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Larisa Khaimova

Master's thesis

Strategies to Reduce Maternal Mortality in the U.S

Master of Nursing

Scientific adviser:
Svitlana Danchak
Ternopil National
Medical University
Named of I. Y. Gorbachevsky
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Abstract

When a woman dies in childbirth, during pregnancy, or soon after delivery, it is devastating to her family and the rest of society. Due to complications during pregnancy or delivery, about 700 women in the U.S. die each year. U.S healthcare spending and medical technology are among the world's best. To increase family and community well-being, it is predicted that death rates in particular sectors would be well-managed. Data demonstrates that the United States has a far lower maternal death rate than other industrialized countries. Pregnancy-related deaths rose by more than a third between 1987 and 2015. A woman's chance of dying during or shortly after pregnancy is affected by racial inequities in this growing rate. Many of the causes of maternal fatalities may be prevented, according to research. According to the Centers for Disease Control and Prevention, 2 out of 3 of these deaths may be avoided. Maternal mortality has increased over the previous decade, and this research examines what may be done to combat this problem and enhance obstetric care for all women in the U.S. As part of these initiatives, the perinatal health community is encouraged to better communicate with one another, national bundles are being used in critical maternal care areas, and regional assessments of maternal death cases are being requested. The reduction of this public health hazard necessitates the implementation of these measures on a nationwide scale.

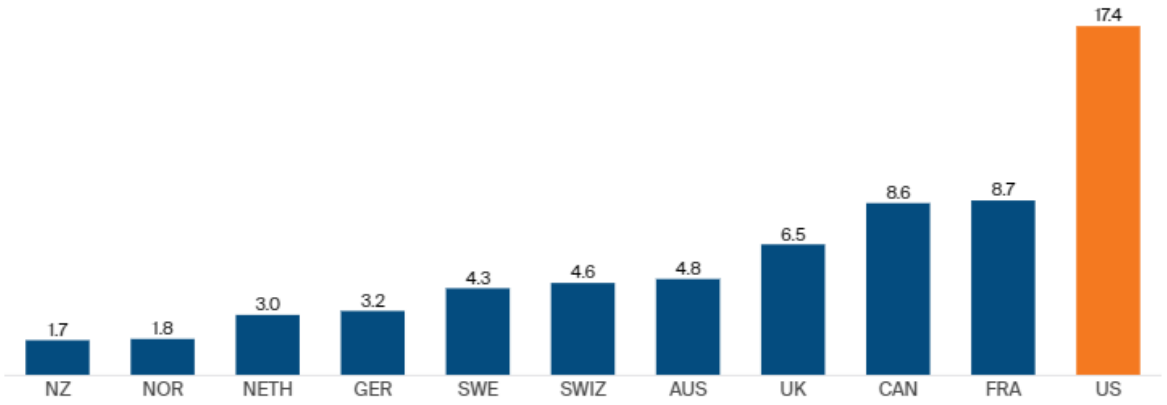
Introduction

When a woman dies while pregnant or within 42 days after the end of her pregnancy, she is considered a maternal death, according to the World Health Organization. Pregnancy-related or pregnancy-related complications may cause or aggravate this. Direct or indirect causes are both considered to be maternal deaths in the context of this definition. Hypertension and other hypertensive illnesses are among the most common causes of maternal death, whereas problems after cesarean section are among the most common indirect causes. The United States has the highest maternal death rate in the industrialized world, according to the United Nations. Obstetricians-gynecologists (ob-gyns), rather than midwives, make up the majority of the maternity care workforce.

Exhibit 1

Maternal Mortality Ratios in Selected Countries, 2018 or Latest Year

Deaths per 100,000 live births



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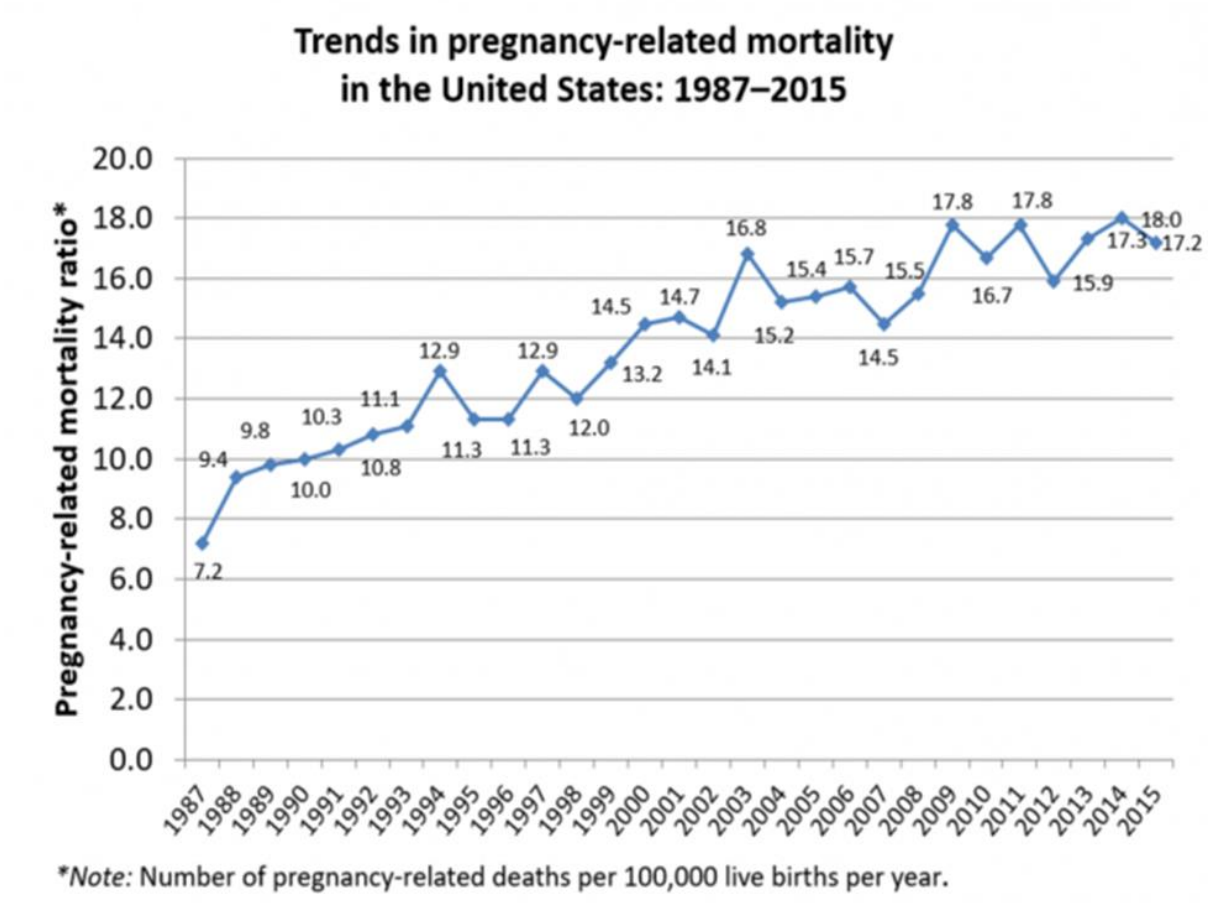
Notes: The maternal mortality ratio is defined by the World Health Organization as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Data: OECD Health Data 2020, showing data for 2018 except 2017 for Switzerland and the UK; 2016 for New Zealand; 2012 for France.

Source: Roosa Tikkanen et al., *Maternal Mortality and Maternity Care in the United States Compared to 10 Other Developed Countries* (Commonwealth Fund, Nov. 2020). https://doi.org/10.26099/411v-9255

Midwives outnumber ob-gyns in most other countries, where primary care is a vital element of the health care system. Postpartum care and parental leave are not

guaranteed in the United States, despite the fact that majority of the country's maternal deaths occur after delivery. Pregnancy-related mortality rates for American women are greater than those of other industrialized countries, despite the fact that the odds of a healthy and reasonably safe pregnancy are higher here than in many other places. Racial and ethnic disparities and geographical inequalities contribute to a substantial gap in maternal mortality and severe maternal morbidity in the United States. From individual patients to the whole health care system, maternal health outcomes are impacted by a broad variety of factors—preventable mortality in pregnancy account for the great majority.



