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Descriptive Report

Implementation of an Evidence-Based Health Equity Curriculum for Reducing Implicit Bias at a Student-Run Free Clinic

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Abstract

Healthcare providers' implicit biases negatively impact the quality of patient care. Education to promote bias awareness is the first step to mitigating this negative effect. Implicit bias education is particularly relevant to volunteers at student-run free clinics, where patients often belong to underserved populations who are most vulnerable to providers' implicit bias. No prior studies have reported the development and evaluation of an implicit bias curriculum in this setting. We developed an evidence-based health equity curriculum for undergraduate student volunteers at a student-run free clinic and report preliminary results of a pilot study. The training program was regarded as highly informative and relevant to clinical practice by students, and their qualitative feedback was organized thematically. Our data suggest that volunteers experienced increases in empathy after participating in this implicit bias training, despite not demonstrating a significant change in implicit biases. Further study of educational interventions to modify unconscious bias and provider empathy is warranted to augment the efficacy of these interventions and their benefit to patient care.

Introduction

Implicit bias by healthcare providers is increasingly recognized as an important contributor to the perpetuation of health care disparities.[1] The presence of unconscious biases against racial, ethnic, gender, or sexual minorities among physicians and their impact on healthcare decisions and outcomes have been well-documented.[2-6] As described in a seminal systematic review, implicit bias among healthcare professionals is present across specialties and levels of training and detrimentally affects treatment decisions (e.g., thrombolysis for acute coronary syndrome), psychosocial outcomes (e.g., depression and life satisfaction in patients with spinal cord injury), and provider-patient relationship quality (e.g., patient centeredness and collaborative communication).[7] Providers' awareness of these biases is the first step to mitigating the influence of systemic disparities in clinical settings.[8-10] Data from the landmark Medical Student Cognitive Habits and Growth Evaluation (CHANGE) study demonstrated that medical students already display negative implicit attitudes that could impact the wellbeing of their colleagues and patients.[11,12] At present, the curriculum of clinical rotations may not uniformly address these implicit biases. Therefore, it is reasonable to intervene on providers' attitudes prior to their early clinical experiences.[13,14]

We propose that student-run free clinics (SRFCs) should be pivotal sites for educational interventions on health equity and implicit bias for several reasons. Firstly, SRFCs often serve as vital clinical venues for patients from minority or underserved backgrounds, who may rely on these safety net sites for their medical care. These patients are particularly susceptible to systematic discrimination and other social determinants of

health, and SRFCs should ideally provide equitable healthcare that recognizes and address these factors. As such, promoting providers' understanding of the impact of both social determinants and their own implicit attitudes on patients' medical care is critical to providing quality medical care. Secondly, SRFCs serve as sites of early clinical education for undergraduate and medical students. Favorable contact with patients from diverse backgrounds during this formative stage of training can dramatically shape students' professional development.[11,15] Finally, supervisors in these settings (e.g., attendings and resident physicians) who are well-trained in culturally competent care can serve as positive role models for students.[16]

We designed and implemented a health equity and implicit bias curriculum for college undergraduate volunteers at two SRFCs with the goal of improving the quality of care by affecting volunteers' psychosocial attitudes. In this descriptive report, we describe the theoretical foundations of our curriculum and results from a pilot study integrating the curriculum into our clinics' framework.

Clinic Background

Stanford University School of Medicine operates the Cardinal Free Clinics (CFC), which comprises two SRFCs – Arbor Free Clinic (Menlo Park, San Mateo County, California) and Pacific Free Clinic (San Jose, Santa Clara County, California). These SRFCs provide free medical care to underserved populations in the South San Francisco Bay Area and empower future physicians to proactively address health disparities in their communities. Both clinics have a history of innovation and scholarly research towards understanding their patient population, improving the quality of patient care, and promoting clinical education for resident physicians, medical students, and undergraduate students interested in healthcare careers.[17-25] The South San Francisco Bay Area is home to a racially, ethnically, and socioeconomically diverse population including a sizeable immigrant community. The region has become known for the explosion of innovation and wealth originating from the science and technology industry based in California's Silicon Valley. However, significant economic and healthcare disparities exist between lower-income Black, Pacific Islander, and Hispanic communities residing in cities such as East Palo Alto and San Jose and surrounding affluent communities in Palo Alto, Atherton, Menlo Park, Los Altos, Mountain View, Cupertino, and Santa Clara.

