

Bias Reduction in Curricular Content: Using Machine Learning and Artificial Intelligence to Assess Bias in Medical Education

The field of medicine is marred by a long, painful, and deleterious history of overt and covert forms of social injustice, bias, and racism, as illustrated by the American Medical Association's recent pledge to take action to confront systemic racism. Identifying and reducing bias in medical curricula and assessment content is critical and fundamental to the education of future physicians. Studies continue to demonstrate that physicians possess implicit biases in a number of different areas such as race/ethnicity, gender, sex, age, weight, substance use and mental illness.

The impact of the numerous and persistent biased faculty shortcomings will inevitably be reflected in the faculty's curricular and assessment content, and in turn, may affect the care that medical students ultimately provide for their future patients. A biased curriculum can also negatively impact the learning environment and well-being of medical students, especially students from underrepresented backgrounds.

Despite numerous calls to action to deracialize and debias medical curricula and assessment content, most medical institutions continue to teach biased medicine in preclinical years. Many educators, for example, continue to inappropriately use race as a proxy for genetics or ancestry, or even as a "risk factor" for numerous health outcomes often erroneously associated with race (e.g. GFR race coefficient, Sickle Cell Disease, Salt Gene Hypothesis, HTN, or Schizophrenia) while ignoring social or structural determinants of health (SSDoH), such as systemic racism or income inequities. Many educators also continue to inappropriately use gender and sex terms and perpetuate the idea that sex and gender are binary and stagnant (vs fluid), which can potentially negatively impact gender nonconforming students and patients alike. Likewise, most medical educators are unaware of the numerous biases in the types of images they use in their lectures or assessment materials as well.