

## Different Lenses for the Same Story: Examining How Implicit Bias Can Lead Us to Different Clinical Decisions for the “Same” Patient

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**H**eart failure (HF) is a leading cause of cardiovascular morbidity and mortality, with a projected increase in prevalence in the United States from 2.4% to nearly 3% by 2030.<sup>1</sup> Although treatment of HF has improved, race/ethnic disparities persist and remain a major concern. Black patients develop HF at a younger age, have a greater prevalence of nonischemic HF, and experience higher rates of hospitalization and death.<sup>2–4</sup> Although a higher burden of traditional cardiovascular risk factors, particularly hypertension, among blacks explains a large degree of the HF in this population, the morbidity and mortality from HF in blacks exceeds what would be expected solely based on differences in traditional cardiovascular risk factor burden.<sup>5</sup> With the rising incidence and prevalence of HF, it is estimated that 3.6% of black Americans will be affected with HF by 2030.<sup>1</sup>

For patients with advanced HF, both heart transplantation (HT) and left ventricular assist devices (LVAD) improve quality of life and overall survival. In the context of increasing HF prevalence, the number of individuals with end-stage disease who are treated with HT and LVAD continues to rise.<sup>6,7</sup> The proportion of black patients listed for HT has increased over the past decade, with black HT candidates now comprising 25.5% of all patients on the waitlist.<sup>6</sup> Similarly, an analysis of the INTERMACS (Interagency Registry for Mechanically Assisted Circulatory Support) demonstrated an increase in the annual rate of LVAD implantation among blacks from 2012 to 2015, the majority as bridge-to-transplant.<sup>8</sup> However, it remains unclear whether the growing number of black patients receiving advanced HF therapies is proportional to

the number of black patients affected by HF, or whether black patients remain *underrepresented* as recipients of advanced HF therapies even though blacks are *overrepresented* as HF patients. In fact, the INTERMACS analysis suggests that per capita LVAD implantation rates by race did not increase proportionally with increases in HF incidence, suggesting continued racial disparities.<sup>8</sup> There are a variety of reasons why blacks may be less likely to receive HT or LVAD despite the high burden of HF in this group. Blacks are more likely to be uninsured or underinsured,<sup>9</sup> and are more likely to be socioeconomically disadvantaged, which may impact transplant centers' perceptions of inadequate social support<sup>10</sup> and the likelihood of obtaining informational support about treatment options from their medical providers and social networks.<sup>11</sup>

In order to further understand reasons why blacks may be underrepresented as recipients of advanced HF therapies, Breathett et al present the results of their study designed to determine whether race influences the decision-making process for advanced HF therapies in this issue of the *Journal of the American Heart Association (JAHA)*.<sup>12</sup> In their analysis, they presented clinical vignettes describing an end-stage HF patient to healthcare professionals (HCPs) trained in the care of patients with advanced HF. All aspects of the clinical presentation including details on medical comorbidities, hemodynamics, adherence with medical therapy, social support, and socioeconomic status were identical, *except* for the race of the patient being evaluated. After reviewing the vignette, the HCPs (N=422) completed Likert surveys rating whether the patient was appropriate for HT or LVAD, and a subset (N=44) were probed during more intensive “think-aloud” interviews as to what factors influenced their decision making. The results of the surveys suggest that HCPs found the white and black patients equally suitable for HT and LVAD (both bridge-to-transplant or destination therapy). The investigators did find that blacks were somewhat less likely to be seen as favorable for HT if the HCP being interviewed was older than 40 years of age. Moreover, the think-aloud interviews revealed a number of themes that influenced disparate decision making, including greater concern for trust and adherence for the black patient, and a sense that the black patient was sicker, ultimately

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resulting in the black patient being less likely to be offered HT and more likely to be offered LVAD.

