Thoughts Title Page

**Implicit Bias in Healthcare**

**Maternal and Infant Morbidity and Mortality in Minority Patients**

by

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Abstract

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**Implicit Bias in Healthcare**

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Ritambhara Pathak, MHA

University of Pittsburgh, 2020

**Abstract**

There are significant racial and ethnic disparities in the United States affecting maternal and infant morbidity and mortality in minority women. For example, African American and Alaska Native women are two to three times more likely to die from pregnancy-related deaths compared to white women. An often-overlooked healthcare delivery system factor, implicit bias, has been identified as one of the components contributing to these healthcare disparities. Implicit bias in healthcare is of significant public health importance as over 60% of the observed pregnancy-related deaths were deemed preventable and premature births societal cost adds up to at least $26B per year. This essay is a literature review that focuses on disparate reproductive health outcomes in minority women and how implicit bias, such as decision making affects their healthcare.

Extensive peer-reviewed literature, reports, and media articles were used to address and highlight the effects of implicit bias on minority patients. All studies used for this research found significant inverse relationships between implicit bias and lower quality of care. California has already been leading the way to curb the state’s maternal mortality rates by investigating and identifying opportunities. Post implementation of initiatives, California observed reduction of maternal mortality rate in the US from 26.4 deaths to 7 deaths per 100,000 live births, declining maternal mortality rate by 55 percent. California has been setting an example for the rest of the country and now the state has passed a bill requiring continuing education implicit bias training for clinicians.

There is a compelling need for public health to take a deeper dive into improving health-related outcomes in this already vulnerable population. This literature review proposes recommendations to combat the rising rates of maternal and infant mortality by implementing mandatory bias training policies and increasing nationally mandated credible data collection. Identifying and implementing effective strategies to eliminate racial inequities in health status and medical care should be made a priority. The rest of the US should use California’s bill as a major step in the right direction and follow their lead.

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# Background

According to the 2010 US Census, approximately 40 percent of the population belongs to a racial or ethnic minority group (U.S. Census Bureau, 2018). It is estimated that by 2050 one in two residents of the US population will self-identify as either African American Indian/Alaskan Native, Asian, Native Hawaiian/Pacific Islander, Hispanic/Latino, or multiracial, (KFF, 2008). In more recent predictions, 2017 U.S. Census National Population Projection says there will be a minority majority population by 2045 (Frey, 2016).

Over the years, researchers and healthcare providers have studied and discussed health inequality and inequity in America. Studies of nationally representative populations conclude that racial and ethnic differences in healthcare treatment and outcomes persist even after controlling for many of the social determinants of health disparities (Matthew, 2015). The economic and social conditions called social determinants of health are conditions in which people are born, grow, live, and age that shape their health. Structural and individual determinants of these disparities at all levels have been identified, including socioeconomic factors such as socioeconomic status, education, segregated housing conditions, race, lack of access to healthy food choices; systematic, organizational, and geographic circumstances such as medical practices location, insurance coverage options, and proximity to care (Matthew, 2015). In the health and non-healthcare industries, there has been an increase in initiatives to address social determinants of health seeking to shape policies and practices (Artiga & Hinton, 2018). However, one of the crucial determinants of health is often overlooked and not widely being discussed in forthright terms is determinants in racial and ethnic discrimination against minority patients (Matthew, 2015). The focus of this literature review will encompass those determinants impact on pregnancy-related maternal mortality and infant mortality. The literature review was narrowed down to reproductive outcomes because over 60% of the observed pregnancy-related deaths were deemed preventable (Main et al., 2015).

In the United States, patients are subjected to differential treatment due to their race, gender, weight, age, language, income, and insurance status (Joint Commission, 2016). Extensive evidence and research identify attitudes and behaviors of healthcare providers as one of many factors that contribute to health disparities listed above (Hall et al., 2015). The phenomenon of implicit bias is the driver of verbal/non-verbal behavior, thinking, and interactions that produce health disparities(Matthew, 2015). Thoughts and feelings activated by implicit bias are often independent of the conscious awareness, difficult to acknowledge and control, and can negatively contribute to racial/ethnic disparities in healthcare (Hall et al., 2015). In order to best understand the effects of implicit bias, let us begin by describing what it means and then move on to discussing possible ways of overcoming this shortcoming in the U.S. healthcare system in the context of maternal mortality.

## What is Implicit Bias?

Implicit associations refer to the attitudes or stereotypes that may influence our judgments resulting in bias (Joint Commission, 2016). The Joint Commission explains that implicit biases emerge from social and other characteristics categories formed by our brains and establish the foundation of stereotypes, prejudices, and ultimately, discrimination. Additionally, once these stereotypes and prejudices are learned, they withstand any type of adjustment despite contrary evidence (Joint Commission, 2016). Jerry Kang, vice chancellor for equity, diversity, and inclusion, and professor of law at University of California, Los Angeles (UCLA) Law states: “Automatically, we categorize individuals by age, gender, race, and role. Once an individual is mapped into that category, specific meanings associated with that category are immediately activated and influence our interaction with that individual” (Joint Commission, 2016). Implicit bias is not limited to race, religion, or gender but also extends out to the LGBTQ patient population (Jagannathan, 2019). Research studies indicate that implicit bias is significantly related to patient-provider interactions, treatment decisions, treatment adherence, and patient health outcomes (Hall, et al., 2015). There remains a number of physicians who are unaware of the existence of these provider bias-related disparities and the ones that are aware have a blind spot of not believing that their specific practices are plagued with such disparities (Matthew, 2015). The notion of physicians providing treatment that might be racially or ethnically biased is an unthinkable assertion to most physicians and in one sense this disbelief can be justified. Individuals choose the career as a physician motivated by the prospect of benefiting others and a physician's teachings adhere to the commitment of “do no harm”. Espousing these unequivocal egalitarian values lead them to believe their objectivity and rationality insulates physicians and their counterparts from bias (Matthew, 2015). However, reports such as CDC’s health and disparity and similar outcome related reports illustrate quite a different story (CDC, 2013). The reason behind bringing up healthcare provider values is to shed light on why it may be difficult for individuals to come to a consensus on the underlying causes. Physicians endeavor to exercise prudence to cogitating the presented medically relevant facts and consider race and ethnicity to the extent it is relevant to the diagnosis and treatment. Research reveals that a patient’s race and ethnicity continue to influence decision making exceeding what is clinically justifiable (Matthew, 2015). The incongruence of these findings raises concerns by either placing the blame on minority patients for generating health disparities or relying on the notion that minorities are genetically predisposed to diseases that their white counterparts’ patients are not affected by (Matthew, 2015).

