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## Maternal mortality in the United States: Focusing on societal impacts and potential solutions

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MATERNAL MORTALITY IN THE UNITED STATES: FOCUSING ON SOCIETAL  
IMPACTS AND POTENTIAL SOLUTIONS

A Thesis Submitted  
in Partial Fulfillment  
of the Requirements for the Designation  
University Honors

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This study by: Grace Petrzelka

Entitled: Maternal Mortality in the United States: Focusing on Societal Impacts and Potential Solutions

has been approved as meeting the thesis or project requirement for the Designation University Honors.

11/11/2021 Dr. Michele Devlin, HRCS

Date, Honors Thesis Advisor

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Date, Dr. Jessica Moon, Director, University Honors Program

## DEDICATION

I want to thank all of the faculty and staff at the University of Northern Iowa for their wonderful guidance throughout this research project. Thank you for believing in me, and for making my time in the Honors and Scholars program a memorable experience. To my family, I couldn't have done it without you and your unwavering support.

## INTRODUCTION

The purpose of this research thesis in the format of a literature review is to explore in a multifaceted approach the material that is available on the main causes of maternal mortality in the United States; the social, environmental, and cultural determinants that play a role in past and present mortality rates; and finally, how the possible implementation of solutions to the maternal death rate in America could occur.

Maternal mortality concerns the deaths of pregnant mothers in and around pregnancy, and can be explained by a variety of factors discussed throughout this paper. This project's significance is to explore the causes and effects of maternal mortality on our society, and how we can work to spread awareness and determine solutions in order to achieve more positive outcomes for mothers and babies alike.

This project is relative to the field of public health as it examines the science behind maternal mortality, as well as other contributing factors, and discusses solutions that work to improve and promote safer maternal health practices and experiences. It is personally significant in that I desired to learn more about pregnancy, maternal health, and maternal mortality for my own reproductive health, and to be prepared if I have children of my own in the future.

This exploration will be guided by scientific journals and peer-reviewed studies in the areas of, but not limited to: maternal/fetal medicine, sociology of birth and death, and data analysis of maternal/infant death rates. Hard data will face comparison over numerous studies in the same topic areas, and trends will be examined.

A continuous exploration of various scientific journals and articles was conducted, once again concentrating on those most aligned with maternal/fetal medicine, sociology of birth and death, and data analysis of maternal/fetal death rates. This allowed for additional comparison of

hard data and the review of current works of publication. Research was conducted through university-recommended databases, found through the Rod Library's online information section, at the recommendation of Rod Library Research consultants. This exploratory research continued throughout the introductory semester, and concluded prior to the culmination of the current semester.

The final stage utilized building upon previous information and research, and involved bringing the paper together by molding key transitions that could flow smoothly through the literature review and central themes. It was important that connectedness be seen throughout this project, as its foundations serve to find relationships between multiple factors to maternal mortality.

The results of this project were discovering data-driven and scientifically researched links on the topic of maternal mortality that determined underlying social, environmental, and cultural causes, and these causes were then related to potential solutions and implementation. The multifaceted approach additionally determined main causes both past and present to explain maternal mortality rates in the United States. While there was no specific hypothesis being tested as part of this project, the central purpose served to explore peer-reviewed research and determine consistent links between the focus topic of this paper and the central themes explained prior.

#### FOUNDATIONS OF MATERNAL MORTALITY

Maternal mortality is defined 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” by the ICD-10 (Ronsmans & Graham, 2006, p.1190). The ICD-10, short for

the International Classification of Diseases, Tenth Revision, is a framework that is used by healthcare providers around the globe to determine and code for all diagnoses and their related symptoms, allowing for an increased standard of care. According to the Centers for Disease Control and Prevention, the ICD-10 is authorized for use by the World Health Organization (WHO), and has been since 1999, replacing previous volumes and procedures.