In 1987, the death rate per 100,000 live births was 7.2; by 2015, it had risen to 17.22. (Figure 1). There were 20.1 maternal deaths per 100,000 live births in 2019

compared to 18.9 deaths per 100,000 live births in 2018. (17.4 deaths per 100,000). In addition, the United States was one of just two nations in the world to have a significant rise in its maternal mortality ratio in 2017. The World Health Organization confirmed this information (WHO).

When compared to Canada, the United States has 28 maternal fatalities per 100,000 live births, while Australia and Japan both have 6 deaths per 100,000 live births. Mothers are dying at an alarming rate in our country. For example, the inclusion of a pregnancy question on death certificates may be a factor. This may explain part of the rise, but it is worth investigating more. Pregnancy mortality rates are also influenced by race and ethnicity. Three times more non-Hispanic black women die from problems during or after delivery than white women3. For instance, the maternal mortality rate among women of color (37.1 per 100,000 pregnant women compared to 14.7 for white women). Black women with college degrees had a 60% higher maternal mortality rate than white or Hispanic women with less than a high school degree.

After the 2,990 pregnancy-related fatalities studied by the CDC, 31 percent happened during pregnancy, 36 percent occurred on the day or within six days of delivery, and 33 percent occurred one to a year after the birth.

Both nationally and globally, maternal mortality is a measure of healthcare quality. One of the most devastating tragedies a family and society may face is the loss of a mother during pregnancy, delivery or postpartum. In spite of American women spending more money on healthcare than women in many other nations, the maternal healthcare problem is on the rise. There are many variables that contribute to

maternal mortality, and this study will focus on identifying ways to lessen this problem.

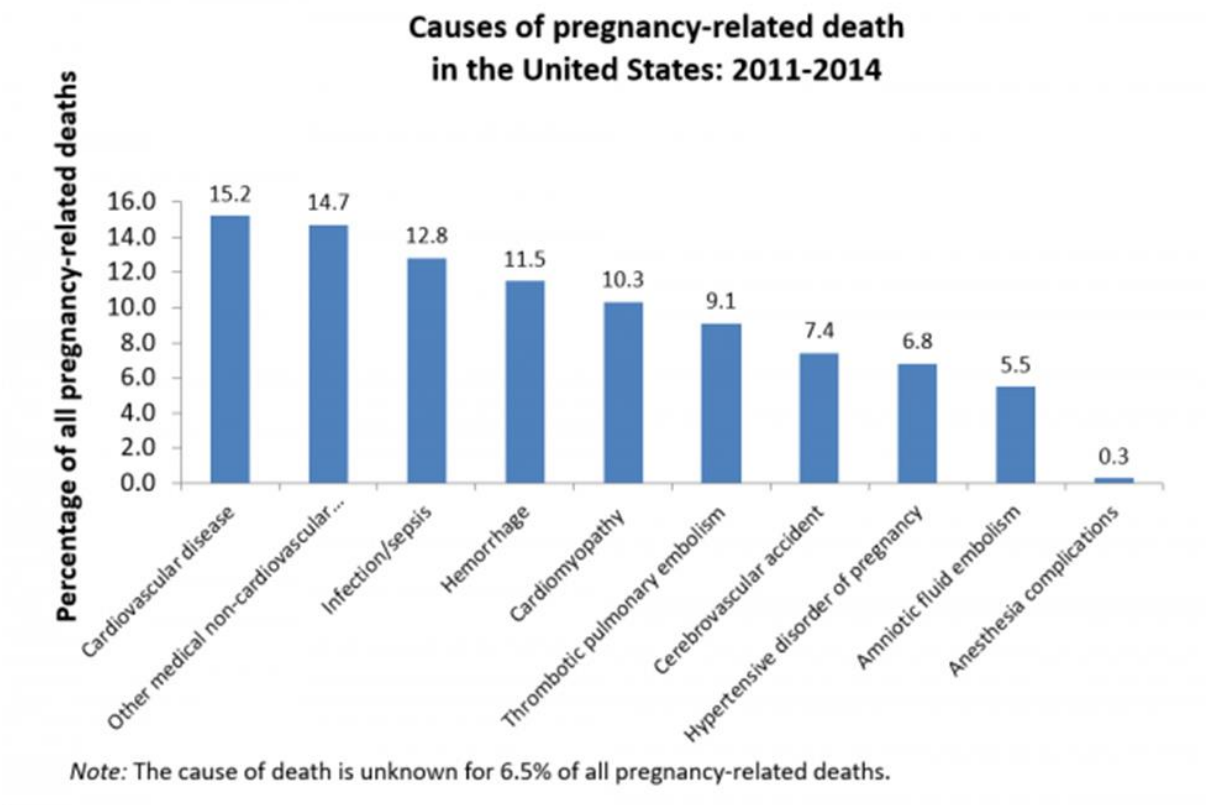
Preventing maternal mortality is one of the most pressing issues in the field of maternal health.

The overall number of pregnant women dying in the United States ared the cuse of the increase is unknown. A pregnancy checkbox on death records, data connections to birth and fetal mortality records kept by states, and changes in categorization of causes of death over time have helped to increase the identification of pregnancy-related deaths throughout the course of history. When pregnant status is incorrectly reported on death certificates, the number of pregnancy-related fatalities may be underestimated. Pregnancy-related mortality rates have been relatively stable in recent years, making it difficult to determine whether the risk of dying during pregnancy has grown or reduced. The Centers for Disease Control and Prevention (CDC) keep a careful eye on the number of Americans who die while pregnant (CDC). According to the Pregnancy Mortality Surveillance System, women who die during or within a year of their pregnancy are deemed to have died as a result of pregnancy-related causes (PMSS). Epidemiologists look at death certificates, birth certificates associated to those deaths, and records of fetal deaths, if applicable, as well as other publicly available data from all 50 states and the District of Columbia. Per 100,000 births, the PMSS is used to estimate the number of pregnancy-related mortality.

An important limitation in studying maternal death in the U.S. is the fact that there is no national procedure for collecting maternal mortality information. When a fatality occurs, it is registered at the local and state level and then reported to federal authorities, who in turn investigate the situation. That is why it is so important to apply quality-control measures and collect high-quality data on a local level before it can be translated into national statistics. As governments have changed criteria and reported their findings in different ways, it has become more difficult to track and assess trends in maternal mortality. As a result, despite the fact that a growing problem of gaps in maternal health services in rural areas has been documented in numerous studies and publications, we still have significant gaps in our understanding of the problem, such as the extent to which maternal mortality differs between urban and rural areas.

Women's health and their families are affected by the top cause of maternal death in the United States during pregnancy. For every 100,000 live births, the pregnancy-related mortality ratio is an estimate of how many women die from pregnancy-related causes. Maternal mortality rates in the United States increased from an estimated 12 deaths per 100,000 babies in 1990 to 28 deaths per 100,000 births in 2013. Data collecting enhancements that started in 2003 are thought to be the cause of the recent noticeable increase in maternal mortality. The addition of a pregnancy question to the standard death certificate in the United States has improved the nationwide identification of maternal fatalities. Not pregnant but pregnant 43 days to 1 year before death, or uncertain whether pregnant within the last year4 are all options

in the checkboxes of the inquiry that asks about the status of female descendants' pregnancies.



Concerns remain about the claimed rise in data collecting, notwithstanding the improvement. Maternal mortality continues to climb, notwithstanding the improved reporting systems that have been implemented. The estimated maternal mortality rate in the United States increased from 18.8 in 2000 to 23.8 in 20143 when combining data from 27 states and the District of Columbia.

