Maternal Health Coordination: How Community Health Centers and Maternal Mortality Review Committees Can Impact Black Maternal Health Outcomes

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Maternal mortality is a complex and heavy subject, but I hope that this project contributes to the conversation on the importance of improving maternal health outcomes, especially among black mothers.

Abstract

This research examines the increasing maternal mortality rate in the U.S. The research question asks how can community health centers (CHCs) in Washington, D.C. coordinate with the incoming Maternal Mortality Review Committee to decrease maternal mortality rates among black women? Washington, D.C. was analyzed as a case study due to the high black maternal mortality rate in the city. The research utilized qualitative methodologies to assess the current state of maternal mortality in the District, as well as perspectives for potential intervention and prevention opportunities to improve the overall health status of black mothers. Through document analysis of DC Health's "Perinatal Health and Infant Mortality Report" and semi-structured interviews, this research finds that there is a large amount of room for improvement. This includes engaging black women with the healthcare system earlier than pregnancy, improving the standard and quality of care for black women, and addressing racial bias directly. This research argues that MMRCs should partner with CHCs to specifically target black mothers and improve health outcomes. This may be accomplished in a number of ways including utilizing a life-course perspective, improving access to care, and engaging in explicit conversations about race.

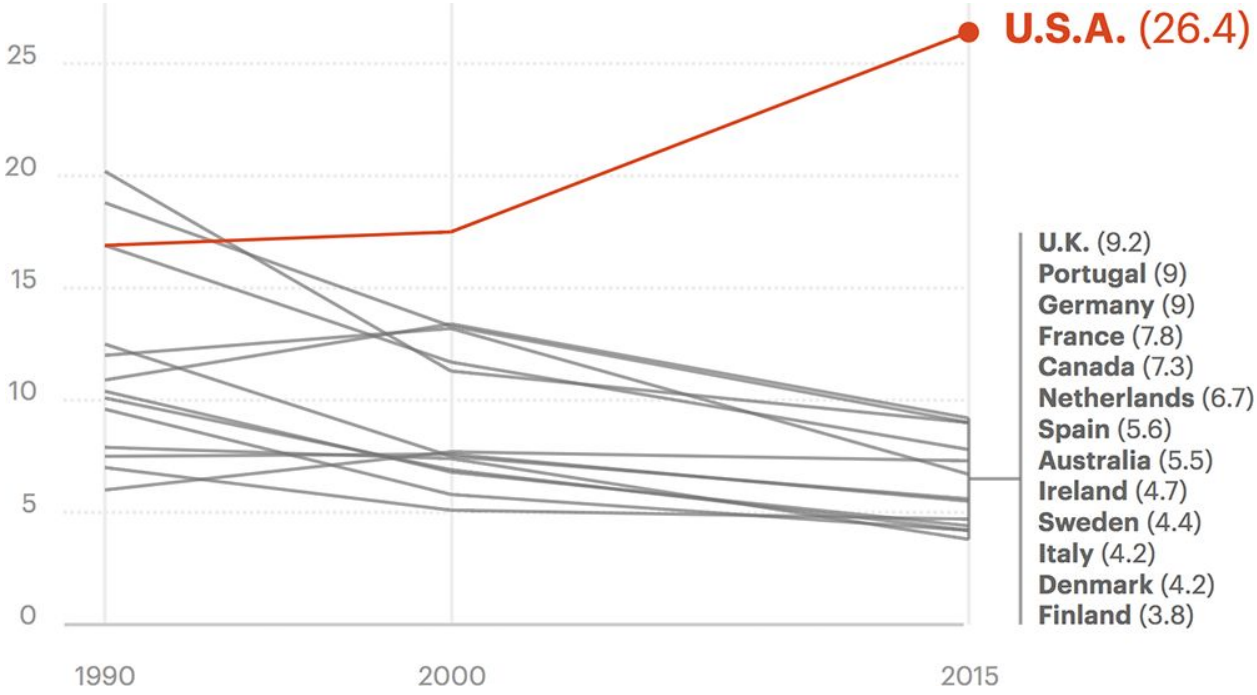
Introduction

The health system in the United States is one that is complex and flawed. In a book by Elizabeth Bradley and Lauren Taylor, they examine what they call "The American Paradox: Why Spending More is Getting Us Less." As one of the richest countries in the world, the U.S. allocates a large amount of money and resources towards healthcare, but people are not getting healthier. When comparing the U.S. to other developed countries, the U.S. has worse health outcomes. Although the "spend more, get less" paradox was coined in 2013 in the Institute of Medicine report titled *Shorter Lives, Poorer Health*, this issue arose long before that. So, the question remains; Why do we spend more and get less?

There are many ways to approach answering this question. One response in the lack of coordination in the U.S. health system. Within this is the lack of coordination between the vast array of medical services and providers, as well as the lack of collaboration between different forms of insurance. An example of the implications of uncoordinated care in the U.S. is visible in the rising prevalence of maternal mortality. Mothers in the U.S. are dying of pregnancy-related deaths at an unacceptably high rate. Other developed countries have seen a decrease in their maternal mortality rates, whereas the U.S. has demonstrated the opposite trend. In 2015, there were 26.4 maternal deaths per 100,000 live births in the U.S. (Kassebaum et al, 2016). This is incredibly high in comparison to Finland's rate of 3.8 (Kassebaum et al, 2016) (Figure 1). Given the current political climate, addressing the health needs of women does not seem to be a priority. On the contrary, there have been attempts to cut funding from health centers like Planned Parenthood simply because abortions are offered, when in reality they only make up a

small percentage of the reproductive health services that are offered. This threatens women's access to other reproductive health services such as prenatal care, which reflects a certain lack of political will to improve maternal health outcomes.

Figure 1. Global Maternal Mortality Rates, 1990-2015



Deaths per 100,000 live births

Source: The Lancet

Credit: Rob Weychert/ProPublica

While maternal mortality is not a new phenomenon, its prevalence among black women has garnered more attention recently as large figures such as Serena Williams have shared their own personal stories of pregnancy complications. Williams recalled how her concern that she was having a pulmonary embolism, a blockage of one or more arteries by a blood clot, was dismissed by her doctors until she insisted she needed a CT scan (Salam, 2018). This is just one

example of the racial disparities that exist in regards to maternal health outcomes. The increasing rate of maternal mortality goes beyond issues of class, education, and access to care. There are other underlying factors that disproportionately place black women at risk of maternal complications or death.

When specifically examining black maternal health outcomes, there must be a focused effort to understand the factors that influence black women's health prior to, during, and after pregnancy. Analyzing the joint impact of race and gender on health outcomes is an integral part of addressing black maternal mortality. Coordinated efforts in this analysis may help provide stronger intervention opportunities that result in better health outcomes for black mothers. This research aims to 1) define maternal mortality and the flaws of its measurement, 2) analyze recent efforts to address maternal mortality, 3) examine sources of primary care and how they can be utilized for early preventative interventions, and 4) determine how community health centers can collaborate with Maternal Mortality Review Committees to shift the focus of research and intervention recommendations towards reducing racial health disparities for black women prior to pregnancy. In doing so, the following question will be answered: How can community health centers in Washington, D.C. coordinate with the incoming Maternal Mortality Review Committee to decrease maternal mortality rates among black women?

Background

Maternal Mortality: Overview

A working definition of maternal mortality for the purposes of this research is given to highlight where the gap in care falls and why there is an emphasis on the outcomes of black

women. An examination of Maternal Mortality Review Committees (MMRCs) is used to determine if these committees may play a role in decreasing maternal mortality rates in different areas. Community health centers (CHCs) are also defined to determine how they can scale up their capacity to support efforts to decrease black maternal mortality rates. Lastly, an analysis of the significance of coordination in the healthcare system focuses on its role in improving health outcomes. This analysis is used as the basis of the argument of this research that coordination between CHCs and MMRCs can improve the black maternal mortality rate in Washington, D.C.

Defining Maternal Mortality

Maternal mortality can serve as a strong indicator of the health status of a country. It demonstrates the quality of a healthcare system, as well as the state of collaboration, transparency, and disparities within it (Sajedinejad, 2015). Official country health profiles include statistics on maternal and infant outcomes because they offer a snapshot of the care received by two important and vulnerable populations. The status of maternal health outcomes is especially important as it illustrates the social, political, and economic state of a society (Sajedinejad, 2015). By accurately measuring maternal deaths, the overall status of a country's health and economic system can be evaluated.

The World Health Organization (WHO) defines *maternal deaths* as "the death of a woman while pregnant or within 42 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" (WHO, 2018). Within the scope of maternal deaths is *pregnancy-associated death*. This is "the death of a woman during pregnancy

or within one year of the end of pregnancy" (CMQCC, 2018). This definition slightly differs from a *pregnancy-related death*, which is "The death of a woman during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy" (CMQCC, 2018). This distinction between *pregnancy-associated death* and *pregnancy-related death* was created to fill the gap of deaths that were not directly related to the pregnancy or its management. This terminology is used to clarify which women are dying directly as a result of a pregnancy. Determining *pregnancy-associated deaths* is the first step used to pinpoint *pregnancy-related deaths* (CMQCC, 2018). Given this distinction between these terms, the *maternal mortality ratio or rate* is then measured as the number of *maternal deaths* per 100,000 live births. Enhancing the terminology used for examining maternal mortality aids in efforts for improved and more accurate data collection.

Maternal Mortality Trends in the U.S.

The maternal mortality rate in the U.S. has been steadily increasing on average, while in most countries, both developed and developing, it has been on the decline. A United Nations Children's Fund (UNICEF) report found that global maternal mortality fell by 44% (UNICEF, 2017). This is in comparison to the U.S. where maternal mortality has increased from 18.8 to 23.8 (26.6% increase) between 2000 and 2014 (MacDorman et al, 2016). As of 2015, the rate has increased to 26.4 maternal deaths per 100,000 live births (Kassebaum et al, 2016). A contributing factor to this trend is the increase of more accurate data on maternal mortality rates. As a means to improve the measurement of maternal deaths, a pregnancy question was added as a revision of

the 2003 U.S. standard death certificate (MacDorman et al., 2016). The new question assessed whether the woman was: "not pregnant within past year; not pregnant, but pregnant within 42 days of death; not pregnant, but pregnant 43 days to 1 year before death; pregnant at time of death; or unknown if pregnant within the past year" (NCHS, 2000). The introduction of this additional question helped standardize the collection of this information, but some states failed to adopt the revised death certificate, which led to an inconsistent measurement of maternal mortality (Hoyert, 2007). As such, the U.S. has failed to report an official maternal mortality rate since 2007 (Xu et al., 2018). Obtaining accurate records of maternal mortality is a necessary step in order to identify intervention and prevention opportunities.