In layman's terms, maternal mortality means the death of a woman occurring while she is pregnant or within 42 after the ending of a pregnancy, regardless of how far along she was in the pregnancy, as well as if the pregnancy was located ectopically. The cause of death may be the pregnancy itself, or the management of the pregnancy, or lack thereof.

Maternal mortality may be defined by various statistics, including the maternal mortality ratio, the maternal mortality rate, the lifetime risk of maternal death, and the proportionate mortality ratio (Ronsmans & Graham, 2006). The maternal mortality ratio is the number of maternal deaths during any given time period per 100,000 live births; this statistic, therefore, compares the number of deaths of pregnant mothers to the number of children born living at the same time.

Perhaps a more commonly heard "maternal mortality rate" is the number of maternal deaths in a given time period per 100,000 women of reproductive age. This then compares the number of deaths of pregnant mothers to the number of women overall who are within the reproductive age window, defined by the Centers for Disease Control as being between the ages of 16 and 49.

The lifetime risk of maternal death is the calculated probability of maternal death during a woman's reproductive life. This is often understood in terms of odds, and is found by multiplying the given maternal mortality rate by the length of the reproductive time period,

allowing for various probabilities over the reproductive age window (World Health Organization, 2000).

Last is the proportionate mortality ratio, which is understood as the number of maternal deaths compared to *all* female deaths of those of reproductive age in a certain time period. This statistic therefore covers a broader range of causes of death in the general population. This statistic, according to the National Institute for Occupational Safety and Health, contributes in-part to the NOMS (National Occupational Mortality Surveillance) program, which calculates age-adjusted causes of death in the United States.

#### RELATIVE FACTORS OF MATERNAL MORTALITY

The first article on maternal mortality that was explored is Maternal Mortality in the United States: A Primer (Declercq and Zephyrin, 2020). This article was chosen for its utilization of data past and present, statistical analysis from a variety of sources, and the use of multiple systems for capturing data on maternal mortality.

In the beginning, the study introduced how four years ago in 2017, when maternal mortality was found to be declining in countries all over the world, the World Health Organization released that the United States was one of only two nations (including the Dominican Republic) who reported an increase in its maternal mortality ratio since the year 2000.

While it was noted that maternal deaths in America have been known to plateau recently, our maternal mortality ratio is still higher compared to other first-world nations. The purpose of this article was to evaluate how using the findings on causes of maternal mortality can be important in reshaping health care provision and policy.

#### *Race and its Relation to Maternal Mortality*



This study highlighted many factors I found to be useful to the information I was pursuing throughout this research project, however, there was one that stood out as being one of the greatest contributors to the maternal mortality ratio here in the U.S.: race. The first data point that I found striking was how, according to research, inconsistencies in maternal mortality in relation to race have shown to be existent since data was collected on the topic. For example, the article noted that back in 1915, the maternal mortality ratio for black mothers of 1,065 deaths per 100,000 live births was 1.8 times that of White mothers in comparison, 601 deaths per 100,000 live births.

This information was then looked at relatively over time, and it was discovered that while the maternal mortality rate for White mothers declined more than for Black mothers after World War II, this disparity increased over time until the maternal mortality ratio for Black mothers was at a whopping four times higher rate than that of White mothers.

Since the early 1970s, Black mothers have consistently been anywhere from three to four times more likely to die than White mothers, and even as recently as 2018, it was found that the disparity between the two races in terms of maternal death was at approximately the same levels as during World War II.

The study then broke down the various maternal mortality ratios for different races and ethnicities as of 2016, and it found the ratios to be the following, in descending order: Black (40.8), American Indian/Alaska Native (29.7), Asian Pacific Islander (13.5), White (12.7), and Hispanic (11.5). Between the highest and lowest ratios, there is a 3.5 higher maternal mortality ratio for Black mothers as there is to Hispanic, and 3.2 higher ratio between Black and White mothers.

*Medicine and Maternal Death*

So, what are some of the causes behind this alarming number of deaths? The article used the above information to further explain how hemorrhaging, which is severe blood loss that can happen both internally and externally, is the leading cause of death during pregnancy and birth, directly contributing to the maternal mortality ratio, with various heart conditions being close behind.