While conventional reasons like hemorrhage and sepsis still play a role in maternal mortality in the United States, these variables have altered over the previous several decades. Pregnancy-related fatalities in the United States are increasingly being attributed to cardiovascular and chronic medical disorders. Pregnant women in the United States are more likely than ever before to suffer from diabetes,

hypertension, or heart disease5, according to research. The major cause of maternal death is cardiovascular disease. One-third of pregnancy-related fatalities in 2011-2015 were caused by cardiovascular diseases, such as cardiomyopathy and cerebrovascular accidents. Another factor that has diminished but is still present is hypertension2 and anesthetic related problems (Figure 2). Maternal morbidity and mortality and the increasing burden of chronic illnesses are directly linked to pre-pregnancy health and pregnancy outcomes6, as are the long-term effects of chronic medical problems. Mother mortality may be attributed to variables such as repeated pregnancy, inadequate prenatal care, close spacing of pregnancy, and increasing maternal age.

Women in the United States are getting pregnant later in life as a result of the changing demographics of the population. Between 2009 and 2014, there was a 28% rise in the number of 30-34-year-old women giving birth, and a 23% increase in the number of 35-plus-year-old women giving birth8. Multiple births, congenital impairments, and the need for greater health care are all linked to the mother's age when she gave birth for the first time. A woman's health and her chances of delivering a healthy baby and having more children might be dramatically impacted by this trend of delaying her first pregnancy.

When racial and ethnic differences are taken into account, these risk factors for maternal morbidity are exacerbated. Non-Hispanic black women are three times more likely to die after delivery than white women, with 56.3 maternal deaths per 100 000 live births in 2013-20147 compared to 20.3 maternal deaths per 100 000 live births in 2013. (Figure 3). Black women have the same risk regardless of their wealth, education or location7. This is due to a variety of variables, including a rise in

maternal health issues and an increase in the number of women requesting access to reproductive health care. Pregnancy problems and chronic illness may be detected earlier if disadvantaged women do not seek prenatal care.

System and provider-level issues, including racial prejudice, increasing labor-inducing procedures, cesarean delivery rates and the discrepancies associated with obstetric emergency treatment all contribute to the rising maternal death and morbidity rates in the United States.

Is there a specific reason why the United States' maternal mortality rate is rising?

The high maternal death rate in the United States is due to a variety of factors, but my research suggests that needless cesarean sections, a shortage of maternity care professionals, and inadequate prenatal and postnatal care are to blame.

Unnecessary C-sections

More than a third of American women give birth through cesarean section (c-section). The number of women undergoing cesarean sections has increased by 500% since 1970. A C-section is a delivery method in which a doctor makes an incision in the abdomen and uterus of the expecting mother in order to insert the baby into her body. Because surgery has inherent dangers, performing extraneous cesarean sections raises the death rate for new mothers. Postpartum hemorrhaging, infection, surgical damage, and blood clots may all result after a cesarean section. Recent research found that women who had a c-section had 80% more difficulties than those who gave birth normally. New antiseptics and surgical methods made Caesarean sections (C-sections) increasingly common in the 1960s. A quarter of all American births were done this manner by the year 1990. In the second half of the twentieth century, as the number of

women receiving cesarean sections rose, so did public awareness of the associated risks. C-sections are associated with a higher mortality rate, longer hospital stays, and more blood than spontaneous births. Because of these risks, C-sections are becoming more popular among patients, even when they are not medically necessary. The higher mortality risk for women during surgery necessitates that medical professionals and pregnant mothers alike have access to comprehensive information about the procedure. All members of the obstetrics care team, who should be well-versed in these concerns, should inform patients about the dangers of c-sections.

There is a lack of adequate prenatal and postnatal care for women.

Pregnant women may have averted 60 percent of this fatalities if they had better understood the need of following up, according to a new CDC analysis.

Maternity care professionals are in short supply.

Obstetricians and midwives are in short supply in the United States. Midwives, in particular, are in poor supply in the United States, and there is a distinct lack of comprehensive postpartum support services. Midwives are underrepresented in the country's maternity care workforce when compared to obstetricians-gynecologists (ob-gyns). Because of this, there are not enough doctors and midwives to meet the demand for maternity care. Primary care is an essential part of the health care delivery system in most other countries, where midwives outnumber obstetricians by a ratio of five. No other country denies postpartum mothers access to postpartum home visits or paid parental leave, despite the fact that a large percentage of maternal deaths occur after delivery.

High Maternal Mortality Factors

Pregnancy health is affected by a wide range of factors. Prior to conceiving, all women of reproductive age should maintain healthy lifestyles (e.g., eating properly and exercising frequently), stop using any drugs, and manage any health issues they may be having. If you are thinking about becoming pregnant or you are currently pregnant, talk to your doctor. You must do this to guarantee that you get sufficient medical advice and treatment, and that your pregnancies are in good health. Prenatal care and early diagnosis and treatment of any problems that may arise are essential to a healthy pregnancy beginning even before conception. Professionals in the field of health care can help women be ready for pregnancy as well as deal with any problems that may occur along the way. As soon as possible, pregnant women should begin prenatal care, and their development should be closely monitored by health specialists. Significant pregnancy-related issues may be prevented and treated in this way.

Maternal death is very rare in the United States due to complications during pregnancy. Most of the problems that emerge during pregnancy, childbirth, and the postpartum period may be controlled or even prevented if enough medical treatment is offered. These conditions, on the other hand, make other parts of the world more dangerous. Maternal mortality can be studied more thoroughly if we have a clear definition of what it is. The most common cause of maternal mortality is complications during birth, although it may also be caused by faulty abortions or long-term disorders that affect a woman’s postnatal health, such as diabetes. A critical point to make here is the variation in maternal mortality factors that exist between countries. Hospitals with limited access to sterilized medical equipment are more likely to suffer postnatal infections, such as sepsis. Sepsis is not the leading cause of maternal

mortality, even though it may occur here as well. In the United States, what is the most prevalent cause of maternal death? Cardiovascular disease is a subtype of cardiovascular illness. “It is possible for a pregnant woman to have a heart attack or stroke, together with pregnancy-related issues such as bleeding and difficulties during birth, to put her life at risk. More than a third of all pregnancy-related deaths are attributed to cardiovascular disease, which is the leading cause. Despite the fact that some of these deaths might be attributed to pre-existing heart conditions, the great majority are the result of cardiac conditions that developed during pregnancy. The risk of pregnancy-related complications may be minimized by evaluating pregnant women with shortness of breath, chest pain, palpitations, or fluid retention for heart disease.

Cardiovascular Disorders

When it comes to maternal mortality, American women far outnumber those in other wealthy countries. In the United States, about three out of every five incidents of maternal death may be averted. Cardiovascular illness, including cardiomyopathy (10.8%), other cardiovascular problems (15.1%), and cerebrovascular accidents, are to blame for 33 percent of all pregnancy-related deaths. The most prevalent cause of death for women is cardiovascular disease (7.6 percent). The increased maternal age in the United States has resulted in an increase in the number of women entering pregnancy with preexisting medical conditions and cardiometabolic abnormalities such as obesity, hypertension, and diabetes. Pregnancy issues such as hypertension, cardiovascular diseases, and gestational diabetes all raise the risk of pregnancy complications and cardiovascular disease. The American Heart Association recommends that pregnant women with hypertensive diseases of pregnancy,

gestational diabetes, or preterm labor have postpartum follow-up in 2011. It is becoming more common for doctors to use cardio-obstetric teams when treating pregnant women with known cardiovascular risk concerns. The involvement of nurse navigators in a team-based approach for pregnant women with cardiovascular risk factors who are at elevated risk of death during and after pregnancy may be critical. In order to make considerable headway in lowering maternal mortality in the United States, we must understand the underlying causes. There is a greater mortality rate for African-American and American Indian-Alaska Native women, particularly AI/AN women. Pregnancy-related deaths were four to five times more common among Black and American Indian/Alaska Native women over 30 between 2007 and 2016 than in white women of the same age group. Access to care, socioeconomic differences, and the quality of care all have a key impact in influencing health outcomes. White women are more likely to die than non-white women, according to this research, which showed that the disparity in maternal mortality is a multifaceted national problem. Training in unconscious bias and systemic racism awareness may help health care professionals discover and overcome stereotypes that result in delayed or insufficient maternity care. Prior to conception, throughout pregnancy, after delivery, and in the years that follow, it is challenging to identify and execute preventive interventions to enhance the health of pregnant and postpartum women and their access to excellent healthcare.

