Racism and Inequities in Maternal Health

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KEYWORDS

• Maternal mortality • Severe maternal morbidity • Racial inequities • Obstetrics • Obstetric anesthesia

KEY POINTS

- Black women and birthing people die at a staggering rate of 3 times greater as compared with their White counterparts, independent of socioeconomic factors.
- Systemic and institutionalized racism is the primary factor in Black women's and birthing people's inequities to accessing care.
- Hospital factors and provider biases play roles in Black women's and birthing people's inequities.

INTRODUCTION

Over the last few decades in the United States, there has been increasing scrutiny on maternal care as maternal morbidity and mortality appear to climb.[1,2] A 2019 Centers for Disease Control and Prevention-issued Morbidity and Mortality Weekly Report indicated that pregnant or postpartum women of color die at a staggering rate of 3 to 4 times greater as compared with their White counterparts, regardless of socioeconomic factors,[3] highlighting rampant inequities in the US health care system. These inequities persisted throughout the coronavirus disease 2019 pandemic, with a 30% increase in all maternal mortality between 2020 and 2021,[4] though maternal mortality improved in 2022. However, Black women and birthing people's mortality rates

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remained roughly 3-fold greater than their White counterparts.[5] In some areas of the country, Black women and birthing people experienced an 8-fold risk of maternal mortality.[6] While it has been argued recently that estimates of dramatically rising US maternal mortality may be inaccurate,[7] there remain inequities linked to obstetric care. The US Commission on Civil Rights published an enforcement report outlining the scope of racial disparities in maternal care,[8,9] attempting to bridge an urgent need for understanding why these inequities exist, particularly between White and Black, Indigenous, people of color (BIPOC) mothers, where they are the greatest.[3]

Anesthesiologists play a critical role in maternal morbidity and have an imperative to improve maternal care. They are well-positioned to improve maternal care, as reinforced by American College of Obstetricians and Gynecologists (ACOG) Levels of Maternal Care Guidelines mandating that a "board-certified anesthesiologist with special training or experience in obstetrics" be available for care or consultation at centers that care for anything other than the most routine delivery situations.[10] While the maternal comorbidity burden continues to increase, this consolidation of maternal care aims to improve outcomes through the availability of these providers.[11] Through their integral role in labor and delivery processes, anesthesiologists aware of racial inequities present may improve care for our diverse maternal population. A deepening understanding of why these racial inequities exist and acknowledging historical and current contributions may inspire real change throughout our complex system of health care. Actively restructuring how we care for people is the surest way to dismantle systemic racism from individual providers (eg, addressing unconscious provider bias, granting agency to Black women as experts about their bodies, and partnering with health care providers for relationship-centered care[12]), to health care fields themselves (eg, regaining patient trust in the medical professions, making health care jobs more accessible and more representative of our diverse population). This review will focus on what inequities exist and what the potential drivers of these inequities are, with a brief overview of potential solutions.

INEQUITIES IN MATERNAL HEALTH OUTCOMES VERSUS INEQUITIES IN PROVIDING MATERNAL CARE

The definition of a health disparity is a health difference seen in groups, whereas inequity is a disparity specifically arising from unfairness and discrimination in social, economic, environmental, or health care resources.[13] Before considering reasons why Black mothers are becoming sicker and dying at higher rates than White mothers, the authors will first outline the obstetric conditions leading to severe maternal morbidity and mortality for which there are inequities. Severe maternal morbidity (SMM), which has no formally accepted definition,[14] has alternately been described as "a life-threatening diagnosis or the need to undergo a life-saving procedure during a delivery hospitalization"[15,16] and as "unintended outcomes of the process of labor and delivery that result in significant short-term or long-term consequences to a woman's health".[17] ACOG and other authors[17] proposed conditions and criteria for SMM, which may ultimately serve as an initiation point for building consensus among professional organizations (**Table 1**). While categorizing and including these morbidities may need to be adjusted, this list fills an undeniable need for better classifying and understanding the extent of SMM through careful research.

Holdt Somer and colleagues[14] attempted to identify gaps in the existing literature on inequities in SMM. While their list of SMM definitions was not entirely congruent with the ACOG definitions, these authors demonstrated a staggering increase in SMM for multiple racial groups, predominantly Black women (specifically, African Americans).

