

The Impact of Unconscious Bias in Healthcare: How to Recognize and Mitigate It

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The increasing diversity in the US population is reflected in the patients who healthcare professionals treat. Unfortunately, this diversity is not always represented by the demographic characteristics of healthcare professionals themselves. Patients from underrepresented groups in the United States can experience the effects of unintentional cognitive (unconscious) biases that derive from cultural stereotypes in ways that perpetuate health inequities. Unconscious bias can also affect healthcare professionals in many ways, including patient-clinician interactions, hiring and promotion, and their own interprofessional interactions. The strategies described in this article can help us recognize and mitigate unconscious bias and can help create an equitable environment in healthcare, including the field of infectious diseases.

Keywords. Unconscious bias; diversity and inclusion; mitigating strategies.

There is compelling evidence that increasing diversity in the healthcare workforce improves healthcare delivery, especially to underrepresented segments of the population [1, 2]. Although we are familiar with the term “underrepresented minority” (URM), the Association of American Medical Colleges, has coined a similar term, which can be interchangeable: “Underrepresented in medicine means those racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population” [3]. However, this definition does not include other nonracial or ethnic groups that may be underrepresented in medicine, such as lesbian, gay, bisexual, transgender, or questioning/queer (LGBTQ) individuals or persons with disabilities. US census data estimate that the prevalence of African American and Hispanic individuals in the US population is 13% and 18%, respectively [4], while the prevalence of Americans identifying as LGBT was estimated by Gallup in 2017 to be about 4.5% [5]. Yet African American and Hispanic physicians account for a mere 6% and 5%, respectively, of medical school graduates, and account for 3% and 4%, respectively, of full-time medical school faculty [6]. As for LGBTQ medical graduates, the Association of American Medical Colleges does not report their prevalence [6]. Persons with disabilities are estimated to be 8.7% of the general population [4], while the prevalence of physicians with disabilities has been estimated to be a mere 2.7% [7].

Furthermore, although women currently outnumber men in first-year medical school classes [8], gender disparities still exist at higher ranks in women’s medical careers [9–11].

Unconscious or implicit bias describes associations or attitudes that reflexively alter our perceptions, thereby affecting behavior, interactions, and decision-making [12–14]. The Institute of Medicine (now the National Academy of Medicine) notes that bias, stereotyping, and prejudice may play an important role in persisting healthcare disparities and that addressing these issues should include recruiting more medical professionals from underrepresented communities [1]. Bias may unconsciously influence the way information about an individual is processed, leading to unintended disparities that have real consequences in medical school admissions, patient care, faculty hiring, promotion, and opportunities for growth (Figure 1). Compared with heterosexual peers, LGBT populations experience disparities in physical and mental health outcomes [15, 16]. Stigma and bias (both conscious and unconscious) projected by medical professionals toward the LGBTQ population play a major role in perpetuating these disparities [17]. Interventions on how to mitigate this bias that draw roots from race/ethnicity or gender bias literature can also be applied to bias toward gender/sexual minorities and other underrepresented groups in medicine.

The specialty of infectious diseases is not free from disparities. Of >11 000 members of the Infectious Diseases Society of America (IDSA), 41% identify as women, 4% identify as African American, 8% identify as Hispanic, and <1% identify as Native American or Pacific Islander (personal communication, Chris Busky, IDSA chief executive officer, 2019). However, IDSA data on members who identify as LGBTQ and members with disabilities are not available.

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The Journal of Infectious Diseases® 2019;220(S2):S62–73

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Glossary of key terms used in discussion of unconscious bias

Active bystander—A person who witnesses a situation, acknowledges the potential problem, and speaks up about it [59]

Bias—Tendency to favor one group over another; biases can be favorable or unfavorable and can be unconscious (implicit or unintentional) or conscious (explicit or intentional) [14]

Cultural humility—Defined by its ongoing self-reflection: a lifelong commitment to continuously evaluate one's own behaviors, beliefs, and identities and determine how potential biases and assumptions may surface when collaborating with an individual of a different background [72]

Intent vs impact—Concept that the focus of behavioral change should consider the impact on the recipient regardless of the *intent* of the offending behavior (ie, whether a result of unconscious or conscious bias) [59]

Microaggression—“Brief and commonplace daily verbal/nonverbal behavioral, and environmental indignities whether intentional or unintentional that communicate hostile, derogatory or negative racial/ethnic, gender, sexual orientation, and religious slights and insults” [73], (p. 271); these can occur wherever people are perceived as “other”; some groups have a lifetime burden of microaggressions that can contribute to physical or psychological illness

Prejudice—Outward expressions of negative attitudes towards different social groups [20]

Stereotype—An oversimplified, fixed, and widely held belief about an entire group of people; stereotypes may not always be accurate, especially when they lead to judgments applied to individuals within that group [14]

Unconscious bias—Attitudes or stereotypes that unconsciously alter our perceptions or understanding of our experiences, thereby affecting behavior, interactions, and decision-making [12–14]

Underrepresented minority—Understood to mean either underrepresented minorities or underrepresented in medicine

Figure 1. Glossary of key terms.

The 2017 IDSA annual compensation survey reports that women earn a lower income than men [18], and a review of the full report demonstrates similar disparities among URM physicians, compared with their white peers [19]. While it may not be feasible to assign a direct causal relationship between unconscious bias and disparities within the infectious diseases specialty, it is reasonable and ethical to attempt to address any potential relationship between the two. In this article,

we define unconscious bias and describe its effect on healthcare professionals. We also provide strategies to identify and mitigate unconscious bias at an organizational and individual level, which can be applied in both academic and nonacademic settings.

UNCONSCIOUS BIAS—THE ROLE IT PLAYS AND HOW TO MEASURE IT

Even in 2019, overt racism, misogyny, and transphobia/homophobia continue to influence current events. However, in the decades since the healthcare community has moved toward becoming more egalitarian, overt discrimination in medicine based on gender, race, ethnicity, or other factors have become less conspicuous. Nevertheless, unconscious bias still influences all human interactions [13]. The ability to rapidly categorize every person or thing we encounter is thought to be an evolutionary development to ensure survival; early ancestors needed to decide quickly whether a person, animal, or situation they encountered was likely to be friendly or dangerous [20]. Centuries later, these innate tendencies to categorize everything we encounter is a shortcut that our brains still use.