The Institute of Medicine (IOM) bases the healthcare quality framework on six aims (gold-standard) for continuous improvement: healthcare must be safe, effective, patient-centered, timely, efficient, and equitable (AHRQ, 2018). Nevertheless, IOM found “racial and ethnic minorities tend to receive a lower quality of health-care than non-minorities” meaning healthcare organizations are not meeting the desirable quality of care (White III & Stubblefield-Tave, 2016). Inequalities created via implicit bias are difficult to measure resulting in a lack of resources in efforts to tackle this social determinant of health. Despite the direct connection quantified to link racial bias to inferior healthcare and poor health outcomes, not enough work has been done to combat this issue. Although this concept is not easy to capture or fix, it is essential to reach the depicted “gold standard” by the IOM. There is evidence indicating that physicians exhibit the same level of implicit bias as the general population (FitzGerald & Hurst, 2017). Physicians are just as likely as any other individual to make automatic and unintentional judgments about race and ethnicity. As a matter of fact, “physicians are especially susceptible to allowing implicit bias creeping destructively into their practice because the core and the very nature of what they do involves performing described as “sorting patterns” in order to identify and solve medical problems” (Matthew, 2015). The overwhelming trepidation with implicit bias in healthcare professionals compared to the general population is that they operate to the disadvantage of those who are already vulnerable, such as patients who are minority ethnic, immigrants, women, elderly, mentally ill, the overweight, and disabled (FitzGerald & Hurst, 2017). In order to make sense of the complex world, we use stored patterns to turn into generalization and assumptions. Dayna Matthew describes in her book “Just Medicine” how implicit bias forms and functions without any conscious awareness. The process begins with our stored knowledge over a lifetime from our environment, childhood experiences, stories, movies, and so forth. Next, we use the stored knowledge of the most dominant association during the moment of identification in regard to the person’s racial/ethnic group regardless of accuracy or applicability to the individual in fact. This identification initiates the process of activating our implicit biases by displacing new or even contradictory information with our stored stereotypes. In turn, this is how our implicit bias influences our perception and judgment of different racial/ethnic groups. Although implicit bias operates on an unconscious level, it dominates our thinking and actions towards other racial/ethnic groups (Matthew, 2015). Hence, the healthcare professionals must be wary of the means implicit bias can affect their care of patients who may already be in a disadvantage position and this could lead them to be further disadvantages on many levels (FitzGerald & Hurst, 2017). Given emerging recognition of the role of implicit bias in healthcare, a literature review was conducted with the goal of understanding current evidence and gaps in our understanding, as well as informing programs and policies to reduce implicit bias.

# Method

Research for this literature review was performed via three different means. First, a combination of following MeSH terms were used to search scholarly databases (PubMed, SciVerse Scopus (Scopus), and PscyhInfo): the attitude of healthcare professionals, implicit bias, minority women’s healthcare, discrimination, institutional racism, stereotype, prejudice, healthcare disparities (e.g., racial discrimination and health, implicit bias, health, and minority patients, and health care). The references of eligible peer-reviewed literature were examined to identify further eligible studies. This review includes studies that met the following criteria: (1) measured and reported results on implicit attitudes toward racial/ethnic groups, (2) written in English, and (3) measures and results reported regarding maternal and infant mortality. Exclusions include studies that only examined explicit bias, implicit bias studies not related to race/ethnicity, and no time frame restrictions were used due to implicit bias being a relatively recent construct. Second, a book by Dayna Mathew *Just Medicine* was used throughout the review to demonstrate the role of implicit bias over time in the US healthcare system. Lastly, given the recent media recognition, articles, and reports (e.g. CDC’s Health and disparities report and Unequal treatment report) were utilized to denote the gravity of implicit bias on minority patients despite their socioeconomic status. The distribution of the peer-reviewed manuscripts, articles, and reports collected are summarized in ***Appendix***.

However as will be explained below the statistics focuses primarily on the African American population. This systematic review is limited to providing peer-reviewed literature evidence of bias among physicians as opposed to other types of healthcare professionals because most research on healthcare disparities focuses on this group of providers. This result section is restricted to focus on examining the evidence of implicit bias on minority women’s health and reproductive care for a more concentrated view of the population impacted by implicit bias in healthcare. This review specifically examined current literature and recent media articles with a focus on racial/ethnic discrimination by health professionals or that occur within healthcare settings and not discrimination occurring in the general community.

# Results

## Peer Reviewed Research, Articles, and Reports

### Health Disparities in Minority Patients

In 2003, IOM provided the first comprehensive and systematic overview of health disparities in terms of unequal treatment received from healthcare providers to minority patients in the report titled *Unequal Treatment* (IOM, 2003). The report collected data from over one hundred studies revealing that compared to whites, minority patients are less likely to receive appropriate medical treatment for cardiovascular disease, neurology, cancer, cerebrovascular disease, transplant, renal disease, HIV/AIDS, asthma, diabetes, or pain (IOM, 2003). Moreover, after adjusting for disease severity, socioeconomic status, and access to care research suggests that “compared to white women, black women experience less aggressive risk factor control and preventative therapy resulting in worse outcomes” (IOM, 2003). This aggregate data provides a compelling argument on healthcare racial discrimination disparities such as heart disease, end-stage renal disease, and cancer are the three leading causes of death nationally in men and women. “African Americans are three times as likely as whites to develop cardiovascular disease and are twice as likely to die from it” (IOM, 2003).

It is disconcerting to observe the evidence in a large number of research studies of racial/ethnic differences in the receipt of major therapeutic procedures for a variety of conditions even after controlling for genetic differences, insurance status, severity of disease, socioeconomic status, and health behaviors (Williams, 2000). This is especially striking in the context of patients with minimal differences in economic status and insurance coverage such as the Veterans Health Administration System (Williams, 2000). Furthermore, these disparities are not limited to African American patients; racial variations in procedures, diagnostic services, and so on and so forth are present in Hispanic, American Indian, and other minority groups. The majority of the research studies in this review focuses on African American patients due to limited data on Hispanics, Native Americans, and Asian/Pacific Islanders.

