

How Clinicians and Educators Can Mitigate Implicit Bias in Patient Care and Candidate Selection in Medical Education

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ABSTRACT

In an attempt to help us navigate a complex world, our unconscious minds make certain group associations on the basis of our experiences. Physicians are not immune to these implicit associations or biases, which can lead physicians to unknowingly associate certain demographic groups with negative concepts, like danger, noncompliance, and lower competence. These biases can influence clinical decision making in ways that potentially harm patients and may unfairly influence the medical school, residency, and fellowship application processes for candidates in certain underrepresented groups. To minimize the potential negative impact of implicit biases on patient care and diversity in the medical profession, physician-leaders have a responsibility to understand biases and how to consciously override them. This article discusses the potential impact of implicit bias in health care and student/trainee selection and reviews research-proven tools to reduce implicit bias in one-on-one interactions.

Keywords

implicit bias; race; black; white

You have all the data: the X-rays, computed tomography scans, electrocardiogram, laboratory tests, and results of the history and physical. Or, you have interviewed the well-dressed applicant to your residency or fellowship program after reviewing in detail the Electronic Residency Application Service application, photo, and letters of recommendation. It is decision time. Will your conscious mind

or your unconscious mind have the final say in your disposition?

WHAT IS IMPLICIT BIAS?

On the basis of images and stimuli that we have repeatedly experienced, our brains make positive or negative associations about certain groups of people. A positive example would be the association of a

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woman dressed as a nun with warm, positive feelings and an assumption that she is a kind-hearted person. A negative example might be the association of a young black male wearing a hoodie with crime or violence. Implicit biases (or unconscious associations) can be measured by the computer-based Implicit Association Test (IAT) and have been shown to be associated with behavior (1). In fact, a number of studies show that IAT results may predict discriminatory behaviors in the education, criminal justice, and healthcare systems (2–4).

It is important to distinguish implicit or unconscious bias from racism, sexism, homophobia, or other conscious beliefs that certain demographic groups are inferior or less deserving of opportunities; these are examples of explicit, not implicit biases. Although a person may harbor both explicit and implicit negative biases about a certain group, it is possible to consciously be egalitarian in one's views while holding negative implicit biases about certain groups. This is the inconvenient truth about implicit bias: “good” people can unknowingly discriminate. When this happens in our educational institutions or the criminal justice system, it can lead to restricted opportunities in the academy or harsher punishments for the same crime. When the physician unknowingly holds negative implicit biases about a patient under his or her care, the biases can influence clinical decision making to the patient's detriment.

THE IMPACT OF IMPLICIT BIAS IN PATIENT CARE

In one study using vignettes, physicians with IAT results showing negative implicit biases about black individuals were less likely to treat black patients with heart attacks with life-saving thrombolytic drugs

(4). In another study, IAT results indicating negative implicit bias against black individuals were associated with oncologists spending less time with and dominating the conversations with their black patients compared with their white patients (5). In my own experiences conducting teaching rounds at academic medical centers, I have witnessed trainees selectively order urine drug screens or human immunodeficiency virus tests on minority patients but not white patients, despite identical clinical presentations. These exchanges always present a teaching opportunity to discuss how unconscious biases can hijack our good intentions. Although not all studies show a correlation between IAT results and physician decision-making, enough do to cause alarm.

THE IMPACT OF IMPLICIT BIAS IN CANDIDATE SELECTION

The impact of implicit bias on healthcare disparities goes beyond physician decision making on the wards, in the bronchoscopy suite, or the intensive care unit. Our recent experiment found that a majority of our medical school admissions committee members hold negative unconscious associations with images of black people (6) and homosexual people and are more likely to associate men with career professionals and women with homemakers. Consider the potential impact on the diversity of the healthcare work force if admissions committees unconsciously “prefer” white applicants over black applicants or heterosexual applicants over candidates identifying as members of the lesbian, gay, bisexual, transgender, and questioning (LGBTQ) community and unconsciously associate women with homemakers. Despite conscious, well-meaning attempts of the committee members to be objective,

candidates in these groups might be at a significant disadvantage as their Medical College Admissions Test (MCAT) scores, body language, and interview responses are rated. Just like the clinician under the influence of implicit bias may withhold important therapy from patients of a certain demographic, an admissions committee member's unconscious associations might lead them to critique more harshly the credentials of qualified women, black individuals, or LGBTQ applicants.

How often has the impact of implicit bias resulted in a “no” vote on the candidacy of underrepresented minorities or women, exacerbating the current lack of diversity in medicine? Might the evaluation of candidates for residency and fellowship positions be subject to the same biases? Possibly. It is known that physicians have the same level of implicit biases as laypersons (7), and residency/fellowship selection committees are typically composed entirely of physicians. Because a lack of diversity in medicine is believed to be a significant driver of healthcare disparities, implicit bias may negatively affect health care via two pathways: directly, through influencing physician–patient interactions, and indirectly, by influencing the medical school and Graduate Medical Education (GME) selection processes.

