

Implicit Bias Education and Emergency Medicine Training: Step One? Awareness

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ABSTRACT

Objective: Prior research suggests that health care providers are susceptible to implicit biases, specifically prowhite biases, and that these may contribute to health care disparities by influencing physician behavior. Despite these findings, implicit bias training is not currently embedded into emergency medicine (EM) residency training and few studies exist that evaluate the effectiveness of implicit bias training on awareness during residency conference. We sought to conduct a mixed-methods program evaluation of a formalized educational intervention targeted on the topic of implicit bias.

Methods: We used a design thinking framework to develop a curricular intervention. The intervention consisted of taking the Harvard Implicit Association Test (IAT) on race to introduce the concept of implicit bias, followed by a facilitated discussion to explore participant's perceptions on whether implicit bias may lead to variations in care. The facilitated discussion was audio recorded, transcribed, and coded for emerging themes. An online survey assessed participant awareness of these topics before and after the intervention and was analyzed using paired t-tests.

Results: After the intervention, participant's awareness of their individual implicit biases increased by 33.3% ($p = 0.003$) and their awareness of how their IAT results influences how they deliver care to patients increased by 9.1% ($p = 0.03$). Emerging themes included skepticism of the implicit bias test results with the desire to have "neutral" results, acknowledgment that pattern recognition may lead to "blind spots" in care, recognition that bias exists on a personal and systemic level, and interest in regular educational interventions to address implicit bias.

Conclusions: This novel educational intervention on implicit bias resulted in improvement in participants' awareness of their implicit biases and how it may affect their patient care. Our intervention can serve as a model for other residency programs to develop and implement an intervention to create awareness of implicit bias and its potential impact on patient care.

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NEED FOR INNOVATION

In 2002, the Institute of Medicine (IOM) released a report detailing significantly lower quality of health care services received by racial and ethnic minorities.¹ The recommendation from this IOM report suggested increasing awareness about disparities among health care providers to reduce unnecessary variations in care quality. In 2016, 14 years later, the National Healthcare Quality & Disparity Report indicated significant disparities in care provided to racial/ethnic minorities still exist.²

The factors that lead to unnecessary and racially/ethnically disparate variations in care are complex. One factor thought to contribute largely to the disparity is implicit bias. Implicit bias refers to attitudes that affect our understanding, actions, and decisions in an unconscious manner. A May 2017 article in *The Atlantic* highlighted implicit bias workshops and their ability to raise awareness that bias and discrimination not only exist but also influence behaviors.³

In health care, implicit bias has been linked to altered clinical decision-making patterns among physicians and studies indicate that physicians have a prowhite implicit bias.^{4,5} Implicit bias training has been shown to be effective at raising awareness^{6,7} but is not yet a routine component of residency training. The lack of progress in over a decade in the reduction of health care disparities, the complex and multifaceted factors that contribute to these disparities including unconscious bias and the evidence that implicit bias workshops raise awareness all compel the development of innovative interventions to introduce implicit bias training among front-line health care providers. Furthermore, the American College of Graduate Medical Education (ACGME) emphasizes that residency curricula should address the needs of the community; incorporating implicit bias training may be an important first step to doing this.

BACKGROUND

A systematic review by Hall and colleagues in 2015⁵ evaluated 15 papers that evaluated implicit bias and health care professionals representing a variety of specialties. The authors concluded that health care professionals exhibit a prowhite bias. Most closely related to our report, a study by Green and colleagues⁸ evaluated implicit bias among internal medicine and emergency medicine (EM) residents using a case vignette and, again, found an implicit preference for white patients.