Stereotypes also inadvertently play a significant role in medical education (Figure 1). Presentation of patients and clinical vignettes often begin with a patient's age, presumed gender, and presumed racial identity. Automatic associations and mnemonics help medical students remember that, on examination, a black child with bone pain may have sickle-cell disease or a white child with recurrent respiratory infections may have cystic fibrosis. These learning associations may be based on true prevalence rates but may not apply to individual patients. Using stereotypes in this fashion may lead to premature closure and missed diagnoses, when clinicians fail to see their patients as more than their perceived demographic characteristics. In the beginning of the human immunodeficiency virus (HIV) epidemic, the high prevalence of HIV among gay men led to initial beliefs that the disease could not be transmitted beyond the gay community. This association hampered the recognition of the disease in women, children, heterosexual men, and blood donor recipients. Furthermore, the fact that white gay men were overrepresented in early reported prevalence data likely led to lack of recognition of the epidemic in communities of color, a fact that is crucial to the demographic characteristics of today's epidemic. Today, there is still no clear solution to learning about the epidemiology of diseases without these imprecise associations, which can impact the rapidity of accurate diagnosis and therapy.

IMPACT OF BIAS ON HEALTHCARE DELIVERY

Unconscious bias describes associations or attitudes that unknowingly alter one's perceptions and therefore often go unrecognized by the individual, whereas conscious bias is an explicit form of bias that is based on one's discriminatory beliefs and

values and can be targeted in nature [14]. While neither form of bias belongs in the healthcare profession, conscious bias actively goes against the very ethos of medical professionals to serve all human beings regardless of identity. Conscious bias has manifested itself in severe forms of abuse within the medical profession. One notable historical example being the Tuskegee syphilis study, in which black men were targeted to determine the effects of untreated, latent syphilis. The Tuskegee study demonstrated how conscious bias, in this case manifested in the form of racism, led to the unethical treatment of black men that continues to have long-lasting effects on health equity and justice in today's society [21]. Given the intentional nature of conscious bias, a different set of tools and a greater length of time are likely required to change one's attitudes and actions. Tackling unconscious bias involves willingness to alter one's behaviors regardless of intent, when the impact of one's biases are uncovered and addressed [22].

There is still debate, however, about the degree to which unconscious bias affects clinician decision-making. In one systematic review on the impact of unconscious bias on healthcare delivery, there was strong evidence demonstrating the prevalence of unconscious bias (encompassing race/ethnicity, gender, socioeconomic status, age, weight, persons living with HIV, disability, and persons who inject drugs) affecting clinical judgment and the behavior of physicians and nurses toward patients [12]. However, another systematic review found only moderate-quality evidence that unconscious racial bias affects clinical decision-making [23]. A detailed discussion of the impact of unconscious bias on healthcare delivery is out of the scope of this article, which is focused on the impact of unconscious bias as it relates to healthcare professionals themselves. Nevertheless, strategies to mitigate the effects of unconscious bias (discussed later) can be applied to healthcare delivery and patient interactions.

MEASURING BIAS—THE IMPLICIT ASSOCIATION TEST (IAT)

While we know that unconscious bias is ubiquitous, it can be difficult to know how much it affects a person's daily interactions. In many cases, an individual's unconscious beliefs may differ from their explicit actions. For example, healthcare professionals, if asked, might say they try to treat all patients equally and may not believe they hold negative attitudes about patients. However, by definition, they may lack awareness of their own potential unconscious biases, and their actions may unknowingly suggest that these biases are active.

To measure unconscious bias, Drs Mahzarin Banaji and Anthony Greenwald developed the IAT in 1998 [24]. Many versions of the IAT are accessible online (available at: <https://implicit.harvard.edu/implicit/>), but one of the most studied is the Race IAT. The IAT has been extensively studied as an

inexpensive tool that provides feedback on an individual biases for self-reflection. The IAT calculates how quickly people associate different terms with each other. To determine unconscious race bias, the race IAT asks the subject to sort pictures (of white and black people) and words (good or bad) into pairs. For example, in one part of the Race IAT, participants must associate good words with white people and bad words with black people. In another part of the Race IAT, they must associate good words with black people and bad words with white people. Based on the reaction times needed to perform these tasks, the software calculates a bias score [20, 24]. Category pairs that are unconsciously preferred are easier to sort (and therefore take less time) than those that are not [24]. These unconscious associations can be identified even in individuals who outwardly express egalitarian beliefs [20, 24]. According to Project Implicit, the Race IAT has been taken >4 million times between 2002 and 2017, and 75% of test takers demonstrate an automatic white preference, meaning that most people (including a small group of black people) automatically associate white people with goodness and black people with badness [20]. Proponents of the IAT state that automatic preference for one group over another can signal potential discriminatory behavior even when the individuals with the automatic preference outwardly express egalitarian beliefs [20]. These preferences do not necessarily mean that an individual is prejudiced, which is associated with outward expressions of negative attitudes toward different social groups [20].

Many of the studies of unconscious bias described in this article use the IAT as the primary tool for measuring the phenomenon. Nevertheless, the degree to which the IAT predicts behavior is as of yet unclear, and it is important to recognize the limitations and criticisms of the IAT, as this is pertinent to its potential application in mitigating unconscious bias. Blanton et al reanalyzed data from 2 studies supporting the validity of the IAT, claiming that there is no evidence predicting individual behavior, with concerns for interjudge reliability and inclusion of outliers affecting results [25]. Response to this criticism by McConnell et al describes extensive training of test judges and evidence that the reanalysis was not a perfect replication of methods [26]. Blanton et al argue further in a different article that attempting to explain behavior on the basis of results of the IAT is problematic because the test relies on an arbitrary metric, leading to identified preferences when individuals are "behaviorally neutral" [27]. Notwithstanding the limitations of the IAT, none of its critics refute the existence of unconscious bias and that it can influence life experiences. The following sections review how unconscious bias affects different groups in the healthcare workforce.

Racial Bias

Medical school admissions committees serve as an important gatekeeper to address the significant disparities between racial

and ethnic minorities in healthcare as compared to the general population. Yet one study demonstrated that members of a medical school admissions committee displayed significant unconscious white preference (especially among men and faculty members) despite acknowledging almost zero explicit white preference [28]. An earlier study of unconscious racial and social bias in medical students found unconscious white and upper-class preference on the IAT but no obvious unconscious preferences in students' response to vignette-based patient assessments [29]. Unconscious bias affects the lived experiences of trainees, can potentially influence decisions to pursue certain specialties, and may lead to isolation. A recent study by Osseo-Asare et al described African American residents' experiences of being only "one of a few" minority physicians; some major themes included discrimination, the presence of daily microaggressions, and the burden of being tasked as race/ethnic "ambassadors," expected to speak on behalf of their demographic group [30].