Normally, a pregnant woman may lose approximately 1 pint of blood during the vaginal delivery process, and up to 2 during a cesarean section, according to the Merck Manual (Moldenhauer, 2021). This is due to the opening of blood vessels when the placenta separates from the uterus, some of which contractions during the delivery process can help heal, and from the large incisions made during a C-section.

Excessive blood loss is considered to be greater than 2 pints of blood, and symptoms can be low blood pressure, dizziness and fatigue, but the effects of hemorrhaging are more severe: losing blood in large amounts quickly can cause hypovolemic shock, where the heart cannot pump enough blood around body. According to the National Center for Biotechnology, this form of shock can lead to the shutdown of the body's organs and death.

While hemorrhaging may be the top cause of death during pregnancy and birth, shortly after, *infection* becomes the leading cause according to Declercq and Zephyrin (2020). Postpartum (after birth), bacterial strains can grow in the still-recovering parts of the body, specifically the uterus, causing endometriosis to be the number one effect of infection post-birth (Wong, 2019). Endometriosis is a painful disorder where tissue similar to that inside of your uterus grows outside of it. This tissue then becomes trapped in the body, leading to potential scar tissue and future fertility problems (Mayo Clinic, 2021).

*Health Policy and Continuity of Care*

The issue of new mothers dying after birth is not one that is limited to only biological and medical explanations. The article continues to discuss how many deaths after birth happen because mothers can lose their insurance coverage so soon after giving birth, a problem explained by current Medicaid policies. Medicaid helps those with low and/or limited income receive medical care, including costs associated with pregnancy and childbirth, but individuals can have their coverage dropped only sixty days after birth; for those who cannot afford additional care, they are on their own, and therefore might not be able to come in for additional appointments, then putting them at risk for a number of health issues.

According to the research, *Listening to Mothers* is a nationwide survey that is presented by the nonprofit group National Partnership for Women and Families. In 2011-2012, the survey found multiple key points given by surveyed patients that expressed this issue with insurance and Medicaid, as well as gave a summary of their experiences with pregnancy, birth and beyond.

Women who had Medicaid were more likely than women with private health insurance to report no postpartum visit (this usually occurs at the 6-week mark); they had to go back to work within two months after the event; they did not feel that had adequate autonomy during the labor process; and they felt as if they were being treated differently by providers due to their insurance status (Declercq and Zephyrin, 2020). Overall, both Black women and those with Medicaid coverage were less likely than white women and those with private health coverage to say they had been treated with respect by their medical providers.

Because changes to government regulations and policies for programs such as Medicaid can be hard to enact, the research highlighted that there are still additional practices that can be implemented to better care for mothers during and after birth. Increasing funding and support for

services based in the community can help provide additional continuity of care in the gap between patient and provider.

One example of this concept is doula services; a doula is a usually a non-medically trained person who can give all forms of support such as emotional, spiritual and physical to assist during pregnancy, childbirth and postpartum. Doulas can help tend to the home and clean while the family bonds with their new baby, help parents suffering from a stillbirth by walking with them through the grief process, aid midwives and practitioners in preparing for a home birth, and many more roles. (American Pregnancy Association, 2021). By having another level of care between birth and home, women in their communities can have additional support in helping to recover from the trauma that can be birth.

The study then moved into talking about how maternal mortality can even vary between state lines here in America. In 2018, various states in the Southern U.S. including Alabama and Kentucky reported maternal mortality ratios bigger than 30 per 100,000 live births, while states in the Northern U.S. like Illinois and Pennsylvania had maternal mortality ratios less than half that.

Gathering data for Iowa, the maternal mortality ratio for this state in 2020 was 9.4 per 100,000 live births overall, according to the Iowa Department of Public Health. It is important to understand the data for individual states in order to determine and assess common causes of maternal mortality in the area. In this article, it is stated that there is a Maternal Mortality Review Committee specifically for this purpose who collected and analyzed the data.