College undergraduate students from Stanford University who wish to be CFC volunteers undergo a mandatory training course prior to working in the clinics, where their roles include both patient-facing duties (registering and rooming patients, obtaining vital signs, providing interpreting services, coordinating referrals to primary and specialty care) and administrative support (patient scheduling, technology assistance). No formalized curriculum existed in volunteer onboarding to introduce undergraduate students to the nature, impact, and causes of these healthcare disparities, the importance of recognizing the role of individual implicit biases in perpetuating systemic or institutional inequities, and strategies to reduce implicit bias.

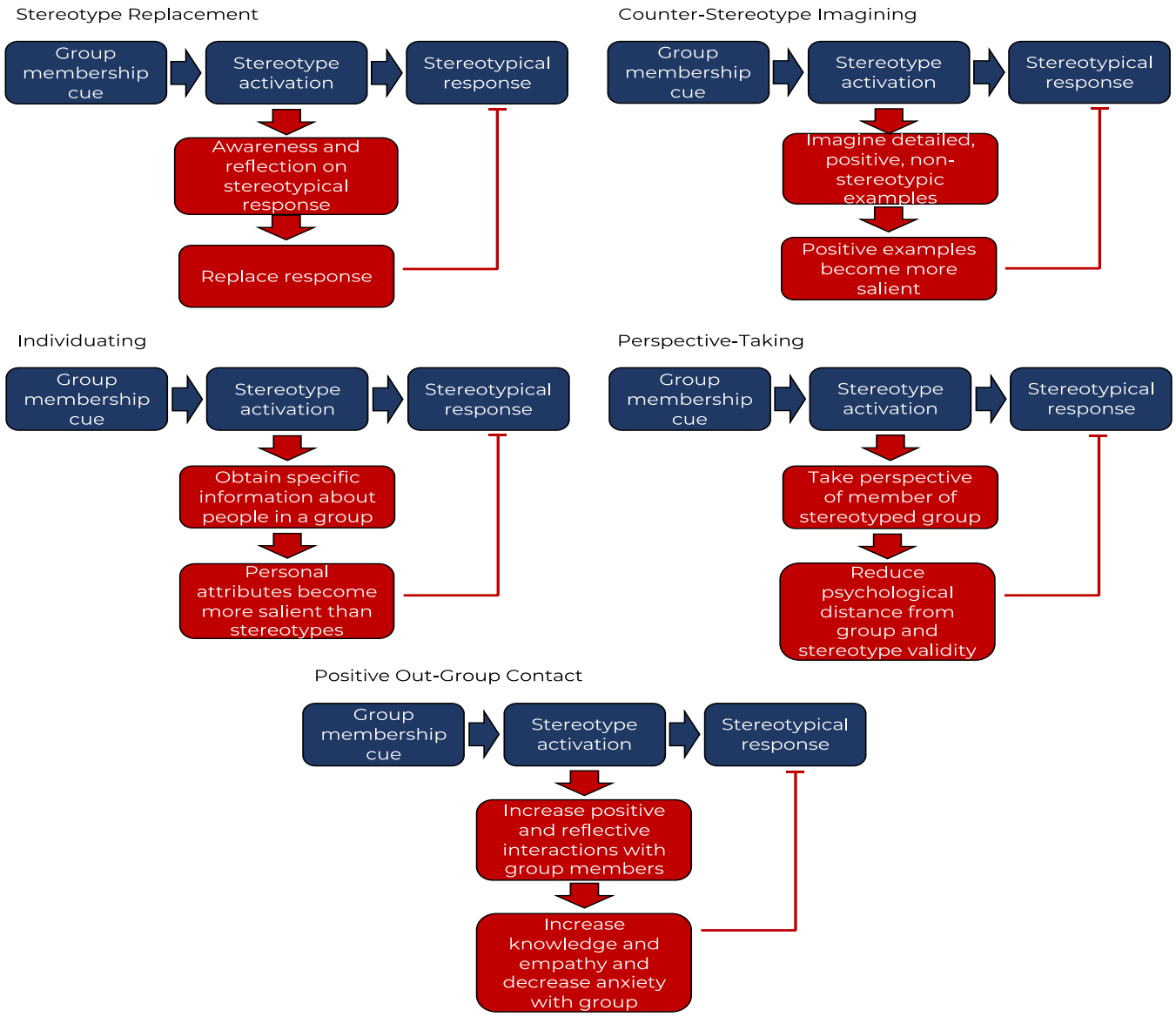
Curriculum Design

The curriculum was designed by the authors (C.H.) and consisted of two sessions, each lasting 1.5 hours, that were conducted over two consecutive weekends to minimize conflicts with students' classes.

First Session – Didactic

The first session was didactic by addressing the historical roots of racism and inequality, current data describing differences in health outcomes associated with race and ethnicity, and the role of provider bias in perpetuating these disparities. Students were also introduced to the concepts of prevention and health equity using the "Cliff Analogy" developed by Jones and colleagues (2009).[26] We used obesity as a model condition in these discussions because it is associated with both a significant impact on health and significant racial disparities. This association is at least partially due to various social determinants of health, such as lack of access to healthy foods and safe spaces for physical activity in low-income communities. In addition, implicit bias against obese patients and its impact on their cli-

Figure 1. Evidence-based strategies for reducing implicit bias



The dark blue boxes depict the usual cognitive pathway: identification of group membership cue (skin color, language or accent, clothing), subsequent activation of a stereotype or heuristic judgment (lazy, drug-seeking, uneducated), and resultant stereotypical response (fear or avoidance, paternalism, denial of best treatment). The red boxes depict the proposed mechanism for the