Gender Bias

Gender bias in medical education and leadership development has been well documented [11, 31]. Medical student evaluations vary depending on the gender of the student and even the evaluator [31]. Similar studies have demonstrated gender bias in qualitative evaluations of residents and letters of recommendations, with a more positive tone and use of agentic descriptors in evaluations of male residents as compared to female residents [11]. Studies evaluating inclusion of women as speakers have also demonstrated gender bias, with fewer women invited to speak at grand rounds [9] and differences in the formal introductions of female speakers as compared to male speakers [32, 33], with men more likely referred to by their official titles than women.

Sexual and Gender Minority Bias

Sexual and gender minority groups are underrepresented in medicine and experience bias and microaggressions similar to those experienced by racial and ethnic minorities. Experiences with or perceptions of bias lead to junior physicians not disclosing their sexual identity on the personal statement part of their residency applications for fear of application rejection or not disclosing that they are gay to colleagues and supervisors for fear of rejection or poor evaluations [34]. In one study, some physician survey respondents indicated some level of discomfort about people who are gay, transgender, or living with HIV being admitted to medical school. These respondents were less likely to refer patients to physician colleagues who were gay, transgender, or living with HIV [35]. These explicit biases were significantly reduced, compared with those revealed in prior surveys done in 1982 and 1999; opposition to gay medical school applicants went from 30% in 1982 to 0.4% in 2017, and discomfort with referring patients

to gay physicians went from 46% in 1982 to 2% in 2017 [35]. The 2017 survey did not measure levels of unconscious bias, which is likely to still be pervasive despite decreased explicit bias. As with other types of bias, these data reveal that explicit bias against gay physicians has decreased over time; the degree of unconscious bias, however, likely persists. While this is encouraging to some degree, unconscious bias may be much more challenging to confront than explicit bias. Thus, members of underrepresented groups may be left wondering about the intentions of others and being labeled as "too sensitive."

Studies including the perspectives of LGBTQ healthcare professionals demonstrate that major challenges to their academic careers persist to this day. These include lack of LGBTQ mentorship, poor recognition of scholarship opportunities, and noninclusive or even hostile institutional climates [36]. Phelan et al studied changes in biased attitudes toward sexual and gender minorities during medical school and found that reduced unconscious and explicit bias was associated with more-frequent and favorable interactions with LGBTQ students, faculty, residents, and patients [37].

Disability Bias

Physicians with disabilities constitute another minority group that may experience bias in medicine, and the degree to which they experience this may vary, depending on whether disabilities may be visible or invisible. One study estimated the prevalence of self-disclosed disability in US medical students to be 2.7% [7]. Medical schools are charged with complying with the Americans With Disabilities Act, but only a minority of schools support the full spectrum of accommodations for students with disabilities [38]. Many schools do not include a specific curriculum for disability awareness [39]. Physicians with disabilities have felt compelled to work twice as hard as their able-bodied peers for acceptance, struggled with stigma and microaggressions, and encountered institutional climates where they generally felt like they did not belong [40]. These are themes that are shared by individuals from racial and ethnic minorities.

MITIGATING UNCONSCIOUS BIAS

A strategy to counter unconscious bias requires an intentional multidimensional approach and usually operates in tandem with strategies to increase diversity, inclusion, and equity [41, 42]. This is becoming increasingly important in training programs in the various specialties, including infectious diseases. The Accreditation Council for Graduate Medical Education recently updated their common program requirements for fellowship programs and has stipulated that, effective July 2019, "[t]he program's annual evaluation must include an assessment of the program's efforts to recruit and retain a diverse workforce" [43]. The implication of this requirement is that recognition

and mitigation of potential biases that may influence retention of a diverse workforce will ultimately be evaluated (directly or indirectly).

Mitigating unconscious bias and improving inclusivity is a long-term goal requiring constant attention and repetition and a combination of general strategies that can have a positive influence across all groups of people affected by bias [44]. These strategies can be implemented at organizational and individual levels and, in some cases, can overlap between the 2 domains (Figure 2). In this section, we review how infectious diseases clinicians and organizations like IDSA and hospitals can use some of these strategies to address and mitigate implicit bias in our specialty.

Organizational Strategies

Commitment to a Culture of Inclusion: More Than Just Diversity

Training or Cultural Competency

Creating change requires more than just a climate survey, a vision statement, or creation of a diversity committee [45]. Organizations must commit to a culture shift by building institutional capacity for change [41, 46]. This involves reaffirming the need not only for the recruitment of a critical mass of underrepresented individuals, but equally importantly, the recruitment of critical actor leaders who take the role of change agents and have the power to create equitable environments [41, 47–49]. These change agents need not themselves be underrepresented; indeed, the success of culture change requires the involvement of allies within the majority group (eg, men, white people, and cis-gender heterosexual individuals). IDSA has demonstrated a commitment to this type of culture change with recent changes in leadership structure and with intentional

recruitment of individuals invested in diversity and inclusion; however, there is always room for reevaluation of other areas where diversity is desired.

Committing to a culture of inclusion at the academic-institution level involves creating a deliberate strategy for medical trainee admission and evaluation and faculty hiring, promotion, and retention. Capers et al describe strategies for achieving diversity through medical school admissions, many of which can also be applied to faculty hiring and promotion [49]. Notable strategies they suggest include having admissions (or hiring) committee members take the IAT and reflect on their own potential biases before they review applications or interview candidates [49]. They also recommend appointing women, minorities, and junior medical professionals (students or junior faculty) to admissions committees, emphasizing the importance of different perspectives and backgrounds [49]. Organizations can also survey employee perception of inclusivity. These assessments include questions on the degree to which an individual feels a sense of belonging within an institution, alongside questions pertaining to experiences of bias on the grounds of cultural or demographic factors [50]. Conducting regular assessments and analysis of survey results, particularly on how individuals of diverse backgrounds feel they can exist within the organization and their culture simultaneously, allows organizations to ensure that their trainings on unconscious bias and promotion of cultural humility lead to long-term positive change. Furthermore, realizing that different demographic groups may feel less respected than others provides information on areas of focus for consequent refresher seminars on combating unconscious bias in conjunction with cultural humility.