### *Analysis and Summary*

I found the final discussion of the Declercq and Zephyrin article to be not only an adequate overview of the research, but a thought-provoking discussion of the main topic as a

whole. One area that stuck out was the concept that fighting against maternal mortality is incredibly complicated by the fact that many different factors come into play, as discussed throughout the review of this article. Between race, insurance and geographical location, maternal mortality is influenced from all different directions, playing a role in the high rate of maternal deaths we have in the United States.

By focusing on racial disparities when it comes to providing care for mothers and babies before, during and after pregnancy, we can better provide for and treat patients, and help bridge the present gaps in our system of care. This is necessary in order to reduce the impacts these factors have on the mortality seen in America, and to allow for more progressive action.

The summary discussion also pointed out once more the need for better and more comprehensive health services outside of the hospital setting. By having locations and programs spread throughout the community, additional services can be met for patients that may not have the coverage necessary to be seen in a more traditional setting, as well as provide extra services that complement medical care rather than provide it, such as doula services.

Lastly, a revision and reimplementing of government-funded medical service policies is needed in the area of policy in order to be more representative of the patient population. Insurance coverage issues and the fear of denial of claims are detrimental to the care that patients receive during all stages of pregnancy and birth, with the postpartum period severely affected as described above. Without changes that allow for more flexibility for pregnant and new mothers, the opportunities for care will suffer, as well as the patient.

In conclusion, maternal death in the United States is not due to any one singular cause; instead, we need to focus on reducing the barriers seen in race and healthcare, make necessary

changes to policy and implementation, and utilize a continuous care system in order to improve maternal mortality in America.

#### INFANT MORTALITY IN RELATION TO MATERNAL MORTALITY AND RACE

To continue in a discussion of cultural determinants as discussed prior, an additional piece of literature to be reviewed is *Understanding Racial and Ethnic Disparities in U.S. Infant Mortality Rates* (MacDorman and Mathews, 2011). Its purpose was to examine forms of racial and ethnic disproportions in United States infant mortality rates, with a focus on the rates for non-Hispanic, American Indian or Alaskan Native (AIAN), and Puerto Rican mothers. The two main focuses of the study were the distribution of births by gestational age, as well as age-specific mortality rates for different infant gestations.

The study focused heavily on statistical data that represented the numbers in comparison to, for example, non-Hispanic white women, and provided a stark contrast in the lines of infant mortality rates. For example, the study notes that in the year 2007, the infant mortality rate for non-Hispanic black women was 2.4 times the infant mortality rate for non-Hispanic white women, and for preterm infants with a gestation of less than 32 weeks (premature), infant mortality rates were a whopping 26% higher for non-Hispanic black women in comparison to non-Hispanic white women.

The percentage of infants born preterm overall also differs highly between different races and ethnicities; the study highlighted that 18.3% of infants born to non-Hispanic black women were born preterm, while compared to non-Hispanic white women, this was a striking 60% increase from 11.5%.

And for non-Hispanic black women, infant mortality rates were higher in contrast to non-Hispanic white women in *all four causes of death* discussed in the study, which were preterm-

related, congenital malformations (physical defects present in the baby at birth that can involve various body parts), SIDS (Sudden Infant Death Syndrome), and unintentional injuries. In just the area of preterm-related causes of death alone, non-Hispanic black women had 599 infant deaths out of 100,000 live births, compared to 178 for non-Hispanic white women. This sub-study on causes of death was recovered from data from the CDC (CDC/NCHS, 2007).

When looking at the infant mortality rates for Mexican, Cuban, Central/South American and Asian or Pacific Islander (API) women, however, the data shifts slightly. The study marks that the overall infant mortality rate for this group was between 4% and 19% *lower* than the mortality rate for non-Hispanic white women, and that on the topic of preterm infant births, API women had the lowest percentage overall of preterm births, and entire 5% less than the rate for non-Hispanic white women.