Table 1
Example list of diagnoses and complications constituting severe maternal morbidity

Severe Maternal Morbidity	Not Severe Morbidity (Insufficient Evidence if This Is the Only Criteria)
Hemorrhage	
Obstetric hemorrhage with ≥4 units of red blood cells transfused	
Obstetric hemorrhage with 2 units of red blood cells and 2 units of fresh frozen plasma transfused (without other procedures or complications) if not judged to be "overexuberant"	Obstetric hemorrhage with 2 units of red blood cells and 2 units of fresh frozen plasma transfused AND judged to be "overexuberant"
Obstetric hemorrhage with <4 units of blood products transfused and evidence of pulmonary congestion that requires >1 dose of furosemide	Obstetric hemorrhage with <4 units of blood products transfused and evidence of pulmonary edema requiring only 1 dose of furosemide
Obstetric hemorrhage with return to operating room for any major procedure (excludes dilation)	
Any emergency/unplanned peripartum hysterectomy, regardless of number of units transfused (includes all placenta accreta spectrum conditions)	Planned peripartum hysterectomy for cancer/neoplasia
Obstetric hemorrhage with uterine artery embolization, regardless of number of units transfused	
Obstetric hemorrhage with uterine ballopn or uterine compression suture placed and 2–3 units of blood products transfused	Obstetric hemorrhage with uterine balloon or uterine compression suture placed and ≤1 unit of blood products transfused
Obstetric hemorrhage admitted to intensive care unit (ICU) for invasive monitoring or treatment (either medication or procedure, not just observed overnight)	Any obstetric hemorrhage who went to the ICU for observation only without further treatment
Hypertension/Neurologic	
Eclamptic seizure(s) or epileptic seizures that were "status"	
Continuous intravenous infusion of an antihypertensive medication	
Nonresponsiveness or loss of vision, permanent or temporary (but not momentary), documented in physician's progress notes	
Stroke, coma, intracranial hemorrhage	
Preeclampsia with difficult-to-control severe hypertension (>160 mm Hg systolic blood pressure or >110 mm Hg diastolic blood pressure) that requires multiple intravenous doses, persistent ≥48 h after delivery, or both	Chronic hypertension that drifts up to severe range and needs postoperative medication dose alteration; preeclampsia blood pressure control with oral medications ≥48 h after delivery

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Table 1
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Severe Maternal Morbidity	Not Severe Morbidity (Insufficient Evidence if This Is the Only Criteria)
Liver or subcapsular hematoma or severe liver injury admitted to the ICU (bilirubin >6 or liver encymes >600)	Abnormal liver function requiring extra prolonged postpartum length of stay but not in the ICU
Multiple coagulation abnormalities or severe hemolysis, elevated liver enzymes, and low platelet count (HELP) syndrome	Severe thrombocytopenia (<50,000) alone that does not require a transfusion or ICU admission
Renal	
Diagnosis of acute tubular necrosis or treatment with renal dialysis	Oliguria treated with intravenous fluids (no ICU admission)
Oliguria treated with multiple doses of furosemide	Oliguria treated with 1 dose of furosemide (no ICU admission)
Creatinine $\geq$2.0 in a woman without preexisting renal disease OR a doubling of the baseline creatinine in a woman with preexisting renal disease	
Sepsis	
Infection with hypotension with multiple liters of intravenous fluid or pressors used (septic shock)	Fever >38.5° C with elevated lactate alone without hypotension
Infection with pulmonary complications such as pulmonary edema or acute respiratory distress syndrome	Fever >38.5° C with presumed choriometritis/ endometritis with elevated pulse but no other cardiovascular signs and normal lactate
	Positive blood culture without other evidence of significant systemic illness
Pulmonary	
Diagnosis of acute respiratory distress syndrome, pulmonary edema, or postoperative pneumonia	Administration of oxygen without a pulmonary diagnosis
Use of ventilator (with either intubation or noninvasive technique)	
Deep vein thrombosis or pulmonary embolism	
Cardiac	
Preexisting cardiac disease (congenital or acquired) with ICU admission for treatment	Preexisting cardiac disease (congenital or acquired) wtih ICU admission for observation only
Peripartum cardiomyopathy	Preexisting cardiac disease (congenital or acquired) withoutICU admission for observation only
Arrhythmia requiring >1 dose of intravenous medication but not ICU admission	Arrhythmia requiring 1 dose of intravenous medication but no ICU admission
ICU/Invasive Monitoring	
Any ICU admission that includes treatment or diagnostic or therapeutic procedure	ICU admission for observation of hypertension that does NOT require intravenous medications

