



Addressing implicit bias in the surgical residency application and interview process for underrepresented minorities



Michael R. Phillips, MD, Anthony Charles, MD, MPH*

Department of Surgery, University of North Carolina at Chapel Hill, NC

ARTICLE INFO

Article history:

Accepted 13 January 2021

Available online 23 February 2021

Diversity in the health care workforce remains an elusive goal in the United States, particularly in the surgical specialties. Black, Hispanic, and Native American physicians remain underrepresented in medicine, despite national efforts to increase diversity in the health care workforce.¹ Although these 3 racial/ethnic groups comprise one-third of the US population, Black, Hispanic, and Native American physicians constitute only 9% of practicing physicians.²

In 2014 to 2015, Blacks represented 12.4% of the US population but only 5.7% graduating medical students and 6.2% general surgery trainees.³ Diversity is a core value and fundamental priority across medical education in the United States. The benefits of diverse and inclusive medical schools are increasingly understood.⁴

Implicit bias, also known as unconscious bias, are negative associations that people unknowingly hold. They are expressed automatically, without conscious awareness.⁵ Several studies have indicated that implicit biases affect individuals' attitudes and actions, thus creating real-world implications, even though individuals may not be aware that those biases exist within themselves.^{6,7,8,9}

There is a dearth of well-known best practices for recruiting underrepresented minorities into surgical residency, despite the Accreditation Council for Graduate Medical Education requirement for diversity in the residency ranks. Attempts to begin to address this must start within each department of surgery. Initially, there needs to be the formation of a diversity in surgery committee. This committee's main charge is to seek out strong underrepresented minority (URM) applicants early in medical school, expose them in the early years of medical school to surgeons, present them with opportunities to shadow in the operating room, and offer them

research opportunities to enhance their competitiveness as applicants.

There must be a re-evaluation of the current residency application and interview selection process to increase diversity in the surgical workforce. The single most objective criteria for admission into a residency program in the United States is the United States Medical Licensing Examination (USMLE) score. When residency programs emphasize USMLE performance, it disproportionately harms URM students and bolsters segregation across medical specialties. Black and Latinx medical students are more likely to receive lower scores on or fail the USMLE exams than their White counterparts.¹⁰ The USMLE was not designed as a residency selection tool but as a tool for licensing. It is well known that standardized test scores are influenced by environmental and nonacademic factors, such as socioeconomic status, and may not assess clinical performance equally across all populations.^{11,12}

Clerkship grades are essential data points in the residency selection process. A study by Lee et al¹³ identified variables associated with clerkship grades, and they show that non-White race is independently associated with lower grades in all clerkships. Clerkship grades are consequential and intimately linked with election to Alpha Omega Alpha (AOA), the academic honor society. Election to AOA matters, because it impacts the residency selection process. Researchers have shown that students elected to AOA are more likely to receive invitations to interview for highly competitive specialties and to be ranked higher in the Match.¹⁴ Membership in AOA was significantly associated with higher rates of matching in several surgical specialties.¹⁵ Also, Low et al evaluated the Medical Student Performance Evaluation, which described attributes of medical students and is included in the residency application.¹⁶ Residency programs often scrutinize Medical Student Performance Evaluation.¹⁶ They show that even after controlling for USMLE step scores, URM had lower odds of being described in the superlative (outstanding, excellent, very good, and good) compared with Whites.¹⁶

* Reprint requests: Anthony Charles, MD, MPH, UNC School of Medicine, 4008 Burnett Womack Building, CB 7228, Chapel Hill, NC 27599.

E-mail address: anthchar@med.unc.edu (A. Charles);

Twitter: @AnthCharMD, @mrphillips_89

Title VII of the Civil Rights Act of 1964 requires employers to rely solely on job-related qualifications, not physical characteristics, in their interviewing and hiring process. The US Equal Employment Opportunity Commission, the federal agency that enforces Title VII, includes asking for photographs during the application stage on its list of prohibited practices for employers.¹⁷ Requiring a photograph in the Electronic Residency Application Service application sent to residency programs before selecting interview candidates may produce unconscious bias in granting (or not granting) an interview. The inclusion of the applicant's photograph as a component of the Electronic Residency Application Service application is a practice that should be eliminated.

Implicit bias is present in everyone. In an ideal world, one should eliminate all sources of implicit bias in the application process. Preference owing to attending an Ivy League medical school versus a state school, where the applicant is from, or who wrote the letter of recommendation, along with various other sources of unconscious bias, could be eliminated. Perhaps programs should be agnostic to the medical school of the applicant until after the Match rank order list is in to minimize the medical school "halo effect."

During residency selection, it is not unusual for faculty to voice comments like "this applicant is qualified, but I am concerned they may not fit in our program" or "this resident may not look good on paper, but they will fit well in our program." The term "fit" is a euphemism suggesting that the applicant does not look like most other residents in the program either by sex, ethnicity, religion, socioeconomic status, age, sexual orientation, and, specifically for women, reproductive aspirations.¹⁸ The term fit is one of the most critical factors in the residency selection process. Fit has so often been used to disqualify a competent and qualified resident applicant and is indicative of personal biases of what an ideal resident should be or what type of resident one feels more comfortable being around. Residency programs must avoid the insidious practice of disqualification by fit, if it has not been previously defined for applicants. Residency programs should discuss the definition of fit in the context of the institutional mission, goals, and learning environment. They must distinguish applicant-institution fit, which is the applicant's personality and goals and the institutional culture, from applicant-job fit, which is the characteristics required to learn and perform the job of a resident successfully.