Hemorrhage

Postpartum hemorrhage is the leading cause of maternal mortality, accounting for 24% of all pregnancy-related deaths (PPH). Some nations, such as some Chinese

provinces, have a high rate of maternal deaths attributable to bleeding. Indonesian neonates are found to suffer from severe postpartum bleeding in 7 percent of cases (self-reported). Excessive blood loss from the vaginal canal during the first 24 hours after childbirth is known as postpartum hemorrhage. Shock and death usually occur within seven days after childbirth if bleeding goes untreated. PPH may be defined as any blood loss that leads in a physiological change, such as a drop in blood pressure, that puts a woman's life at danger. This is a simpler approach to think about PPH (McCormick et al., 2002). Atony of the uterus, inadequate uterine contractions, and placenta or placental pieces that remain in the uterus are the most common causes of acute PPH (McCormick et al, 2002). The genital system may be damaged by cervical rips, perineal lacerations, and even episiotomies. Minor cases of PPH may increase anemia already existing as a consequence of iron and folate deficiencies, intestinal worm infection or malaria or a series of preterm babies. Pregnancy-related bleeding may cause chronic anemia in women. Anemia is a common cause of maternal hemorrhage fatalities in developing countries, while the United States has one of the highest maternal mortality rates in industrialized countries. Delivering a baby at home without the assistance of a skilled expert may result in lengthy wait times at emergency rooms. If blood thinners or bimanual uterine compression fail to stop bleeding, a hysterectomy or uterine artery ligation may be indicated. There may be significant costs and delays associated with both treatments. Women who require blood transfusions are at risk for HIV, hepatitis B, C, and D, malaria, syphilis, and CMV infection due to unmonitored and contaminated blood sources.

Sepsis

Pregnancy safety may be affected by a variety of circumstances, including where a woman lives and how much medical treatment is accessible. Both during and after delivery, sepsis may strike. When a pregnant woman experiences a kind of sepsis known as maternal sepsis, the phrase is used. If the infection arises within six weeks after delivery, it is referred to as postpartum sepsis or puerperal sepsis. As an inflammatory response to infection, sepsis may be fatal if not treated promptly. Stroke and heart attack victims need prompt medical attention. Over its lifetime, sepsis will kill and disable millions more people than all types of cancer combined (including breast and lung). Anyone may get sepsis and septic shock from almost any kind of illness ranging from pneumonia and influenza to urinary tract infections. Sepsis kills one-third of the people it infects throughout the globe. People who have been through traumatic events often suffer from post-traumatic stress disorder (PTSD), chronic pain and tiredness, organ dysfunction, and amputation. Maternal and postpartum sepsis is more common in developing countries than in industrialized ones. According to the CDC, sepsis is the second leading cause of maternal death. Between 2014 and 2017, in the United States, 12.7 percent of pregnancy-related deaths were caused by infection or sepsis. Sepsis in pregnancy requires early discovery and accurate diagnosis in order to be properly treated.

During delivery, bacteria from the skin, nose, and perineum may enter the uterus and cause a condition known as a perineal infection, which can be fatal. Premature rupture of the membranes, retained fetal products, diabetes, cesarean or other procedures, postpartum hemorrhage, anemia, poor nutritional status, previous labor issues, and insufficient infection care all raise the risk of puerperal sepsis in

women.... Despite the fact that fever is the most common indication of a puerperal infection, some women with postpartum fever may also have an infection at another place or no sickness at all. If medications are not accessible or treated inappropriately, a pregnancy-related illness may swiftly become life-threatening. For women who survive the complications of puerperal sepsis, pelvic pain, dysmenorrhoea, menorrhagia, and infertility are all typical side effects. Information on the incidence and consequences of puerperal sepsis in poor countries is sparse since most women give birth at home or in a clinic or hospital for a short amount of time.

Having an Abortion Done in an Unsafe Way

The Pregnancy Mortality Surveillance System of the Centers for Disease Control and Prevention is evaluating 2015 deaths of women connected with complications from abortion, according to a research on abortion monitoring. Women who had legal abortions in 2014, the most recent year for which data was available, were found to have died as a result. Untreated problems may lead to death in women who do not obtain enough medical attention. Although this is rare in the United States, the risk of death from a legal abortion is significantly lower than the risk of death during pregnancy and delivery. Fortunately, this is not the case. Abortion-related deaths in the United States have stayed at a consistent level over the last few decades, whereas the number of deaths during pregnancy and delivery has risen by roughly nine per 100,000 live births in the United States. Abortion-related deaths are far more common in underdeveloped countries than in rich ones, owing to the prevalence of countries that limit access to abortion. According to the World Health Organization, 8–11% of all maternal fatalities occur as a result of abortion. As long as the operation

is carried out according to WHO criteria and by a competent medical expert, legal abortion is a safe healthcare practice. Obstacles to safe, rapid, economical, easily available, respectful, and non-discriminatory abortions increase the likelihood that people with undesired pregnancies would resort to unsafe abortion procedures, such as miscarriage.

Eclampsia

A decline in the incidence of eclampsia in recent decades has not eliminated its devastating effects. 5 percent of hypertension persons have severe preeclampsia, and around 25 percent of women with eclampsia have subsequent pregnancies that are hypertensive as well. It is estimated that 2% of pregnant women with eclampsia will go on to have another pregnancy characterized by the condition. In subsequent pregnancies, they have a larger risk of developing essential hypertension and dying than first-time moms. Around 63,000 people die each year from hypertension and preeclampsia/eclampsia. On average, in developed countries, the mortality rate for new mothers is between 0 and 1.8%. Eclampsia perinatal mortality rates in the United States and Great Britain range from 5.6% to 11.8%. Pregnancy-related deaths claim the lives of more than 14% of women in developing countries. A CDC study found that preeclampsia/eclampsia at birth has a mortality rate of 6.4 deaths per 10,000 live births. Between 20 and 28 weeks of pregnancy, a woman's mortality risk increases significantly, according to the study results. There are twice as many black women dying from preeclampsia/eclampsia than white women. In part, this is due to the fact that black women are less likely to receive prenatal care, and that there are more genetic diseases associated with antiphospholipids among black women. An increased

risk of pre- and eclampsia has been related to elevated plasma antiphospholipid levels in patients, according to studies. However, it is not clear whether the antiphospholipids are directly responsible or if there are other possible processes at play. HELLP syndrome is present in the vast majority of women who succumb to the effects of eclampsia and die as a consequence.

In the United States, why is maternal mortality increasing?

Rising obesity rates and women postponing delivery until they are older, both of which have a detrimental influence on their health, are leading to an increase in pregnancy complications. As a result, pregnancy-related deaths are better reported. The maternal mortality rate in the United States is the highest in the industrialized world, and it is also the only one that is rising. To make matters worse, the great majority of these incidents might have been prevented in the first place. As a consequence of the birth facility, the patients, and the healthcare workers involved, there may have been a better outcome. Two of the most common causes of patient injury are delays in response and insufficient treatment, which may be connected to providers. However, despite the present rise in maternal mortality, many hospitals are unlikely to see a fatality in the first few years of a patient's life. The good news is that most doctors will never have to experience anything like this in their whole career. The absence of data on such rare occurrences makes it difficult to draw any conclusions about their causes.

There has been a 25 percent increase in the U.S. maternal mortality rate between 2000 and 2014, according to a study in Obstetrics and Gynecology published in 2016. This pattern was found to be state-specific. There were only little losses in

the state of California, compared to huge increases in the state of Texas. Recent years have seen a lot of attention paid to maternal mortality in the state of Texas in particular. The growth rate more than doubled between 2011 and 2014. While trustworthy figures are lacking, many believe that changes in family planning policy are to blame for this spike in the number of pregnancies in the state. About half of the state's clinics that provided abortion services alongside other reproductive health services had to close their doors as a result of restrictions imposed in 2013 targeting abortion facilities. In 2011, government funds for family planning were substantially slashed in an attempt to defund Planned Parenthood. Clinics have to close or reduce their services as a result of the financial crisis.