Of course, the underrepresentation of black individuals, Hispanics, Native Americans, Native Alaskans, and Pacific Islanders in pulmonary/critical care fellowships, internal medicine residency training programs, and medical school is not due solely to implicit bias in undergraduate medical education and GME selection processes. Compared with their proportion in the population, these groups are significantly underrepresented in every step of the kindergarten-to-medical school pipeline. However, the road to

becoming a physician has many gates tended by gatekeepers. Potential future pulmonary/critical care specialists must favorably impress middle- and high-school counselors who serve as gatekeepers to “gifted programs”; college admissions committees who shape their college's student body; college science professors who decide to whom they will offer mentorship; premed advisors who may unknowingly favor some applicants over others based on race, sex, weight, socioeconomic status, etc.; medical school admissions committees that can be influenced by implicit and explicit biases; internal medicine residency selection committees that may add to the above implicit and explicit associations notions about the perceived prestige of the applicant's medical school; and fellowship selection committees likewise influenced by conscious and unconscious associations. In a world where 70% of IAT test takers demonstrate an implicit association of white faces with “good” and black faces with “bad” (8), the minority child who dreams of being a physician faces nearly two decades of obstacles. These obstacles are more insidious because the gatekeepers truly believe that their decisions are fair and just.

MITIGATING IMPLICIT BIAS

Fortunately, implicit biases can be consciously overridden when there is a conscious mandate to do so. For instance, if a surgery residency selection committee has been charged with increasing the number of women matriculants, members of the selection committee may intentionally override any unconscious negative associations with women candidates. Training and practice appear to be important. When the admissions committee at The Ohio State University

College of Medicine was trained in implicit bias reduction techniques, the next class that matriculated was the most diverse in the college's history up to that point, and this appeared to be secondary to an increment in the proportion of accepted minority students who chose to matriculate. A survey of the committee showed that nearly half were mindful of their IAT results when interviewing candidates, and 21% stated that awareness of their implicit biases affected their admissions decisions. Psychological research indicates that we smile less, verbally dominate conversations, provide less eye contact, and make fewer impromptu comments when interacting with people from groups against which we are unconsciously biased. These findings support the possibility that selection committees trained in implicit bias reduction techniques interact differently with candidates, who may sense an above-average environment of inclusivity and choose their program accordingly. Our experience has shown a sustained increase in underrepresented minority and women matriculants since we initiated annual, mandatory implicit bias mitigation training sessions for our application reviewers and interviewers on our medical school admissions committee.

OPERATIONALIZING IMPLICIT BIAS REDUCTION

The steps taken to incorporate implicit bias reduction into our medical school admissions process and into clinical scenarios are shown in Tables 1 and 2. These changes were phased in over several years and are easily adaptable to residency and fellowship selection programs.

Step 1: Given findings that facial features like attractiveness, weight, skin tone, and perceived race/ethnicity can trigger implicit biases, we removed

the photographs from the medical school applications before the committee reviewed them. GME selection committees can remove or blind the photos on the Electronic Residency Application Service applications.

Step 2: We remove the academic metrics (MCAT and all academic records and grade point averages) from the application before presenting it to the admissions committee for review. Our academic threshold is based on 10 years of data comparing incoming medical student MCAT scores versus on-time graduation and success in passing United States Medical Licensing Examination Step 1 on the first attempt. This allowed us to choose an evidence-based threshold for success in our medical school. Staff members ensure that candidates are above this threshold before submitting metrics-blinded applications to committee members.

Step 3: In 2012, we had the committee take three separate IATs (race, heterosexual-homosexual, and sex-career stereotype) and discussed the aggregate findings and implicit bias reduction techniques at the annual mandatory admissions committee orientation. For the 2012 committee, doing so was mandatory, and we were able to track compliance. From 2013 on, all application reviewers and admissions committee members are informed that it is an expectation that they will take one or two IATs of their choosing before the application cycle, though we no longer regularly track compliance.

Step 4: At our annual admissions committee retreat/orientation, all committee members participate in an interactive, case-based implicit bias mitigation workshop moderated by a trained workshop moderator (the author). It is important that implicit bias awareness and mitigation training be ongoing and a part of the continuous professional development of selection committees rather than a "one-off."