In summary, there are seemingly large variances in the infant mortality rates for different racial and ethnic groups in the United States, and non-Hispanic black women have some of the largest rates of infant deaths compared to any other category. This suggests an extreme need for prevention and intervention, especially when it comes to preterm births.

The study noted in closing that the percentage of preterm births overall for any one racial and/or ethnic group in the United States is higher when compared to other developed nations. This research made clear just how contrasting the infant mortality patterns can be in America for differing racial and ethnic groups, and how immediate and necessary efforts are in order to reverse the high number of deaths each year here in the U.S.

## MATERNAL DEATH AND POLICY RECOMMENDATIONS

In regards to making changes to policy, there is much that we can learn from both other countries and other states to determine possible methods of reshaping our healthcare system. The

study *Preventing Maternal Mortality in the United States: Lessons from California and Policy Recommendations* (Nichols and Cohen, 2020) does exactly this by examining the state of California and the strategies being used there. At the time of publication, according to the article, maternal mortality was shown to be decreasing in California. Why?

This study examined possible causes, and how the information gathered could potentially be used to better improve the rates of maternal death across the country. It focused on a variety of different topics, such as how we could fund programs to address multiple social determinants of maternal health, how we can implement standards and goals for health care systems across the board, and how we should invest additionally in the monitoring of maternal health. As determined by the research of prior articles, this I found to be of note, as the monitoring and surveillance of maternal health is what provided the numbers and statistics driving this research project.

According to the article, the World Health Organization has spoken out before about the current issues with maternal health in the United States, labeling inconsistencies in care, an increase in pregnant women with chronic illnesses, and a lack of consistent and reliable numbers on maternal health factors as contributing to poorer outcomes.

#### *Insurance Coverage and Maternal Mortality*

The Affordable Care Act (ACA) of 2010 mandated health insurance coverage across the nation, which increased the federal poverty income requirement for Medicaid. It also prohibited the withholding of health insurance coverage due to any pre-existing conditions, some of the most common of which for pregnant women being anemia and various blood disorders, cancer and high blood pressure (University of Rochester Medical Center, 2021). Before the ACA, only 18 out of 50 states had a mandate for covering maternity care.



The US Department of Health and Human Services funded the American College of Obstetrics and Gynecology in 2014 to create a way to improve the level of maternal care in the US; they in turn formed the Alliance for Innovation on Maternal Health, known as AIM.

AIM works with states and healthcare facilities to gather information to improve maternal outcomes; for example, after researching and implementing what the article called a 'hemorrhage and hypertension toolkit', maternal morbidity rates in an AIM study dropped dramatically from 22.1% to 8.3%. This is an important statistic, as it exemplifies how creating solutions around the leading cause of death in pregnant mothers and implementing them can truly work to improve mortality rates in the US.

### *Strategies and Legislation*

A few years later in 2018, Congress enacted the Preventing Maternal Deaths Act, a program formed to create maternal mortality review committees and get together a process for collecting data, improving quality of care, and how to disclose findings to the public. The act requires that review committees collect information on socioeconomic factors, record pregnancy-related deaths, and utilize social workers to determine availability of local organizations that can provide assistance.

Over 7 million US parents have no health insurance coverage, and have maternal mortality rates 3-4 times higher than those who are insured and significantly worse outcomes for mothers, infants and children, according to the article. Some reasons behind this lack of coverage may be that they are unemployed, that they make too much to qualify for Medicaid, or that their employer does not provide insurance benefits and they cannot afford a private plan. In 2020, only 34 out of 50 states offered coverage for pregnant women up to 200% above the Federal

Poverty Level (FPL), while 49 states covered children. The article states that this is common across the board - preferred coverage for children over pregnant and postpartum mothers.

The article concluded by recommending prioritizing three points across the board: increasing funding for federal programs, supporting health care strategies that work to improve maternal health, and forming national standards and goals in our healthcare system. By utilizing these changes and investing in maternal health monitoring, we can work to address the major issues on maternal mortality presented throughout this paper.