There have been a huge number of unsafe abortions and fatalities as a consequence of a lack of family planning in the United States. In the United States, unplanned pregnancies account for around half of all pregnancies, and as a consequence, they may not get the same degree of preventive care as pregnancies that are properly planned. Just the beginning of this story's intricacies are changes in laws for family planning. There is a good chance that the growth is due to an increase in the prevalence of other chronic conditions. Several diseases, including as obesity, diabetes, and heart disease, have been linked to maternal mortality during the last decade, and these trends are expected to continue. As a result, women are having children later in life, and some have more serious medical conditions than others. Caesarean deliveries are on the rise, which might lead to complications. Additionally, the opioid issue may contribute to the rise in maternal deaths.

Maternal mortality rates exhibit the same inequalities as other aspects of health care. Recent years have seen the biggest development for women of color, notably non-Hispanic black women. There are more than three times as many deaths per 100 000 live births among black women as there are among white women. There is a correlation between the number of black women in a state's delivery population and the state's maternal mortality rate, according to this study. Although racial disparities have a role, they are just a fraction of the problem. There are more mothers who die in the United States than in any other industrialized country, even if you limit your analysis to white women alone.

The United States' healthcare system is likewise a problem since it is so dispersed. Too many people in the United States are unable or unwilling to get necessary medical care because of the high costs associated with it. Pregnant ladies, like the rest of us, may benefit from this advice. Despite overwhelming political support for the idea that maternity care should not be considered an essential benefit, some are concerned that change may damage coverage. Maternal mortality may have increased as a result of better record-keeping, which may be linked to this. Increased reporting of maternal mortality and deaths from other causes has been an ongoing effort by states to enhance their ability to track maternal deaths. It is hard to believe that all of these advances could be attributed to a rise in better recordkeeping occurring just inside the United States. All other countries should not be kept in the dark regarding U.S. activities, since this seems implausible. Under universal and socialized health systems, women are less likely to die, and their deaths are less likely to slip through the cracks and go unrecognized.

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Pregnancy and childbirth are both quite risky. Maternal mortality is the sixth largest cause of death among women aged 25 to 34 in the United States, despite the fact that it is taboo to discuss. Providing good maternity care may help to minimize mortality and morbidity, but when clinics close and insurance coverage ends, it becomes difficult to provide this care. Although Medicaid may help bridge the financial gap for certain people, such as pregnant women, the quality of care and the mother's financial situation are still at risk. There is a rising tide that lifts all boats when it comes to health care. Maternal mortality rates would be reduced if more was done to improve the overall health of women. Reduced rates of obesity, diabetes, and heart disease would be beneficial. Opioid abuse is also a problem that has to be addressed. There has been a lot of focus in recent years on ways to reduce infant mortality rates. Mothers may also demand a similar amount of commitment.

Maternal Mortality Reduction Strategies

Attendance at Childbirth by Professionals

When a qualified delivery attendant is always present, maternal and perinatal mortality and severe disability are greatly reduced. High-quality obstetric care is the

second most essential strategy for complicated deliveries. Attendants may focus on giving safe and sanitary care and counseling to new mothers on personal care and the care of their babies if the delivery goes successfully for most women. Most labor complications cannot be predicted and, when they do occur, having a skilled attendant at the birth is often your best choice for life-saving therapeutic interventions. Pregnancy care may also be made broadly accessible, regardless of how simple or comprehensive it is. This is more likely to be accomplished in urban areas than in rural ones. Even if higher-level treatment is readily accessible, the birth attendant must first recognize a problem and make a proper referral.

The committee feels that a trained birth attendant is important at every delivery because of the general correlation of professional care with lower mortality during childbirth and the requirement for a competent birth attendant who can use the therapeutic techniques suggested in this report. There is a direct correlation between countries with low rates of maternal and neonatal mortality and the availability of skilled birth attendants and a well-established system of referrals and follow-up care that ensures every delivery is attended by someone who has been trained and certified in the necessary skills. Midwives who can provide life-saving care to women during delivery and a solid network of care for the referral of complicated deliveries are challenging to train and develop in every nation.

In most cases, traditional birth attendants (TBAs) use traditional, often untested customs rather than medical training while providing care to expectant mothers. Thus, they do not have the opportunity to get the essential training to become a nurse or midwife. Safe birth practices, such as clean delivery and avoidance of dangerous

operations, have been taught to a number of TBAs. However, there has been no indication that they have decreased maternal mortality during delivery. To be a good doctor, one must be able to identify patients who are having problems, as well as be able to identify and manage those patients. They may be able to help lessen the agony of labor and assist the work of midwives in their community, but they should not be seen as a substitute for professional birth attendants. Birthing skills training is given to auxiliary nurses, community health care workers and village health care workers as well as health visitors. These individuals, in contrast to other midwives (who may not be local residents), may have more formal schooling, training, and supervision. The expense of training and salary may also be less expensive for them. For all their seeming advantages, however, unskilled delivery attendants must first be shown to reduce the mortality of pregnant women and their babies in similar circumstances before this method can be widely used.

Clinicians should be prepared for the worst-case situation.

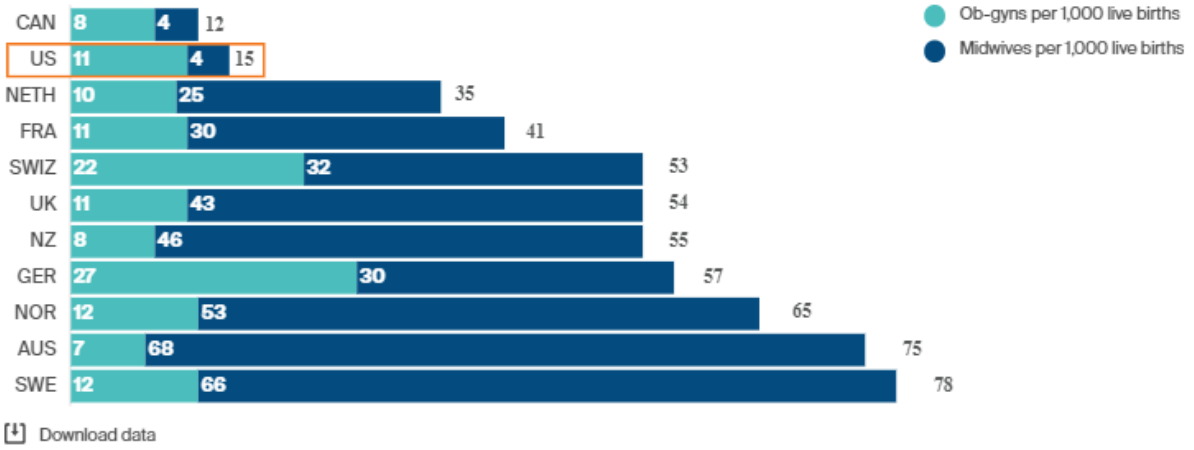
In order to react quickly to a maternal emergency, clinicians must be prepared for the worst-case scenario at all times. To be fully prepared, everyone must be educated about potential dangers and how to respond in an emergency. As a result, all members of the obstetrics care team are now better prepared to spot potential concerns early on and take rapid action if symptoms do arise. Only by quantifying all of the blood lost after C-sections and vaginal births can obstetric hemorrhages be diagnosed and averted. When a large transfusion is needed, the blood bank and all the essential medications must be readily available in delivery vehicles. Obstetrics departments

would benefit from having a bleeding response team on standby to deal with any hemorrhages that may arise.