Table 1. Operationalizing implicit bias reduction in candidate selection in UME or GME

Before application review by the committee
Remove photos/blind committee to photos on AMCAS/ERAS application
Remove academic metrics (MCAT/GPA for UME, USMLE scores for GME)*
Before interview day
Have committee members take several IATs (https://implicit.harvard.edu/implicit/) and reflect on results
Immediately or very soon after IATs, host case-based, implicit bias reduction workshop for committee members
On interview day
Committee members review implicit bias reduction techniques (Implicit Bias Reduction Cheat Sheet) immediately before interviewing candidate*

Definition of abbreviations: AMCAS = American Medical College Application Service; ERAS = Electronic Residency Application Service; GME = graduate medical education; GPA = grade point average; IAT = Implicit Association Test; MCAT = Medical College Admissions Test; UME = undergraduate medical education; USMLE = United States Medical Licensing Examination.
*These techniques are the same strategies detailed in Table 2, substituting student/candidate for “patient.”

Step 5: We crafted an “implicit bias reduction cheat sheet” composed of research-proven strategies to reduce implicit bias. This laminated sheet is provided to committee members to review immediately before interviewing candidates so that these strategies will be fresh in their mind. Examples of research-proven strategies to reduce implicit bias that are discussed and practiced at our annual trainings and printed on our cheat sheet are as follows:	Consider the Opposite This is a strategy in which the selection committee member reviews a file and/or interviews an applicant to form an initial impression and disposition, then takes a mental pause to rereview the data looking for evidence supporting the opposite conclusion. This is followed by making a final decision. This exercise has been shown to mitigate the impact of implicit bias (9).
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Table 2. Operationalizing implicit bias reduction in patient interactions

Common identity formation
During patient interview, inquire about possible common group identities between you and the patient (home town, sports team, language proficiency, love of the arts, etc.)
Perspective taking
Before or during patient encounter, pause to consider the stress the patient is under today and what their life will be like for months after this encounter
Consider the opposite
After an initial review of patient information (history, physical, and social history) and coming up with a disposition, pause and rereview the information, actively looking for evidence for the opposite conclusion. Then make a final decision
Counterstereotypical exemplars
Focus on individuals you admire and respect who are in the same demographic as the patient

These strategies are to be used before and during the patient encounter.

Common Identity Formation

The evaluator searches the application or questions the interviewee looking for common group identities between the candidate and the evaluator. Successfully finding a common group identity reduces the evaluator's negative implicit bias toward the candidate. For instance, discovering that the evaluator and the candidate share a love of music, competency in a language, knowledge of aviation, etc., indicates that they share membership in the same group. Recast in this light, the candidate, regardless of their demographic, is now a fellow group member and no longer perceived as an outsider. This awareness lessens negative associations and reduces the impact of implicit biases (10).

Counterstereotypical Exemplars

Focus on individuals you admire and respect who are in the same demographic as the patient or candidate (10).

Perspective Taking

This requires intentionally empathizing with the applicant (or patient), taking a few moments to visualize their life and what they have gone through leading up to this encounter and what their life will be like afterwards. The purpose of this exercise is to develop empathy that actively opposes unconscious bias (11).

As a result of these steps, each applicant and interviewee is being evaluated by a selection committee member who has 1) taken one or more IATs and reflected on the results, 2) participated in an annual implicit bias reduction workshop led by a certified moderator, 3) practiced implicit bias reduction techniques via case-based vignettes, and 4) rereviewed research-proven strategies to reduce implicit bias

minutes before the interview. With our admissions committee, we supplement this training with directed readings on implicit bias research. We believe that a critically important component of our success is having a defined committee or group that participates in annual training. This is more difficult when selection committees desperate for help ask for volunteers to interview or review applications on the basis of availability. Although volunteers who offer to help should be lauded for their selflessness, unless they are trained on the program's mission and undergo training in holistic review and implicit bias reduction as a part of their continuous professional development, their decision-making may be unduly influenced by bias.

A recent article reviews the steps taken by our admissions committee that has resulted in our College of Medicine having one of the most diverse student bodies in North America (12). Although implicit bias awareness and mitigation training was one of several steps taken, we consider it one of the most transformational in our approach. While definitive data proving a cause-and-effect relationship with techniques to reduce implicit bias and enhance diversity in training programs is forthcoming, we advocate extending these processes to GME selection programs now. We consider the consequences of implicit bias in patient care and in trainee selection too dire to patiently await data that may take years.

Physicians enter the medical profession to serve humanity. Our unconscious mind, in an attempt to help us navigate a complex world, makes certain group associations on the basis of what we experience in the world around us. This can lead the pulmonary/critical care specialist, and indeed all physicians and healthcare providers, to unknowingly associate certain demographics with negative concepts, like

danger, noncompliance, and lower competence levels. Well-meaning physicians can unknowingly treat groups differently on the basis of these associations, potentially doing harm and exacerbating healthcare disparities. In addition, these same biases may contribute to the current lack of diversity in medicine, itself a contributor to disparate health outcomes in women and minority populations. As the

time has come to consider the lack of diversity in medicine an unacceptable reality that should be addressed with urgency, we must redouble our efforts to vanquish implicit bias in our one-on-one interactions with patients, applicants, and each other.

Author disclosures are available with the text of this article at www.atsjournals.org.

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