While issues of maternal mortality measurement may partially explain its increasing trend in the U.S., there are other factors that contribute to this issue. In terms of overall health outcomes, when compared to nations with fewer resources like Cuba, the U.S. still falls behind. Cuba has developed a cost-effective approach to health that delivers better health outcomes as a result of their emphasis on early, preventative care. In essence, they have been able to do more with less. This was accomplished in three ways: 1) primary care through community-based family doctors and polyclinics, 2) collaborative efforts at the community level, and 3) research with community input (Keon, 2009). While the political, economic, and social factors that shape healthcare delivery are quite different, there is something about the Cuban model that can pulled out and integrated in the U.S. context.

Polyclinics are community-based clinics that serve as the core of Cuba's health system. The significance of polyclinics is that they function with an emphasis on early primary care and preventative care by examining the social determinants of health. The social determinants of

health refer to the conditions in which individuals live, work, play, and learn and acknowledges how these factors influence health access and outcomes (WHO, 2018). Polyclinics offer a wide range of services in one location, which allows for organized efforts between different offices, including both medical and social services (Keon, 2009). Given the state of maternal mortality in the U.S., there is a need for more coordination in the health system by focusing on integrated care to improve health outcomes. By emphasizing partnerships between primary care providers and intervention efforts, maternal outcomes may improve by jointly reviewing the social determinants of health and how they impact maternal health.

Response to Maternal Mortality: Maternal Mortality Review Committees (MMRCs)

In response to the alarming maternal mortality statistics in the U.S., some efforts have been made to address and allocate more resources towards understanding the factors leading to these rates. One issue is that a large amount of information about maternal mortality has not been accounted for because the government has not created a systematic way to collect this data. In order to fill this void, a number of states have implemented Maternal Mortality Review Committees (MMRCs) (CDC, 2017). MMRCs are created to "assess available data on maternal deaths for use in identifying prevention opportunities" (CDC, 2017). These committees accomplish this by offering a comprehensive analysis of maternal deaths by "identifying pregnancy-related deaths," as well as "causation and contributing factors" that can be used to suggest methods for prevention (CMQCC, 2018).

There are currently MMRCs operating or in development in 35 states and four cities; New York, Philadelphia, Baltimore, and Washington, D.C. (Martin & Fields, 2018). This may

increase given the recent passing of a bill in Congress titled the "Preventing Maternal Deaths Act of 2018." This bill requires the Department of Health and Human Services (HHS) to issue grants to states with the goal of " (1) reviewing pregnancy-related and pregnancy-associated deaths (maternal deaths); (2) establishing and sustaining a maternal mortality review committee to review relevant information; (3) ensuring that the state department of health develops a plan for ongoing health care provider education in order to improve the quality of maternal care, disseminate findings, and implement recommendations; (4) disseminating a case abstraction form to aid information collection for HHS review and preserve its uniformity; and (5) providing for the public disclosure of information included in state reports" (Herrera Beutler, 2018).

MMRCs operate at the state-level, so they are each comprised differently. Some committees include representatives from local health departments and hospitals while others may include local universities and community-based organizations. The composition of each MMRC is significant as it determines what kind of data and information the committee can analyze. As such, without a community representative, one review committee was unable to collect data on the conditions in a woman's community and determine if or how it may have contributed to her death (Cornell, 2018). This is where collaboration with community health centers may be key in order to have a holistic picture of a woman's health status prior to, during, and after a pregnancy. While states have different models of MMRCs, their goals align with an emphasis on improving maternal outcomes based on research and the identification of prevention strategies.

Primary Prevention: Community Health Centers (CHCs)

This project examines the possible role of community health centers (CHCs) in helping to address poor maternal health outcomes, particularly in vulnerable and underserved communities. CHCs could play a significant role in addressing maternal mortality as they directly serve at-risk populations where maternal mortality rates may be high. The Centers for Disease Control and Prevention (CDC) defines CHCs as "community-based and patient-directed organizations that serve populations with limited access to health care" (CDC, 2018). The Health Resources and Services Administration (HRSA) also defines CHCs with an emphasis on their delivery of "comprehensive, culturally competent, high-quality primary health care services" (HRSA, 2018). The success of CHCs lies in their ability to improve health outcomes and access to care, reduce health disparities, and lower healthcare costs (NACHC, 2012). By directly serving the communities they are located in, CHCs are able to prioritize the specific needs of each community. These health centers also mirror the efforts of polyclinics by producing a more comprehensive model of primary care that includes services such as dental, mental health, vision, and pharmaceutical in one location (NACHC, 2012).

Although CHCs provide a comprehensive model that results in positive health outcomes, its initial mission was scaled down in order to continue to receive federal funding. CHCs were previously known as "neighborhood health centers" that focused on integrating health services and community development under The Office of Economic Opportunity (OEO) (Bradley & Taylor, 2013). They aimed to provide care for the masses regardless of income. The neighborhood health centers were an early success as they grew from two centers in 1964 to one

hundred in 1971 (Bradley & Taylor, 2013). This model emphasized the relationship between economic development and health, and it offered a holistic approach to health by combining it with social services (Bradley & Taylor, 2013). Neighborhood health centers were opposed by large medical institutions because they challenged the autonomy of private physicians (Bradley & Taylor, 2013). Their services were then limited to low-income communities and thus became CHCs. This demonstrates the failure of the U.S. to prioritize preventative care and social services over specialized medical care. As a result, costs are driven up without better health outcomes.

Although CHCs are not able to provide services for the population at large, they remain an important source of primary care for vulnerable communities. They serve as a model of comprehensive care that results in improved health outcomes and a reduction in health disparities by offering more than medical services, such as "transportation, translation, insurance enrollment, case management, health education, and home visitation" (NACHC, 2012). Through collaborative efforts, CHCs can partner with MMRCs to shift the focus of research and intervention recommendations towards reducing racial health disparities for black women prior to pregnancy. This may be accomplished by critically examining the social determinants of health and the larger systems of oppression that impact the health outcomes of black women.

Coordination as a Health Intervention

There is a range of existing literature on the significance of coordination and why it is important in the healthcare system. In a study on inter-professional collaboration as a measure to improve health outcomes and reduce costs, overutilization of acute care services was examined and found to be associated with negative health outcomes at high costs (Hardin et al, 2017). In

conclusion, collaboration between neighboring health systems was determined as an important health intervention because it is "an effective way to stabilize care, decrease health care system overutilization, improve healthcare delivery, and reduce the costs of associated care" (Hardin et al, 2017). This demonstrates a need to coordinate care effectively between different providers and care settings that are essential to addressing healthcare needs.

Another study on collaboration efforts highlighted the significant aspects of the Cuban healthcare system that result in better health outcomes: prevention at the local level, polyclinics, starting early and following through, and supporting families for early childhood development. While these priorities are missing at the core of the U.S. system, one of the lessons outlined in this study was the emphasis on collaborative programs. The researchers attributed the success of polyclinics and early education programs to "their intersectoral approach at the community level [and] being able to bring together the range of service providers facilitates the integration of resources and ensures a shared responsibility focusing on results" (Keon, 2009). As demonstrated by these studies, collaboration proves to be an effective measure to reduce healthcare costs and improve health outcomes.

Given the literature on the positive impact of collaboration within healthcare, this research aims to determine if coordination between CHCs and MMRCs can improve maternal mortality rates. A common theme among the leading causes of maternal death is a lack of care coordination and communication (CDC, 2017). A partnership between CHCs and MMRCs can help support and expand the capacity of CHCs to help address black maternal deaths in the populations they serve.

Literature Review

This literature review examines prevailing debates over maternal mortality in the U.S., particularly among black women. Efforts made by the MMRC in California, called the California Pregnancy-Associated Mortality Review (CA-PAMR), resulted in a significant decrease in the state's overall maternal mortality rate; however, racial disparities remain. There are larger theoretical frameworks that can aid in understanding these disparities. These frameworks are evaluated to provide context for the intersection of race, health, and access to care in the U.S. This review then analyzes the methods of the CA-PAMR, as well as other strategies for reducing maternal mortality. The research aims to fill the gap of the racial disparities that remain for black women as they still die from pregnancy-related deaths at three to four times the rate of white women.

Reproductive Justice Framework

The increasing maternal mortality rate in the U.S. represents more than mothers dying of complications. There are underlying factors that have negative health implications that should be examined from the reproductive justice framework. Applying this framework to the issue of maternal mortality allows for an analysis of the intersection of race, class, and gender in a significant way. The reproductive justice framework differs from the more widely understood framework of reproductive rights. Reproductive justice is a radical movement that calls for a more holistic approach to advocating for the rights and overall wellbeing of women. The reproductive justice framework is heavily dependent on human rights doctrines that emphasize

the reproductive rights of women as human rights. The main goals of this framework center around three concepts: 1) the right to have children, 2) the right to not have children, and 3) the right to parent those children (Ross, 2006). This differs from the reproductive rights framework that is more strictly centered around abortion and the right to choose.

While reproductive justice does work to promote the right to have an abortion, that is not the only issue prioritized. This framework recognizes how intersectionality along with the social determinants of health should be acknowledged in order to create an inclusive representation of the rights of all women. Beyond choice and access, reproductive justice "addresses the social reality of inequality, specifically, the inequality of opportunities that we have to control our reproductive destiny" (Ross, 2006).

The importance of incorporating a holistic approach in the reproductive justice framework is that it gives a voice to the multifaceted experiences of marginalized women beyond a question of choice, as choice does not fully represent the interests of all women. This is particularly relevant for women of color, women with disabilities, low-income women, and the LGBTQ+ community. The other issue with solely focusing on choice is that it implies that all women have a choice when in fact marginalized women do not given the systematic forms of oppression they face. This critique of choice rhetoric raises concerns such as accessibility and affordability, which relates to the eugenics framework about who is deemed "fit" to reproduce (Price, 2010). The reproductive justice framework is one that aims to accurately represent the experiences and struggles of all women in regards to women's rights. As such, the need to address maternal mortality through coordinated efforts clearly falls under the reproductive justice framework.