Exhibit 3

Maternal Care Workforce: Supply of Midwives and Ob-Gyns, 2018 or Latest Year

*Number of providers (head counts) per 1,000 live births**



Download data

* The "sum" figure shown to the right of horizontal bars may not reflect arithmetic sum of figures shown for Ob-Gyn and midwife providers because calculations were performed on exact figures, while the figure presents rounded figures.

Data: OECD Health Data 2020, representing "practicing midwives" except: Canadian data reflect "professionally active" midwives; U.S. data reflect midwives "licensed to practice." Data for professionals "licensed to practice" tend to be higher than data for "professionally active," while numbers of "practicing" professionals tend to be the lowest. Data for 2018 except 2017 for Australia, Canada, Sweden, and 2015 for the U.S. Reflects midwifery professionals and midwifery associate professionals as defined by the International Standard Classification of Occupations (ISCO-08 codes 2222 and 3222, respectively). U.S. data reflect certified nurse-midwives (CNM), certified midwives (CM), and certified professional midwives (CPM) by the AMCB, and the NARM, but excludes noncertified midwives (i.e., lay midwives). "Sum" does not reflect total maternity care workforce, since primary care physicians/family practitioners also deliver some care in many countries (not shown here).

Source: Roosa Tikkanen et al., *Maternal Mortality and Maternity Care in the United States Compared to 10 Other Developed Countries* (Commonwealth Fund, Nov. 2020). https://doi.org/10.26099/411v-9255

It is critical to have IV hypertension medicine and magnesium sulfate on hand in order to react immediately when eclampsia and other hypertension-related issues arise. Additionally, rural populations must have easy access to modern medical equipment, such as telemedicine, in order to improve their health. Health care practitioners may be able to identify risk factors more quickly if they follow up on prenatal and postnatal appointments regularly.

Interventions Focused on Behavior

When it comes to reducing the mortality of mothers, newborns, and their babies, changing women's attitudes and actions are frequently necessary. Even if

these changes are difficult to accomplish on one's own, providing individuals with information about pregnancy, its hazards, and acceptable methods to deal with them may go a long way toward helping them make these sorts of lifestyle changes. Women should avoid having children after the age of 35, abstain from alcohol and smoking, wear bednets to avoid malaria, have a skilled birth attendant present during labor and delivery, and be aware of and ready to respond quickly to warning signs of a difficult birth, according to the findings of this report. If compliance is low in large, unmonitored populations, initiatives to improve birth outcomes in clinical trials may not work. This study thus suggests methods that have been shown to be effective in both clinical trials and large populations that are comparable to the one being studied. Health programs that rely on long-term patient compliance may benefit substantially from research that uncovers novel methods for encouraging healthy behaviors. As part of their prenatal care, pregnant women may be educated through campaigning and given assistance and counseling. Production and distribution of films that promote social change may also fall under this category.

Vaginal birth should be encouraged.

Medical practitioners worldwide are being asked to advocate for vaginal birth wherever feasible when a C-section is not medically required, due to the higher risk of maternal health complications associated with C-sections. Education is critical to increasing the number of vaginal births. Medical facilities in the United States have a responsibility to ensure that all obstetricians are aware of C-section target rates and the data that promotes vaginal childbirth. Because many women believe that C-sections are more technologically advanced, safer, or simpler than vaginal births, it is

important to educate prospective mothers. In order to decrease the disparity in C-section rates across facilities, a comprehensive educational and promotional effort is required.

Recognize the Signs of Trouble

Everyone on the maternal care team must start looking for obstetric hemorrhages right once after labor begins in order to minimize blood loss. Preventative measures include educating hospital staff on the signs and symptoms of a uterine hemorrhage, including low blood pressure, dizziness and nausea, and how to manage them. The mother's blood pressure must be closely monitored during her pregnancy and, most importantly, during delivery. For pregnant women with risk factors for preeclampsia, regular monitoring is critical. Maternal mortality rates may be dramatically reduced if healthcare professionals are aware of how to prevent it via early detection.

Aiming to improve the quality of postnatal care

It is critical to improve postpartum care, since half of all maternal deaths occur after delivery. The WHO recommends four health visits in the first six weeks, yet most American women only have one office-based physician visit during this time period, and others do not have any at all, despite this recommendation. Pregnant women in the United States may get better postpartum care if the Medicaid program is expanded. Only six weeks following the birth of a kid are covered by the current scheme. Maternal mortality review organizations and others have urged governments to expand coverage to one year.

Exhibit 4

Postpartum Home Visits

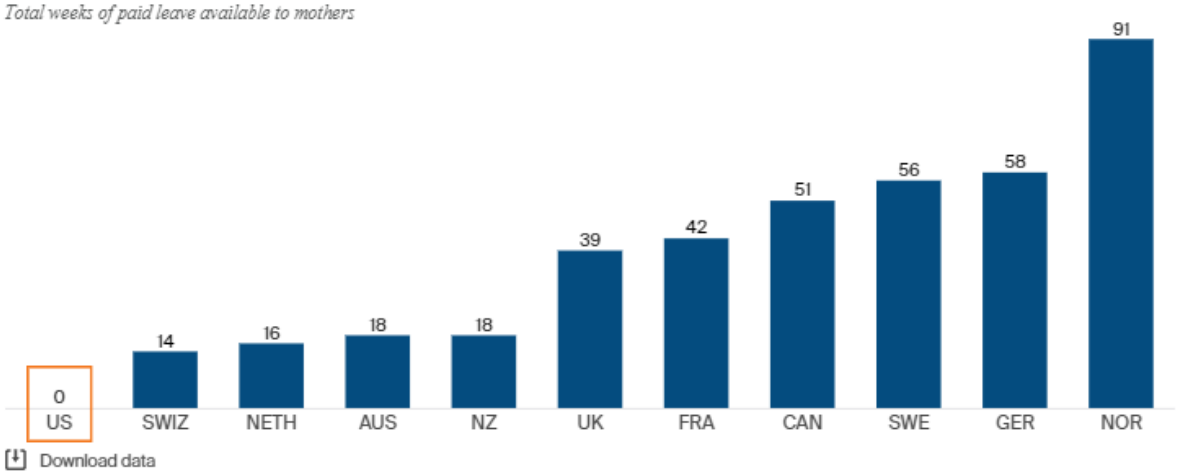
	Covered by national insurance?	Timing and number of covered visits	Provider
Australia	Yes	Within week 1, typically one to three visits	Midwife
Canada	Yes	Contacted or visited within 24 to 48 hours after going home	Public health nurse
France	Yes	Starting within 24 hours after discharge, one to three visits	Midwife
Germany	Yes	Daily if needed until day 10, plus 16 visits as needed until eight weeks postpartum	Midwife
Netherlands	Yes	Daily, starting immediately after birth and up to 10 days postpartum, staying at a minimum 4 hours per day	Maternity nurse
New Zealand	Yes	At least five visits over six weeks, starting within 48 hours postpartum	Midwife
Norway	Yes	Midwife: Starting at 24 to 48 hours, or three days (for low-risk multiparous women) after going home Nurse: First visit on days 7 to 10 postpartum; second visit on days 14 to 21	Midwife, nurse
Sweden	Yes	First visit during week 1; visits thereafter every one to two weeks until week 8	Midwife, nurse
Switzerland	Yes	Daily, up to 10 days postpartum	Midwife
United Kingdom	Yes	At least until 10 days postpartum	Midwife, nurse
United States	Covered by some state Medicaid programs and certain health plans	Varies by state Medicaid program and by individual insurer	Nurse, physician, community health worker, doula, home health worker

Paid time off.