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Table 1
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Severe Maternal Morbidity	Not Severe Morbidity (Insufficient Evidence if This Is the Only Criteria)
Central line or pulmonary catheter used to monitor a complication	ICU admission for observation after general anesthesia
Surgical, Bladder, and Bowel Complications	
Bowel or bladder injury during surgery beyond minor serosal tear	
Small-bowel obstruction, with or without surgery during pregnancy/postpartum period	
Prolonged ileus for ≥4 days	Postoperative ileus that resolved without surgery in ≤3 d
Anesthesia Complications	
Total spinal anesthesia	
Aspiration pneumonia	Failed spinal anesthesia that requires general anesthesia
Epidural hematoma	Spinal headache treated with a blood patch

Adapted from American College of Obstetricians and Gynecologists and Society for Maternal-Fetal Medicine, Kilpatrick SK, Ecker JL, Callaghan WM. Severe maternal morbidity: screening and review. Obstetric Care Consensus No. 5. Obstet Gynecol 2016; 128: e54-60.

Table 2 lists the inequities and gaps in the authors' literature search on various morbid conditions. Specific conditions like inherited thrombophilias and sickle cell diseases have a clear genetic basis. The overwhelming majority of other conditions may be attributed to myriad factors involving the interplay between race and health, which we will explore in the following paragraphs.

THE LINKS BETWEEN RACE AND HEALTH

Race is a hotly debated topic, and many scholars advocate that it is, in essence, "an unscientific, societally constructed taxonomy that is based on an ideology that views some human populations as inherently superior to others based on external physical characteristics or geographic origin"[18] which nevertheless critically impacts myriad outcomes, including health, longevity, and social status attainment.[18,19] Williams, and colleagues developed a framework to visualize the relationship between race and health better (Fig. 1, Table 3), which is still helpful to consider today.[18] We will focus on a subset of these factors, primarily *racism, biological factors*, and *risk factors and resources*, as they relate to maternal health and well-being. As the authors will explain further, these categories have considerable overlap and intertwining influence. Notably, a recent secondary analysis of the ARRIVE trial evaluated racial differences in cesarean birth in nulliparous women along with maternal morbidity. Black and Hispanic people have higher rates of cesarean delivery, which contributes in part to excess maternal morbidity.[20]

Racism

Although many historically relevant racial and ethnic narratives are likely responsible for other inequities, each of which deserves equally thorough coverage, we will focus our discussion on Black women, given the current enormous gap in maternal care. As

Table 2
Examples of racial/ethnic inequities in health outcomes classified by severe maternal morbidity indicator

Severe Maternal Morbidity Indicator	Disparities Identified in Current Literature Search
Acute myocardial infarction(MI)	Increased cardiovascular risk factors among African-American (AA) women; some literature finds increased IM risk among non-Hispanic white and AA women
Acute renal failure (ARF)	Increased among AA women and American Indian/Alaska native; additionally, AA and Hispanic women with lupus erythematosus at increased risk of ARF
Acute respiratory distress syndrome	Increased among AA women and American Indian/Alaska native women
Amniotic fluid embolism	Conflicting reports in the literature; some suggest an increase among AA women
Aneursym	No literature exists
Blood transfusion	Increased among AA women
Cardiac arrest or ventricular fibrillation	Increased among AA women
Cardio monitoring	Increased among AA, Hispanic, Asian/Pacific Islander and American Indian/Alaska native women
Conversion of cardiac rhythm	Increased among AA women
Disseminated intravascular coagulation	Increased among AA, Hispanic, Asian/Pacific Islander, and American Indian/Alaska native women
Eclampsia	Increased among AA and Hispanic women
Heart failure during procedure or surgery	Increased among AA, Hispanic, and Asian/ Pacific Islander women
Hysterectomy	Increased among AA, Hispanic, Asian/Pacific Islander women
Internal injuries of thorax, abdomen, and pelvis	Increased among AA women
Intracranial injuries	No literature exists
Operations on heart and pericardium	Increased among AA women
Puerperal cerebrovascular disorders	Subarachnoid hemorrhage increased among AA and Hispanic women, intracerebral hemorrhage and stroke increased among AA women
Pulmonary edema	Increased among AA and Asian/Pacific Islander women
Sepsis	Increased among AA and Hispanic women
Severe anesthesia complications	Increased among AA women; use of general anesthesia may also be increased among AA women
Shock	Increased among AA, Asian/Pacific Islander, and American Indian/Alaska native women
Sickle cell anemia with crisis	Increased among AA women
Temporary tracheostomy	Increased among AA women