inhibition of the stereotypical response using each cognitive and behavioral strategy for reducing implicit bias. For example, providers may unconsciously blame patients who smoke tobacco for being unable to quit, and this may manifest as an unsympathetic attitude to these patients and an assumption that their health problems are self-made. A provider might recognize and reflect upon this impulse to blame the patient and actively replace the response with a different impulse (stereotype replacement), such as expressing understanding of how difficult it must be to quit or asking more questions about prior attempts to quit. The provider may also try to understand the psychology of addiction and the burden of overcoming it while struggling to balance professional and personal responsibilities (perspective-taking). Developing empathy and reducing the psychological distance between the provider's and patient's mindsets inhibits the automatic stereotypic response with a more nuanced appreciation for patients in their own context. Providers might acquire a more complete social history during the medical interview, which can help individuate patients by making personal attributes more salient than any specific group membership cue (e.g., "my patient with HIV is a father of two children in elementary school and he runs his own construction company", rather than "35-year-old Hispanic man with HIV"). Providers also have the opportunity to have repeated interactions with patients of diverse backgrounds, and such positive interactions can facilitate inhibition of stereotypes both by increasing familiarity with these patients (positive out-group contact) and by accumulating non-stereotypic examples that can suppress the stereotypic response in later encounters (counter-stereotype imagining).

nical care have been well-documented.[1,27,28]

Prior to the first session, students completed an Implicit Association Test (IAT; Project Implicit Inc., Boston, MA) to get feedback regarding their own unconscious biases toward Black, Asian, and Hispanic individuals (reflective of prevalent minority groups in the San Francisco Bay Area). Prior evidence[7,8] regarding the impact of provider bias measured by IAT was also discussed during the first session to prepare students for the second session.