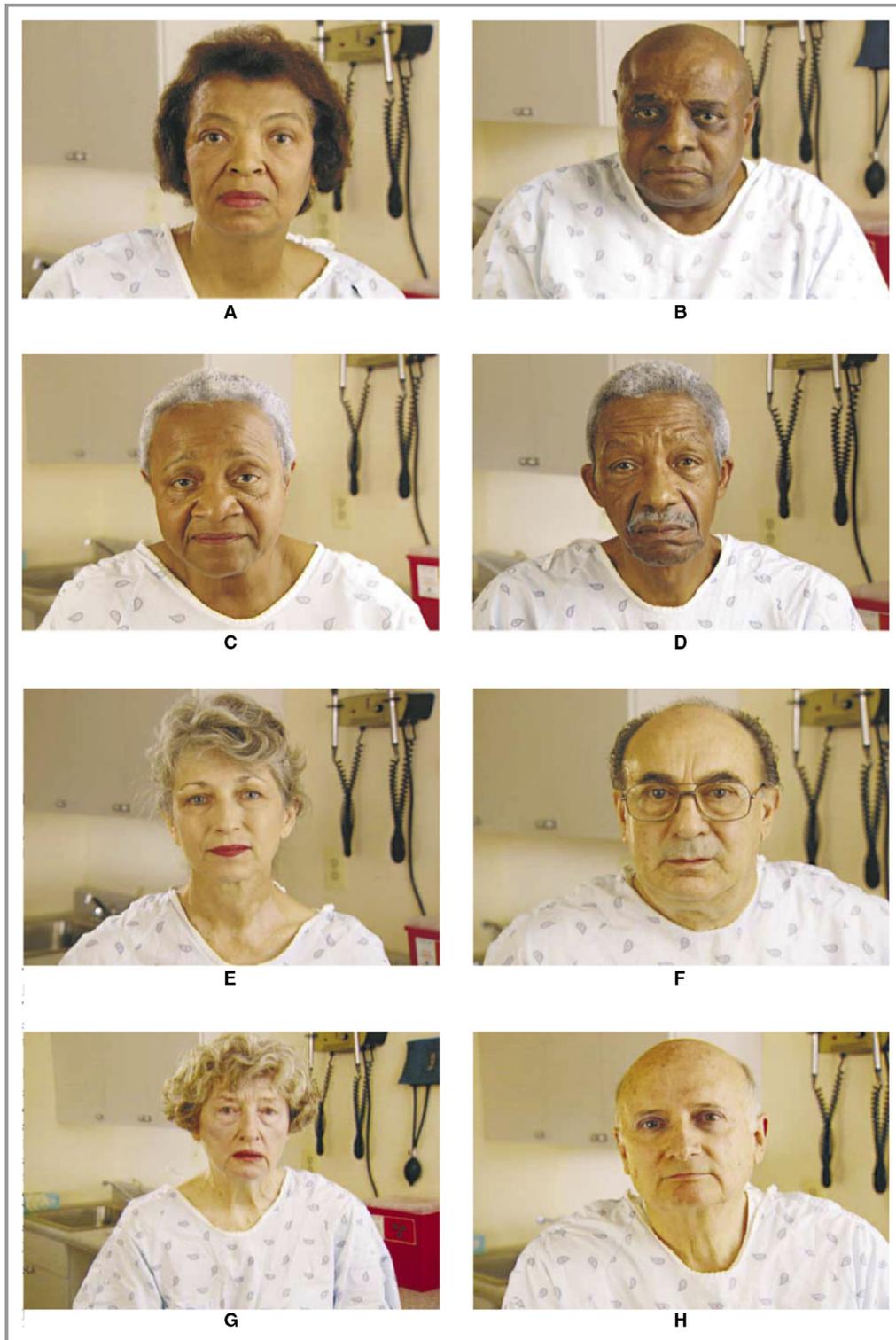
Although any racial differences identified here are subtle, the findings are still compelling and beg the question of whether this study is yet another example of the effect that implicit bias has on clinical decision making in health care. The provided quotes suggest many of the HCPs perceived the black patient to be sicker, which may have influenced the decision to recommend LVAD. However, many of the quotes perhaps reveal a greater level of concern for the history of noncompliance for the black patient, which may also have made them more likely to recommend LVAD as a “bridge to candidacy” rather than HT as first-line therapy. A growing body of literature reflects how implicit bias, embedded stereotypes that lie beneath the surface of consciousness, heavily influences our decision making without our conscious knowledge. Implicit bias is of particular concern among HCPs, whose biases may operate to disadvantage those who are already vulnerable and worsen health disparities. The implicit association test, one methodology used to objectively quantify implicit bias, has been increasingly used in clinical research studies since it was validated in 1998. In a recent review of implicit bias research from the past decade, Maina et al found that 31 of 37 studies demonstrated “evidence of pro-White or anti-Black, Hispanic, American Indian or dark-skin bias among a variety of HCPs across multiple levels of training and disciplines.”<sup>13</sup> Multiple studies have documented that HCPs perceive black patients to be less compliant than their white counterparts, and that HCPs are more likely to associate black patients with lower intelligence, and reduced adherence and cooperativeness in medical care. Moreover, HCPs are less likely to have feelings of affiliation towards black patients.<sup>14–16</sup>

