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Inclusive approaches for measuring demographics of underrepresented populations in STEM and biomedical research training programs

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Abstract

Increasing diversity within the biomedical workforce has been prioritized by federal strategic plans. The National Institutes of Health (NIH) expanded their definition of underrepresented populations in biomedical science (NOT-OD-20-031), though without expanded reporting requirements and guidance, training programs remain challenged to accurately measure and evaluate diversity. Using inclusive demographic measures may help identify key demographic groups facing barriers to participation and retention in STEM programs and the biomedical workforce. This study examined ways to measure demographic variables used in scientific literature and by research stakeholders. Gender, race/ethnicity, disability, and disadvantaged background were prioritized for comparison given their focus by NIH, with opportunities for stakeholders to identify additional demographic variables important in their work. Gender, sex, and sexual minorities were largely absent from programs' demographic practices and warrant greater inclusion, which is consistent with recommendations from a new NIH-commissioned report calling for the routine collection of gender, sex, and sexual orientation information using standardized language. Oregon Health Authority's Race, Ethnicity,

Language, and Disability (REALD) offers a validated tool for improving the resolution of racial/ethnic data, and allows measurement of functional limitation in disability. The REALD tool can be merged with NIH categories for reporting. NIH re-defined "disadvantaged background" in 2019 to include seven variables; yet first-generation college student status and rural eligibility were significantly underreported by trainees when verified. Inclusive demographics permit the identification of individuals who are being excluded, marginalized, or improperly aggregated to be identified, increasing our capacity to address inequities in biomedical research training. As trainees do not enter training programs with equal access, accommodations, or preparation, inclusive demographic measures can inform a nuanced set of program outcomes, facilitating research on intersectionality and supporting the recruitment and retention of underrepresented students in biomedical research.

Learning Outcomes

1. Describe the need for increased diversity within STEM fields and the biomedical workforce.
2. Identify the challenges that training programs face when attempting to accurately measure and evaluate diversity.
3. Recognize and describe expanded demographic categories important to the inclusion of underrepresented students, including inclusive categories for race/ethnicity, disability, disadvantaged background, and gender, sex, and sexual minorities.
4. Use inclusive demographic measures like REALD and START to help identify key demographic groups who are being excluded, marginalized, or improperly aggregated, and increase the capacity to address inequities in biomedical research training.
5. Advocate for inclusive demographic measures in training programs to support the recruitment and retention of underrepresented students in biomedical research.