Although a prowhite bias has been demonstrated as the norm in numerous studies, the effects of this bias on outcomes and clinical decision making are unclear. A recent systematic review by Dehon and colleagues⁹ included studies that evaluated implicit bias and clinical decision making. The results indicate that although there is a prowhite bias among physicians, none of the nine studies reviewed found bias to have an impact on clinical decision making.⁹

The emergency department (ED), because of the unique environment created by time constraints, cognitive stressors, lack of long-term relationship with patients, limited initial availability of clinical data, and a wide range of patient complaints and acuity, is ripe for bias. Prior studies indicate that physicians tend to rely more on their implicit biases when they experience cognitive overload.¹⁰ Johnson and colleagues¹⁰ demonstrated that increasing cognitive stressors during a shift in the pediatric ED, including patient load and overcrowding, may exacerbate implicit racial bias. Furthermore, the ED can serve as the origin for stereotyping and bias in medical care as the gateway to the hospital. This speaks for the necessity for implicit bias training among EM trainees.

OBJECTIVE OF INNOVATION

We sought to conduct a mixed-methods program evaluation of a formalized educational intervention targeted at the issue of implicit bias. Our curriculum had two objectives: 1) introduce awareness of implicit bias and 2) engage residents in a facilitated discussion of implicit bias. The overarching purpose of this intervention was to assess the utilization of a validated tool that measures unconscious bias during EM residency conference and to determine whether this intervention was successful at increasing participant awareness of implicit bias.

DEVELOPMENT PROCESS

We used a design thinking framework to develop the intervention.¹¹ We met with residents formally and informally across multiple specialties to discover and define the problem around bias in clinical medicine. The vast majority of residents identified implicit bias as problematic and expressed interest in an educational intervention targeting awareness of implicit bias and how it may affect medical decision making. During the ideation phase, we met regularly with the university's graduate medical education representative

Table 1
Qualitative Findings on Discussions of Bias

Theme	Illustrative Quote
Response to test	"I think hearing the dialogue that everyone's kind of saying, honestly I think based on upbringing, based on society, I guess honestly I'm not that surprised with my result. And frankly, like everyone said, I think we all wanted neutral."
Effects of implicit bias	
"Pattern recognition"	"When a patient comes in sick, you want to make a really quick judgment in a very short time. And that's the time you just make a really quick judgment based on your experience and that will carry that patient care really fast."
Negative effects	"I think [a blind spot I have is] probably pain control in sickle cell patients. As far as that goes, I think it definitely influences how I kind of treat those patients and how I perceive their pain. And it's a very subjective thing, so I think it's very susceptible to bias."
Personal and systemic effects	"But for me if I had a strong bias against some people when I was a junior, I definitely did spend less time with them. And then I maybe even talked to them less about their discharge instruction. That's a pretty different patient care you're providing. It's now about giving antibody on time, giving a fluid on time, but you're spending less time with them."
Suggestion for improvement	"The discussion is helpful. Being aware of bias is helpful. But I think more helpful would be ways to deal with bias and tips to improve it. Just talking about is only the beginning."

council as well as with experts in health care disparities and innovation. With their feedback, we developed prototypes that were repeatedly presented to the council and leadership and revised over a 6-month period. The prototype that received the most positive feedback was an intervention that utilized the Harvard Implicit Association Test (IAT) on race to introduce the concept of implicit bias which was then followed by a facilitated discussion. Specifically, we designed a discussion that highlighted: 1) the experience of taking the test, 2) the relationship between implicit bias and clinical practice, 3) identification of bias within one's own practice, and 4) potential ways to mitigate bias. We developed a facilitator guide by modifying a previously designed guide from Baylor College of Medicine accessed on the Association of American Medical Colleges' MedEd Portal.¹²

IMPLEMENTATION PHASE

The educational intervention occurred during regularly scheduled weekly EM conference. Prior to the session, the facilitator led a grand rounds on implicit bias. The facilitator was an EM-trained physician from a different institution.

OUTCOMES

The educational intervention was evaluated quantitatively and qualitatively. We used a realist evaluation framework to link the context, mechanisms, and outcomes. This framework has been utilized to assess innovative educational interventions.¹³ It is an iterative

cycle with which to test and generate hypotheses and subsequently provide an explanation of what components of an intervention are effective and why.¹³ Quantitative data were collected in the form of an anonymous survey to evaluate session logistics, interest in the topic/training, and change in awareness of implicit bias after the session. Qualitative data were collected to identify prominent and unique themes about the session and implicit bias.