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Table 2
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Severe Maternal Morbidity Indicator	Disparities Identified in Current Literature Search
Thrombotic embolism	Increased among AA women; thrombotic risk factors differ among non-Hispanic white and AA women
Ventilation	Increased among AA, Hispanic, Asian/Pacific Islander, and American Indian/Alaska native women
Additional indicators of morbidity	
Cardiomyopathy	Increased among AA women
Preeclampsia/HELP	Increased among AA and American Indian/Alaska native women
Hemorrhage	Increased among Hispanic and Asian/Pacific Islander women; conflicting data regarding AA women

Adapted from Holdt Somer SJ, Sinkey RG, Bryant AS. Epidemiology of racial/ethnic disparities in severe maternal morbidity and mortality. Semin Perinatol 2017 41: 258-65.

late as 1972, the United States was still involved in the Tuskegee Syphilis Study, where treatment for syphilis was knowingly withheld from infected Black men.[21] This egregious display of governmentally endorsed, ethically corrupt, prolonged, and formalized racism is one of many that cultivated a deep distrust in many Black Americans of the health care system. This persists today and may be partially responsible for lower rates of participation in medical research by Black patients, who reported much higher rates of distrust in the medical research process.[22,23] This leaves a knowledge vulnerability at the intersection of racial inequities in SMM with Black women's potential unwillingness to participate in prospective research studies,[17,22,23] especially given that an overwhelming number of obstetric care providers

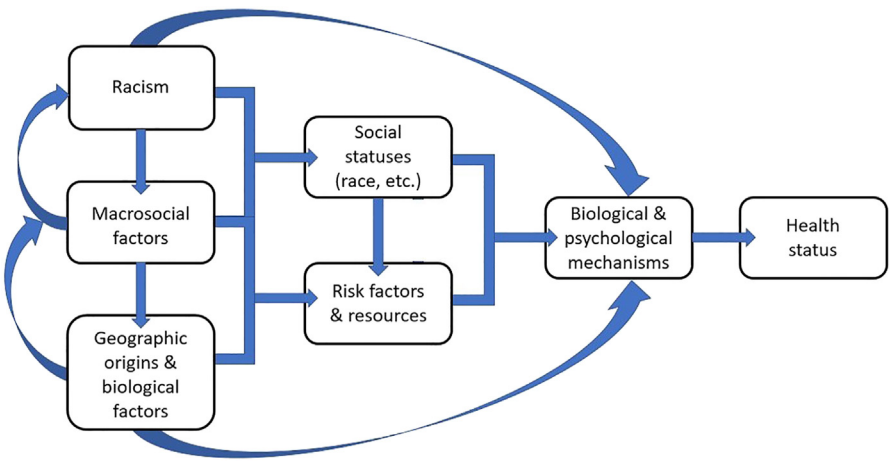

Fig. 1. A framework for understanding the relationship between race and health. (*Adapted from* Williams DR, Lavizzo-Mourey R, Warren RC. The concept of race and health status in America. Public Health Rep 1994; 109(1): 26-41.)

Table 3
Types of factors involved in the relationship between race and health

Factor	Definitions and *Examples*
Racism	Racial ideology (categorization or ranking), prejudice, or discrimination (individual or institutional) *A Black mother is not prescribed adequate opioid pain relief because her provider believes Black women don't experience as much pain.*
Macrosocial factors	Historical conditions, economic structures, political order, legal codes, and social cultural institutions *Black people are generally underrepresented in medical research, given their historical mistreatment and abuse, and therefore, are more distrustful of medical researchers.*
Biological factors	Morphologic, physiologic, biochemical, or genetic factors *Chronic stress manifested physically results in higher rates of chronic hypertension, diabetes, and other cardiovascular comorbidities in Black mothers than in White mothers.*
Social status	Race or ethnicity, socio-economic status, sex, social roles, geographic location, or age *Black mothers are more likely to live in impoverished environments as compared to White mothers and are more likely to be uninsured.*
Risk factors and resources	Health behaviors, stress, medical care, social ties, or psychological, cultural, or religious factors *Black mothers are more likely to deliver in hospitals with much higher rates of severe maternal morbidity and mortality.*

Adapted from Williams DR, Lavizzo-Mourey R, Warren RC. The concept of race and health status in America. Public Health Rep 1994; 109(1): 26-41.