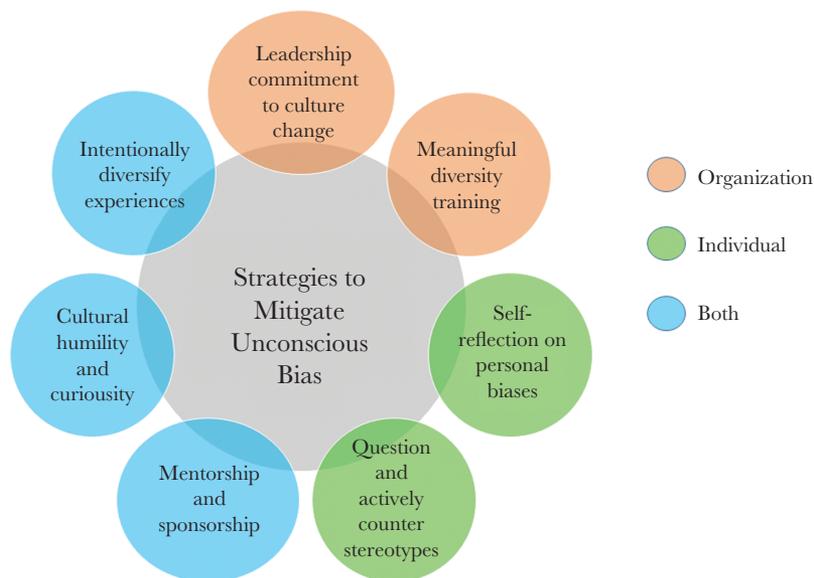


Figure 2. Organization-level and personal-level strategies to mitigate unconscious bias. Orange circles indicate organization-specific strategies, green circles indicate individual-level strategies, and blue circles represent strategies that can be emphasized on both organizational and individual levels to mitigate implicit bias.

Meaningful Diversity Training and the Usefulness of the IAT

Notwithstanding potential criticisms of the IAT with respect to prediction of discriminatory behavior, this can be a useful tool within a comprehensive organizational training seminar directed toward understanding and addressing individual unconscious bias. In the study by Capers et al, over two thirds of admissions committee members who took the IAT and responded to the post-IAT survey felt positive about the potential value of this tool in reducing their unconscious bias [28]. Additionally, almost half were cognizant of their IAT results when interviewing for the next admissions cycle, and 21% maintained that knowledge of this bias affected their decisions in the next admissions cycle [28]. Perhaps this knowledge led to conscious changes in committee member behavior because, in the following year, the matriculating class was the most diverse in that institution's history [28, 49]. A similar bias education intervention coupled with the IAT led to a decreased unconscious gender leadership bias in one academic center [48]. IDSA and infectious diseases practices (or academic divisions) could consider ways to incorporate this into already established training for those in leadership roles or on leadership search committees.

Of course, the potential applicability of the IAT can be overstated—at best, several meta-analyses have demonstrated that there may only be a weak correlation between IAT scores and individual behavior [51–53], and several criticisms of the IAT have already been discussed here. Additionally, while important to acknowledge that bias is pervasive, care must be taken to avoid normalizing bias and stereotypes because this may have the unintended consequence of reinforcing them [54]. Important points that should be emphasized when using the IAT as part of diversity training include that (1) people should be

aware of their own biases and reflect on their behaviors individually; (2) the IAT can suggest generally how groups of people with certain results may behave, rather than how each individual will behave; and (3) on its own, the IAT is not a sufficient tool to mitigate the effects of bias, because if there is to be any chance of success, an active cultural/behavioral change must be engaged in tandem with bias awareness and diversity training [55].

Individual Strategies

Deliberative Reflection

Before encounters that are likely to be affected by bias (such as trainee evaluations, letters of recommendation, feedback, interviews, committee decisions, and patient encounters), deliberative reflection can help an individual recognize their own potential for bias and correct for this [56]. It is also a good time to consider the perspective of the individual whom they will be evaluating or interacting with and the potential impact of their biases on that individual. Participants can be encouraged to evaluate how their own experiences and identities influence their interactions. Including data on lapses in proper care due to provider bias also proves helpful in giving workers real-life examples of the consequences of not being vigilant for bias [51, 57]. This motivated self-regulation based on reflections of individual biases has been shown to reduce stereotype activation and application [44, 58]. If one unintentionally behaves in a discriminatory manner, self-reflection and open discussion can help to repair relationships (Figure 3).

Question and Actively Counter Stereotypes

Individuals may question how they can actively counter stereotypes and bias in observed interactions. The

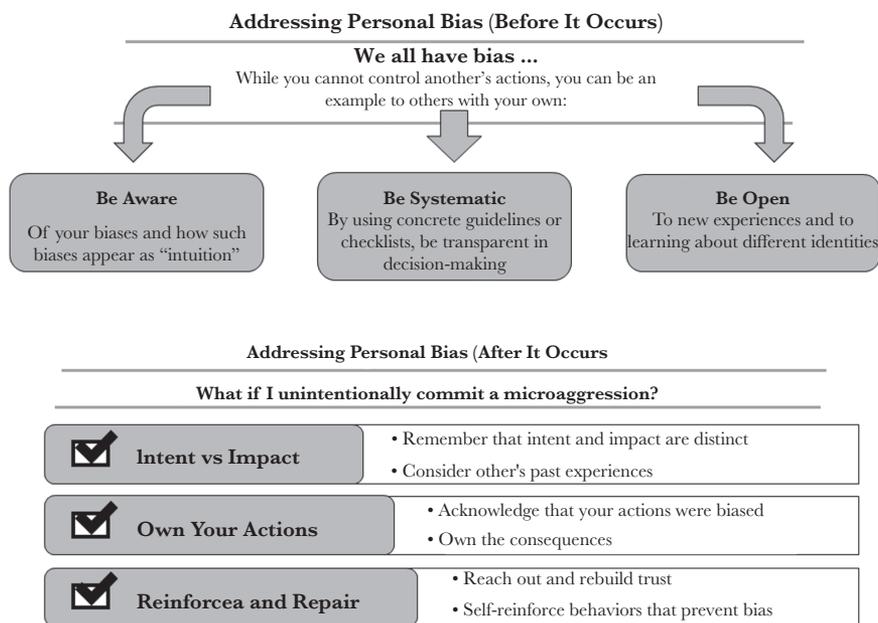


Figure 3. Strategies to address personal bias before and after it occurs.

active-bystander approach adapted from the Kirwan Institute [59] can provide insight into appropriate responses in these situations (Figure 4).