Second Session – Interactive

The second session consisted of an interactive workshop designed to help participants uncover, recognize, and mitigate their implicit biases. To reduce potential harm to participants, the session began with establishing expectations and ground rules for creating a safe space for dialogue. We discussed and practiced active techniques that have been validated in the psychological literature, including stereotype replacement, counter-stereotypic imagining, individuating, perspective-taking, and positive out-group contact (see Figure 1 for a graphical summary of each strategy's stepwise process).[29-32] Devine et al. (2012) also provides a helpful review of each technique with brief examples.[29]

Pilot Study of Curriculum Implementation

We implemented our curriculum in a pilot study that was deemed to be a review-exempt quality improvement study by the Stanford University Institutional Review Board. Study participants were recruited from a cohort of college undergraduate students applying to be CFC volunteers. Volunteers were invited to participate in our curriculum as part of their training, were not offered any incentive or compensation for participation, and signed informed consent forms prior to participation.

Prior to the first didactic session and at the completion of the workshop one week later, participants were asked to complete a survey that included three IATs[33] (unconscious bias against Black, Asian, and Hispanic groups measured using D-scores ranging from -2 to +2; positive scores indicated bias against the minority group) and explicit psychological questionnaires (cognitive empathy was measured on a five-point Likert scale using the Interpersonal Reactivity Index[34]). After each training session, students were solicited to provide quantitative and qualitative feedback. Quantitative feedback (using five-point Likert scales) consisted of rating the curriculum's learning value, organization, and relevance to clinical practice, the likelihood of applying learned concepts to clinical practice, and the overall training quality. Qualitative feedback consisted of a summary of key learning points and/or advice to future students who might attend the training. Statistical analysis was purely descriptive due to small sample size.

Of the 43 students who attended at least one of the training sessions, 39 students (91%) completed the pre-training survey and 22 students (51%) completed the post-training survey; 18 students (42%) completed both surveys, and their IAT and empathy scores were analyzed as matched pairs. Participant demographics are shown in Table 1. Median implicit bias D-scores were similar pre- and post-training on Black (pre: 0.19 [interquartile range (IQR) 0.61]; post: 0.18 [IQR 0.52]), Asian (pre: 0.19 [IQR 0.50]; post: 0.26 [IQR 0.48]), and Hispanic (pre: 0.11 [IQR 0.54]; post: -0.03 [IQR 0.44]) IATs. Median empathy scores increased from 3.82 [IQR 0.46] to 4.00 [IQR 0.57].

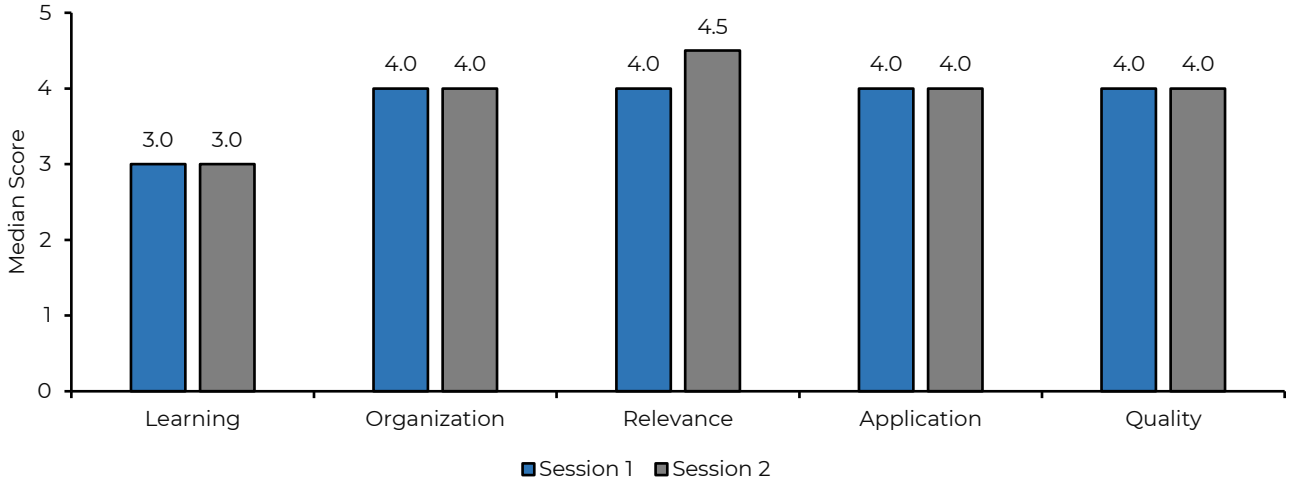
Of the 39 students surveyed, 17 students (44%) provided feedback for at least one session, 11 students (28%) provided feedback for the didactic session, and 6 students (27%) provided feedback for the interactive session. The training program was well-received, as shown in Figure 2. Overall quality was regarded as "good" or "excellent" by 71% of students. The vast majority of students (94%) felt that they learned something (a score of one or greater) during the training, and 76% reported that they learned at least a moderate amount (a score of three or greater). The majority of students felt that the sessions were very organized (82% gave a score of four or greater), highly relevant (88% gave a score of four or greater), and applicable (82% gave a score of four or greater) to their upcoming clinical practice. Qualitative feedback revealed recurrent themes (Table 2), including awareness of implicit biases, understanding of bias mitigation techniques, and recognition of the humanistic aspects of patient care (i.e., treating the person rather than the disease). Many students expressed a positive reaction to having a non-judgmental environment to engage in dia-