The National Cancer Institute conducted a study on cancer patients demonstrating that when black and white patients are presented with similar treatments, they enjoy similar survival rates (Penner, 2012). However, there are high incidences of delivering impartial care to the minority population resulting in higher mortality and lower survival rate. This discrimination is visible from the time of diagnosis to the type of available treatment options as well as post-treatment surveillance care (Matthew, 2015). Minority patients are generally diagnosed at a later stage in cancer progression leading to limited treatment options and ultimately facing poorer health (FitzGerald & Hurst, 2017). There is a vast difference in the type of diagnostic services that are afforded for white patients compared to minority cancer patients (Matthew, 2015). Johnson and colleagues examined the association between patient race/ethnicity and patient-physician communication during medical visits and the conclusion was that “Physicians were 23% more verbally dominant and engaged in 33% less patient-centered communication with African American patients than with white patients. Furthermore, both African American patients and their physicians exhibited lower levels of positive affect than White patients and their physicians did” (Johnson et al., 2004). This largely undisputed existence of racial/ethnic treatment bias has a negative impact on how patients rate the quality of interpersonal care by physicians cultivating the mistrust in the healthcare system, deficiencies in providers' cultural competence, and difficulties in cross-racial/ethnic physician-patient communication, in addition to the possibility of individual or institutional bias that result in health disparities. (Johnson et al., 2004; Geiger, 2003).The presence of healthcare disparities due to unconscious bias is an ever-present and powerful reality affecting many day-to-day decisions of individuals. For instance, a comparison of racial biases conducted between the US and France revealed that “American clinicians rated a hypothetical White patient, compared to an identical Black patient, as significantly more likely to improve, adhere to treatment, and be personally responsible for his health than their French counterpart (Khosla et al., 2018).

### Maternal and Infant Mortality in Minority Women

CDC conducts national pregnancy-related mortality surveillance on the US population and releases this information to be publicly available. There are some alarming statistics that come to light from this surveillance. For instance, women in the United States are more likely to die from pregnancy-related causes compared to women in other developed countries. Furthermore, preventable pregnancy-related deaths of black women are 3 to 4 times higher than those of white women (CDC, 2019). These deaths are not limited to the mother, but the racial disparity is mirrored across infant outcomes (MMRC Report, 2018). Maternal Mortality Review Data System (MMRC) consists of nine committees providing analyzable recommendations and data on maternal mortality in the United States. Data from the Nine Committees determined 237 pregnancy-associated deaths, of which variation in race-ethnicity was observed. The proportion of deaths associated with pregnancy for African Americans was 48.2%, Hispanic 30.2% compared to non-Hispanic white women at 28.4% (MMRC Report, 2018). Further investigation demonstrated considerable racial/ethnic disparities in pregnancy-related mortality as observed in Figure 1.

Figure 1 Variability in the risk of death by race/ethnicity per 100,000 live births during 2011-2016

(MMRC Report, 2018)

Research studies show that a rising number of pregnant women in the US have chronic health conditions such as hypertension, diabetes, and chronic heart disease putting them at a higher risk of pregnancy complications (MMRC Report, 2018). Five leading underlying causes are cardiomyopathy, cardiovascular and coronary conditions, preeclampsia and eclampsia, hemorrhage and embolism representing 58.1% of pregnancy-related deaths among non-Hispanic black women (MMRC Report, 2018). Due to a lack of adequate research attention towards Hispanic, Native American, and Asian American women, leading underlying causes of pregnancy-related death were not available. The nuances and unique features of the inequality that these community groups suffer are not well understood. Simply, in terms of access to care, differences between Hispanics and whites are greater and increasingly growing over time than differences between blacks and whites (Cook et al., 2009). MMRC looked further into the factors that contribute to these deaths and on average community of all race/ethnicity, patient/family, systems of care, facility, and providers were the leading reasons (MMRC Report, 2018). The largest proportion as contributing factors were patient/family, followed by providers being the second-highest factor (Figure 2)(MMRC Report, 2018).



Figure 2 Distribution of contributing factors among pregnancy-related deaths

The most common factors are patient/family followed by provider and system of care. Lack of patient/family refers to the lack of knowledge on warning signs and need to seek care. Provider factor refers to misdiagnosis and ineffective treatments (MMRC Report, 2018).

## Psychosocial Factor Impacting Health Outcomes in Minority Patients

Healthcare providers need to acknowledge as well as address the psychosocial outcomes resulting in profound disparities and adverse birth outcomes. Alhusen & Sharps integrative review looked at the overall Infant Mortality Rate (IMR) in the US because it encompasses several health indicators such as maternal health, access to healthcare, and public health practices (Alhusen & Sharps, 2016). Overall IMR is 5.96 infant deaths per 1000 live births in the US (Alhusen & Sharps, 2016). IMR for non-Hispanic black patients in 11.11 infant deaths per 1000 live births (Alhusen & Sharps, 2016). Additionally, deaths before one year of life in black infants are more than twice the rate compared to white infants. There are also other statistics indicating disparities such as preterm birth rate for non-Hispanic black women is 1.6 times higher than white women, low birth weight incidence in the US is 8.02% while non-Hispanic black infants was 13.3%, and preterm birth related IMR is 3 times higher in black women than white women (Alhusen & Sharps, 2016). Preterm birth was considered to be the primary driver of IMR differences between black and white women accounting for 54% of the disparity. Saftlas, Koonin, & Atrash hypothesized the reasons behind black women dying four times higher due to pregnancy-related complication was because of black women using healthcare services closer to complications becoming more severe, black women receive lower-quality care for similar severity cases than white women, and lastly the combination of both (Saftlas, Koonin, & Atrash, 2000). Scientific evidence supported all three hypotheses and found that the prenatal care content differed between black and white women, white women had a higher probability of receiving ultrasound examination, and amniocentesis was used less frequently by black women (Saftlas, Koonin, & Atrash, 2000).

Studies have indicated that patients perceived racism as psychosocial stressors lead to poor maternal health outcomes and are associated with poor birth outcomes worsening with age for black women (reproductive rights, 2016). ProPublica collected more than 200 stories of many black women recounted feeling devalued and disrespected by medical providers (Martin, 2017). Stories from all over the states shine a light upon experiences of black women in healthcare. For example, a new mother in Nebraska with a history of hypertension couldn’t convince her doctors that she was having a heart attack until she did, a mother-to-be in Florida was told her breathing problems were due to obesity while her lungs were filling with fluid, an anesthesiologist assumed the patient smoked marijuana because of her hairstyle, and a businesswoman in Chicago changed her OB/GYN during her seventh month of pregnancy due to her doctor’s attitude only to suffer a postpartum stroke (Martin, 2017). National Healthcare Disparities Report in 2013 reported that Blacks and Latinos receive worse care than Whites on 40% of measures (NHQD, 2013).