#### MATERNAL MORTALITY REVIEW AND SURVEILLANCE

As discussed prior, maternal mortality review committees play a crucial role in determining causes of maternal death and interpreting the associated data. The article *Preventing Maternal Mortality: Leveraging MMRCs in Every State is the Key to Reducing Rising Rates of Maternal Mortality in the United States* (Lockwood, 2019) examines data and how mortality surveillance occurs in the US.

The Global Burden of Disease group reported that the US maternal mortality ratio (MMR) increased from 16.9 in 1990 to 26.4 in 2015; however, during the same time period, the global MMR declined by 30%. This, along with the fact that in the Organization for Economic Cooperation and Development, the United States ranks 30th of 31 countries in maternal mortality, with rates three times higher than Canada and the United Kingdom, poses an interesting question: exactly what percent of maternal deaths are preventable, and what are the factors?

#### *Pregnancy-Associated and Related Deaths*

The Center for Disease Control's Pregnancy Mortality Surveillance System (PMSS), according to the article, tracks both pregnancy-associated and pregnancy-related deaths (known

as PRDs). A pregnancy-associated death was defined as the death of a woman during pregnancy or within the first postpartum year, while pregnancy-related deaths were defined as the death of a woman during or within a year of pregnancy, caused by a pregnancy complication or a chain of events caused by pregnancy.

Therefore, the article pointed out, while all pregnancy related deaths are pregnancy-associated, vice versa is not always the case. Because the PRD rate is determined by using both birth and death certificate information analyzed by epidemiologists, the study states that the PRD rate is a more accurate estimate of maternal mortality in the US than the MMR.

The report indicates that pregnancy-associated deaths increased with maternal age from 25.7% in those aged 25-29, to 42.3% in women aged 35-44. Those who are a part of this older age group, the article stated, were more likely to die from cardiovascular disease, hemorrhaging and embolism (all congruent with previous studies throughout this project) than younger women, while they were more likely to die of cardiomyopathy, infection, and mental health issues.

#### *Race as a PRD Factor*

The article also highlighted the issue that non-Hispanic black women have a higher incidence of pregnancy-associated deaths that happened to be pregnancy-related at 48.2% than either non-Hispanic whites (at 28.4%) or Hispanic women (at 30.2%); similarly, while African-American women are nearly two times as likely to die from preeclampsia, non-Hispanic white women were nearly ten times more likely to die from a pregnancy-related death related to mental health concerns. This demonstrates precisely what has been discussed throughout the research presented in this project: race makes a major impact when it comes to maternal health and maternal death.

In terms of solutions surrounding this data, Lockwood stated that, essentially, changes in public policy surrounding social aspects of care would be effective, which was noted as a hard solution to potentially implement. The next solution was working to make sure that patients are able to have the quality care they need for their specific pregnancy and associated condition(s), in order to achieve more positive outcomes. Again, a difficult solution to make throughout the system.

Overall, the US has the overwhelming statistic of taking up one of the lowest ranked positions for the highest rates of pregnancy-related deaths in the modern world. The article concluded by noting that having the availability of review committees in each state to collect data like the set above and interpret it is one of the most significant ways that we can work to reduce maternal mortality in the country.

#### CONTRACEPTION AND MATERNAL MORTALITY

To move into the conclusion of this project, it is imperative to discuss additional solutions to improving upon the maternal mortality rate in the United States, and it is understood that family planning is one of the main contributors to reducing maternal mortality. Defined as “the ability of individuals and couples to anticipate and attain their desired number of children and the spacing and timing of their births” (World Health Organization, 2009), family planning is often shaped around the use of contraception and the treatment of infertility issues. Family planning may involve access to and provision of contraceptive methods such as birth control and condoms, pregnancy testing, infertility services, breast cancer and cervical cancer screenings, and other additional services (Health People 2020, 2020).