Table 1. Demographic characteristics of pilot study participants

Classification	All Subjects, n=43 (%)	Matched Pairs, n=18 (%)
Female	65	67
Hispanic	16	17
Race		
Native American or Pacific Islander	0	0
Asian	51	39
Black	14	22
White	35	39
Native English speaker	79	67
Socioeconomic status		
Working or lower-middle class	21	28
Middle class	23	17
Upper-middle or upper class	56	56
Political identification		
Conservative-leaning	5	6
Liberal-leaning	88	94
Taken IAT before	33	33

Participants were asked to self-identify regarding their socioeconomic status (no specific income brackets were used) and political affiliation (measured on a seven-point Likert scale ranging from very liberal to very conservative; responses were subsequently condensed into three categories: conservative-leaning, liberal-leaning, or neither).

Figure 2. Quantitative student feedback



Questions were scored using a five-point Likert scale. The curriculum's learning value, organization, and relevance to clinical practice were rated from 1="none" to 3="moderate" to 5="high". The likelihood of applying learned concepts to clinical practice was rated from 1="extremely unlikely" to 3="neither likely nor unlikely" to 5="extremely likely". The overall training quality was rated from 1="very poor" to 3="fair" to 5="excellent".

Table 2. Thematic organization of qualitative student feedback

Awareness of implicit bias and its impact on patients
"I learned more about implicit biases and how present they are in the field. If we are aware of our biases, we can have it not affect our treatment of our patients."
"It is useful to understand that our implicit biases are incredibly relevant [to] our interactions with the patients at CFC."
"I would tell a future student to consistently be aware of how they treat others and [whether] the media's negative social stigmas affect their mindset."
Recognition of the psychosocial aspects of clinical practice
"[I learned] how to take into consideration outside factors affecting a patient and how we can help them beyond giving them medications."
"I learned to take into account a person's culture and background when treating them in a clinical sense."
"Very informative and meaningful session that will make you keep the context of the patients' backgrounds in mind when you serve them."
Understanding of bias mitigation techniques
"I would tell a future student to keep an open mind, and that there are multiple ways to deal with an uncomfortable situation despite society's pre-established stereotypes."
"Please do [consider participating in this training]! It's a great, non-judgmental exercise in confrontation of our own stereotypes and implicit biases."
"I learned that implicit bias exists in almost everyone, and suppression of bias it not the solution. Instead, we should exercise stereotype replacement, individuating, perspective taking, etc."
Surprise or discomfort
"You might be surprised by how many biases that you unconsciously have, even if you see yourself as the most liberal person there is."
"Keep an open mind – it's an eye-opener."
"The programming designed to counter prejudice was at best ineffective and at worst counter-productive. I'm still shocked that we were asked to stereotype groups and then find 'exceptions' … I think volunteers' abilities to confront stereotypes will be improved significantly more by just attending the clinic rather than this training."