Nationwide research studies have revealed that hospitals that serve a higher proportion of black patients also represent the highest rate of severe maternal morbidity after adjusting for socio-demographic characteristics, clinical factors, and hospital characteristics. C-section deliveries have been associated with a higher rate of maternal mortality and severe maternal morbidity. In 2013, the c-section rate for black women was 36% compared to non-Hispanic white women at 30.9%. Although there are indications of implicit bias playing a significant role in the inequity of care during pregnancy, there are limitations to understanding the psychological toll of cumulative experience of implicit biases throughout an individual's life, often described as weathering. Numerous states delay implementing revised death certificates for more than a decade making the mortality rate incomparable across state lines. Even though all states now include the pregnancy checkbox on the death certificate, there remains a question of the reliability of this data (Taylor et al., 2019)

## Media Recognition of the Role of Implicit Bias

There is a shortage in the amount of research done in the field of implicit bias affecting maternal and infant mortality. Due to this reason, research for this essay was also conducted in looking at the recent stories being shared via articles and news media outlets. The New York Times, Harvard Public Health, National Public Radio (NPR), ProPublica and many more reported on the inherently unequal care being provided to minority women in the US. Nina Martin’s NPR series Lost Mothers focuses on the experiences of black women’s concerns being dismissed, delayed, and less believable by the clinicians (Roeder, 2019). A melancholy story about Shalon Irving published by ProPublica highlights the disproportionate toll on African Americans with a sorrowful title “Nothing protects black women from dying in pregnancy and childbirth” (Martin, 2017).

Irving was a lieutenant commander in the uniformed ranks of the U.S. Public Health Service with two master’s degrees and dual-subject PhD. Irving made several visits to the hospital with her family due to discomfort, concerning symptoms, and high blood pressure. However, Irving was not considered a patient that required immediate follow-up and heightened level of attention despite the complexity of her pregnancy (clotting disorder). Instead notes by nurses were written such as “Leaving the home is TAXING and CONSIDERABLE effort” or “She was in our care for less than four days, but we gave the very best care we could” (Martin, 2017). Irving’s condition did not prompt more careful monitoring by the medical team, despite the fact that ACOG guidelines suggest more aggressive action of care for a person with such high blood pressure readings (Martin, 2017). The autopsy report revealed that Irving's heart showed signs of damage consistent with hypertension attributing to her death (Martin, 2017).

Irving’s story is just one heart-wrenching story, there are many more similar instances of minority women receiving inferior care. Most recently, professional tennis player Serena Williams as well as pop superstar Beyoncé experienced complications during their pregnancies. Serena Williams reported her nurses did not take her seriously when she reported blood clotting symptoms and was suggested by a nurse that her pain medication must be making her confused (Roeder, 2019). It is a real problem across the spectrum of minority women not being listened to and experiencing the type of stress where education, money, access, and class is not enough to omit them from the effects of implicit bias (Martin, 2017; Roeder, 2019).

# Discussion

“A Black woman is 22% more likely to die from heart disease than a white woman, 71% more likely to perish from cervical cancer, and 243% more likely to die from pregnancy or childbirth-related disease” (Martin, 2017). That is an extremely daunting statistic. Due to the lack of literature and comparable data on different minority groups and theoretical framework, it is difficult to address the egregious inequity problems. This literature review captures statistics on non-Hispanic African American mothers because they have the highest mortality rate and more data available. Nonetheless, It is crucial to identify that maternal mortality affects US women from other minority groups (American Indian/Alaskan Native, Asian, Native Hawaiian/Pacific Islander, Hispanic/Latino) as well which are not as well documented. Further studies need to employ wide ranging attempts to examine and make recommendations on the relationship between implicit bias and healthcare outcomes. More research in the matter can help identify areas of improvement in data collection, which in turn can initiate concentrated initiatives. In the more recent years, care is increasingly being provided by Advanced Practice Providers (APPs) and other multidisciplinary teams, it is important to assess the biases on the entire range of healthcare professionals. Additionally, involve patients in studies to better understand their experience and perception of care.

Biases impacting the health of patients held by health workers besides physicians have largely gone unnoticed (Matthew, 2015). It is incumbent on the future research to be more representative of the entire study population as demonstrated in the March of Dimes Consensus Statement (Jackson et al., 2018).

The extent to which implicit bias plays a role in healthcare disparities among different providers besides the physicians must also be more fully understood (e.g., physicians, nurses, front-office staff). Bad healthcare experience or mistrust in the care doesn’t necessarily begin with the provider but can happen during any transaction such as service in the pharmacy, phone-call with the front desk (Blair, Steiner, & Havranek, 2011). Furthermore, patients may also harbor implicit bias towards their physicians resulting in the multiplier effect of this cycle impacting healthcare and health outcome disparities. Sometimes generalization and stereotypes may be triggered based on physician’s affiliations to the hospital, medical center, and community center or even through direct-to-consumer advertising resulting in disregarding physicians' recommendations (Matthew, 2015)

There is a need for improved training for healthcare providers and educational interventions for patients. To approach recommendations for change on the behaviors of the providers, the first task is to create increased recognition of the existence of stereotypical bias and their role in differential treatment of minority patients (Geiger, 2000). One suggestion made by Fiscella and colleagues is to add tracking patterns to the quality assurance systems of all organized settings of care (Fiscella et al., 2000). Current literature in existing quality assessment for identifying and addressing these disparities is limited. Systematic and regular monitoring may facilitate change (Fiscella et al., 2000). As previously discussed, providers find it difficult to recognize their own biases due to the conflicting consciously held egalitarian commitment to being in the profession to help all patients (Geiger, 2003). Dr. Green and colleagues study revealed an important information to note that the physicians showed no explicit bias on questionnaires seeking their explicit preferences between white and black patients (Matthew, 2015). One limitation of this study was the “novelty effect”; where participants of the study self-correct their behavior to improve scores. This self-correction tells us that physicians can recognize, modulate and even counteract their impact due to bias, at least when they are being studied (Matthew, 2015). It is not only important to monitor and increase recognition of the implicit bias but to also be taught and discussed repeatedly at every level including undergraduate and graduate curriculum (Geiger, 2000). This includes participation of faculty physicians/preceptors in efforts to increase self-awareness and recognition of the culture of medicine and how to work appropriately catering to the diverse population of the US (Geiger, 2000).