Strategies That Apply to Both Organizations and Individuals

Cultural Competency and Beyond: Cultural Humility

Healthcare organizations seeking to develop providers who can work seamlessly with colleagues and more effectively treat patients from all cultural backgrounds have been conducting trainings in cultural competency [60]. The term “cultural competency” implies that one has achieved a static goal of championing inclusivity. This approach imparts a false sense of confidence in leaders and healthcare professionals and fails to recognize that our understanding of cultural barriers is continually growing and evolving [61]. Cultural humility has been proposed as an alternate approach, subsuming the teachings of cultural competency while steering participants toward a continuous path of discovery and respect during interactions with colleagues and patients of different cultural backgrounds [62]. Other synonymous terms include “cultural sensitivity” and “cultural curiosity.” Rather than checking a box for training, cultural humility focuses on the individual and teaches that developing one’s self-awareness is a critical step in achieving mindfulness for others [63]. Cultural humility emphasizes that individuals must acknowledge the experiential lens through which they view the world and that their view is not nearly as extensive, open, or dynamic as they might perceive [61]. By training leaders and healthcare professionals that they do not need to be and ultimately cannot be experts in all the intersecting cultures that they encounter, healthcare professionals can focus on a readiness to learn that can translate to greater confidence and willingness in caring for patients of varying backgrounds [61].

As cultural humility is important to recognizing and mitigating conscious and unconscious biases, patient simulations and diversity-related trainings should be augmented with discussions about cultural humility.

By integrating cultural humility into healthcare training procedures, organizations can strive to eliminate the perceived unease healthcare professionals might experience when interacting with individuals from backgrounds or cultures unfamiliar to them. Cultural humility starts from a condition of empathy and proceeds through the asking of open questions in each interaction (Figure 1). Instilling elements of cultural humility training within simulation-based learning provides participants with experience in treating a wide array of patients while providing low-risk, feedback-based learning opportunities [22, 64].

Diversify Experiences to Provide Counterstereotypical Interactions

Exposing individuals to counterstereotypical experiences can have a positive impact on unconscious bias [10, 44, 55]. Therefore, intentional efforts to include faculty from underrepresented groups as preceptors, educators, and invited speakers can help reduce the unconscious associations of these responsibilities as unattainable. Capers et al suggest that including students, women, and African Americans and other racial and ethnic minorities on admissions committees may be part of a strategy to reduce unconscious bias in medical school admissions [49]. If institutions, organizations, and conference program committees are aware of their own metrics in this respect, following this information with deliberate choices to remedy inequities can have a profound impact on increasing diversity [65]. Furthermore, in medical training, while deliberate curricula involving disparities and care of underrepresented individuals are beneficial, educators must be aware of the impact of the hidden curriculum on their trainees. The term “hidden curriculum” refers to the aspects of medicine that are learned by trainees outside the traditional classroom/didactic instruction environment. It encompasses observed interactions, behaviors, and experiences often driven by unconscious and explicit bias and institutional climate [66–68]. Students can be taught to actively seek out the hidden curriculum in their training

Step 1: Acknowledge the bias in the interaction

Step 2: Make a conscious decision to address the bias

Step 3: Utilize one of the following action strategies to counter the bias

Humor^a

“English is my first language, what’s yours?” (eg, In response to “your English is so good!”)

Reject the stereotype outright

“I don’t get the joke”

Ask questions

“What did you mean when you said ___?”

Acknowledge discomfort

“What you just said makes me very uncomfortable. Please don’t speak like that around me anymore.”

Be direct

“I know you didn’t intend for your words to be interpreted as a stereotype, but as your friend, I wanted to be honest with you that that’s how it came across.”

Step 4: Continue the conversation beyond the interaction

Adapted with permission from Tenney [59].

^aHumor is potentially culturally based, and may not always work

Figure 4. Kirwan Institute approach to countering unconscious bias as an active bystander.

environment, reflect on the lessons, and use this reflection to inform their own behaviors [67]. Individuals can intentionally diversify their own circles, connecting with people from different backgrounds and experiences. This can include the occasionally awkward and uncomfortable introductions at professional meetings or at community events, making an effort to read books by diverse authors, or trying new foods with a colleague. These are small behavioral changes that, with time, can help to retrain our brain to classify people as “same” instead of “other.”

Mentorship and Sponsorship

Mentors can, at any stage in one’s career, provide advice and career assistance with collaborations, but sponsors are typically more senior individuals who can curate high-profile opportunities to support a junior person, often with potential personal or professional risk if that person does not meet expectations. URM and women physicians tend not to have as much support with mentoring and sponsorship as the majority group, white men. Qualitative studies of URM physician perspectives typically reveal themes of isolation and lack of mentorship, regardless of the URM group being studied [30, 36, 69]. Possible reasons include lack of mentors from similar backgrounds or ineffective mentoring in discordant mentor-mentee relationships. Mentor-training workshops that intentionally include unconscious bias training can enhance the effectiveness of mentors working with diverse trainees and junior faculty and address this potential barrier to URM success [70]. Providing mentorship within an individual department, as well as support for participating in external mentorship and career development programs, can help create sponsorship opportunities that eventually influence career advancement [41]. Many professional societies such as IDSA provide mentorship opportunities, and these can be enhanced by encouraging more sponsorship of junior clinicians for opportunities such as podium lectures, moderating at conferences, writing editorials, or committee positions.

SUMMARY

In the years since the IAT was first described, researchers have published countless data on the impact of unconscious bias. Fortunately, explicit and implicit attitudes toward many disenfranchised groups of people have regressed to a more neutral position over time [71], but this does not mean that unconscious bias has disappeared. Just as healthcare providers are required to stay up to date on medical techniques and procedures to best serve their patients, we propose that trainings involving the social aspects of medicine be treated similarly. Cultural humility is characterized by lifelong learning and is a key aspect of a successful provider-patient relationship. Thus, it is imperative that healthcare organizations and professional medical societies such as IDSA continually provide healthcare professionals

with learning opportunities to enhance their interactions with individuals different from themselves. Effectively addressing unconscious bias and subsequent disparities in IDSA will need comprehensive, multifaceted, and evidence-based interventions (Figure 5).

