical schools is not responding in the same way," said Roger Chalkley, DPhil, senior associate dean for Biomedical Research, Education and Training (BRET).

Chalkley and Lindsay Meyers, project manager in the BRET Office, began digging through national education databanks in response to reports suggesting that the United States was producing too many PhD-trained individuals in STEM fields ([science](#), technology, engineering and mathematics). Abigail Brown, PhD, and Liane Moneta-Koehler, PhD, also participated in the study.

"This notion of too many PhDs and postdoctoral fellows didn't fit with our experience, so we started looking at the data specifically for

[biomedical sciences](#), rather than for all of the STEM areas," Chalkley said.

The number of doctoral degrees earned in the biomedical sciences has actually been nearly constant over the last 10 years, Meyers noted.

"But there was something remarkable in the data. Even as the total number of graduates stayed fairly constant, the percentage of URM students increased," she said.

The investigators found a 47 percent increase in the number of URM trainees in biomedical sciences doctoral programs between 2000 and 2013. They defined URM trainees as individuals who self-identified as belonging to one or more of the following racial or ethnic groups: black or African-American, Hispanic or Latino, and Native American.

Using a wide range of data sources to examine the training pathway from high school to faculty, the investigators found that URM and non-URM trainees were equally likely to begin doctoral programs, receive doctoral degrees and secure postdoctoral positions.

The National Institutes of Health (NIH) have supported multiple programs with the goal of increasing the diversity of doctoral training programs.

"Our data show that the NIH programs supporting doctoral training for minority students in the biomedical sciences seem to be working," Meyers said.

The investigators noted a loss of URM trainees during undergraduate education. Although URM high school graduates were just as likely as non-URM graduates to enroll in undergraduate institutions and to express an interest (as freshmen) in [biological sciences](#), interested URM

students were less likely to earn a biological sciences degree. Nearly half of white students who expressed interest in biological sciences went on to earn a bachelor's degree in those fields, compared to only 25 percent of URM students.

To analyze URM faculty members in tenure-track positions, the investigators used data from the Association of American Medical Colleges (AAMC) for faculty involved in [biomedical research](#) in basic sciences departments. The authors report that in 2013, URM basic science faculty made up about 6 percent of assistant or associate professor positions and 4 percent of full professor positions.

"I think we're doing a good job of educating URM individuals in the biomedical sciences," Chalkley said. "They graduate with PhDs, and they take postdoc positions. They go on to a wide diversity of jobs and do well, but they're not taking faculty jobs."

"In order to improve the transition from postdoc to faculty, academic tenure-track positions need to be more appealing," Meyers said. "That will require institutional changes at Vanderbilt and other AAMC schools."

More information: Lindsay C. Meyers et al, Survey of checkpoints along the pathway to diverse biomedical research faculty, *PLOS ONE* (2018). [DOI: 10.1371/journal.pone.0190606](https://doi.org/10.1371/journal.pone.0190606)

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