Human Rights Framework

Preventable maternal deaths are a violation of women's human rights. The percent of preventable pregnancy-related deaths is higher among black women than it is among white women (Berg et al, 2005). The most notable human rights violations here are the right to life, the right to freedom of discrimination, and the right to the highest attainable standard of health (Amnesty International, 2010). By signing human rights doctrines such as the International Covenant on Economic, Social and Cultural Rights (ICESCR) and the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the U.S. is responsible for upholding these rights. Article 12 of the ICESCR states that "The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health" (OHCHR, 1966). In addition to the right to the highest attainable standard of health, article 12 of the CEDAW states the following:

> "1. States Parties shall take all appropriate measures to eliminate discrimination against women in the field of health care in order to ensure, on a basis of equality of men and women, access to health-care services, including those related to family planning.
>
> 2. Notwithstanding the provisions of paragraph 1 of this article, States Parties shall ensure to women appropriate services in connection with pregnancy, confinement and the post-natal period, granting free services where necessary, as well as adequate nutrition during pregnancy and lactation" (CEDAW, 1979).

The maternal mortality rate in the U.S. demonstrates that these rights are not being met. A rights-based approach to address maternal mortality requires active participation from community members and healthcare professionals (Amnesty International, 2010). Women specifically must be involved in the decision-making process in delegating what constitutes quality maternal care (Amnesty International, 2010). As CHCs are community-directed through

patient-majority governing boards, the rights and needs of black women in particular may be heard and addressed by strategic intervention suggestions from partnering with MMRCs.

Intersection of Race and Health: Racial Disparities Explained

As previously stated, there is no standardized way to measure maternal mortality in the U.S.; however, that alone does not account for the racial disparities that exist. According to a study conducted by the CDC, black women face a much higher risk of maternal mortality. In this study, black women reported 44 deaths per 100,000 live births, which is almost four times the rate of white women (CDC, 2018). Understandings of why this disparity exists have been widely contested. Some studies consider current socioeconomic status and education as factors, while other studies have controlled for them and found that the racial disparities remain (Lu & Halfon, 2003). An issue here is that observing risk factors during pregnancy only offers a small understanding of a woman's overall health status (Lu & Halfon, 2003). Instead, attention should be drawn to black women's health over time.

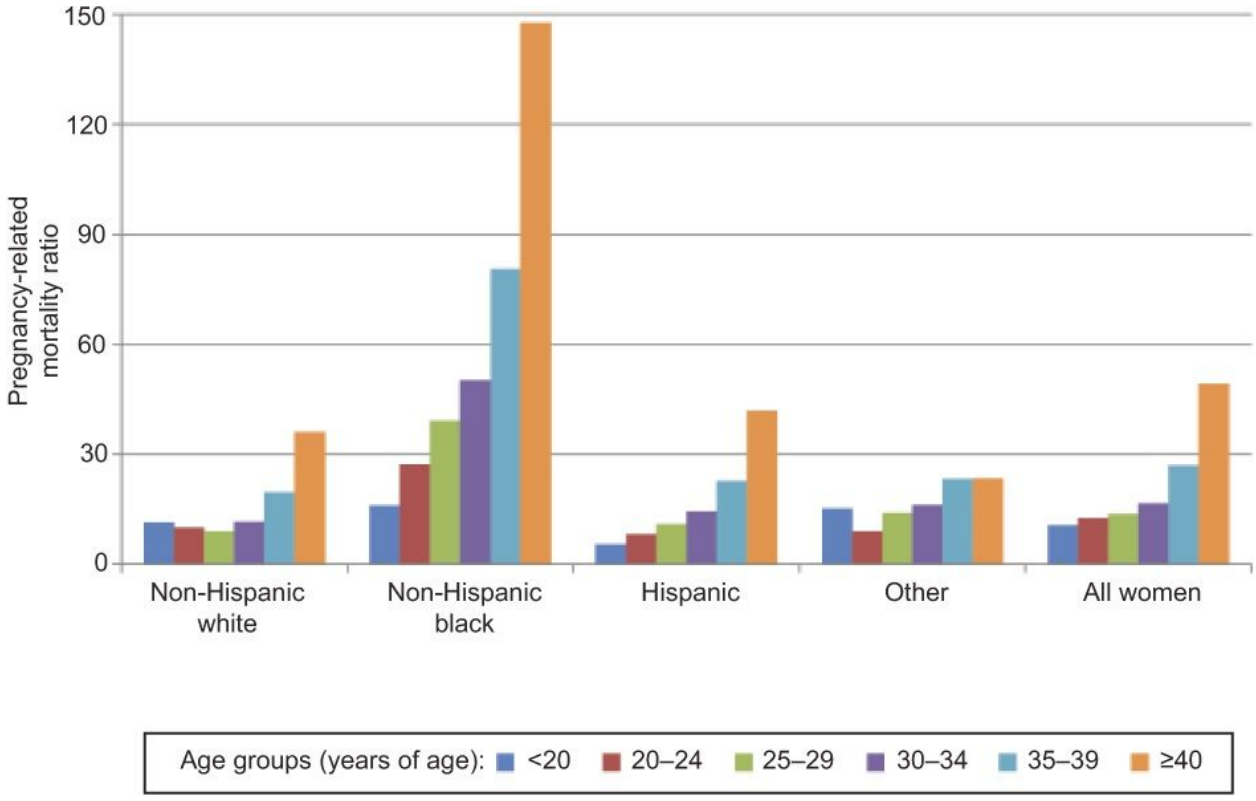
Some literature argues that the focus of MMRCs should be on preconception and interconception care. Preconception care refers to the care of reproductive age women prior to pregnancy, and interconception care refers to this kind of care between pregnancies (Biermann, 2006). The goal is to focus primarily on the health of black women prior to conception through health education and medical interventions (Biermann, 2006). Given this emphasis on preconception care, the management of chronic diseases and infections has become a new method of intervention. The improvement of medical care was associated with the prevention of deaths from hemorrhage and infection, whereas preconception care correlated with the

prevention of deaths from chronic health conditions (Berg et al, 2005). Although hemorrhages and hypertensive disorders, such as eclampsia, sepsis, and embolism account for a high percent of maternal deaths, studies have shown that chronic health conditions like diabetes, chronic heart disease, and obesity are increasing among pregnant women (Creanga et al, 2015). These health conditions may be aggravated by pregnancy and puts women at an increased risk of poor outcomes. In order to address cardiovascular diseases and reduce the rates of infections, suggestions have been made to identify diseases early so they can be managed and to increase the promotion of vaccines (Creanga et al, 2015).

While these suggestions aim to improve maternal outcomes, they fail to fully acknowledge the historical context that is rooted in racialized power structures and how it contributes to the burden of disease and mortality for black women. These power structures manifest as a number of stressors that negatively impact the health of black women. The accumulation of these stressors is referred to as *weathering* (Geronimus, 1996). Weathering is defined as "a physical consequence of social inequality" (Geronimus, 1996). Another term for this is *allostatic load*, which refers to the notion that "chronic accommodation to stress results in wear and tear on the body's adaptive systems (Lu & Halfon, 2003). In essence, the poor health status of black women can in part be attributed to the chronic stress they face everyday. Arline Geronimus, a public health researcher and professor for the Populations Studies Center at the University of Michigan, derived this concept when considering the question of how the stresses of one's environment impact their health and to what extent. She noted trends that disproportionately affect black women and drew conclusions that were based on social and economic factors that lead to stress. An example of the consequences of weathering is that black

women are at an increased risk of adverse maternal health outcomes as they age, which may be attributed to the accumulation of stress over time (Creanga et al, 2015) (Figure 2).

Figure 2. U.S. pregnancy-related mortality ratios by age and race/ethnicity, 2006-2010



Source: Creanga. Pregnancy-Related Mortality in the United States. Obstet Gynecol 2015.

Understanding what these stressors are that accumulate in black women is critical to implementing interventions. One method of analyzing these stressors is the *early programming mechanism*. The early programming mechanism proposes that "exposures and experiences during particular sensitive developmental periods in early life may encode the function of organs or systems that become manifest in health and disease later in life" (Lu & Halfon, 2003). In essence, early life experiences starting at conception may have biological implications that can

result as health disparities later in life. Another method of examining stressors is the *cumulative pathway mechanism*. This mechanism addresses how allostatic load or weathering can affect health over time (Lu & Halfon, 2003). Some studies have found that chronic stress can result in high cortisol levels and immune-inflammatory dysregulation, which can escalate one's risk of chronic diseases (Chrousos, 2000). While there are strengths in both mechanisms in terms of examining the impacts of stress on the body, a dual analysis may provide a more holistic understanding of the overall health of black women. This is referred to as the *life-course perspective*:

> "The life-course perspective reconceptualizes determinants of birth outcomes longitudinally as part of the developmental process for reproductive health; it provides a longitudinal account of the interplay of biological, behavioral, psychological and social protective and risk factors in producing adverse birth outcomes" (Lu & Halfon, 2003).

By implementing a longitudinal approach, racial disparities can potentially be addressed at an earlier stage in a woman's life. In order to do so, community health must be prioritized. This is where CHCs can scale up. Rather than placing too much focus on prenatal care, collaborative efforts should be made over black women's life-course to reduce the burden of disease and mortality.

Another way to analyze weathering is through the historical context of racism in the U.S. Racism can be broken down into three levels: *institutional racism*, *personally mediated racism*, and *internalized racism* (Prather et al, 2016). Institutional racism refers to large institutions or organizations that have the power to impact access to healthcare and the quality of care received for racial minorities (Prather et al, 2016). Personally mediated racism is when healthcare providers are prejudice against racial groups, which results in poor quality care for racial minorities (Prather et al, 2016). Internalized racism occurs when racial minorities embody

socially constructed racial stigmas and biases (Prather et al, 2016). Due to the intersection of race and gender, black women also face a particular form of racism known as *gendered racism* (Rosenthal & Lobel, 2011). Each of these forms of racism contribute to stress. Racism is deeply embedded in the U.S. and has manifested as a history of abuse and mistreatment in the medical system. Given historic abuses of African Americans such as the Tuskegee syphilis experiment and coercive sterilizations, there is a certain level of mistrust of the medical system. This mistrust has direct implications for patient-provider relationships as certain power structures are formed. Women have often reported that they feel "dissatisfied and powerless" during interactions with their physicians (Ratcliff, 2002). There is a need for culturally competent care to improve communication and decision-making in regards to the health of black women (Rosenthal & Lobel, 2011).

This review analyzed black maternal mortality from a reproductive justice framework, a human rights framework, and a standpoint of the direct consequences of racism in the medical system. While there is no clear cut answer as to why racial disparities exist, this review aimed to provide historical and theoretical frameworks that may help explain them. Moving forward, efforts to improve black maternal outcomes must acknowledge these frameworks in order to address the fact that black women are three to four times more likely to die from pregnancy-related complications than white women.