CALL TO ACTION

IDSA has demonstrated a commitment to diversifying its society leadership by commissioning the Gender Disparities Task Force and the Inclusion, Diversity, Access & Equity Task Force, reconfiguring existing committees, developing new committees (eg, the Leadership Development Committee), and creating new opportunities, such as the IDSA Leadership Institute. While these are important and impactful actions, we propose the following

Unconscious Bias Highlights

1. Unconscious biases are attitudes or stereotypes that unknowingly alter our perceptions or understanding of our experiences, thereby affecting behavior interactions and decision-making.
2. Unconscious bias can influence behaviors, but the exact extent to which it does so is unclear.
3. Women and individuals underrepresented in medicine can have different experiences with recruitment, hiring, promotion, and compensation (among others) due to unconscious bias, as compared to their majority peers (white men).
4. Strategies to mitigate unconscious bias are multifactorial but involve bias awareness, culture change, countering stereotypes, and intentional group diversification.
5. The extent to which unconscious bias plays a role in diversity challenges within the specialty of infectious diseases is unknown.

The Infectious Diseases Society of America can play a role in mitigating unconscious bias by:

- a. Incorporating measurable evidence-based bias reduction strategies into infectious diseases training programs and membership at large
- b. Enhancing mentorship programs to intentionally seek equitable inclusion of those traditionally underrepresented in leadership
- c. Incorporating principles of cultural humility into leadership development
- d. Supporting infectious diseases divisions and fellowship programs with their group efforts to create a more diverse environment

Figure 5. Unconscious bias highlights.

additional steps to address the role of unconscious bias in various settings. First, develop an IDSA-sponsored climate survey to assess perceptions of inclusion and belonging within the Society, and repeat this climate assessment after implementing bias reduction strategies. Second, provide IDSA-sponsored education/training on unconscious bias reduction strategies and cultural humility to academic infectious disease divisions and fellowship programs to support the recruitment and retention of a diverse infectious diseases physician workforce. Third, develop benchmarks for excellence in infectious diseases divisions and fellowship training programs to evaluate these bias reduction strategies. Fourth, provide education/training on unconscious bias-reduction strategies and cultural humility to leadership and membership within IDSA. Specifically, the board of directors, the Leadership Development Committee, the Awards Committee, and others involved in electing, nominating, or honoring members should consider including incorporating the IAT and bias-reduction education for their committee members. After implementing such strategies, IDSA should reevaluate metrics of awardees, committee chairs, and leadership to determine whether these strategies made an impact. Fifth, cultivate existing mentorship programs within IDSA, with the added focus of intentional mentoring and sponsorship of groups traditionally underrepresented in leadership. Sixth, commit to consistent review and revision of infectious diseases recruitment messaging, ensuring that materials and media counter harmful stereotypes and represent true diversity. Seventh, collect, review, and publish metrics of diversity in all facets of the membership, including IDWeek speaker demographic characteristics, IDSA journal editor/reviewers, guideline authorship, and committee membership, with intentional response strategies to change these demographic characteristics to a more diverse distribution. Eighth, be transparent about reporting of metrics, with clear accountability and flexibility to adjust initiatives based on results.

NOTE

Although there are numerous data describing the impact of unconscious bias on healthcare delivery, clinician-patient interactions, and patient outcomes, discussion of these aspects is out of the scope of this article, which focuses on the impact of unconscious bias on healthcare professionals. Additionally, the majority of data on unconscious bias presented in this article relates to general academic training and career development, as data in the infectious diseases practice community is limited. This represents an area of need for evaluation within the specialty of infectious diseases, since a vast majority of members are in clinical practice and may experience bias in varying degrees. While it is important to support trainees who may experience unconscious bias, it is also critical to provide support for infectious diseases clinicians further along in their careers, as a means to maintain retention in the specialty. Finally, some individuals may prefer person-first language, while others may

prefer identity-first language when referring to disabilities. We consistently used person-first language throughout this manuscript based on the recommendation by the Centers for Disease Control & Prevention (https://www.cdc.gov/ncbddd/disabilityandhealth/pdf/disabilityposter_photos.pdf).

Notes

Supplement sponsorship. This supplement is sponsored by the Infectious Diseases Society of America.

Acknowledgments. We thank Drs Molly Carnes, Ranna Parekh, and Arghavan Salles, as well as Lena Tenney, for critical review of this manuscript before publication; Mr Chris Busky, for providing written communications about the demographic characteristics of IDSA membership and leadership; and Catherine Hiller, for her assistance with manuscript preparation.

J. R. M. wrote first draft and subsequent revisions; D. S. and R. V. contributed to the first draft and subsequent revisions; S. K. contributed to the first draft and subsequent revisions; Y. A. M. contributed to subsequent revisions; and all authors reviewed a final version of the work before submission.

Potential conflicts of interest. J. R. M. and D. S. are members of the IDSA Inclusion, Diversity, Access & Equity Task Force. All other authors report no potential conflicts.

All authors have submitted the ICMJE form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

References

1. Institute of Medicine (US) Committee on Institutional and Policy-Level Strategies for Increasing the Diversity of the U.S. Healthcare Workforce. In the nation's compelling interest: ensuring diversity in the health-care workforce. Smedley BD, Stith Butler A, Bristow LR, eds. Washington, DC: National Academies Press (US), 2004.
2. American College of Physicians. Racial and ethnic disparities in health care, updated 2010. https://www.acponline.org/system/files/documents/advocacy/current_policy_papers/assets/racial_disparities.pdf. Accessed 25 January 2019.
3. Association of American Medical Colleges. Underrepresented in medicine definition. <https://www.aamc.org/initiatives/urm/>. Accessed 19 January 2019.
4. United States Census Bureau. US Census Bureau QuickFacts. <https://www.census.gov/quickfacts/fact/table/US#>. Accessed 2 January 2019.
5. Newport F. In U.S., estimate of LGBT population rises to 4.5%. <https://news.gallup.com/poll/234863/>