(obstetricians, anesthesiologists, nurse midwives, certified registered nurse anesthetists, physician assistants, and nurses) are White.[24–28]

Inequities in maternal care in the United States must include a conversation about the historical treatment of Black women, specifically African Americans. For these women, certain historical medical practices that shaped their interactions with health care have been collapsed by Prather, and colleagues into 4 distinct periods: during legalized slavery (AD 1619–1865), Black Codes/Jim Crow laws (AD 1865–1965), during the Civil Rights movement (AD 1955–1975), and the post-Civil Rights era (AD 1975-present).[29] They included institutional abuse, rape, and experimentation for perfecting surgical techniques, often without anesthesia (**Table 4** for details).[29] The horrors that these women endured because of their systematic and continued racism and disenfranchisement cannot be forgotten nor discounted, as they impact current and future public health initiatives aimed at reducing inequities.[29] An unsettling and enlightening *New York Times Magazine* edition, *The 1619 Project*, contains a collection of essays describing the previously untold sufferings of many Black men and women in America, which augments our understanding of the torture they endured, not just during slavery but for the 4 centuries since that time.[30]

In 2003, the Institute of Medicine highlighted racism, prejudice, and provider bias as drivers of health inequities in their sentinel report, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*, which described that effects of socioeconomic differences could not explain the imbalance in care for conditions with well-established, straightforward guidelines, such as cardiovascular catheterization,

Table 4
Historical and contemporary sexual-related and reproductive-related health and health care experiences of African American women

Period	Timespan	Number of Years	Personal Experiences of a Women that Contribute to Inequities in Sexual and Reproductive Health	Health Care Experiences of a Women That Contribute to Inequities
Slavery	1619–1865	246	Public, nude physical auction examinations to determine reproductive ability; raped for sexual pleasure and economic purpose; purposely aborting pregnancies where rape occurred; Jezebel stereotype emerged of Black women being hypersexual; generational poverty	Nonconsensual gynecologic and reproductive surgeries performed at times repeatedly on enslaved women without anesthesia, including cesarean sections and ovariotomy to perfect medical procedures
Black Codes/Jim Crow	1865–1965	100	Rape; lynching (genitalia/ reproductive mutilation); uncertain/unequal civil rights; stereotypes and negative media portrayals continued; generational poverty	Nonconsensual medical experiments continued; poor or no health care for impoverished Blacks; compulsory sterilization; Jim Crow laws enforced lack of access to quality health care services and opportunities; effects of Tuskegee Untreated Syphilis Study on women (eg, some wives of untreated subjects acquired syphilis, and their children suffered consequences of congenital syphilis)
Civil Rights	1955–1975	20	Lynching, uncertain/ unequal civil rights, and violence against women to show superiority and control; stereotypes and negative hypersexual medial portrayals continued; generational poverty	Nonconsensual medical experiments continued; compulsory sterilization for recipients of federal funding; effects of Tuskegee Untreated Syphilis Study on women; unequal health care services as a result of both overt and subtle racism

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Table 4
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Period	Timespan	Number of Years	Personal Experiences of a Women that Contribute to Inequities in Sexual and Reproductive Health	Health Care Experiences of a Women That Contribute to Inequities
Post-Civil Rights	1975–2018	43	Black exploitation movies and media's hypersexual images continued; generational poverty	Unequal health care continued; targeted sterilizations, hysterectomies, abortions, and birth control

Adapted from Prather C, Fuller TR, Jeffries WL, Marshall KJ, Howell AV, Belyue-Umole A, King W. Racism, African American women, and their sexual and reproductive health: a review of historical and contemporary evidence and implications for health equity. Health Equity 2018; 2(1): 249-59.

cancer diagnostic tests, and antiretroviral therapy for human immunodeficiency virus, to name a few.[31] Even the hint of racism and prejudice may preclude a trusting provider-patient relationship. This dynamic may be overcome by pairing Black physicians with Black patients, who may be more likely to undergo recommended preventative tests, with a potential cardiovascular mortality benefit estimated near 20%.[32]