California MMRC: Strengths and Weaknesses

Maternal mortality trends in the U.S. have been on the rise with one particular exception. California's maternal mortality rate had increased from 8.0 deaths per 100,000 live births in 1999

to 16.9 in 2006 (CMQCC, 2018). The California Department of Public Health: Maternal, Child and Adolescent Health Division (CDPH MCAH) responded by allocating funds in partnership with Stanford University's California Maternal Quality Care Collaborative (CMQCC) and the Public Health Institute (PHI) towards the development of a MMRC called the California Pregnancy-Associated Mortality Review (CA-PAMR). Since its institution in 2006, California has seen a 55% decrease in the state's maternal mortality rate between 2006 (16.9) and 2013 (7.3) (CMQCC, 2018). The goals of the CA-PAMR are to "identify possible reasons for the rise in maternal mortality, increase in racial/ethnic disparities, and to develop evidence-informed clinical, policy and programmatic interventions" (CMQCC, 2018). This is accomplished by examining each individual maternal death to determine causes of death, contributing factors, preventability, and quality improvement opportunities (CMQCC, 2018). The main findings of the CA-PAMR report that analyzed maternal deaths from 2002 to 2007 were: "1) cardiovascular disease was the leading cause of pregnancy-related deaths, 2) morbidities such as obesity and hypertension, delayed recognition of and response to clinical warning signs, and a lack of emergency preparedness for obstetric complications, 3) 41% of pregnancy-related deaths were considered preventable, and 4) black women are still three to four times more likely to die of pregnancy-related complications than white women, and that risk is doubled when considering deaths related to cardiovascular disease" (CMQCC, 2018). Given these findings, intervention opportunities can be identified.

Racial disparities were acknowledged by the CA-PAMR; however, they have yet to be addressed. The CA-PAMR was able to create evidence-based toolkits for factors that contribute to maternal deaths that are considered preventable, such as hemorrhages and preeclampsia, but

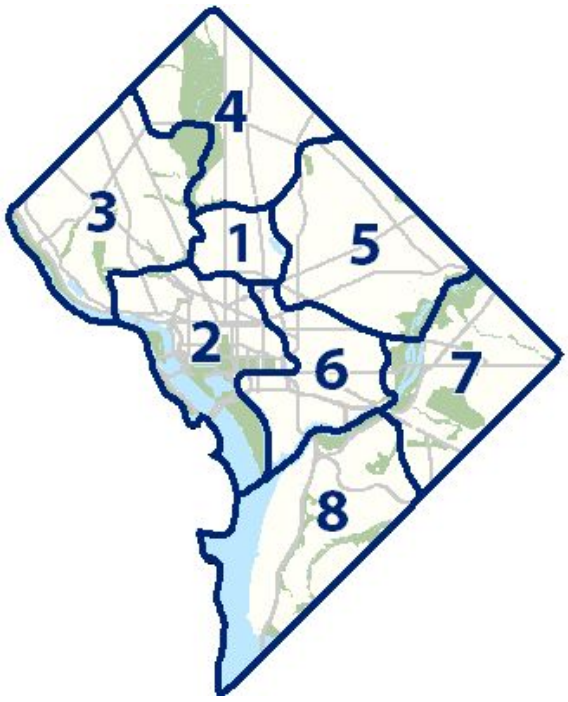
racial disparities remain (MacDorman et al, 2016). Given that black women are still at a higher risk of adverse maternal health outcomes following a decrease in the overall maternal mortality rate in California, efforts must be made to specifically target black women. By utilizing the life-course perspective, CHCs and MMRCs can collaborate to address the racial disparities that impact black maternal health outcomes.

Washington, D.C.

Mothers in Washington, D.C. are twice as likely as the average American woman to die because of pregnancy-related causes (Nirappil, 2018). Between 2011-2015, the black maternal mortality rate in the U.S. was 47.2 maternal deaths per 100,000 live births, whereas the rate in D.C. was 70.9 maternal deaths (United Health Foundation, 2018). An examination of the city's demographics provides an initial foundation to understand why this statistic exists. According to data from the 2013-2017 American Community Survey (ACS) 5-Year Estimates, the population of D.C. is approximately 672,391 (ACS, 2017). Of this population, roughly 40.7% is white, 47.7% is black, and 52.6% are women (ACS, 2017). The median household income is $77,649 and about 56.6% of the population has acquired a bachelor's degree or higher (ACS, 2017). The city is subdivided into eight Wards (Ward 1-8) that are used as a means to elect representatives to the Council of the District of Columbia. The District currently lacks data on the geographic distribution of maternal mortality, but it is known that access to care is a large concern in Wards 7 and 8. Wards 1-6 are located west of the Anacostia River, and Wards 7 and 8 are located east of the river. The Anacostia River then not only serves as a physical divide in the District but also as a socioeconomic and racial split. This has a direct impact on the accessibility of resources,

particularly health resources. While this divide is not a hidden secret, it is quite visible in D.C.'s high maternal mortality rate.

Figure 3. DC Wards 1-8



Source: D.C. Office of Planning

In 2016, there were 40.7 maternal deaths per 100,000 live births in the District, whereas the neighboring states Maryland and Virginia demonstrated lower rates of 25.7 deaths and 13.2 deaths respectively (United Health Foundation, 2018). This issue has been exacerbated in the District by recent hospital or labor and delivery unit closures in high-risk areas of the city, namely Providence Hospital and United Medical Center (Allen, 2018). MedStar Washington Hospital Center also recently cut maternity services and now only accepts one of three Medicaid Managed Care Organizations (MCOs) (Allen, 2018). The reason for this is that MedStar Health, which owns MedStar Washington Hospital, lost a contract with the District that allowed the hospital to utilize its own Medicaid MCO called MedStar Family Choice. As such, patients that

were impacted by this change were transferred to a new plan that is not covered by MedStar Washington Hospital Center (Itkowitz, 2017). Hospital closures and a lack of insurance directly impacts women's ability to access care, particularly low-income black women. Without resources available east of the Anacostia River and hospitals that accept different forms of Medicaid, black women are left without many options. This reflects political and market failure to protect black mothers, as both forces have a direct impact on health outcomes.

Given these alarming statistics in the District, the "Maternal Mortality Review Committee Establishment Act of 2018" was introduced on October 17, 2017 by Councilmember Charles Allen. The committee has set the following goals:

"Maternal Mortality Review Committee Establishment Act of 2018" Goals
1. Identifying and characterizing the scope and nature of maternal mortalities and severe maternal morbidities in the District and of District residents
2. Describing and recording any data, or patterns that are observed surrounding maternal mortalities and severe maternal morbidities
3. Examining past events and circumstances surrounding maternal mortalities and severe maternal morbidities by reviewing records and other pertinent documents of public agencies and private entities responsible for investigating maternal mortality and severe maternal morbidity, or treating pregnant women
4. Developing and revising, as necessary, operating rules and procedures for the review of maternal mortalities and severe maternal morbidities, including identification of cases to be reviewed, coordination among the agencies and professionals involved, and improvement of the identification, data collection, and record keeping of the causes of maternal mortalities and severe maternal morbidities
5. Recommending systemic improvements to promote improved and integrated public and private systems serving pregnant women in the District

6. Recommending components for prevention and education programs
7. Creating a strategic framework for improving maternal health outcomes for racial and ethnic minorities in the District, including reducing disparities in maternal mortality and severe maternal morbidity rates for racial and ethnic minorities
8. Recommending training for maternal health providers to improve the identification, investigation, and prevention of maternal mortalities and severe maternal morbidities.

This research project aims to aid in the efforts of goal number 7. By utilizing community participation in the decision-making process for identifying intervention opportunities, a partnership between CHCs and MMRCs may help the District accomplish its goal of reducing racial disparities in maternal health outcomes.

Methods

This research utilized a qualitative approach to examine how Washington D.C.'s incoming MMRC can partner with CHCs to address the high rate of black maternal deaths in the city. The District was used as a case study and was analyzed using the methods of the CA-PAMR as a baseline example. Both document analysis and interviews were used to answer the research question: How can community health centers in Washington, D.C. coordinate with the incoming Maternal Mortality Review Committee to decrease maternal mortality rates among black women?

Document analysis of a report titled "Perinatal Health and Infant Mortality Report" by the District of Columbia Department of Health was employed to provide additional background information on the state of maternal mortality in the District. This analysis also aids in the

conceptualization of strategies to reduce racial health disparities for black women prior to pregnancy. Interviews were conducted with a wide spectrum of public health professionals. These interviews provided personal attitudes and beliefs about the current state of maternal mortality and the overall care of black women in the District. Additionally, the interviews offered perspectives for potential intervention and prevention opportunities to improve the overall health status of black mothers.

Table 1. List of participants from the study

Name	**Job Title**	**Organization**	**PH Perspective**
Participant #1: **N/A** (Will be referred to as "**Participant #1**")	N/A	DC Council	MMRC / Legislative
Participant #2: **L. Williams**	NICU nurse	A DC hospital	Hospital / Provider
Participant #3: **Ebony Marcelle**	Director of Midwifery	Community of Hope	CHC / Midwife
Participant #4: **Dr. Anjali Talwalkar**	Principal Senior Deputy Director and Senior Deputy Director for the Community Health Administration	DC Health	Department of Health
Participant #5: **Dr. Jamie Hart**	Executive Vice President	Atlas Research	Health management consulting

Data Collection: Document Analysis

The "Perinatal Health and Infant Mortality Report," which was published in May 2018 by the District of Columbia Department of Health, known as DC Health, was analyzed. This report

was chosen because it is the most recent report on the state of maternal health in the District by DC Health. The report was produced as a collaborative effort under DC Mayor Muriel Bowser and DC Health from the Office of the Director, the Center for Policy, Planning and Evaluation, and the Community Health Administration with contributions from the Healthy People Center for Policy, Planning and Evaluation. The data collected for the report was a culmination of vital statistics and strategies to improve health outcomes. The vital statistics include live birth rates to District residents, health characteristics and birth outcomes of women in the District, and percent distributions of live births in the District. DC Health's strategies to improve health outcomes include their driving principles, their framework with seven core priorities, and their approach to improve perinatal health. This approach includes improving preconception health, assuring high quality health services and care, strengthening families, and promoting healthy environments.

The report mainly focuses on perinatal health, which refers to the weeks leading up to birth and shortly after, and infant mortality. This may be the focus of this report because the District already has an Infant Mortality Review Committee (IMRC) in place under the Office of the Chief Medical Examiner. As such, more information is currently available on infant mortality than maternal mortality. Infant mortality is a commonly used indicator to assess the overall health status of an area, but maternal mortality is another strong indicator that needs to be further examined in the District. For the purposes of this research, only key strategies from the report that specifically address maternal outcomes were utilized. Information that was not considered relevant to this research, such as birth outcomes or strategies to reduce the District's infant mortality rate, was not included as the focus of this research is maternal mortality. As such, pages 27 through 64 of the report were omitted from the research because they analyzed birth

outcomes. Although this information was eliminated, it is recognized that these poor outcomes are linked and must be considered in the larger strategy to improve health outcomes. Pages that were deemed suitable for the research were then examined and coded (pg.16-26; 66-86).