- [estimate-lgbt-population-rises.aspx](#). Accessed 25 January 2019.
6. Association of American Medical Colleges (AAMC). AAMC facts & figures 2016; diversity in medical education. <http://www.aamcdiversityfactsandfigures2016.org/index.html>. Accessed 25 January 2019.
 7. Meeks LM, Herzer KR. Prevalence of self-disclosed disability among medical students in US allopathic medical schools. *JAMA* **2016**; 316:2271–2.
 8. Association of American Medical Colleges. U.S. medical school applications and matriculants by school, state of legal residence, and sex, 2018–2019. <https://www.aamc.org/download/321442/data/factstablea1.pdf>. Accessed 4 January 2019.
 9. Boiko JR, Anderson AJM, Gordon RA. Representation of women among academic grand rounds speakers. *JAMA Intern Med* **2017**; 177:722–4.
 10. Carnes M, Bartels CM, Kaatz A, Kolehmainen C. Why is John more likely to become department chair than Jennifer? *Trans Am Clin Climatol Assoc* **2015**; 126:197–214.
 11. Gerull KM, Loe M, Seiler K, McAllister J, Salles A. Assessing gender bias in qualitative evaluations of surgical residents. *Am J Surg* **2019**; 217:306–13.
 12. FitzGerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. *BMC Med Ethics* **2017**; 18.
 13. Staats C, Dandar V, St Cloud T, Wright R. How the prejudices we don't know we have affect medical education, medical careers, and patient health. In: Darcy Lewis and Emily Paulsen, eds. Proceedings of the 2014 diversity and inclusion innovation forum: unconscious bias in academic medicine. Association of American Medical Colleges. Association of American Medical Colleges and the Kirwan Institute for the Study of Race and Ethnicity at The Ohio State University, USA **2017**; 1–93.
 14. Staats C, Patton C. State of the science: implicit bias review: the Ohio State University Kirwan Institute for the study of race and ethnicity. OH: The Kirwan Institute for the Study of Race and Ethnicity at The Ohio State University, **2013**; 1–102.
 15. Institute of Medicine. The health of lesbian, gay, bisexual, and transgender people: building a foundation for better understanding. Washington, DC: The National Academies Press, **2011**.
 16. Gonzales G, Przedworski J, Henning-Smith C. Comparison of health and health risk factors between lesbian, gay, and bisexual adults and heterosexual adults in the united states: results from the national health interview survey. *JAMA Intern Med* **2016**; 176:1344–51.
 17. Valdiserri RO, Holtgrave DR, Poteat TC, Beyrer C. Unraveling health disparities among sexual and gender minorities: a commentary on the persistent impact of stigma. *J Homosex* **2019**; 66:571–89.
 18. Trotman R, Kim AI, MacIntyre AT, Ritter JT, Malani AN. 2017 infectious diseases society of america physician compensation survey: results and analysis. *Open Forum Infect Dis* **2018**; 5:ofy309.
 19. Marcelin JR, Bares SH, Fadul N. Improved infectious diseases physician compensation but continued disparities for women and underrepresented minorities. *Open Forum Infect Dis* **2019**; 6:ofz042.
 20. Banaji MR, Greenwald AG. *Blindspot: hidden biases of good people*. 1st ed. USA: Delacorte Press, **2013**.
 21. Francis CK. Medical ethos and social responsibility in clinical medicine. *J Urban Health* **2001**; 78:29–45.
 22. Teal CR, Gill AC, Green AR, Crandall S. Helping medical learners recognise and manage unconscious bias toward certain patient groups. *Med Educ* **2012**; 46:80–8.
 23. Dehon E, Weiss N, Jones J, Faulconer W, Hinton E, Sterling S. A systematic review of the impact of physician implicit racial bias on clinical decision making. *Acad Emerg Med* **2017**; 24:895–904.
 24. Greenwald AG, McGhee DE, Schwartz JL. Measuring individual differences in implicit cognition: the implicit association test. *J Pers Soc Psychol* **1998**; 74:1464–80.
 25. Blanton H, Jaccard J, Klick J, Mellers B, Mitchell G, Tetlock PE. Strong claims and weak evidence: reassessing the predictive validity of the IAT. *J Appl Psychol* **2009**; 94:567–82; discussion 583–603.
 26. McConnell AR, Leibold JM. Weak criticisms and selective evidence: Reply to Blanton *et al.* (2009). *J Appl Psychol*, 2009;94, 583-9. doi:10.1037/a0014649
 27. Blanton H, Jaccard J, Strauts E, Mitchell G, Tetlock PE. Toward a meaningful metric of implicit prejudice. *J Appl Psychol* **2015**; 100:1468–81.
 28. Capers Q 4th, Clinchot D, McDougle L, Greenwald AG. Implicit racial bias in medical school admissions. *Acad Med* **2017**; 92:365–9.
 29. Haider AH, Sexton J, Sriram N, et al. Association of unconscious race and social class bias with vignette-based clinical assessments by medical students. *JAMA* **2011**; 306:942–51.
 30. Osseo-Asare A, Balasuriya L, Huot SJ, et al. Minority resident physicians' views on the role of race/ethnicity in their training experiences in the workplace. *JAMA Netw Open* **2018**; 1:e182723.
 31. Riese A, Rappaport L, Alverson B, Park S, Rockney RM. Clinical performance evaluations of third-year medical students and association with student and evaluator gender. *Acad Med* **2017**; 92:835–40.
 32. Files JA, Mayer AP, Ko MG, et al. Speaker introductions at internal medicine grand rounds: forms of address reveal gender bias. *J Womens Health (Larchmt)* **2017**; 26:413–9.