logue on health equity and implicit bias. Most students also found the session both informative and applicable to their future clinical activities. We also observed that several students articulated a measure of surprise at discovering their own unconscious biases, while one student expressed outright resistance to the activity of countering stereotypes – a reminder that the process of overcoming bias is an uncomfortable and challenging one.[16]

Discussion

SRFCs serve as important clinical and training sites because of their dual missions to provide culturally competent medical care to underserved patient populations as well as formative clinical experiences for future physicians. Dedicated curricula are critical to curbing bias in medicine; however, no prior reports have described the implementation of such curricula in this setting. Although our intervention was extremely brief and we were not able to demonstrate a significant impact on implicit attitudes (despite detecting an increase in self-reported empathy), other SRFCs may find our curriculum and its evidence base useful to educate volunteers and staff on health equity and implicit bias reduction strategies with a goal of promoting high-quality, equitable care for all patients.

The practice of medicine affords trainees and providers with unique opportunities to interact and learn from individuals of diverse backgrounds, which should augment the effectiveness of bias mitigation strategies included in our curriculum (especially counter-stereotyping, individuating, perspective-taking and positive outgroup contact). Qualitative feedback from students raised some very important insights into the process of cultivating awareness of implicit biases that could be helpful to other clinics attempting to implement similar interventions. While most students found the curriculum stimulating, relevant, and easily applicable to their clinical duties, a minority of students expressed negative feelings upon learning about their un-

conscious biases. This highlights that racism and personal bias can often be uncomfortable to discuss in a public forum, and because this discomfort is unavoidable to a certain extent, it is often an obstacle to initiating such discussions with trainees. Clinical educators should be well-trained to recognize, normalize, and reframe these reactions for students so that perceived offense and denial do not become lingering barriers to awareness and change. Of note, one student with a negative reaction to the training recommended that future trainees forgo such training and instead rely on their clinical experiences to gain the same skills. This speaks to a fundamental discrepancy between preclinical trainees' expectations of the formal curriculum of medical education and the influence of informal and hidden curricula that pervade clinical experiences.[13,35] While clinical trainees directly interact with the formal curriculum and look to it for their professional development, the insidious influence of the informal curriculum on encoding implicit biases and perpetuating systemic discrimination and inequities in clinical practice is often invisible to trainees.[36] For this reason, we created a formal curriculum that included active implicit bias recognition and reduction techniques that could help students detect and recode not only their own personal biases, but also the influence of medicine's hidden curriculum. Clinical educators and faculty at SRFCs might also take interest in similar training so that they can contribute to aligning the formal and informal curricula of medical education to achieve the goal of health equity.[37,38]

Limitations and Future Directions

We acknowledge that our curriculum and pilot study have several limitations. Our curriculum was novel, and therefore not based on pre-existing or standardized teaching materials. However, we did adhere to health equity models (e.g., the "cliff of good health" analogy[26]) and bias reduction techniques previously reported in the literature so that other clinics could use similar sources to construct their own curricula. Our pilot study was also limited by its single-site implementation, small sample size, low survey response rate, and a short follow-up period. Because participation was voluntary, rather than mandatory for their involvement in the SRFC, and undergraduate students likely had other scheduled activities that competed with the scheduling of our intervention or their completion of the follow-up survey, a modest incentive for participation might have improved the response rate. Such curricular interventions may have more success if participation is made mandatory, especially if longitudinal involvement is desired. Future studies may extend the follow-up period to observe long-term effects of curricular interventions on implicit bias and empathy, and similar interventions may involve all levels of SRFC staff, including medical students, administrative staff, and supervising physicians. Further validation of our curriculum at other SRFCs may also be helpful. Finally, although our intervention was well-received by most students, future curricula should incorporate strategies to address feelings of surprise or discomfort in students.

Conclusion

Our pilot study of a curriculum on health equities and implicit bias utilizing multiple evidence-based bias mitigation techniques was well-received by undergraduate volunteers at two SRFCs. Future applications of this curriculum should be adapted and expanded at SRFCs to promote the development of socially conscious healthcare providers and equitable care for diverse, underserved patient populations.

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Disclosures

The authors have no conflicts of interest to disclose.

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