# Recommendations

Implicit bias is outside of our conscious awareness; however, it does remain malleable. Over the past quarter-century, an increase in relevant research has found attitudes and beliefs to be malleable (Dasgupta & Asgari, 2004). Evidence has been presented that “unconscious implicit attitudes are responsive to the deliberate choices and influences of an individual even though that person is not consciously experiencing the bias” (Matthew, 2015). Additionally, implicit biases are not impervious to relatively short-term change and learning can be altered even after initial attitudes have been formed through continuous education (Matthew, 2015). Matthew further writes, providers can no longer state that implicit bias culpability cannot be determined (Matthew, 2015). This paper is proposing two ways to address the rising issues of implicit bias concerning African American women mortality and infant mortality. It can no longer be an acceptable scientific, ethical, or legal option to continue the occurrences of implicit bias devastating lives and life chances of minority patients

## Increase Target Training

In order to make any intended change sustain, it has to be a continuous exposure to the training on how to avoid implicit bias when delivering care and demonstrating the detrimental affect it may have if not taken sincerely. In my personal exposure to the healthcare system, unconscious bias training is a one-time effort and the rest of the toolkits are optional. Even when we look outside of healthcare, organizations such as Starbucks make insufficient attempts at solving behaviors learned over a lifetime in one-day (four hours) training instead of a repeated training (Gassam, 2018). These trainings are usually a way of organizations to portray themselves as making a headway in an issue, however, these time, money, and effort consuming training are not effective (Gassam, 2018). There is data suggesting continuous educational programs are able to improve implicit bias awareness and may result in improved patient care (Delach, 2018). Level of training should not be left to individual organizations, hospitals, and medical schools to decide. It has to be a policy change to raise implicit bias awareness if the US plans to see changes in maternal and infant mortality rates.

One state, California has been leading the way in curbing the state’s maternal mortality rates. The state of California in collaboration with public and private healthcare stakeholders has led initiatives of assembling a multidisciplinary committee to investigate and identify opportunities to turn the numbers around. The California Department of Public Health (CDPH) and California Maternal Quality Care Collaborative (CMQCC) worked together to reduce maternal mortality rate in the US from 26.4 deaths per 100,000 live births to seven deaths per 100,000 live births, declining maternal mortality rate by 55 percent (Shaffi, 2018). Within the first two years of investigating, the committee was able to identify the two most preventable causes of maternal mortality as placenta accreta and preeclampsia which earlier in this review was recognized as one of the five leading underlying causes of pregnancy-related deaths among non-Hispanic black women. In additional to a change in diagnostic decision making, there was a correlation identified between the rise in cesarean section and placenta accreta cases which led CMQCC to attempt to reduce the number of medically unnecessary c-sections (Shaffi, 2018). A co-founder of CMQCC was able to gain access to details on maternal deaths five years prior to 2006 and estimated that the vast majority of the deaths could have been prevented (Montagne, 2018). CMQCC provides hospitals with toolkits, drills, and debriefing to empower staff members to reduce maternal mortality rates. The study showed that hospitals that implemented these initiatives saw life-threatening hemorrhaging complication rates lower by nearly 21 percent compared to a one percent decline in hospitals that did not participate (Montagne, 2018). California has been setting an example for the rest of the country and now the state has passed a bill requiring continuing education implicit bias training for clinicians by 2023 (Rappleye, 2019). California Dignity in Pregnancy and Childbirth Act aims to reduce disparities in healthcare in hospitals and birth facilities by implementing evidence-based implicit bias training for all clinicians involved in the perinatal care continuum (Reddy et al., 2020). Additional research needs to be done in terms of the effectiveness of this training by making improvements in the process and then rolling this policy out to the rest of the US. It is important to note that California is taking an approach of making legislative changes as a systematic response which in turn can lead to institutional and culture changes for organizations (i.e., hospitals) is very much in align with recommendations provided by Matthew (Matthew, 2015).

Implicit bias training must be continuous across professional continuum in order for it to be effective. This specific training will train current clinicians, however, there is a pivotal opportunity presented for medical school to include implicit bias in their curricula. Implementing implicit bias curricula in medical school is well received by students and is a proactive opportunity towards developing future physicians focusing on an equitable healthcare system (Reddy et al., 2020). Students’ opinions were collected from the implicit bias training that is provided to medical students on how to identify and learn effective strategies to mitigate biases. This four-year Science of Health Care Delivery curriculum is developed by Mayo Clinic Alix School of Medicine and Arizona State University. Similar training programs must be made available to the rest of the medical school curriculum to see a long-lasting impact in the future of US healthcare.

## Improve Data Collection and Oversight

In addition to the implicit bias training being required by the California bill, it also requires the Department of Public Health (DPH) to track as well as publish data on maternal death and severity morbidity (Assembly Bill, 2020). Data collection in the US is not straightforward making it difficult to recommend strategies for effective interventions targeting quality and performance improvements. Definition of Maternal Mortality is not consistent between the CDC and the World Health Organization (WHO). WHO defines maternal mortality as “the death of a woman while pregnant or within forty-two days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes” (Hayes & McNeil, 2019). CDC, on the other hand, defines pregnancy-related death occurring within one year of the end of pregnancy making it significantly longer than the WHO standard (Hayes & McNeil, 2019). Inconsistencies in the data collection process do not provide the US with a complete picture of maternal mortality nor does it help us see if any of the initiatives are truly effective.

In 2018, the Preventing Maternal Death Act was signed into law to investigate the deaths of women who die within one year of pregnancy. This legislation established and supports the Maternal Mortality Review Committees (MMRCs). MMRCs collect and report standardized data on maternal mortality and factors of racism, economic status, and nutrition (Hayes & McNeil, 2019). Previously mentioned the success of the state of California was due to the difference in the success of its Maternal Data Center (MDC) which created a tool for hospitals to use real-time data to evaluate performance and reduce data quality issues and discrepancies in performance reporting (Hayes & McNeil, 2019). There are data collection limitations in under-resourced states that find it difficult to finance (Hayes & McNeil, 2019). An essential component of knowing the correct state of the US is to have nationally mandated and funded ways to accurately collect data on the number of pregnancy-related deaths including uniform standardized definitions of items collected for analysis (Gaskin, 2008).

# Conclusion

Findings above highlight the need for addressing the role of implicit bias in disparities in healthcare. Annually, unconscious racism harms patient health, cuts short patient lives, and diminishes healthcare quality. Effectively addressing disparities in the quality of care requires improved data systems, increased regulatory vigilance, and new initiatives to appropriately train medical professionals. Identifying and implementing effective strategies to eliminate racial inequities in health status and medical care should be made a priority. Scientific evaluation of contributor to prematurity and maternal mortality must be inclusive of an equity framework (Jackson et al., 2018). The state of California has taken the initiative to make policy changes to reduce the increasing maternal mortality and now they are focusing on maternal mortality due to implicit bias. The rest of the US should use this as a major step in the right direction and follow their lead. The differential treatment can no longer go unnoticed. It needs to be recognized as an important determinant factor among other social determinant of health factors impacting the level of healthcare African American women and minority women in general are receiving. Disrupting implicit bias, miseducation, and exclusionary practices through improved systematic changes such as improvement to maternal death surveillance system and training is imperative to realize improved results.