The vital statistics and DC Health's strategies in the report were coded by hand in note form. Vital statistics, referring to the birth rates, demographic and socioeconomic profile, and health characteristics of mothers in the District, were coded into five key groups: race, age, education, insurance, and Ward (geographic location). These specific codes were utilized in order to incorporate the frameworks analyzed in the literature review. Applying the reproductive justice framework and the human rights framework requires an examination of the intersection of race, class, gender, and health outcomes. Trends along racial, age, educational, insurance (or lack thereof), and Ward lines were then noted and analyzed to assess this intersectional issue. As maternal outcomes are poor for black women, particularly in Wards 7 and 8, specific comparisons were noted between black mothers and white mothers in the District, as well as between mothers in Wards 7 and 8 versus Wards 1-6. DC Health's current approach to improve perinatal health was coded into four main strategies, which will be listed and analyzed in the Findings and Discussion.

Data Collection: Interviews

Five semi-structured interviews were conducted for this study. Interviews took place over the phone or in person when possible and were held between January and February of 2019. Participants were initially contacted by email for a formal interview request with a consent form detailing the nature of the study and informing them of their rights as a subject. Informed consent

forms were then signed and returned prior to the start of each interview. This was to ensure that participants were aware of their rights in the study and that they had time to ask questions (HSRRC Proposal #: Chic-F18123; Approval date: 12/5/2018). On average, interviews lasted 30 to 45 minutes. Individual subjects were selected based on their expertise and experience with maternal mortality, maternal health, racial disparities, and/or health equity. Their expertise was determined either through a personal relationship or through articles that they have been featured in. Participants were also selected in order to incorporate a few perspectives: a department of health perspective, a CHC and midwife perspective, a MMRC and legislative perspective, a hospital perspective, and a health management consulting perspective. A list of the participants of this study with information that could be released upon their consent is provided in Table 1.

The interviews were semi-structured in order to facilitate a dialogue on the state of maternal mortality in the District. A list of eleven question was used as a baseline, and additional questions were substituted or added as needed. The questions aimed to assess 1) how CHCs might scale up and work with the DC MMRC to specifically impact the health outcomes of black mothers, 2) how race and racism directly play into this issue, and 3) attitudes about the District's current priorities and recommendations to address black maternal mortality moving forward. The list of interview questions used for this research can be found in the appendix.

Detailed notes were taken during each interview. All interviews were audio-recorded with consent solely for coding and analytic purposes. Key points were highlighted in the notes from each interview. Eight common themes were pulled out and coded by hand in note form. A separate document was used to group key points from each interview together under the eight

common themes. The main findings from the interviews are summarized below in the Findings and Discussion section.

Findings and Discussion

Through document analysis and semi-structured interviews, the potential for collaboration between CHCs and Washington, D.C.'s incoming MMRC to be utilized to specifically target black maternal health outcomes was examined. The combination of these qualitative methods provided information on the current state of maternal mortality and overall maternal health indicators in the District, as well as personal attitudes from public health professionals about how to improve the maternal mortality rate among black mothers. The findings from each qualitative method are examined below.

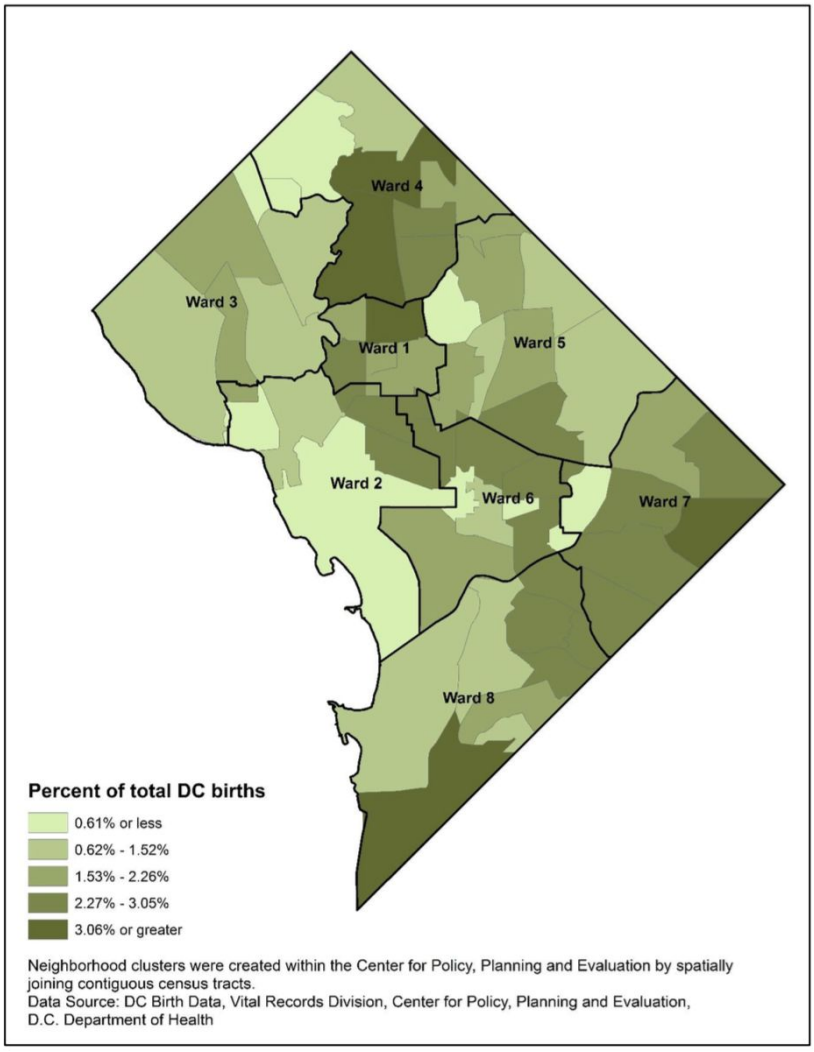
Document Analysis

Vital Statistics by Age

The District's vital statistics demonstrate the current health status of mothers in the city. As such, trends can be noted and a general profile of maternal health characteristics can be formed. The "Perinatal Health and Infant Mortality Report" first notes a change in birth rates by maternal age in the District. For women aged 35-39, the birth rate increased from 58.3 per 1,000 women to 72.9 between 2006 and 2016, and for women aged 40-44, it increased from 17.2 to 21.7 (DC Health, 2018). Teenage birth rates (women aged 15-19) decreased during this same period from 48.3 per 1,000 women to 24.0 (DC Health, 2018). In addition to the age distribution of live births, they were also measured by neighborhood (Ward). Based on data collected

between 2015 and 2016, the highest percentage of live births to DC residents were in Wards 4 and 8 (with Ward 8 having the highest at 17.5%) (DC Health, 2018) (Figure 4).

Figure 4. Percent Distribution of Live Births in DC by Ward, 2015-2016



Source: DC Health. "Perinatal Health and Infant Mortality Report."

Vital Statistics by Race / Ethnicity

In addition to age, other changes in the demographic makeup of mothers in the District were measured between two periods, 2010-2012 and 2013-2016. In regards to race, black

mothers (non-Hispanic) accounted for the majority of DC births (50.2% in 2013-2016), and white mothers (non-Hispanic) accounted for 30.7% (2013-2016) (DC Health, 2018). Maternal education levels were also collected. Between the two time periods, there was an 8.8% decrease in the percent of births to mothers with less than a high school education (24.0% to 15.2%) (DC Health, 2018). This then accounts for the increase in the percent of births to mothers with more than a high school education (53.4% to 61.6%) (DC Health, 2018). Methods of insurance coverage for births in the District also changed during these time periods. Medicaid financed live births decreased from 42.8% to 38.8%, whereas the use of private insurance increased from 38.5% to 45.8% (DC Health, 2018).

The report also measured health characteristics of women in DC prior to pregnancy. Pre-pregnancy characteristics were measured by both race/ethnicity and Ward. When assessed by race/ethnicity, black mothers (non-Hispanic) had the highest percentage of mothers that were overweight or obese prior to pregnancy (55.44%) compared to white mothers (non-Hispanic) (21.30%) (DC Health, 2018). Smoking prior to pregnancy is also most prevalent among black mothers (7.05%) compared to white mothers (0.94%) (DC Health, 2018). Pre-pregnancy diabetes and pre-pregnancy hypertension were also evaluated. Black mothers accounted for a higher percentage than white mothers for both pre-pregnancy diabetes and pre-pregnancy hypertension (1.26% versus 0.25%, and 3.52% versus 1.12% respectively) (DC Health, 2018).

The health characteristics that were measured during pregnancy included when prenatal care was initiated, whether the mother smoked during pregnancy or not, gestational diabetes, gestational hypertension, and eclampsia. The data collected on prenatal care found that only 52.09% of black mothers initiated prenatal care in the first trimester compared to 86.17% among

white mothers (DC Health, 2018). Additionally, 4.26% of black mothers had no prenatal care, which is the highest among the racial/ethnic groups examined (DC Health, 2018). In terms of tobacco use, 4.60% of black mothers reported that they smoked during pregnancy, whereas only 0.43% of white women reported this behavior (DC Health, 2018). The percentage of gestational diabetes, gestational hypertension, and eclampsia among black mothers and white mothers was 3.25% and 2.28%, 5.94% and 5.88%, and 0.50% and 0.31% respectively (DC Health, 2018).

Table 2. DC Maternal Health Characteristics by Race/Ethnicity

	Race	
Health Characteristics Prior to Pregnancy	**Black**	**White**
Overweight or Obese	55.4%	21.3%
Smoking	7.05%	0.94%
Pre-pregnancy Diabetes	1.26%	0.25%
Pre-pregnancy Hypertension	3.52%	1.12%
Health Characteristics During Pregnancy		
Initiation of Prenatal Care		
First Trimester	52.1%	86.2%
No Prenatal Care	4.26%	0.23%
Smoking	4.60%	0.43%
Gestational Diabetes	3.25%	2.28%
Gestational Hypertension	5.94%	5.88%

Eclampsia	0.50%	0.31%

Vital Statistics by Ward (Geographic Location)

In addition to race/ethnicity, maternal demographics of live births were geographically assessed by Ward. As maternal outcomes are particularly poor for mothers in Wards 7 and 8, comparisons were noted between mothers in these Wards versus Wards 1-6. The highest percentages of black mothers are in Wards 7 (91.42%) and 8 (89.52%) (DC Health, 2018). Wards 7 and 8 also have the highest percentages of young mothers (under 24 years old). For Ward 7, 30.10% of mothers are 20-24 years old and 9.01% are under 20 years old (DC Health, 2018). In Ward 8, 32.0% of mothers are 20-24 years old and 9.36% are under 20 years old (DC Health, 2018). Mothers in Wards 7 and 8 are also more likely to be unmarried (80.66% and 81.43% respectively) (DC Health, 2018). In regards to maternal educational attainment, most mothers in Wards 7 have a high school education or less (54.83%) (DC Health, 2018). This is the same case in Ward 8 in which 58.63% of mothers have a high school education or less (DC Health, 2018). Wards 7 and 8 also have the highest percentages of mothers who are covered by Medicaid (64.82% and 69.44% respectively), whereas the majority of mothers in other Wards are covered by private insurance (DC Health, 2018).