There is now a push to move away from framing "race" as a risk factor for poor maternal and fetal outcomes and to accept that racism is a root cause of birth inequity.[33] Overt racism may not be the sole reason behind widespread provider-driven inequities; racism has many forms, including structural, institutional, internalized, and interpersonal.[6] Structural racism, defined as the ways that societies embed discrimination into the fabric of mutually reinforcing social structures (such as housing, education, employment, criminal justice, etc.), has been implicated in several adverse obstetric outcomes, including increased SMM, severe adverse maternal outcomes, which includes eclampsia, blood transfusion, hysterectomy, and intensive care unit admission, preterm birth, and small for gestational age births.[34–37] Much research into biases has shown that provider bias may be explicit (obvious, expressed openly) or implicit (hidden, subconscious). While racism itself may be classified as an explicit bias, implicit biases act more insidiously, often existing "at the margins of awareness," directing behavior even while one is not fully conscious of the negative bias.[38] These biases directly affect the provision of safe and equitable health care. For example, a recent study found that in patients with a disclosed prenatal history of illicit drug use, Black women were 9 times more likely to have urine toxicology screening on admission to the labor floor.[39] Implicit biases are not unique to medicine and are found anywhere complex decisions are made. The need for cognitive shortcuts or heuristics is high, such as in the criminal justice system and law enforcement,[40] as biases are a primary pathway for the brain to pattern-recognize without the process of slower, analytical thinking.[41] It is well-known that verbal messages can spread explicit biases easily.[42] However, what is striking is how pervasive these implicit biases can be, as seen through a social learning theory lens, which posits that nonverbal cues influence attitudes toward others. Thus, implicit biases can be created and perpetuated in everyday social interactions where people's nonverbal behaviors (body language, facial expressions) are shared.[42] Researchers have attempted to determine how much implicit bias shapes medical practice. Still, a recent systematic review revealed serious methodological limitations in published medical literature, much of which

lacked a strong theoretic basis.[38] A potential source of robust theory may come from the social psychology and organizational behavior literature on racial diversity, which has spent decades determining what processes are at play between individuals of different races and creating standardized tools to study those processes and interactions.[43–47]

While provider bias training is advocated,[38] sadly, it has not been shown to change outcomes in bias when given in small "doses" related to raising awareness of bias.[48] Only intensive behavior-change techniques are effective in altering implicit racial biases, which involve considerable time, financial, and personnel resources.[43,49] As we continue to explore the impacts of bias on inequities in care, through improving our theoretic approaches and applying behavior-change principles, perhaps new frontiers will emerge as helpful in mitigating or modifying implicit biases.

Biological Factors

The allure of a simple explanation for racial differences in health outcomes, especially those related to genetic factors, seems to be hypnotic despite multitudinous evidence.[18,19,32] As mentioned earlier, except for heritable diseases such as certain thrombophilias and hemoglobinopathies, much of the biological changes are thought to be due to chronic exposure to stress through experiences of prejudice and discrepancies in social standing, which manifests in tangible ways to produce "weathering," also known as the "physical consequence of social inequality."[50] Weathering is rarely found among White mothers but is overwhelmingly noted in Black women in poor neighborhoods. This manifests in low-birthweight neonates, preterm birth, and small-for-gestational-age births, and mitigates when Black mothers were situated in the upper half of neighborhoods for income and had also never resided in low-income neighborhoods.[51]

A possible biological explanation for this is due to leukocyte chromosomal telomere shortening from enhanced telomerase activity leading to accelerated aging; telomeres are otherwise known as protective "caps" at the end of chromosomes that consist of repeated nucleotides.[52] A link has been established between telomere shortening and both duration and amount of stress experienced by mothers caring for an ill child,[53] and with shorter telomere length for Black women (but not men) living in poor and racially segregated neighborhoods.[54] The magnitude of distrust and anger expressed was associated with reduced telomere length in Black women involved in the Jackson Heart Study.[55] Additionally, telomere length is heritable to some degree, as demonstrated by Black mothers having shorter telomeres than White mothers and Black male neonates having shorter telomeres than White male neonates.[56] It is unclear whether telomere length itself is the appropriate measure. Needham and colleagues demonstrated attenuation in racial and ethnic differences for telomere length when baseline telomere length was taken into consideration for 1169 participants in the Multi-Ethnic Study of Atherosclerosis, and the majority of telomere shortening was eventually seen in older people and men when adjusting for baseline length.[57] There is a dire need to understand the links between psychological and physical stress and the resulting mechanisms that lead to disease manifestation and worse health for Black mothers.