Appendix: List Of The Types Of Research Conducted For This Essay

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Author and Year | Title | Type of data | Source | Conclusion |
| Martin, 2017 | Nothing protects black women from dying in pregnancy and childbirth | Article | NPR News and ProPublica | Shares the story of Shalon. Uncovers the victim blaming as a factor in increasing inequity. Racial disparities across incomes, insurance, stressors, hospital care before and after death. |
|  | Research overview of maternal mortality and morbidity in the United States | Article | Reproductive Rights | Perceived racism as psychosocial stressors lead to poor maternal health outcomes and are associated with poor birth outcomes worsening with age for black women. |
| Roeder, 2019 | America is failing its black mothers | Article | Magazine of the Harvard T.H. Chan School of Public Health | Podcast focusing on experiences of black women’s concerns being dismissed, delayed, and less believable by the clinicians. |
| Gassam, 2018 | Does Unconscious Bias training really work? | Article | Forbes | Goes over back training examples such as Starbucks being ineffective. |
| Delach, 2018 | Can Biased be reversed? | Article | Penn Medicine News | Data suggesting continuous educational programs can improve implicit bias awareness and potentially improve overall patient care. |
| Rappleye, 2019 | California to mandate implicit bias training as part of continuing medical education | Article | Beckers Hospital Review | California bill requiring continuing education implicit bias training for clinicians by 2023. |
| Hayes & McNeil, 2019 | Maternal mortality in the United States | Article | American Action Forum | Contradicting definitions between CDC and WHO of maternal mortality. Identifies use of real-time data to evaluate performance and reduce data quality issues as the reason behind California’s success. |
| Lenton, Bruder, & Sedikides, 2008 | A meta-analysis on the malleability of automatic gender stereotypes | Article | Psychology of women quarterly | Examined small but significant effects in the efficacy of interventions aimed at reducing automatic gender stereotypes. |
| Shaffi, 2018 | What California is doing to lower maternal mortality | Article | National Consumer League | California Maternal Quality Care Collaborative (CMQCC) worked together to reduce maternal mortality rate from 26.4 deaths per 100,000 live births to 7 deaths per 100,000 live births, declining maternal mortality rate by 55 percent |
| Reddy et al., 2020 | Implicit bias curricula in medical school: student and faculty perspectives | Article | Health Affairs | Implementation of implicit bias training for all clinicians involved int eh perinatal care. Additionally, training is well received by medical school students and is a great opportunity for medical schools to adopt. |
| Montagne, 2018 | To keep women from dying in childbirth, look to California | Article | NPR News | Identifies details on vast majority of maternal deaths that were preventable. Addition of drills and initiatives saw a decrease in complications by nearly 21%. |
| 2008 | Eliminating Racial/Ethnic Disparities in Healthcare: What are the options? | Article | The Henry J. Kaiser Family Foundation | Racial/ethnic disparities in quality of care has worsened. There is a large number of minority population that is uninsured which results in individuals going without an annual doctor’s visit (uninsured: Latinos 36%, African Americans 22%, and Asian and Pacific Islanders 13%). |
| 2013 | Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care | Report | CDC | Report underscores the need for more consistent data and identifies factors that lead to health disparities among racial, ethnic, geographic, socioeconomic, and other barriers to health equity. |
| 2018 | Maternal Mortality Review Committee | Report | MMRC | Nine committees providing recommendations for observed variations in race/ethnicity pregnancy-associated death . |
| Geiger, 2003 | Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care | Report | Institute of Medicine | Provides recommendations such as increased recognition of the existence of implicit bias in healthcare. |
| 2013 | National Healthcare Disparities Report | Report |  | Reports identified black and Latino patients receive worse care than whites on 40% of the measures. |
|  | World Health Organization | Report | WHO | Definition of maternal mortality |
| 2020 | Assembly Bill | Report | California | California bill requiring department of public health to track and publish data on maternal death and severity morbidity. |
| 2016 | Maternal Morbidity Report | Report |  | Further investigates contributing factors of deaths among average community, patient/family, facility, and providers. Largest proportion as contributing factors were patient/family and providers being. |
| 2016 | Implicit Bias in Healthcare | Report | Joint Commission | Joint Commission define Implicit bias and evidence-based research suggesting unconscious bias leading to differential treatment of patients. |
| Penner et al., 2012 | Life-threatening Disparities: The treatment of Black and White Cancer Patients | Peer-reviewed | National Cancer Institute Journal of Social Issues | Cancer mortality and survival rates are much poorer for black patients due to disparities in information exchange and quality of communication. |
| Johnson et al., 2004 | Patient race/ethnicity and quality of patient-physician communication during medical visits | Peer-reviewed | American Journal of Public Health | Differentiation in communication during medical visits between black and white patients. Interventions need to be developed for an increase in physician’s patient-centeredness and awareness of effective cues that activate more ways for patients to participate in healthcare. |
| Khosla et al., 2018 | A comparison of Clinicians’ racial biases in the US and France | Peer-reviewed | Elsevier | Research indicated American clinicians displayed less optimistic expectations from medical treatment of a black patients compared to white patients. |
| William & Rucker, 2000 | Understanding and addressing racial disparities in health care | Peer-reviewed | Health Care Financing Review | Racial disparities in healthcare require improved data systems, regulatory vigilance, and new initiatives to appropriately train medical and recruit more providers from disadvantaged minority backgrounds |
| FitzGerald & Hurst, 2017 | Implicit bias in healthcare professionals: a systematic review | Peer-reviewed | BMC Medical Ethics | Addresses need for healthcare organizations to address the role of implicit bias in disparities. Review indicated potential gap between the norm of impartiality and the extent to which it is embraced by healthcare professionals. |
| Cook, McGuire, & Zuvekas, 2009 | Measuring Trends in Racial/Ethnic Health Care Disparities | Peer-reviewed | Medical Care Review | Compares trends in black-white disparities for black, white, and Hispanic patients in term of having an office-based or outpatient visit and medical expenditure. |
| Alhusen & Sharps, 2016 | Racial Discrimination and Adverse Birth Outcomes: An Integrative Review | Peer-reviewed | Journal of Midwifery & Women’s Health | Integrative review of racial discrimination and adverse birth outcomes. US has an opportunity to filly acknowledge and address psychosocial factors that impact health outcomes in racial/ethnic women. |
| Salftlas, Koonin, & Atrash, 2000 | Racial Disparity in Pregnancy-related Mortality Associated with Livebirth: Can established risk factors explain it? | Peer-reviewed | American Journal of Epidemiology | Large disparities observed among women with lowest and low to moderate risk pregnancy related deaths. |
| Blair, Steiner.& Havranek, 2011 | Unconscious (Implicit) bias and health disparities: Where do we go from here? | Peer-reviewed | The Permanente Journal | There is a lack of research directly investigating implicit bias among health care professionals. Existing evidence suggests implicit bias may affect clinical decision making and judgement. |
| Dasgupta & Asgari, 2004 | Seeing is believing: Exposure to counter stereotypic women leaders and its effect on the malleability of automatic gender stereotyping | Peer-reviewed | Journal of Experimental Social Psychology | Social environment conditions that undermine automatic gender stereotypic beliefs expressed by women and the power of local environments in shaping women’s nonconscious beliefs about their ingroup. |
| Gaskin, 2008 | Maternal death in the United States: a problem solved, or a problem ignored? | Peer-reviewed | Journal of Perinatal Education | United States spending per capita for maternity care is much higher than any other country. However, US also experiences more maternal deaths than any other country. Safe motherhood quilt project attempts at raising public awareness. |
| Green et al., 2007 | Implicit bias among physicians and its prediction of thrombolysis decisions for black and white patients | Peer-reviewed | Journal of General Internal Medicine | Documents racial/ethnic disparities implicating physician unconscious bias. Research suggested unconscious bias may contribute to racial/ethnic disparities in use of medical procedures. |
| Hall et al., 2015 | Implicit racial/ethnic bias among health care professionals and its influence on health care outcomes: a systematic review | Peer-reviewed | American Journal of Public Health | Implicit bias was significantly related to patient-provider interactions. Health care provider appear to have low to moderate level of implicit bias, similar to the general population. |
| White & Stubblefield-Tave, 2016 | Some advice for physicians and other clinicians treating minorities, women, and other patients at risk of receiving health care disparities | Peer-reviewed | Journal of Racial and Ethnic Health Disparities | Studies of inequalities in healthcare due to socioeconomic as well as non-socioeconomic factors. Additionally, addresses the role of clinicians. |
| Artiga & Hinton, 2018 | Beyond Health Care: The Role of Social Determinants in Promoting Health and Health Equity | Peer-reviewed | Kaiser Family Foundation | Social determinants of health and emerging initiatives to address them |
| Main et al, 2015 | Obstetrics & Gynecology | Peer-reviewed | Obstet Gynecol | The committee was able to identify the two most preventable causes of maternal mortality as placenta accreta and preeclampsia. These two preventable diagnoses also disproportionately affect African American women so these are particularly important in reducing pregnancy related minority mortality  |