Additional studies have examined how implicit bias affects clinical decision making. Similar to Breathett et al,<sup>12</sup> these studies have typically utilized clinical vignettes, simulations, or real-world patient interactions to analyze the effect of implicit bias on clinical care. In a landmark study by Schulman et al, physicians watched a recorded interview of a patient with chest pain, portrayed by actors reading a script designed to convey identical presentations of the chest pain syndrome (Figure).<sup>17</sup> Both blacks and women were less likely to be referred for cardiac catheterization. Black male patients were perceived as less likely to comply with treatment than their white counterparts, despite the fact that the actors were reading the exact same script with the exact same style of delivery. Almost 10 years later, Green et al studied whether implicit bias influences physicians’ recommendations for thrombolysis in presentations of acute myocardial infarction.<sup>14</sup> Although physicians reported no explicit preference for patients based on race, the implicit association test scores revealed pro-white bias in all of the nonblack physicians who

were surveyed. Moreover, the greater the level of implicit bias as measured by the implicit association test, the greater the probability of those providers treating white patients with thrombolysis and withholding that same treatment from black patients.

Although the current study is the first to analyze whether race influences allocation of advanced HF therapies, the key findings are unfortunately reminiscent of decades of literature that show the effect of patient race and provider bias on clinical decision making. When looking closely at the results presented, an optimist would say that the overall findings from the larger cohort of HCPs who only took the survey suggest that advanced HF providers would allocate HT and LVAD equally to both patients, irrespective of race. The survey demonstrated no difference in overall ratings for HT versus LVAD between the white and black vignettes. Moreover, the association of older HCPs viewing the black patient as less favorable for HT just barely reached statistical significance ( $P$  value 0.0499). With the inherent margin of error of multiple imputations (used for 57 missing values of 21 participants’ surveys), it is possible that this association was indeed because of chance. Although the authors claimed the racial bias was more evident in the interviews than the surveys, many of the participant quotes provided demonstrate similar levels of concern for the social situation of both patients. The pessimist, however, would agree that the more comprehensive, think-aloud interviews reveal hidden truths that likely reflect the implicit bias we have seen rear its ugly head time and time again in these types of studies. It is difficult to ignore the multiple quotes mentioning concerns for compliance as the ultimate reason to offer the black patient the LVAD, even though the clinical vignette was identical related to every factor *except* the race of the patient. Indeed, the survey and the interviews revealed that adherence and social history had the greatest influence on participants’ choice of recommending HT, notably over objective measures such as laboratory and cardiac diagnostic testing. Thus, we must ask ourselves how HCPs receive the exact same information about what is in essence the exact same patient, but develop different concerns for them and subsequently arrive at different therapeutic conclusions for them.

Although most HCPs consider their clinical decision making to be benevolent and objective, the data suggest that most of us harbor implicit biases that may render our decision making inequitable. Any decision making rooted in implicit bias is detrimental to the health of our patients, as an incorrect assumption could literally mean the difference between life and death. Moreover, bias on the part of the provider does not go unnoticed by patients, as multiple studies have documented that patients seeing HCPs with greater bias on the implicit association test were less likely to have trust and confidence in their provider, and were less



**Figure.** Patients as portrayed by actors in the video component of the survey. Reprinted from Schulman et al<sup>17</sup> with permission. Copyright ©1999, Massachusetts Medical Society.

satisfied with their care.<sup>18</sup> It is reassuring that most HT programs do not use patient photographs at multidisciplinary conferences where eligibility for advanced HF therapies is discussed. However, other identifiers such as name or place

of origin can be used to arrive at conclusions about a patient's race. Additionally, assumptions regarding patients' ability to comply with therapies may be negatively influenced by socioeconomic status, as was the case in the clinical

vignettes used in this study. Indeed, the data suggest that clinically ambiguous situations that are less algorithmic, such as pain management or assessment for advanced HF therapies, may be *more susceptible* to the influence of implicit bias. The take-home message is that HCPs must absolutely have a zero tolerance policy for any bias in their clinical decision making, whether it relates to sex, race, socioeconomic status, or any other variable. To us this seems obvious, yet the data are clear that even benevolent HCPs have a long way to go.

## Disclosures

None.

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