Pre-pregnancy characteristics were also evaluated by Ward. Prior to pregnancy, more than half of the mothers in Wards 7 and 8 were overweight or obese. In Ward 7, they accounted for 55.97% of the population, and in Ward 8, they accounted for 56.51% of the population (DC Health, 2018). Wards 7 and 8 also have the highest percentages of mothers who smoked prior to pregnancy (7.03% and 8.98% respectively) (DC Health, 2018). Pre-pregnancy diabetes was present in 1.17% of mothers in Ward 7 and 1.42% of mothers in Ward 8; however, Ward 5 has a

higher rate than Ward 7 (1.32%) (DC Health, 2018). For pre-pregnancy hypertension, it was reported present in 3.77% of mothers in Ward 7 and in 3.81% of mothers in Ward 8, which are the highest percentages in all eight Wards (DC Health, 2018).

For health characteristics that were measured during pregnancy by Ward, the initiation of prenatal care during the first trimester was lowest in Wards 7 and 8 compared to Wards 1-6, and the percentage of mothers that received no prenatal care was highest in Wards 7 and 8. In Ward 7, 55.26% of mothers started prenatal care during the first trimester and 3.88% received no prenatal care (DC Health, 2018). In Ward 8, 50.75% of mothers started prenatal care during the first trimester and 5.58% received no prenatal care (DC Health, 2018). This is compared to the highest percentage of mothers receiving prenatal care during the first trimester in Ward 3 (85.82%), which is predominantly white (DC Health, 2018). The highest percentages of mothers who smoked during pregnancy also live in Wards 7 and 8 (4.47% and 5.82% respectively) (DC Health, 2018). These vital statistics confirm that racial disparities exist, so new strategies must be put in place to specifically target black mothers, particularly in Wards 7 and 8.

Table 3. DC Maternal Demographics and Health Characteristics by Ward

	Ward		
Maternal Demographics	**Ward 7**	**Ward 8**	**Ward 3**
Percentage of Black Mothers	91.4%	89.5%	5.20%
Maternal Age			
20-24 years old	30.1%	32.0%	1.76%
Under 20 years old	9.01%	9.36%	0.20%

Marital Status			
Married	19.0%	18.2%	92.3%
Unmarried	80.7%	81.4%	7.42%
Maternal Education Level			
High school or less	54.8%	58.6%	2.80%
More than high school	43.7%	39.9%	96.4%
Insurance Type			
Medicaid	64.8%	69.4%	4.36%
Private Insurance	21.7%	18.6%	91.2%
Health Characteristics Prior to Pregnancy			
Overweight or Obese	55.9%	56.5%	20.2%
Smoking	7.03%	8.98%	0.98%
Pre-pregnancy Diabetes	1.17%	1.42%	0.59%
Pre-pregnancy Hypertension	3.77%	3.81%	0.91%
Health Characteristics During Pregnancy			
Initiation of Prenatal Care			
First Trimester	55.3%	50.8%	85.8%
No Prenatal Care	3.88%	5.58%	0.33%
Smoking	4.47%	5.82%	0.39%

DC Health's Current Strategies to Improve Perinatal Health Outcomes

The strategy set forth by DC Health to improve perinatal health outcomes includes *four main objectives*: 1) using a life-course perspective, 2) addressing the social determinants of health, 3) implementing systems level interventions, and 4) building collective impact (DC Health, 2018). In order to meet these objectives, there are *seven core priorities*:

> "1. Every teenage girl and woman in DC is in control of her reproductive health.
>
> 2. Every pregnant woman receives patient-centered, high quality prenatal care beginning in the 1st trimester.
>
> 3. Every healthcare provider has the tools and resources they need to provide quality care and manage complex social needs of women and infants.
>
> 4. Every healthcare facility providing maternal and infant care has the tools and resources to practice evidence based health care and to document QI/QA activities.
>
> 5. Every newborn receives high-quality neonatal care in the hospital and outpatient setting.
>
> 6. Every patient has the life skills and resources needed to nurture and provide for their family.
>
> 7. Every infant, mom, and dad has a safe and healthy environment to thrive and receive the support they need to promote early childhood development and learning." (DC Health, 2018).

These core priorities are then considered in *four strategic areas*: 1) improving preconception health, 2) assuring high-quality healthcare, 3) assisting District families with preparing and caring for children, and 4) promoting safe and healthy environments (DC Health, 2018). These broader strategic areas were coded and analyzed as a few different strategies, which is summarized in Table 4.

Table 4. DC Health strategies to improve perinatal health outcomes, 2018

	Goal/Mission	**Programs**
Strategy #1: **Primary Care**	"To establish a relationship with a primary care provider; be screened for health conditions; receive healthy lifestyle counseling; as well as discuss reproductive life planning" (DC Health, 2018)	● **One Key Question (OKQ)**: "Would you like to become pregnant in the next year?" ○ Providers can help women plan for pregnancy or plan to prevent pregnancy
Strategy #2: **SNAP-Ed and food access**	"To prevent obesity and related chronic diseases by promoting increased consumption of healthful foods and daily physical activity for low-income residents" (DC Health, 2018)	● **SNAP-Ed (Supplemental Nutrition Assistance Program Education Program)** ○ Emphasis on early childhood development centers/ schools to initiate healthy eating habits early ● **Joyful Markets** ○ Monthly community event in Wards 7 and 8 elementary schools where children and families can select up to 23 lbs of fresh produce (per student) ● **Healthy Corner Stores** ○ Encourages fresh produce options at corner stores in Wards 5, 7, and 8 ● **Home Delivered Meals** ○ Delivers healthy meals and nutrition services for chronically ill residents ● **Produce Plus** ○ Incentive check are given to low-income residents for them to use at local farmer's markets ● **Produce Prescription Program** ○ Checks for fresh produce are prescribed by health providers to their patients with chronic illnesses

Strategy #3: **Reduce tobacco use**	"DC Health oversees a comprehensive tobacco control program which aims to prevent residents from starting to use tobacco and to help those residents who do use tobacco to quit" (DC Health, 2018)	● **Tobacco quitline (1-800-QUIT-NOW)** ● **Support programs that target women and children**
Strategy #4: **Chronic disease management**	"For those residents with chronic illness, DC Health aims to work with health systems and communities to help residents achieve optimal management" (DC Health, 2018)	● **Million Hearts Program** ○ Engages healthcare stakeholders to implement evidence-based QI strategies to improve blood pressure control ● **Chronic Disease Self-Management Program** ○ Prevention and health promotion program ● **Diabetes Prevention Program** ○ Prevention and health promotion program
Other Strategies	Other initiatives to improve pre-pregnancy health and family planning	● **Promoting adolescent-friendly health centers** ● **Increasing the availability and usage of long-term, reversible contraceptives** ● **Collaborating with education agency partners to ensure evidence-based, comprehensive sex education in schools** ● **Pregnancy Risk Assessment Monitoring System (PRAMS)**

Interviews

Interviews collected data from a range of public health perspectives, but there were a few common themes. The following themes are the key findings of this methodology:

1. Need for MMRCs
2. Maternal *mortality* vs. maternal *morbidity*
3. Life-course perspective: preconception and postpartum care
4. Medicaid expansion
5. Utilize innovative models of care
6. Need to explicitly address race and weathering
7. Placing black women in leadership positions
8. Multi-sector partnerships: CHCs

These themes serve as umbrella strategies to address black maternal mortality in the District. Specific ideas about how these ideas can be executed and why they are important are examined below.

1. There is a need for a MMRC in order to collect clear data on the state of maternal mortality in the District

All five participants discussed the need for MMRCs in order to systematically examine maternal deaths. MMRCs are created to assess maternal deaths in order to identify potential intervention and prevention opportunities. Prior to the institution of MMRCs, many states failed to accurately report a maternal mortality rate. As such, participants agreed that establishing the MMRC in the District affords the city the opportunity to collect the best data on maternal

outcomes. This will allow public health officials to understand what the real issues are that are specifically contributing to the city's high black maternal mortality rate. Additionally, Dr. Talwalkar from DC Health stated that the information collected from the MMRC can also help them monitor where the problem is and how many people their intervention strategies are reaching (Talwalkar, 2019).

Collecting good data is important, but it is only the first step. Dr. Hart from Atlas Research explained that it is crucial to ask the right questions in different communities to ensure that you understand what the risk factors are (Hart, 2019). Then, the data can be used to target strategies and inform policy. In order for MMRCs to do more than simply review deaths, the committee's recommendations must be translated into interventions that can be implemented. Dr. Talwalkar discussed this idea as something she called the "Public Health 3.0 Model." She explained that her department has moved from a "Public Health 2.0 Model," which focuses on direct services, to the "Public Health 3.0 Model," which is more policy-based to address inequities (Talwalkar, 2019). Given this shift, collaborating with CHCs may be key in order to continue supporting direct services.

MMRCs must be utilized to gather the most up-to-date data on maternal mortality. In regards to black maternal mortality, the correlation between health inequities and the social determinants of health must be considered. The social determinants of health is a broad umbrella term for a number of factors that influence health. As such, Dr. Hart argued that it is vital for MMRCs to strategically prioritize their goals (Hart, 2019). In order to improve black maternal health outcomes, collaborative efforts are necessary to ensure that stakeholders agree on a strategy. Dr. Hart also stated that money has to be behind these strategies in order for them to be

properly executed. She explained that federal level programs sometimes fail here because more money is often allocated towards technical assistance rather than on the interventions themselves, as well as an evaluation of those interventions (Hart, 2019). Moving forward, MMRCs must work to strategically pinpoint strategies to improve black maternal health outcomes.