Exhibit 5

Weeks of Paid Maternity Leave, 2018

Total weeks of paid leave available to mothers



Download data

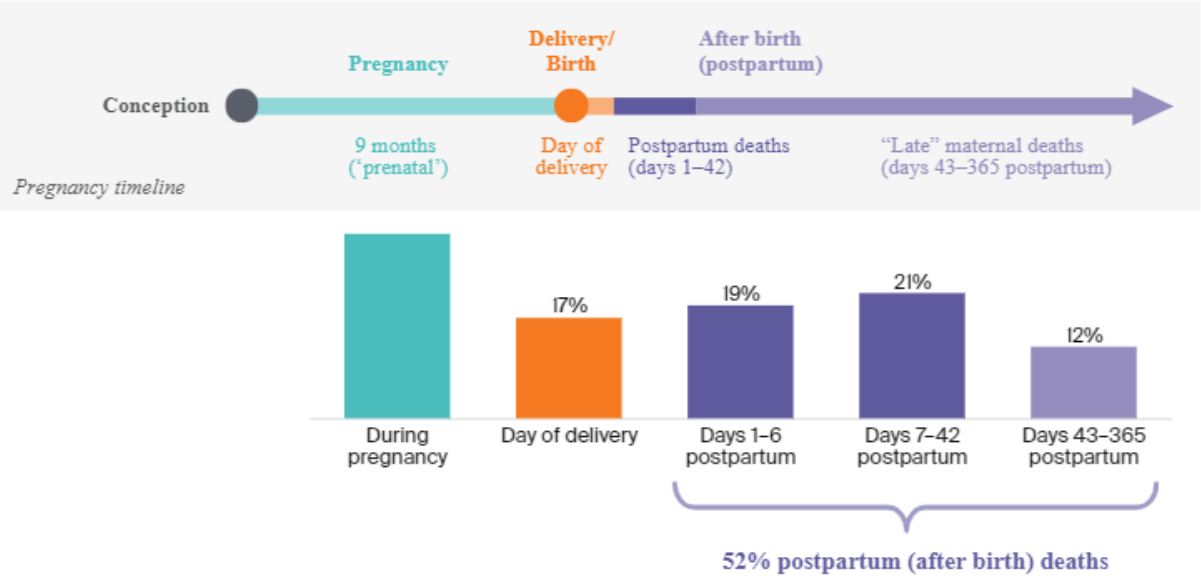
Data: OECD Family Database, 2018 data. Data reflect paid maternity, parental, and home care leave available to mothers.

Source: Roosa Tikkanen et al., *Maternal Mortality and Maternity Care in the United States Compared to 10 Other Developed Countries* (Commonwealth Fund, Nov. 2020). https://doi.org/10.26099/411v-9255

Many states have enacted paid maternity leave, but the United States is the only high-income country that does not provide paid maternity leave to all women. Due to this, women on paid leave utilize less health care compared to those on unpaid leave.

Exhibit 2

Timing of U.S. Maternal and Pregnancy-Related Deaths, 2011–2015



Data: Centers for Disease Control and Prevention Pregnancy-Related Mortality Surveillance data from: Emily E. Petersen et al., "Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015, and Strategies for Prevention, 13 States, 2013–2017," *Morbidity and Mortality Weekly Report* 68, no. 18 (May 10, 2019): 423–29.

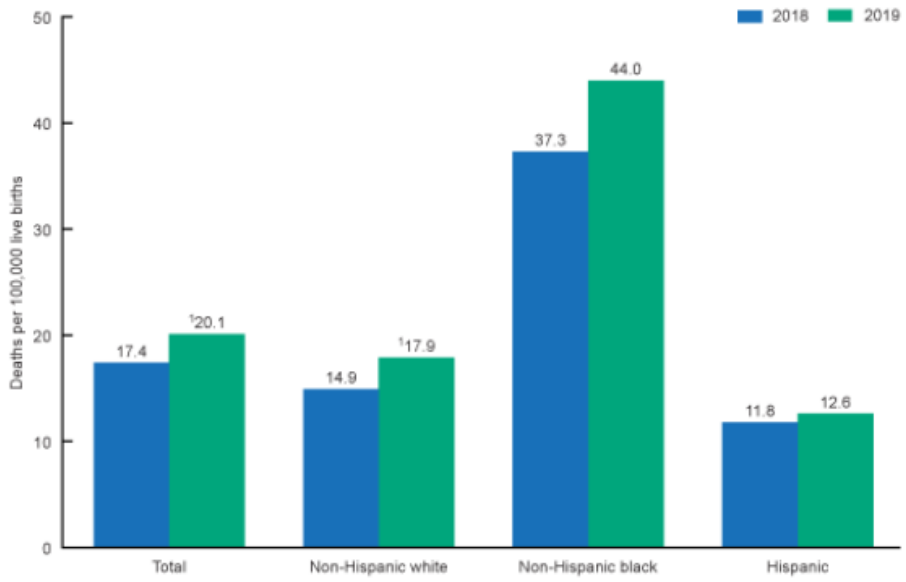
Source: Roosa Tikkanen et al., *Maternal Mortality and Maternity Care in the United States Compared to 10 Other Developed Countries* (Commonwealth Fund, Nov.

Racial Disparities Should be adressed.

For black non-Hispanic women, the maternal mortality rate was more than twice as high as for white mothers in 2018 (37.1 deaths per 100,000 births) because of their race and ethnicity (14.7). Hispanic women's pregnancy rates are the lowest of any ethnic group (11.8). Since Black and Latino people have had higher rates of economic hardship and mental illness than white people in the United States, the pandemic may worsen existing inequities in maternal health in the United States. It is not only the United States that suffers from these disparities. In the pre-epidemic era in the United Kingdom, when universal health care was in place, there were five times more maternal deaths among Black women and two times more among Asian women. It is a global issue when it comes to inequities in maternal health. The health of expectant women and their babies should be a top priority for all governments. In

order to improve maternal health outcomes in the United States, U.S. policymakers and delivery system executives may benefit from studying maternity care practices in other countries.

Figure 1. Maternal mortality rates, by race and Hispanic origin: United States, 2018–2019



Recent media coverage and several scientific publications have brought attention to the rising rate of maternal death. As one example, NPR's Lost Mothers: Maternal Mortality in the United States series focuses on this issue. In light of these revelations, public awareness of this vital problem has grown, leading to a national appeal to identify ways to improve the quality of maternal care and outcomes. The first step in identifying and reducing this problem is to get national awareness and acknowledgement.

A maternal mortality review procedure is in place in most states in the United States. The Preventing Maternal Death Act of 2018 is a new ACT that promotes and helps hospitals improve the care of women before and after childbirth.

It is estimated that almost half of all maternal fatalities can be prevented To safeguard the safety of moms around the country, there is a lot that can be done. In an effort to reduce maternal mortality and improve the lives of women, efforts are centered on three levels: providers, the health system, and patients. For the United States to see a decrease in maternal mortality, we must learn from the mistakes of others and ensure that all women in the country have access to high-quality care.

Keeping Track of Information

Significant measures have been taken to enhance data collecting on maternal mortality, such as the addition of a pregnancy question to the standard death certification in the United States.

Maternal outcomes can not be properly studied because of uneven reporting and diverse methodologies for analyzing maternal fatalities. However; this is the present state of affairs. Both the CDC's national vital statistics system and the prenatal mortality surveillance system (PMSS) are used to track maternal fatalities in the United States today. These measurements are carried out utilizing a variety of approaches. For example, the National Vital Statistics System employs ICD-10 diagnostic codes and a pregnancy checkbox on death certificates to identify maternal deaths[12].

Checkboxes on death certificates, a relatively new feature, are still being phased in by certain jurisdictions. Different definitions of causes and time of death are made more difficult by this, making it difficult to obtain accurate statistics. Women who die during or within 42 days after giving birth are considered to have died from maternal causes by the World Health Organization (WHO). Maternal mortality, on the

other hand, is defined by the Centers for Disease Control as the death of a pregnant woman or a woman who has just given birth. Data analysis is made more difficult by this time difference.

To track maternal fatalities, the PMSS collects data from birth and death certificates that have been connected. As a result, the reports they create are constrained by the availability of data from the vital statistics system12. Although both of these methods may provide significant information on national-level trends, they are unable to identify the particular circumstances that led to individual fatalities and how they might have been averted.

State-level MMRCs are critical to learning from individual instances and implementing preventative measures in order to reduce the number of maternal deaths in the future. Only 33 states now have MMRCs, although this number is steadily increasing. MMRCs collect a great deal of data on each incidence of maternal death and use it to provide recommendations for preventing future occurrences of the same circumstances (figure 3).

