ISP Proposal
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Title
*Physician implicit bias as a potentially significant contributing factor to health care disparities: implications for physicians in training.*

Abstract
The purpose of this study is to conduct a literature review on the role of physician implicit bias in contributing to health care disparities. The health disparities discussion has begun to shift from addressing the fact that they do exist, to why they exist and how to reduce and eventually eliminate them. This literature review will focus on sources of disparity originating from health care providers, specifically unconscious racial biases and stereotypes regarding patient groups. Mechanisms of measuring implicit bias and their effect on clinical outcomes will be analyzed. Based on this evidence, recommendations for incorporating implicit bias measurement and remediation within medical school curricula will be made to further advance the disparities discussion from why it exists to how it can be changed.

Background
Despite advances in medical technology and treatment, ethnic and racial health care disparities continue to exist on practically all medical interventions from invasive cardiac procedures¹ to primary management of chronic disease such as asthma² and diabetes³. There is an abundance of literature establishing the presence of these disparities while controlling for confounding factors such as socioeconomic class and access to care, but only relatively recently has the discussion shifted from what to why. The landmark Institute of Medicine’s (IOM) Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare (2003) sought not only to evaluate the extent of health care disparities, but also assessed potential sources for these inequities. The study categorized potential sources of disparity in quality of healthcare as stemming from a systemic level and from the patient-provider interaction. Systemic factors include language barriers and service availability. Disparities arising from the clinical encounter may be patient or provider derived; however, the IOM report interestingly found that while some studies have suggested minorities have higher refusal rates for treatment, the rate is small and does not account for the magnitude of health care disparities. The report addressed the possibility that a major contributor to ethnic and racial medical inequity may be derived from provider-centered bias, which may be unconscious. At that time the IOM recommended that “a greater understanding of the prevalence and influence of these processes is needed and should be sought through research⁴.”

Although the concept of unconscious or implicit bias has been long established in the social psychology literature, recently it has been introduced to the health care disparities discussion. Stereotyping is a form of categorization that is a universal human mechanism to help organize and understand the complexities of social phenomena⁵. These stereotypes form the foundation for individual implicit bias which is reflexively activated without awareness⁶. Implicit bias may be especially prominent in a clinical or hospital setting because cognitively challenging tasks in the context of temporal constraints increase the usage of previously conceived stereotypes⁵. The measurement of implicit bias would be predicted to be difficult, especially given the fact that the owner of the bias by definition is not aware or denies its existence. Several studies have managed to use unconscious stereotype primers, surveys, and written or visual clinical vignettes to elicit implicit bias among health care providers⁵,⁷,⁸. Although a thorough analysis of these studies will be addressed with the literature review, they have suggested that unconscious bias and stereotypes...
do indeed affect clinical outcomes and may significantly contribute to racial health care disparities.

The introduction of the Implicit Association Test has provided a quantifiable and potentially standardized method of measuring implicit bias\textsuperscript{10}. As an easily accessible online assessment, the IAT presents visual cues representing social groups and measures the response rate it takes subjects to match certain attributes. Since its introduction in 1998, the IAT has been validated as an adequate assessment of unconscious bias even when compared to traditional models\textsuperscript{11}. Recently researchers have begun to use the IAT to examine the relationship of physician implicit bias to clinical outcomes\textsuperscript{12,13}. Green et al, for example, have shown that implicit bias as measured by the IAT against black patients presenting with angina may result in a decreased decision to use thrombolytic therapy when compared to the same white patient presented in a clinical vignette.

The case for physician stereotype and bias as a significant contributor to health care disparities is becoming increasingly substantiated in the medical literature. Perhaps one of the most revered ideals taught to physicians is that of self-reflection. Recognizing our own stereotypes and biases is an essential prerequisite to changing our behavior with the ultimate goal of improving patient care. In reviewing the current literature on implicit bias and its role in clinical decision-making we hope to further define implicit bias, compare the methods used to measure it, analyze its contributions to health care disparities, and most importantly research how it can be modified. With this information we hope to make recommendations for change on both a personal level as physicians in training and on an institutional level with specific consideration given to the UCSD curriculum.

\textbf{Definitions}

\textbf{What are the goals of the project?}

\textit{General goals:}
- Gain an appreciation for the magnitude of health care disparities and the responsibility that health care providers have in contributing to them.
- Be able to critically analyze a large amount of literature and organize it to present a publishable argument.
- Be able to make real-world curricular recommendations based on the evidence presented.
- Become familiar with the leading researchers in the field of health care disparities.