Risk Factors and Resources

This final category we will explore is broad and includes both patient-related factors and system-wide influences. We will mainly focus on medical care delivered at a hospital level, as this is most pertinent to anesthesiologists intersecting with these women during their pregnancies; the factors influencing hospital care are represented in

Fig. 2.[58] This is also an area ripe for dramatic improvement to prevent severe maternal morbidity and mortality, as there exist enormous between-hospital differences in care, even within the same large metropolitan city (such as New York City), and these racial differences may account for nearly 48% of the racial disparity seen there.[58,59]

Black women may deliver in hospitals that primarily serve a Black population, and these hospitals have been shown to have higher rates of SMM when compared with hospitals primarily serving White women.[60] This may stem from various factors, including organizational issues such as leadership influences, a culture of safety, active teamwork practices, and bundles to improve maternal care.[58] Safety practices such as bundle implementation are critical for maternal safety as they have been shown to empower all health care providers to initiate critical steps to mitigate delays in treatment.[61] The National Partnership for Maternal Safety developed a consensus statement introducing a maternal safety bundle to reduce peripartum racial and ethnic inequities in care.[62] Much of the bundle aims to improve safety culture, a known link to patient safety.[63,64]

NATIONAL EFFORTS TO REDUCE RACIAL INEQUITIES IN OBSTETRICS AND OBSTETRIC ANESTHESIA

Traditionally, mothers were stratified to care centers based on their fetuses' well-being. Fetal deaths (>20 weeks estimated gestational age) continue to be unacceptably high for Black mothers. Black women's fetuses die at a rate of 9.8 per 1,000 as of 2021, while Native Hawaiian or other Pacific Islanders' fetuses die at a rate of 11.5 per 1,000, which is the highest of all racial and ethnic groups, and more than double that of White mothers (at 5 per 1,000).[65] Historically, obstetric focus on the health and status of the fetus has made providers systematically neglectful of mothers, especially BIPOC mothers. Since the ACOG Levels of Maternal Care initiative,[10] the Society for Obstetric Anesthesia and Perinatology (SOAP) has developed and implemented a designation of a SOAP Center of Excellence (COE)[66] in efforts to bring maternal health

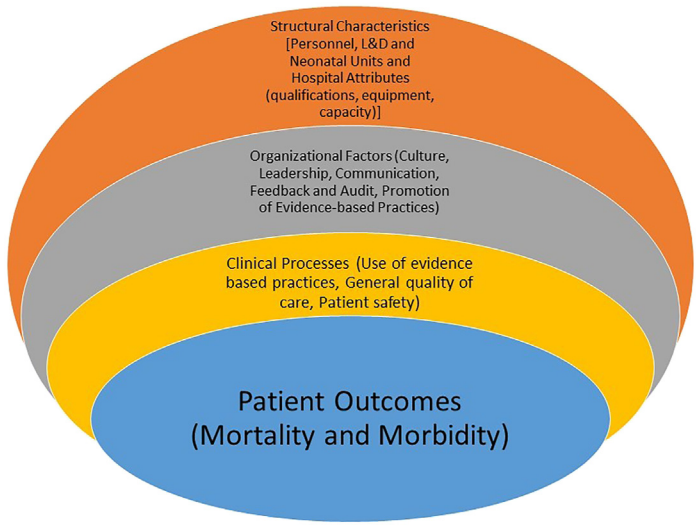

Fig. 2. Hospital quality and severe maternal morbidity: structural factors. (*Adapted from* Howell EA, Zeitlin J. Improving hospital quality to reduce disparities in severe maternal morbidity and mortality. Semin Perinatol 2017; 41(5): 266-72.)

back to the forefront of obstetric care. Eighty six COEs have been designated, representing a broad range of practice types (from academic centers to community hospitals) based in the United States and internationally.[67]

However, much of the care given in the labor and postpartum units is delivered by nurses, who may not be up to date on many of the maternal conditions or racial contributions to poorer maternal outcomes. A recent survey assessed postpartum nurses' reported knowledge and practices and found that only 54% of nurses knew of increasing maternal mortality, and 93% misattributed hemorrhage as the leading cause of death rather than cardiovascular disease.[68] In addition, nurses may not always provide consistent, evidence-based discharge and postpartum education to patients, underscoring the need for sweeping, comprehensive educational efforts in this provider group.[69] Ultimately, institutional commitment is necessary to diversify physician and nurse workforces, as this has been shown to improve patient outcomes.[70,71] On a national level, many policies have recently been enacted to address the Black maternal health crisis in the United States. The Black Maternal Health Momnibus Act of 2021 is the most notable, as it has provided critical funding to many facets of this complex crisis.[72]