Bibliography

U.S. Census Bureau. (2018). U.S. Census Bureau QuickFacts: United States. Retrieved from<https://www.census.gov/quickfacts/fact/table/US/PST045218>

KFF. (2008). Eliminating Racial/Ethnic Disparities in Health Care: What are the options? Kaiser Family Foundation. Retrieved from <https://www.kff.org/disparities-policy/issue-brief/eliminating-racialethnic-disparities-in-health-care-what/>

Matthew, D. (2015). Just Medicine. A Cure for Racial Inequality in American Health Care. New York University Press

Hall W. J., Chapman, M.V., Lee K. M., Merino Y. M., Thomas T. W., Payne B. P., Coyne-Beasley T.(2015). Retrieved from<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4638275/pdf/AJPH.2015.302903.pdf>

Centers for Disease Control and Prevention (CDC). (2013). CDC Health disparities and inequalities report-United States. Retrieved from <https://www.cdc.gov/minorityhealth/CHDIReport.html>

Joint Commission. (2016). Implicit bias in health care. Retrieved from<https://www.jointcommission.org/-/media/deprecated-unorganized/imported-assets/tjc/system-folders/joint-commission-online/quick_safety_issue_23_apr_2016pdf.pdf?db=web&hash=A5852411BCA02D1A918284EBAA775988>

Artiga, S & Hinton, E. (2018). Beyond Health Care: The Role of Social Determinants in Promoting Health and Health Equity. Kaiser Family Foundation. Retrieved from [https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity](https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/)

Jagannathan, M. (2019). Bias in Health care isn’t limited to race, religion or gender - how to protect yourself against this common medical practice. Retrieved from <https://www.marketwatch.com/story/how-to-protect-yourself-against-medical-bias-2019-09-03>

Agency for Healthcare Research and Quality (AHRQ).Content last reviewed November 2018.Six Domains of HealthCare Quality. Retrieved from <https://www.ahrq.gov/talkingquality/measures/six-domains.html>

White III, AA.,Stubblefield-Tave, B. (2016). Some advice for physicians and other clinicians treating minorities, women, and other patients at risk of receiving health care disparities. Retrieved from <https://link.springer.com/article/10.1007/s40615-016-0248-6>

FitzGerald, C., & Hurst, S. (2017). Implicit bias in healthcare professionals: a systematic review. *BMC medical ethics*, *18*(1), 19. doi:10.1186/s12910-017-0179-8

Bridges, K. (2017). Implicit Bias and Racial Disparities in Health Care. retrieved from <https://www.americanbar.org/groups/crsj/publications/human_rights_magazine_home/the-state-of-healthcare-in-the-united-states/racial-disparities-in-health-care/>

Williams, D. R., & Rucker, T. D. (2000). Understanding and addressing racial disparities in health care. *Health care financing review*, *21*(4), 75–90.

Geiger, H.J. (2003). Racial and Ethnic Disparities In Diagnosis and Treatment: A Review of the Evidence and a Consideration of Causes. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK220337/>

Johnson, R. L., Roter, D., Powe, N. R., & Cooper, L. A. (2004). Patient race/ethnicity and quality of patient-physician communication during medical visits. *American journal of public health*, *94*(12), 2084–2090. doi:10.2105/ajph.94.12.2084

Centers for Disease Control (CDC). (2019). Reproductive Health. Retrieved from <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-relatedmortality.htm>

MMRC Report. (2018) Building U.S. Capacity to Review and Prevent Maternal Deaths. Report from nine maternal mortality review committees. Retrieved from <http://reviewtoaction.org/Report_from_Nine_MMRCs>

Cook, B et al. (2009). Measuring Trends in Racial/Ethnic Health Care Disparities. Medical Care Review 66, no. 1.