By reducing the number of births a woman goes through, the opportunities for mortality are also reduced. Family planning also lowers the risk for each individual birth (maternal

mortality ratio), by limiting risky births. This study used estimates of MMRs and the total fertility rate (TFR) provided by various United Nations organizations to analyze the number of births, and therefore the number of maternal deaths, potentially avoided by the use of family planning.

Family planning programs that promote safe and proper contraceptive use help to reduce the number of maternal deaths in a couple of different ways. The main impact comes from the lowering of the number of births that occur while using contraception; less births means lower risks, which means lower maternal death. Using contraception can also help positively affect the MMR as it lowers the risk of mortality associated with each individual birth.

#### *Family Planning as a Maternal Mortality Strategy*

Family planning programs fit one of the key aspects also discussed prior in this project: the provision of additional community and social support services to aid mothers that in turn helps to prevent an increase in maternal mortality. The funding allocated to these types of programs was also discussed, and policy-driven interventions can make an impact on the grant and government funding a service receives.

According to the article, the TFR in all developing countries declined from 3.63 births per woman in 1990 to 2.83 in 2005, even though the average number of births per year remained almost constant at around 122 million in the same time frame. This drop in the TFR was thought to result in 1.2 million less maternal deaths. This is considered to be directly related to the use of contraception; as prevalence of contraceptive use increased toward 80% of the time, the percentage of risky births fell to nearly 35%.

This article highlighted the large impact that contraceptive use has on the number of maternal deaths each year. If we were to follow the data, we could also reasonably project that

larger increases in contraceptive use at a frequent occurrence will further reduce women's risk factors of maternal death, and therefore lower the rate of pregnancy-associated and related deaths as well.

## CONCLUSION

Throughout this research project, various aspects of maternal mortality and causes of it here in the United States have been discussed. I found this extensive literature review to be all-encompassing, and was able to connect the various central themes in each paper to additional sources that further supported the statements being offered in the literature.

I was able to take a multifaceted approach to determine available material on maternal mortality in the United States, discover the social, environmental, and cultural determinants that have played a role in maternal mortality, and examine potential solutions.

This project was heavily linked to the area of public health research, and examined both the science and additional contributing factors behind maternal mortality. Some of the key findings were the main biological explanations for maternal mortality, how race and socioeconomic status can play a role in the care delivered to pregnant patients, and how health insurance and health policy have important implications on maternal health and wellbeing in the United States.

Disparities between affected groups were in no part small in their impact on maternal mortality. This project was designed to explore the existing literature available on maternal mortality, and seek out commonalities between research to help individuals better understand what maternal mortality is, how it affects our population here in America, and what can be done to solve the crisis that is maternal mortality as a whole.

The limitations of this research were found to be that while there is in-depth analysis on a variety of individual topics related to maternal mortality here in the US, there is not a vast selection of academic works per individuals research point, meaning that for each factor explored, there was not as large of a variety of literature to review.

For example, in the future, I would like to see additional research done specifically on the topic of how insurance coverage and Medicaid policies directly affect maternal health and mortality, and what certain policy changes could be made or are in development to improve maternal health and mortality. Another limitation was a lack of state-by-state comparison on factors relating to maternal mortality, such as pregnancy statistics inside and outside of the reproductive age window, percentage of individuals on Medicaid in each state who were seeking maternal health services, number of brick-and-mortar locations providing family planning services, etc. It would be helpful to be able to compare states on a multitude of topics related to maternal mortality in order to see how certain factors contribute to maternal health in each respective state.

I found this research to be incredibly rewarding, and obtained information that I felt truly made an impact on my own understanding of maternal health and maternal mortality. I hope to share this information with others intrigued by this as a public health topic, and look forward to exploring future research relative to maternal health as it becomes available. Lastly, I hope that this research project can bring about awareness on the topic of maternal mortality, and how necessary the understanding of it is in order to protect the health of mothers and their children here in the United States.

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