\textit{Specific goals:}
The major goal of this project is to conduct a literature review so that the following questions are adequately addressed:

- \textit{What exactly is implicit bias?} Establishing a concrete definition will be crucial to the project. Looking at the psychological and sociological literature rather than immediately reviewing the medical research will be of value to get an understanding of how stereotypes are formed and their relationship to unconscious bias.

- \textit{What are the ways that implicit bias is measured? How do we know that it actually exists?} It will be important not only to look at how various studies have elicited implicit bias, but also to compare their methodology, looking at the pros and cons of each.

- \textit{How does implicit bias contribute to health care disparities?} This question will be a significant focus of the literature review. Articles looking at implicit bias in a clinical context will be
summarized and critiqued. An analysis of research that argues for and against implicit bias as a contributing factor to health care disparities will also be included.

**-How is implicit bias and unconscious behavior modified?** In order to make recommendations for reform, this question will have to be thoroughly addressed by examining research that has reversed or modified the behavior of those with biases. Are there specific behavioral modifying techniques that work better with physicians? How do medical students compare to residents, for example, in recognizing their own biases and changing their behavior?

**-Based on the review, what recommendations can we make on a personal and institutional level?** In reviewing the literature we will be able to make recommendations on whether or not the issue of implicit bias needs to be addressed and how to best address this topic in a medical school curriculum. It will be important to look at how medical schools across the nation have attempted to address health care disparities and whether or not their curricular interventions have shown a difference in measurable outcomes. Can the various methods of measuring implicit bias that we review be incorporated to assess the cultural competency of medical students throughout their curriculum?

**What is innovative about the project?**
The issue of physician implicit bias as a contributor to health care disparities is a recent hypothesis and has been gaining more attention. Although there have been many studies implicating implicit bias as a source of health care inequality, there is not much published information that encapsulates these studies into a thorough review. This review will bring together in one location various methods of quantifying implicit bias. Also, this research is unique in the sense that it is written from a medical student perspective with the intent of influencing curricular training for physicians.

**How is the project relevant to a career in medicine?**
By analyzing the evidence implicating physician bias as primary source of health care disparities, this review will contribute to the growing field of literature that seeks to address the roots of unequal medical treatment with the hope of reforming behavior that is detrimental to patient care. Personally, I hope to practice medicine with underserved communities both locally and internationally. Learning how personal biases interfere with medical treatment and how to modify these behaviors will be important to highlight both for myself and for future colleagues. This project also has the potential to influence medical school curricula so that they address or continue to address the role of the medical establishment in contributing to health disparities and incorporate methods of quantifying this potential complicity into their own classes.

**What is the student's role in and time commitment to the project?**
The majority of the ISP research will take place during my fourth year. Throughout the year I will be actively reading articles relevant to the above goals; however, there will be 2 months specifically designated to organize the literature into a review. I will also be active with the Cultural Competency student committee that is working with the administration to make recommendations for curricular change. I hope to use the findings of the literature review to contribute to the relevant discussion with the committee and administration. Throughout the fourth year I will frequently meet with members of the ISP committee to discuss and critique articles. I also plan to rotate through the underserved medicine elective at the UCSD Free Clinic to get an on-the-ground appreciation of the magnitude of the health disparity crisis.
Methods
The goals stated above will be the foundation for the literature review. Articles will primarily be found using relevant keywords in PUBMED/MEDLINE and organized based on the above questions. Each article will be thoroughly read and critiqued, with specific focus on the methodology and discussion of each study. Articles that address the issue of implicit bias from various perspectives will be actively sought so that many arguments are presented and discussed. Once the articles have been presented, an independent assessment on the role of implicit bias as a contributor to health care disparities will be made. At that point there will also be a discussion on how to best incorporate these findings into medical school curricula. Recommendations specific to the UCSD School of Medicine curriculum will be made. Throughout the designated timeframe, we will be actively working with the Cultural Competency committee to share the results of our findings and incorporate them into curricular reform.

Evaluation
The following criteria will be used to evaluate the project:

- The amount of literature reviewed provides a comprehensive understanding of what implicit bias is, its methods of measurement, its contribution to health care disparities, and mechanisms to modify it.
- The articles reviewed are adequately summarized and critiqued as necessary.
- Articles with different arguments are actively sought out and included in the analysis.
- The finished product will have sufficiently organized the articles as to make a cohesive argument that flows.
- The recommendations for personal and institutional changes are a result of the literature reviewed and are evidence-based.
REFERENCES