To increase diversity within surgical subspecialties, an enhanced holistic review of the residency application is needed. Reassessing the residency application and review process is imperative. It starts by democratizing the application review committee, from only the program director and a few faculty to include up to 25% of the faculty and residents, with an eye for diversity among the reviewers. The residency program must provide a holistic review and implicit bias training to all application review committee members.

Residency programs must move beyond heavy reliance on standardized tests and academic metrics. They must emphasize applicant characteristics that resonate with the departmental mission, such as leadership, teamwork, altruism, intellectual curiosity, and research activity. Furthermore, standardization of all residency interview encounters should be mandatory with the introduction of structured interviews. The use of structured interviews results in higher reliability, validity, and fairness of the process and minimizes implicit biases.

The demand for diversity in medicine originates from and influences both the patient and the provider sides of care. Reducing implicit bias to level the playing field at the entrance to training and to enhance diversity within surgical specialties will go a long way in reducing health care disparities in surgical diseases.

Topic	Addressing implicit bias in the surgical residency application and interview process for under-represented minorities
Purpose	Assessing factors in current application and interview practices affecting
State of the art	Implicit bias for all involved in residency applicant interviews and applicant selection
Knowledge gaps	Best strategies to improve surgical workforce diversity
Technology gaps	None
Future directions	Holistic approach to residency application screening and selection.

Funding/Support

There was no funding for this work.

Conflict of Interest/Disclosure

None of the authors has any conflict of interest to disclose.

References

1. Deville C, Hwang WT, Burgos R, Chapman CH, Both S, Thomas Jr CR. Diversity in graduate medical education in the United States by race, ethnicity, and sex, 2012. *JAMA Intern Med.* 2015;175:1706–1708.
2. Association of American Medical Colleges. Diversity in the physician workforce: facts & figures 2014; 2017. <https://www.aamcdiversityfactsandfigures.org/>. Accessed December 8, 2020.
3. Abelson JS, Symer MM, Yeo HL, et al. Surgical time out: Our counts are still short on racial diversity in academic surgery. *Am J Surg.* 2018;215:542–548.
4. Castillo-Page L, Schoolcraft SA, Milem JF, O'Brien C. Assessing the climate and culture around diversity and inclusion in academic medicine: difficult but essential. *Acad Med.* 2012;87:1313.
5. Staats C. State of the science implicit bias review 2013; 2013. http://www.kirwaninstitute.osu.edu/reports/2013/03_2013_SOTS-Implicit_Bias.pdf. Accessed December 8, 2020.
6. Penner LA, Dovidio JF, Gonzalez R, et al. The effects of oncologist implicit racial bias in racially discordant oncology interactions. *J Clin Oncol.* 2016;34:2874–2880.
7. Correll J, Park B, Judd CM, Wittenbrink B, Sadler MS, Keesee T. Across the thin blue line: police officers and racial bias in the decision to shoot. *J Pers Soc Psychol.* 2007;92:1006–1023.
8. Green AR, Carney DR, Pallin DJ, et al. Implicit bias among physicians and its prediction of thrombolysis decisions for black and white patients. *J Gen Intern Med.* 2007;22:1231–1238.
9. Capers 4th Q, Clinchot D, McDougle L, Greenwald AG. Implicit racial bias in medical school admissions. *Acad Med.* 2017;92:365–369.
10. Rubright JD, Jodoin M, Barone MA. Examining demographics, prior academic performance, and United States Medical Licensing Examination scores. *Acad Med.* 2019;94:364–370.
11. Sedlacek WE. Multiple choices for standardized tests; 1998. <http://williamsedlacek.info/publications/articles/multiple1.pdf>. Accessed December 2, 2020.
12. Jencks C, Phillips M. America's next achievement test: Closing the Black-White test score gap. *Am Prospect.* 1998;40:44–53.
13. Lee K, Vaishnavi SN, Lau SK, Andriole DA, Jeffe DB. "Making the grade:" noncognitive predictors of medical students' clinical clerkship grades. *J Natl Med Assoc.* 2007;99:1138–1150.
14. LaGrasso JR, Kennedy DA, Hoehn JG, Ashruf S, Przybyla AM. Selection criteria for the integrated model of plastic surgery residency. *Plast Reconstr Surg.* 2008;121:121e–125e.
15. Rinard JR, Mahabir RC. Successfully matching into surgical specialties: an analysis of national resident matching program data. *J Grad Med Educ.* 2010;2:316–321.
16. Low D, Pollack SW, Liao ZC, et al. Racial/ethnic disparities in clinical grading in medical school. *Teach Learn Med.* 2019;31:487–496.
17. US Equal Employment Opportunity Commission. Prohibited employment policies/practices. <https://www.eeoc.gov/prohibited-employment-policies/practices>. Accessed December 8, 2020.
18. Chapman EN, Kaatz A, Carnes M. Physicians and implicit bias: how doctors may unwittingly perpetuate health care disparities. *J Gen Intern Med.* 2013;28:1504–1510.