2. *There is a difference between maternal mortality and maternal morbidity, and both need to be addressed in the District*

There is a distinction between maternal *mortality* and maternal *morbidity* that a few participants found important to acknowledge. Maternal *mortality*, or a pregnancy-related death, refers to "The death of a woman during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy" (CMQCC, 2018). Maternal *morbidity* refers to "any physical or mental illness or disability directly related to pregnancy and/or childbirth…[which] are not necessarily life-threatening but can have a significant impact on the quality of life" (Koblinsky et al, 2012). Similarly to defining maternal mortality, there are inconsistent definitions of maternal morbidity, which causes confusion and issues in measurement as well.

Maternal morbidities are also a large issue in Washington, D.C. in addition to maternal mortality. L. Williams from a DC hospital argued that maternal morbidities are a problem in the District because chronic health conditions are not adequately treated and then are exacerbated by

pregnancy (Williams, 2019). Chronic diseases impact both maternal mortality and maternal morbidities. This points to where intervention needs to happen, which is preconception. In order to negate the impact of chronic conditions on maternal health outcomes, chronic diseases require proper management prior to pregnancy.

3. The life-course perspective should be utilized to ensure that black women are healthy prior to, during, and after pregnancy because addressing health during pregnancy is too late

In order to improve black maternal health outcomes, the health status of black women prior to pregnancy must be considered and improved. Prevention should be the goal and it requires early interventions. When reflecting on DC Health's "Perinatal Health and Infant Mortality Report," Dr. Talwalkar stated that it tells a clear story of what is happening in the District. The issue starts with the kind of care, or lack thereof, that black women receive before they are pregnant, and as Dr. Talwalkar expressed, "You can't reset health in the first trimester of prenatal care" (Talwalkar, 2019). Given the findings of the report, the life-course perspective should be utilized to inform policy to improve black women's health outcomes.

A main strategy to incorporate the life-course perspective should be identifying issues early on so that they can be addressed before it is too late. Dr. Talwalkar argued that this may be accomplished by shifting from a clinical standpoint to a population health standpoint (Talwalkar, 2019). Essentially, strategies moving forward need to go beyond just medical improvements and include improving access to and the quality of care. L. Williams agreed with this idea and

explained that there is a need to change how black women first experience healthcare (Williams, 2019). She continued by saying that black women often do not enter the healthcare system unless it is an emergency or they are pregnant, which is often too late (Williams, 2019). In addition to improving black women's initiation into healthcare, the broader social determinants of health need to be considered as well. Dr. Hart explained that reproductive justice, which acknowledges the social determinants of health, must be integrated into the preconception health framework (Hart, 2019). Under this framework, there should be a focus on the health of black women when they are not pregnant, as their health status has an impact on their potential future pregnancies. This directly relates to a woman's right to have children in a healthy and safe way.

4. Medicaid should be expanded and additional protections should be put in place for black mothers

Although race is the main indicator that is being analyzed in this research, access remains an issue as well. This is particularly relevant in states that chose not to expand Medicaid under the Affordable Care Act (ACA). Washington, D.C. actually expanded Medicaid on January 1, 2014; however, many like Ebony Marcelle from Community of Hope remain frustrated with the intricacies of Medicaid MCOs that limit women's access to care. Marcelle expressed that roughly 90% of her patients use Medicaid, which has three different types of MCOs and not all hospitals accept all three (Marcelle, 2019). As such, a number of black women are left with very limited options in regards to the care that they can receive. Another issue with this that Participant #1 from the DC Council pointed out is that this issue with Medicaid hinders black

women's autonomy in achieving their optimal health status (Participant #1, 2019). In response to this, Participant #1 stated that there should be additional coverage for postpartum care, specifically for lactation consultants to support the autonomy of black women in this process and their overall health (Participant #1, 2019).

5. *The District needs to utilize innovative models of care to address black maternal mortality*

Following promising practices is a common first step when trying to strategize how to address an issue, and maternal mortality is no exception. Dr. Talwalkar stated that looking at what has worked in other states and implementing those strategies should be the minimum (Talwalkar, 2019). Dr. Hart expanded on this point by saying that it is important to pull out promising practices and follow collaborative models, but it is important to adapt those strategies to the location and context of the issue (Hart, 2019). For example, many states look at California's MMRC as it has contributed to the drastic decrease in the state's maternal mortality rate; however, racial disparities remain, so it is important for the District to acknowledge that and specifically work to address these disparities. This is also particularly relevant in the District as there is a high population of black mothers.

Participants suggested a few models for the District to follow. Ebony Marcelle explained that a midwife model of care should be used to improve black maternal health outcomes. This model, as she explained, includes predominantly women of color providers, cultural competency, wrap around services, care coordination, and centering or group care (Marcelle, 2019). Each of

these components play a vital role in gaining black women's trust and ensuring quality care. Having a provider that looks like you or a provider that is culturally competent can help negate the issue of generational mistrust. Care coordination is also important to improve the quality of care. Marcelle shared that her patients have a reproductive care coordinator, a perinatal care coordinator, in house lactation, and integrated behavioral health (Marcelle, 2019). Collaboration between these different coordinators allows for these women to receive personal, individualized care from midwives and doulas. In terms of centering or group care, Participant #1 agreed that this aspect of the midwife model of care offers a safety net and circle of support for pregnant women (Participant #1, 2019). At Community of Hope, where Marcelle works, women in their sixth month of pregnancy can join the CenteringPregnancy® group. Some of the benefits of this group include "(1) Interactive learning and fun discussion in a relaxed setting with other moms due at the same time as you, (2) Education about labor, breastfeeding and basic newborn care, (3) Games, food and chances to win prizes or receive gifts for your baby, and (4) Continue to have one-on-one checkups with the midwife during group" (Community of Hope, 2019). Creating this sense of community for pregnant women can specifically support black mothers in a significant way.

Another suggested model to follow is the social determinants of health approach. Dr. Hart argued that prevention and larger systems need to be examined (Hart, 2019). She continued by stating that simply looking at healthcare is too late, so a more holistic approach that looks at black women's health early on is needed (Hart, 2019).

6. Providers need to explicitly address race, racism, and weathering

Given the racial disparity, all participants found that there is a need to address race explicitly when discussing maternal mortality. Participant #1 shared that the initial bill for the DC MMRC did not discuss race, but it came out during a hearing that it needed to be addressed in detail (Participant #1, 2019). Ebony Marcelle expressed that education level and socioeconomic status have been considered as the driving factor for maternal health outcomes, but they have been controlled for in various studies, and race is the remaining factor that must be analyzed (Marcelle, 2019). She then explained that race should be the first priority now as "We've already looked at everything else for over fifty years and it's not working" (Marcelle, 2019). As such, race and the implications of racism on health outcomes should be examined more closely.

Institutionalized and structural racism play a large part in the issue of maternal mortality according to Marcelle. Dr. Talwalkar agreed with this point and added that structural and individual racism has led to different policies that play into how healthy a person can be (Talwalkar, 2019). Another component of this is racism as a stressor and its impact on health outcomes. Dr. Hart stated clearly that racism is a stressor and that she is happy to see more studies on the concept of weathering; however, it still is not a topic of mainstream conversations (Hart, 2019). More explicit conversations need to be had on race and weathering in order for people to understand it and address how it impacts black maternal health outcomes. L. Williams explained that institutional racism and different sources of stress must be examined (Williams, 2019). She continued by saying that topics like incarceration and how it impacts a family

structure lead to stress and should also be considered when addressing black maternal mortality (Williams, 2019). Stressors linked to racism are forms of trauma that puts black women at risk for risky behaviors and chronic diseases, which can carry across generations according to Dr. Talwalkar (Talwalkar, 2019). Marcelle made a similar point by claiming that it is a generational issue, so "one stressed person affects the next four generations" (Marcelle, 2019). In order to stop poor health outcomes from progressing through generations, early interventions must be put in place.

Increasing trainings on how to address racial bias has often been a suggestion to combat this issue, but both Marcelle and Dr. Hart find that implicit bias trainings are not enough. Marcelle made this clear by stating that "A couple of hours in a room is not going to reset years of racism" (Marcelle, 2019). It is vital to get at the root causes of adverse black maternal health outcomes, which requires a close examination of the current health system. According to Marcelle, the U.S. health system continues to blame women (Marcelle, 2019). It used to blame access to care or chronic diseases, such as obesity, as the reason for poor maternal health outcomes, but the racial disparity remains. Marcelle argued that Serena Williams and Kira Johnson represented the epitome of health, yet they still had poor outcomes (Marcelle, 2019). The health system can no longer blame women, and instead must assess how racism structurally impacts health outcomes.

7. Black women need to be placed in leadership positions

The midwife model of care calls for an increase in women of color providers. This was also a common theme among participants. Ebony Marcelle expanded on this point by saying that

there needs to be more providers of color across all disciplines (Marcelle, 2019). In order to truly understand disparities, Dr. Hart stated that the broader workforce also needs to be diversified (Hart, 2019). The other component of this is simply listening to black women. There is a need for black women to be included in the conversation and actually listened to according to L. Williams (Williams, 2019). Marcelle also explained that black women know their bodies and needs better than anyone, so black women led initiatives must be utilized (Marcelle, 2019). Although it seems quite simple to listen to black women, their concerns often go unaddressed until it is too late. Placing more black women in leadership positions would allow for the voices of black women to be heard and advocated for.

8. Multi-sector partnerships must be utilized, especially CHCs

This research aimed to focus on the potential for collaboration between MMRCs and CHCs, and participants spoke at length about the significance of this partnership. Not only can CHCs provide direct services, but they can also advocate on behalf of the communities they serve to inform policy to serve their interests. Participant #1 explained that CHCs have a valuable perspective because they have community input, and we can't solely rely on providers to get at the root and long-term causes (Participant #1, 2019). Dr. Talwalkar also found CHCs to be a critical partner. She stated that they can help clarify the distinction between the social determinants of health and the social needs of patients. The social determinants of health is a part of public health vernacular, but she argued that providers incorrectly talk about addressing the *social determinants* when they really mean the *social needs* of their patients, which looks more

closely at the individual patient level rather than population level (Talwalkar, 2019). Dr. Talwalkar then stated that CHCs know the struggles of their patients and their communities and can then advocate for policy changes to impact the population level to address the social determinants of health (Talwalkar, 2019).