Roeder, A. (2019). America is failing its Black Mothers. Magazine of the Harvard T.H. Chan School of Public Health. Retrieved from <https://www.hsph.harvard.edu/magazine/magazine_article/america-is-failing-its-black-mothers/>

Martin, N. (2017). Nothing protects black women from dying in pregnancy and childbirth. ProPublica and NPR news. Retrieved from <https://www.npr.org/2017/12/07/568948782/black-mothers-keep-dying-after-giving-birth-shalon-irvings-story-explains-why> <https://www.propublica.org/article/nothing-protects-black-women-from-dying-in-pregnancy-and-childbirth>

Blair, I. V., Steiner, J. F., & Havranek, E. P. (2011). Unconscious (implicit) bias and health disparities: where do we go from here? *The Permanente Journal*, *15*(2), 71–78.

Fiscella, K., Franks, P., Gold, M., Clancy, C. (2000). Inequality in quality: addressing socioeconomic, racial, and ethnic disparities in health care. JAMA. retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/10815125>

Green, A. R., Carney, D. R., Pallin, D. J., Ngo, L. H., Raymond, K. L., Iezzoni, L. I., & Banaji, M. R. (2007). Implicit bias among physicians and its prediction of thrombolysis decisions for black and white patients. *Journal of general internal medicine*, *22*(9), 1231–1238. doi:10.1007/s11606-007-0258-5

Zeidan, A., Streiff M., Lau B., Ahmed S., Kraus P., Hobson D., Carolan H., Lambrianidi, C., Horn, P., Shermock K., Tinoco, G., Siddiqui, S., Haut, E. (2013). Impact of venous thromboembolism prophylaxis “smart order set”: Improved compliance, fewer events. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/23553743>

Dasgupta, N., & Asgari, S. (2004). Seeing is believing: Exposure to counter stereotypic women leaders and its effect on the malleability of automatic gender stereotyping. Journal of Experimental Social Psychology. Retrieved from <https://gap.hks.harvard.edu/seeing-believing-exposure-counterstereotypic-women-leaders-and-its-effect-malleability-automatic>

Lenton, A., Bruder, M., & Sedikides, C. (2008). A meta-analysis on the malleability of automatic gender stereotypes,” Psychology of Women Quarterly.

Alhusen J., & Sharps P. (2016). Racial Discrimination and Adverse Birth Outcomes: An Integrative Review. Journal of Midwifery & Women’s Health 61(6): 707-720. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5206968/>

Saftlas, A., Koonin, L., Atrash, H. (2000). Racial Disparity in Pregnancy-related Mortality Associated with Livebirth: Can Established Risk Factors Explain It? *American Journal of Epidemiology*, Volume 152, Issue 5, 1 September 2000, Pages 413–419. Retrieved from <https://academic.oup.com/aje/article/152/5/413/149445>

Reproductive rights. (2016). Research overview of maternal mortality and morbidity in the united states. Retrieved from <https://www.reproductiverights.org/sites/crr.civicactions.net/files/documents/USPA_MH_TO_ResearchBrief_Final_5.16.pdf>

Taylor, J., Novoa, C., Hamm, K., & Phadkey, S. (2019). Eliminating racial disparities in maternal and infant mortality. American progress. Retrieved from <https://www.americanprogress.org/issues/women/reports/2019/05/02/469186/eliminating-racial-disparities-maternal-infant-mortality/>

Gassam, J. (2018). Does Unconscious Bias Training Really Work? Retrieved from <https://www.forbes.com/sites/janicegassam/2018/10/29/does-unconscious-bias-training-really-work/#767be75bb8a2>

Delach, K. (2018). Can Biased Be Reversed? Penn Medicine News. Retrieved from <https://www.pennmedicine.org/news/news-blog/2018/june/can-bias-be-reversed>

Shaffi, N. (2018). What California is doing to lower maternal mortality. National Consumer League. Retrieved from <https://www.nclnet.org/maternal_mortality>

Montagne, R. (2018). To keep women from dying in childbirth, look to California. NPR. Retrieved from <https://www.npr.org/transcripts/632702896>

Rappleye, E. (2019). California to mandate implicit bias training as part of continuing medical education. Beckers Hospital Review. Retrieved from <https://www.beckershospitalreview.com/hospital-physician-relationships/california-to-mandate-implicit-bias-training-as-part-of-continuing-medical-education.html>

Reddy, S. et al. (2020). Implicit bias curricula in Medical school: student and faculty perspectives. Health Affairs. Retrieved from <https://www.healthaffairs.org/do/10.1377/hblog20200110.360375/full/>

Assembly Bill. (2020). California Legislative Information. Assembly Bill No. 242. Retrieved from <https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB242>

Hayes, T., McNeil, C. (2019). Maternal mortality in the United States. American Action Forum. Retrieved from <https://www.americanactionforum.org/insight/maternal-mortality-in-the-united-states/>

Gaskin I. M. (2008). Maternal death in the United States: a problem solved, or a problem ignored? *The Journal of perinatal education*, *17*(2), 9–13. doi:10.1624/105812408X298336. Retrieved from [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2409165](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2409165/)/

Institute of Medicine (IOM). (2003). *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington, DC: The National Academies Press. https://doi.org/10.17226/12875.

Penner, L. A., Eggly, S., Griggs, J. J., Underwood, W., 3rd, Orom, H., & Albrecht, T. L. (2012). Life-Threatening Disparities: The Treatment of Black and White Cancer Patients. *The Journal of social issues*, *68*(2), 10.1111/j.1540-4560.2012.01751.x. https://doi.org/10.1111/j.1540-4560.2012.01751.x

National Healthcare Quality and Disparities Reports (NHQD). (2013) . Agency for Healthcare Research and Quality, Rockville, MD. Retrieved from https://www.ahrq.gov/research/findings/nhqrdr/index.html

Khosla, N., Perry, S., Moss-Racusin, C., Burke, S., Dovidio. (2018). A comparison of clinicians’ racial biases in the United States and France. Elsevier. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/29680770>

Frey, W. (2016) . Diversity Explosion: How New Racial Demographics are Remaking America. Institut national de la recherche scientifique, Montreal.

Jackson, et al. (2018). March of Dimes. Birth Equity for Moms and Babies.

Main et al. (2015). Obstet Gynecol. Obstetrics & Gynecology.