Qualitative

The Mixed Methods Research Lab, a group of expert qualitative researchers, observed and audio recorded the facilitated discussion. Recordings were transcribed, coded, and analyzed, deriving codes from a thorough reading and understanding of the data and employing a summative content analysis approach to key themes identified. Themes from the discussion centered around 1) response to the results of the test 2) and effects of implicit bias on treatment or care, in particular negative effects of implicit bias (Table 1).

Residents expressed interest, mixed with skepticism and surprise, regarding the results of their IAT and the desire to have neutral results. With regard to bias, residents discussed "pattern recognition" and how it could potentially be helpful to learn how to recognize similarities of symptoms, presentations, and patients. However, residents commented that these patterns could lead to stereotyping, inaccuracies, and "blind spots" in care. This highlights a heuristic theory previously described by Monteiro and colleagues,¹⁴ suggesting that residents rely on shortcuts or heuristics. This process can be error-prone as it simplifies information

processing and can lead to bias.¹⁴ Finally, residents discussed how implicit bias can have both personal and systemic-level effects and provided suggestions for future interventions.

Quantitative

Residents were asked to voluntarily and anonymously fill out an online survey to assess participant awareness of these topics before and after the intervention. There was 100% completion rate of the survey. Twenty-one EM residents (47% female, 84% white) participated in the training. Most (85%) residents rated the intervention as good or excellent, and most residents (85%) wanted to see more training regarding health care disparities after the session. After the intervention, participant's awareness of their individual implicit biases increased by 33.3% ($p = 0.003$) and their awareness of how their IAT results influences how they deliver care increased by 9.1% ($p = 0.03$).

REFLECTIVE DISCUSSION

This novel educational intervention among EM residents on implicit bias resulted in improvement in participants' awareness of their implicit biases and how it may affect their patient care. Our intervention can serve as a model for other EM residency programs to develop and implement similar training tool (Table 2). However, there are limitations and improvements to take into consideration. This is a short-term, single educational intervention with a small and racially homogenous sample size. While it may serve as an outline or initial session to introduce the topic, it may not affect long-term culture change as a one-time intervention.

Table 2
Session Breakdown

Intervention	Time Allotted	Description
Grand rounds lecture on implicit bias	60 minutes	Faculty and residents invited Instructional lecture on the definition, consequences, and everyday manifestations of implicit bias
Harvard University's IAT race test	10 minutes	Residents take test on their phones or laptops privately
Facilitated discussion	50 minutes	Facilitator leads discussion on participants' reactions to test and results and on examples of how bias is manifested in emergency medical care

IAT = Implicit Association Test.

LIMITATIONS AND BARRIERS

There are a few logistic barriers that could be improved. First, it was difficult to identify a facilitator within the department. Many faculty felt uncomfortable with leading the session as they felt they either had too little or had too much knowledge on the content. Second, we would recommend smaller group sizes, ideally fewer than 10, in a small room where everyone is able to see one another and limit technical equipment.

NEXT STEPS

Future sessions should incorporate specific cases and strategies to mitigate bias. Participants expressed the desire for real-time solutions applicable to ED cases. In the future, ED case-based scenarios could be utilized with role play to identify variations in care that may arise from provider bias. Furthermore, adoption of similarly modeled intervention should be assessed in other EM residencies, particularly those with a more diverse group of participants.

CONCLUSION

The ED is a unique environment with which to evaluate implicit bias. The cognitive stressors can often be overwhelming for resident learners. Prior studies indicate that physicians tend to rely more on their implicit biases when they experience cognitive overload. Furthermore, the ED can serve as the origin for stereotyping and bias in medical care as the gateway to the hospital. It is essential that we incorporate implicit bias training in residency curriculum to raise awareness about provider biases and potential variations in care, so we can better evaluate how implicit bias may affect care outcomes.

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