ANESTHESIOLOGISTS' ROLES IN IMPROVING MATERNAL CARE FOR BLACK MOTHERS

Anesthesiologists can make a substantial difference in maternal outcomes. After adjustment for many factors, including socioeconomic, demographic, prenatal care, and organizational features, severe obstetric hemorrhage was found to be associated with a lack of an on-site, 24-h anesthesiologist as well as with hospitals in which fewer than 500 deliveries per year occurred.[73] The fact that anesthesiologists act as the labor and delivery unit "peri-delivery intensivist" shows that anesthesiologists have cultivated unique skills and knowledge to treat specific morbidities that other maternal care providers may not possess.[74]

Outside of outright severe maternal morbidity and mortality, inequities exist in the use of epidural analgesia for labor, specifically Black and Hispanic women who receive epidurals at lower rates.[75–77] The reasons for this are multifactorial[76] and are postulated to be as follows:

- Minority patients are less likely to have the same access to care as non-minority patients.
- The possibility of physician bias toward non-minority patients exists.
- Minority patients mistrust the medical system, so compliance in following provider recommendations is poor.
- Non-minority patients may demand more care than minority patients.[77]

Toledo and colleagues found that amongst Hispanic women, self-identified Spanish speakers are less likely to both anticipate and use neuraxial analgesia compared to English-speaking Hispanic women.[78] More research is needed to identify systemic and cultural barriers to providing effective communication and counseling in this patient population. Lower use of labor epidural analgesia may be a precipitating factor for Black women being more likely to receive general anesthesia for cesarean delivery.[79] Unsurprisingly, a recent cross-sectional study comparing structural racism indices (Black-White inequality ratios for lower education, unemployment, and incarceration) found that Black women who deliver in counties with higher structural racism have significantly reduced odds of receiving labor neuraxial analgesia.[79] Recent links have been demonstrated between higher rates of morbidity in women who were

deemed to be candidates to receive neuraxial anesthesia for cesarean delivery yet received general anesthesia instead.[80] In their study, Guglielminotti, and colleagues found that racial or ethnic minority women were more likely to receive a potentially avoidable general anesthetic than White mothers,[80] highlighting another area for anesthesiologists to improve care inequities through understanding and addressing problems present. Of note, it has been suggested that anesthesiologists who were fellowship-trained were less likely than non-obstetric fellowship-trained anesthesiologists to induce general anesthesia for cesarean delivery in the presence of an existing labor epidural catheter.[81] More research is needed to uncover and address the drivers of these differences.

Inequities for Black and Hispanic mothers persist into the postpartum period. Concerningly, a recent retrospective analysis found that Hispanic and Black women were more likely to report pain scores of 5 or higher, received fewer morphine milligram equivalents per day, and were less likely to be prescribed an opioid prescription at discharge.[82] Another recent study showed that after cesarean birth, Black and Hispanic women were more likely to have severe pain, had fewer pain assessments postoperatively, and received fewer narcotics in the first 28 hours postpartum.[83] Many hospitals are instituting standardized Enhanced Recovery protocols under the direction of obstetric anesthesiologists to mitigate some of these inequities.

Lastly, obstetric anesthesiologists are leaders in patient safety and innovation[84] and have developed techniques better to understand teamwork and communication in obstetrics,[85] as well as proactively design interventions to facilitate best teamwork practices, including speaking up.[86,87] Teamwork training in hospitals has been largely associated with better patient outcomes.[63,88] Large malpractice insurers, such as the Risk Management Foundation of the Harvard Teaching Institutions (also known as Controlled Risk Insurance Company, or CRICO), have incentivized a malpractice insurance premium reduction for anesthesiologists and obstetricians who undergo yearly team-based simulation training and drills in obstetric emergencies with better malpractice rates reflecting potentially better care.[89–91]

SUMMARY

Racism in the United States has deep roots that impact maternal health, particularly through pervasive inequalities among Black women as compared with Whites. Anesthesiologists are optimally positioned to maintain vigilance for these inequities in maternal care and to intervene with their unique acute critical care skills and knowledge. As leaders in patient safety, anesthesiologists should drive hospitals and practices to develop and implement national bundles for patient safety and employ team-based training practices to improve hospitals that care for racially diverse mothers and birthing people.

CLINICS CARE POINTS

- Evaluate local practices for evidence of racial inequities in obstetric anesthesia care delivery and outcomes through quality assurance practices.
- Institute clinician anti-bias training on a programmatic level with regular training intervals.
- Improve diversity in recruiting obstetric anesthesiologists to strengthen care delivered and combat inequities.
- Seek opportunities to incorporate obstetric patients' feedback related to care inclusivity.

DISCLOSURE

The authors have nothing to disclose.

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