33. Mehta S, Rose L, Cook D, Herridge M, Owais S, Metaxa V. The speaker gender gap at critical care conferences. *Crit Care Med* **2018**; 46:991–996.
34. Lee KP, Kelz RR, Dubé B, Morris JB. Attitude and perceptions of the other underrepresented minority in surgery. *J Surg Educ* **2014**; 71:e47–52.
35. Marlin R, Kadakia A, Ethridge B, Mathews WC. Physician attitudes toward homosexuality and HIV: the PATHH-III survey. *LGBT Health* **2018**; 5:431–42.
36. Sánchez NF, Rankin S, Callahan E, et al. LGBT trainee and health professional perspectives on academic careers—facilitators and challenges. *LGBT Health* **2015**; 2:346–56.
37. Phelan SM, Burke SE, Hardeman RR, et al. Medical school factors associated with changes in implicit and explicit bias against gay and lesbian people among 3492 graduating medical students. *J Gen Intern Med* **2017**; 32:1193–201.
38. Zazove P, Case B, Moreland C, et al. U.S. medical schools' compliance with the Americans with Disabilities Act: findings from a national study. *Acad Med* **2016**; 91:979–86.
39. Seidel E, Crowe S. The state of disability awareness in American medical schools. *Am J Phys Med Rehabil* **2017**; 96:673–6.
40. Meeks LM, Herzer K, Jain NR. Removing barriers and facilitating access: increasing the number of physicians with disabilities. *Acad Med* **2018**; 93:540–3.
41. DiBrito SR, Lopez CM, Jones C, Mathur A. Reducing implicit bias: association of women surgeons #HeForShe task force best practice recommendations. *J Am Coll Surg* **2019**; 228:303–9.
42. South-Paul JE, Roth L, Davis PK, et al. Building diversity in a complex academic health center. *Acad Med* **2013**; 88:1259–64.
43. Accreditation Council for Graduate Medical Education. Common program requirements (fellowship). <https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRFellowship2019.pdf>. Accessed 19 January 2019.
44. Devine PG, Forscher PS, Austin AJ, Cox WT. Long-term reduction in implicit race bias: a prejudice habit-breaking intervention. *J Exp Soc Psychol* **2012**; 48:1267–78.
45. Carnes M, Fine E, Sheridan J. Promises and pitfalls of diversity statements: proceed with caution. *Acad Med* **2019**; 94:20–4.
46. Smith DG. Building institutional capacity for diversity and inclusion in academic medicine. *Acad Med* **2012**; 87:1511–5.
47. Helitzer DL, Newbill SL, Cardinali G, Morahan PS, Chang S, Magrane D. Changing the culture of academic medicine: critical mass or critical actors? *J Womens Health (Larchmt)* **2017**; 26:540–8.
48. Girod S, Fassiotto M, Grewal D, et al. Reducing implicit gender leadership bias in academic medicine with an educational intervention. *Acad Med* **2016**; 91:1143–50.
49. Capers Q, McDougale L, Clinchot DM. Strategies for achieving diversity through medical school admissions. *J Health Care Poor Underserved* **2018**; 29:9–18.
50. Person SD, Jordan CG, Allison JJ, et al. Measuring diversity and inclusion in academic medicine: the diversity engagement survey. *Acad Med* **2015**; 90:1675–83.
51. Greenwald AG, Banaji MR, Nosek BA. Statistically small effects of the implicit association test can have societally large effects. *J Pers Soc Psychol* **2015**; 108:553–61.
52. Oswald FL, Mitchell G, Blanton H, Jaccard J, Tetlock PE. Predicting ethnic and racial discrimination: a meta-analysis of IAT criterion studies. *J Pers Soc Psychol* **2013**; 105:171–92.
53. Oswald FL, Mitchell G, Blanton H, Jaccard J, Tetlock PE. Using the IAT to predict ethnic and racial discrimination: small effect sizes of unknown societal significance. *J Pers Soc Psychol* **2015**; 108:562–71.
54. Duguid MM, Thomas-Hunt MC. Condoning stereotyping? How awareness of stereotyping prevalence impacts expression of stereotypes. *J Appl Psychol* **2015**; 100:343–59.
55. Dasgupta N. Chapter five—implicit attitudes and beliefs adapt to situations: a decade of research on the malleability of implicit prejudice, stereotypes, and the self-concept. In: Devine P, Plant A, eds. *Advances in experimental social psychology*. Vol. 47. USA: Academic Press, **2013**:233–79.
56. Phillips NA, Tannan SC, Kalliainen LK. Understanding and overcoming implicit gender bias in plastic surgery. *Plast Reconstr Surg* **2016**; 138:1111–6.
57. Nelson SC, Prasad S, Hackman HW. Training providers on issues of race and racism improve health care equity. *Pediatr Blood Cancer* **2015**; 62:915–7.
58. Burns MD, Monteith MJ, Parker LR. Training away bias: the differential effects of counterstereotype training and self-regulation on stereotype activation and application. *J Exp Soc Psychol* **2017**; 73:97–110.
59. Tenney L. Being an active bystander: strategies for challenging the emergence of bias. Columbus, OH: Ohio State University Kirwan Institute for the Study of Race and Ethnicity, **2017**.
60. Harrison G, Turner R. Being a 'culturally competent' social worker: making sense of a murky concept in practice. *Br J Soc Work* **2010**; 41:333–350.
61. Juarez JA, Marvel K, Brezinski KL, Glazner C, Towbin MM, Lawton S. Bridging the gap: a curriculum to teach residents cultural humility. *Fam Med* **2006**; 38:97–102.
62. Chang ES, Simon M, Dong X. Integrating cultural humility into health care professional education and training. *Adv Health Sci Educ Theory Pract* **2012**; 17:269–78.
63. Kumagai AK, Lypson ML. Beyond cultural competence: critical consciousness, social justice, and multicultural education. *Acad Med* **2009**; 84:782–7.
64. Beauchamp GA, McGregor AJ, Choo EK, Safdar B, Rayl Greenberg M. Incorporating sex and gender into

- culturally competent simulation in medical education. *J Womens Health (Larchmt)* **2019**. doi:10.1089/jwh.2018.7271
65. van Ryn M, Hardeman R, Phelan SM, et al. Medical school experiences associated with change in implicit racial bias among 3547 students: a medical student CHANGES study report. *J Gen Intern Med* **2015**; 30:1748–56.
66. Hafferty FW. Beyond curriculum reform: confronting medicine's hidden curriculum. *Acad Med* **1998**; 73:403–7.
67. Neve H, Collett T. Empowering students with the hidden curriculum. *Clin Teach* **2018**; 15:494–9.
68. Fallin-Bennett K. Implicit bias against sexual minorities in medicine: cycles of professional influence and the role of the hidden curriculum. *Acad Med* **2015**; 90:549–52.
69. Liebschutz JM, Darko GO, Finley EP, Cawse JM, Bharel M, Orlander JD. In the minority: black physicians in residency and their experiences. *J Natl Med Assoc* **2006**; 98:1441–8.
70. Gandhi M, Fernandez A, Stoff DM, et al. Development and implementation of a workshop to enhance the effectiveness of mentors working with diverse mentees in HIV research. *AIDS Res Hum Retroviruses* **2014**; 30:730–7.
71. Charlesworth TES, Banaji MR. Patterns of implicit and explicit attitudes: I. Long-Term change and stability from 2007 to 2016. *Psychol Sci* **2019**; 30:174–92.
72. Yeager KA, Bauer-Wu S. Cultural humility: essential foundation for clinical researchers. *Appl Nurs Res* **2013**; 26:251–6.
73. Sue DW, Capodilupo CM, Torino GC, et al. Racial microaggressions in everyday life: implications for clinical practice. *Am Psychol* **2007**; 62:271–86.