CHCs can also be utilized to promote programs through outreach. L. Williams explained that CHCs can help market certain services, such as transportation to healthcare services, especially among minority women (Williams, 2019). There is still a sense of mistrust, so she argued that black women may be more likely to go to a CHC to have a provider that looks like them and knows their community (Williams, 2019). Similarly, Ebony Marcelle claimed that black women want providers who look like them because it makes a difference in their healthcare experience (Marcelle, 2019). In terms of outreach, Dr. Talwalkar explained it in two forms: low-touch and high touch. Low touch refers to strategies like advertisements on a bus or commercials, whereas high touch refers to supporting CHCs to do outreach (Talwalkar, 2019). In order to improve black maternal health outcomes, Participant #1 found that CHCs can be used to target black women's entry point into the healthcare system prior to pregnancy to improve their experiences (Participant #1, 2019). CHCs can also promote group care to create a network of support like the model at Community of Hope. Dr. Hart added that CHCs can also increase knowledge about preventative care and do more direct outreach to women and the community about maternal mortality and how to access primary and prenatal care (Hart, 2019).

While participants agreed that CHCs are a critical partner, there were a few areas where they could scale up. Marcelle expressed frustration that there is not a hospital east of the Anacostia River, which results in limited access to care for women in Wards 7 and 8 (Marcelle,

2019). As such, CHCs may increase outreach to these specific Wards to ensure that their right to care is being met. Another concern made by Dr. Hart is that CHCs collect good data, but they all collect it differently, which is a challenge (Hart, 2019). She expressed a need for common data measures and for CHCs to agree on what they want to track (Hart, 2019). In summary, CHCs are in a position to positively impact the health of black women. The partnership between CHCs and MMRCs lies in the recommendations that come out of the MMRCs according to Marcelle (Marcelle, 2019). CHCs then put these recommendations into action. Dr. Hart agreed with this point and stated, "The data tells the story, so now we need to help people understand it" (Hart, 2019).

Policy Recommendations

The following policy recommendations aim to address the key findings derived from this research. These recommendations are directed at Washington, D.C.'s MMRC to consider and implement in collaboration with local CHCs. Understanding how a partnership between MMRCs and CHCs may be utilized to improve black maternal mortality rates was the main goal of this research, and the following suggestions offer ways that the District may be able to accomplish this.

Policy Recommendation 1: Implement the midwife model of care

Innovative models of care are needed to address the high maternal mortality rate in the District. As such, the midwife model of care should be utilized to improve outcomes. By

incorporating a model that includes predominantly women of color providers, cultural competency, wrap around services, care coordination, and centering into a strategic course of action, black maternal health can be prioritized. All of these components combined can work to ensure that black women receive coordinated, high quality care over their life-course.

Two strategies that should be prioritized are care coordination and centering. Utilizing coordinators for reproductive care, perinatal care, and postpartum care can help to make sure that women receive care during vital periods. Creating an emphasis on coordination may keep women engaged in their care, and it may reduce the rate of women who drop out of the healthcare system due to poor experiences. Care coordination should aim to be comprehensive in all stages of care. This includes services such as family planning, lactation support, and mental health. Centering should also be expanded to create a support system for pregnant black women who may feel isolated during this period. Creating a space for black women to learn about their pregnancies, share their own stories, and be heard could be a key strategy to improve black maternal health outcomes. This kind of space may help alleviate any stress or anxiety that a black woman might have by offering them a different source of support. By being in a group with other pregnant mothers of color, black women may not feel as though they are alone and might find comfort in discovering shared experiences through their pregnancies.

Policy Recommendation 2: Increase funding for CHCs and expand family planning / health education

CHCs offer comprehensive, quality care to at-risk populations. They are community-based, which allows them to prioritize the specific needs of the community. In order

to increase the capabilities of CHCs, more funding should be allocated directly to them to support the communities they serve. By directly funding CHCs, the quality of care and access to care can be expanded. This could manifest as an extension of clinic hours, increased service capabilities, and increased outreach and education efforts.

In terms of scaling up, increasing funding for CHCs could provide enough resources to include centering at more clinics. From a preventative standpoint, some funds can also be used to expand family planning and health education campaigns. There is a high rate of young mothers in the District, so in order to reach younger black women, the creation of a social media campaign may be beneficial. This form of outreach over Instagram, Twitter, and Facebook could help inform women of the kinds of services that are available to them. Additionally, this kind of campaign could connect women with local providers. Similar health campaigns for topics such as HIV/AIDS can be used as a model for media outreach. A social media campaign could also aim to address tobacco use, as smoking rates prior to and during pregnancy are higher among black women compared to other racial groups. Black women may smoke as a means to cope with stress, so it is critical to pinpoint the root causes of stress. For example, racism needs to be addressed directly as a source of stress that may translate into engaging in risky behaviors.

Another preventative strategy is partnering with school health centers to improve health outcomes. Health centers in schools should be better utilized to reach young people. Health education should be comprehensive and start early to let young people know all of their options regarding family planning. CHCs and school health centers should also collaborate to provide resources and referrals for family planning services. CHCs will help implement the suggestions that arise from the DC MMRC, so sufficient funds must be there to support them.

Policy Recommendation 3: Expand access to care in Wards 7 and 8

Access to care is a major issue in the District, particularly in Wards 7 and 8. Given the recent hospital closures and changes in Medicaid acceptance, many mothers east of the Anacostia River have limited options when it comes to accessing healthcare. A number of interventions can be utilized to improve maternal health outcomes in Wards 7 and 8. A long-term goal should be to open a birth center or hospital in Ward 7 or 8, but a short-term goal would be to expand transportation options to improve access to care. This could potentially be a partnership between CHCs and the metro, Uber, or Lyft to ensure that women can make it to all of their appointments. Medicaid covers some transportation costs, so including more methods of transportation can give women more options. This suggestion is another reason why increasing funding for CHCs is important in order to support these kinds of services.

Another suggestion that may help bridge the gap in access to care is telehealth, which refers to a method of care that is given through the use of telecommunication. If a woman has a question or just wants to check in with a doctor, they can communicate over a video call rather than having to find a way to physically get to a hospital. CHCs, particularly in Wards 7 and 8, should be used as an intermediate to connect women via telehealth with partnering hospitals if they need some form of specialty care that cannot be addressed at a CHC. This partnership would require commitment from both CHCs and hospitals to ensure that it provides quality care and is cost-effective. Creating a texting service may also assist in improving access by directly connecting women with resources or a provider. This could be a low-cost intervention that personally engages women with healthcare. A texting service could also be utilized to target

younger women in underserved areas to introduce them to the healthcare system earlier than pregnancy.

Policy Recommendation 4: Create a toolkit and training on race / racial bias for providers

Similarly to the toolkits created by California's MMRC (CA-PAMR) on how to respond to the leading causes of preventable maternal death, a toolkit on race and racial bias should be created to ensure that women in the District have access to culturally competent, respectful, high quality care. Decreasing black maternal mortality rates requires more than medical interventions, so this kind of toolkit can aid in addressing the underlying impact that race has on maternal health outcomes. Ensuring culturally competent, respectful, and high quality care is important because it will directly influence a woman's decision to seek care or not. Improving the quality of care through racial bias trainings will allow providers to have explicit conversations about race in a way that may help reduce feelings of mistrust. Acknowledging bias is the first step, and then providers must actively work to improve the standard of care for black women.

Limitations

While this research accomplished its goal of analyzing the potential for a partnership between CHCs and Washington, D.C.'s MMRC, it does have certain limitations. As the methods utilized were strictly qualitative and evaluated personal attitudes and current strategies to address maternal mortality, a quantitative measurement of whether collaboration between CHCs and the

MMRC would improve black maternal health outcomes was not possible at this time. Future studies should aim to analyze forthcoming annual trends to determine the effectiveness of existing and new strategies to improve maternal health outcomes. Once these strategies have been implemented, a report that mirrors the "Perinatal Health and Infant Mortality Report" should be created to specifically observe maternal mortality trends in the District.

Conclusion

Maternal mortality is complex issue, and when racial disparities are considered, it becomes even more so. Given the high maternal mortality rate in Washington, D.C., especially among black mothers, innovative strategies are needed to improve maternal health outcomes. This research aimed to address this need by asking the following question: How can community health centers in Washington, D.C. coordinate with the incoming Maternal Mortality Review Committee to decrease maternal mortality rates among black women? This question was examined through document analysis and interviews, and the research found that there is a large amount of room for improvement. The first step is to simply listen to black women. Black women know their bodies better than anyone else, so they know what their needs are. The next step is to incorporate their voices and concerns into the recommendations from the MMRC. CHCs should then be supported to implement the suggestions from the MMRC and specifically target their outreach efforts towards black women to improve black maternal health outcomes.

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Appendix

Interview Questions

Community Health Center Interviews:

1. In your own words, what are the goals of your organization?
2. Please describe your role in the organization.
3. What is your organization's specific work as related to maternal health? How does your organization think about preventative care? What services do you offer? What are the limitations to these services?
4. What types of community outreach does your organization conduct? To what populations? What types do you feel are most successful?
    a. In terms of general recruitment; Specific demographic outreach? (Are there outreach efforts made to recruit black women?)
5. What factors do you believe are driving the high black maternal mortality rate in D.C.? Can you share any stories?
    a. What role, if any, does race play into this issue?
6. Have you heard of allostatic load, cumulative vulnerabilities/stressors, or weathering? What are your thoughts on it and how does it impact your perspective on primary care?
7. What safety nets can be put in place to improve these rates? What is your organization doing?
8. Have you heard of Maternal Mortality Review Committees (MMRCs)? What do you think of them? What do you think is a benefit and limitation of a MMRC?
9. What else can be done? What are other interventions in addition to these MMRCs?
10. What kind of knowledge or information do you think your organization could provide for the MMRC?
11. Is there anything else that you would like to share with me that I haven't asked about? Anyone else I should talk to?

Department of Health / Maternal Mortality Review Committee Interviews:

1. In your own words, what are the goals of your organization?
2. Please describe your role in the organization.
3. What is your organization's specific work as related to maternal health?
4. What are the goals of a Maternal Mortality Review Committee (MMRC)?

5. What do you think is a benefit and limitation of a MMRC?
    a. Small intervention?; CA MMRC focuses solely on intervention in hospitals
6. What else can be done? What are other interventions in addition to these MMRCs?
7. What factors do you believe are driving the high black maternal mortality rate in D.C./the country? Can you share any stories?
    a. What role, if any, does race play into this issue?
8. Have you heard of allostatic load, cumulative vulnerabilities/stressors, or weathering? What are your thoughts on it and how does it impact your perspective on primary care?
9. What partnerships does your organization have to address maternal mortality? Does this include community health centers (CHCs)? Why or why not?
10. How might a MMRC benefit from a partnership with CHCs? How can a MMRC collaborate with CHCs to promote early, preventative, prenatal, and postpartum care for black women?
11. Is there anything else that you would like to share with me that I haven't asked about? Anyone else I should talk to?