Maternal Mortality Review Information Application, or MMRIA (Maternal Mortality Review Information Application)11, is now being adopted by the Centers for Disease Control and Prevention and state MMRCs. This system's goal is to provide a standard language for review committees. It has a set of tools and a set of guidelines for conducting case reviews. Using this approach, MMRC's will be able to develop a common vision and grow the national surveillance system.

A more fluid method for gathering data and reviewing cases will lead to a more thorough study of maternal fatalities and a discussion of the variables that led to the

result if maternal mortality review panels are made easier in all states. In addition, the MMRC can access causes of mortality and preventive possibilities more fully by combining vital data with prenatal and hospital records, autopsy reports, social services and other records.

The development and implementation of national standards

Inconsistent handling of obstetric crises and quality variations in hospital-based intrapartum care are two examples of system issues that impact maternal healthcare. Obstetric crises are not uniformly managed throughout hospitals in the United States. Research reveals that delayed diagnosis, delayed therapy, inability to identify high risks and inadequate treatment all had an adverse effect on outcomes.

In addition, problems with communication, paperwork, equipment, and procedures in different institutions might impede the ability to provide proper care9. Planning for obstetric emergencies is critical, as is providing staff with regular updates on how to put those plans into action.

Maternal safety in the United States is a joint effort of the federal government and state At the ACOG and 30 other organizations13, the Alliance for Innovation on Maternal Health (AIM) has been established to promote innovation in maternal health care. Maternal mortality and morbidity are the primary goals of this program. Maternal hemorrhage, hypertension, and thrombosis of the veins are three of the most prevalent causes of maternal mortality that may be prevented. Maternal care safety is the emphasis of these bundles. When it comes to high-risk pregnancies, they concentrate on their professionals, obstetric teams, and medical facilities. Hospitals

throughout the country would be better prepared for obstetric emergencies by implementing these packages at the system level.

Another factor to consider is the fact that maternity care is frequently interdisciplinary and complicated.. Consensus on patient safety recommendations can only be achieved with the participation of a wide range of healthcare professionals. Assembling a common mental model for obstetric patients with anesthesia providers may aid in the identification of potential risks[13].

Chronic conditions

Women with chronic diseases such as hypertension, diabetes, and obesity are increasingly getting pregnant. Having a long-term medical condition such as diabetes or high blood pressure increases the risk of pregnancy problems. Increasing women's health throughout their lives will assist reduce maternal fatalities and improve the monitoring of women throughout their lives. The ability to get health insurance is a critical factor in this. It is estimated that three to four times as many women who lack health insurance die of pregnancy-related problems than those who have insurance[14]. Despite its many critics, the Affordable Care Act (ACA) has significantly increased the number of women in the United States who have access to quality maternity care. The current plans to repeal and slash Medicaid under the Affordable Care Act would result in a reduction in coverage for many women and may worsen maternal mortality rates. Currently, Medicaid covers more than half of all births in the United States. Medicaid coverage for pregnancies, on the other hand, terminates six weeks after delivery. It may not be adequate for women who are still battling issues like depression and other potentially life-threatening conditions15. Many women benefit

from insurance coverage for contraception, which significantly minimizes the likelihood of unwanted pregnancies, which may lead to serious health consequences15. Women's chronic health issues, such as hypertension and diabetes, improve before pregnancy when they have access to contraception. As a result, they are less likely to have complications during labor. It will be necessary to address the societal disadvantages that many women of color confront if we are to improve women's health. Pregnancy-related fatalities may be better understood and reduced if there is more variation in the risk of mortality by race.

African-American women had a maternal death rate more than three times that of white women, whereas Native American and Native Alaskan women have a mortality rate 2.5 times that of white women1. This is true independent of the underlying causes of chronic diseases like high blood pressure or excess weight. Race-specific differences in the causes of mortality are evident. The primary causes of mortality for non-Hispanic black women were preeclampsia and eclampsia, as well as embolism, while non-Hispanic white women were more likely to die from mental health issues.

Black women have a variety of issues to consider when it comes to childbirth, compared to white women. Research shows that many black women get less prenatal care, which increases the risk of maternal death. However, even if this is the case, it does not give any answers to the issue. The medical system is distrusted by a large number of African American women. To reduce the gender discrepancy gap in maternal fatalities, these and other societal issues must be investigated further.

The preventing maternal deaths act was put into effect by the federal government to address the issue of poor maternal health. States will be able to apply for money from the federal government to help them examine the deaths of pregnant women within the first year of their death.

Maternal health outcomes are addressed via the use of N.P.s and nurses.

When it comes to addressing public health issues like maternal health, there are several ways in which nursing may be employed. Because of the scarcity of obstetricians and midwives in many rural areas of the United States, N.P. has an opportunity to fill the void. A seamless connection between primary, obstetrical, and specialist care is necessary in the United States because of the rise in chronic illnesses and the repercussions they bring13. Patients may learn about chronic diseases before pregnancy from their primary care providers, such as nurses and nurse practitioners. Improve patient education and encourage healthy behaviors that may minimize the risk of chronic illnesses, as well as the risk of unfavorable maternal outcomes17. Helping new moms with any issues that may impact them may be as simple as educating them on the use of contraception and arranging postpartum follow-up visits depending on the specific needs of each patient17. Aside from lobbying against Medicaid cutbacks, nurses should also campaign for better prenatal and postpartum care in their local institutions.17,18. When nurses and other healthcare professionals work together to offer the best possible care to women, whether before, during, or after pregnancy, many little acts may help to reverse the developing public health concern, which is becoming more and more prevalent.

Discussion

There have been considerable changes in maternal mortality and morbidity during the previous several decades. Mean mother age during pregnancy has grown dramatically as well as an increase in the prevalence of obesity. Maternal mortality has increased as a result of these and other reasons. Pregnancy outcomes may be improved if more study is done on the effect these variables have on pregnancy outcomes.

Individual mortality data collection and analysis might help us better understand how to minimize the death and morbidity of women in the United States. 'The MMRC's investigation of individual instances will lead to better statistics in this area as more states begin to adopt. Each state's hospitals and regions of need may be prioritized using this method. Assume that a maternal mortality review committee is mandated in every state. If this is the case, it will enable for state-level case evaluations and allow for regional-level reform to commence. This will lead to better data analysis, which will lead to more targeted measures to minimize maternal mortality and illness.

Maternal health outcomes may be improved at the hospital level by enhancing interdisciplinary efforts and participation. Creating and implementing national levels of maternity care that can be used by multidisciplinary teams is needed in this field. In

order to guarantee that all institutions that participate in perinatal health are active in implementing and tailoring these bundles to their local requirements, the usage of maternal care bundles countrywide would be beneficial. Research is needed to assess whether institutions who have adopted these bundles have observed a decrease in the morbidity and death of women in their region.

It is time to concentrate on maternal health disparities, which are under-researched. That a woman of color is three to four times more likely to die during delivery is startling and must be addressed. More comorbidities and less prenatal care are seen in black women, according to current study. However, while this may be true, there needs to be further research done to look into how we can prevent further aggravation of this disparity—for example, looking into hospitals where black mothers typically deliver and analyzing these areas of need, and ensuring that black women are heard when they raise their concerns with their providers, so that they can be confident that they are receiving the best possible care.

Conclusion

These problems are neither new or becoming better, as can be shown via a comparison of maternal death rates between the United States and other countries. There is little doubt that the United States has the highest maternal mortality rate of any country on Earth, even when just non-Hispanic white women are taken into account. Regardless of the technique employed to measure maternal mortality in the United States, there is no evidence of a positive trend. Because of the complexity of a situation like maternal mortality, it is difficult to avoid. Race and ethnicity have a role in the development of postpartum depression, as well as the time of birth. Risks of

mortality during childbirth are more than double for women in certain places. According to data for white American women, the United States has the highest maternal death rate in industrialized countries.

In the United States, structural racism is a key contributor to the discrepancy between black and white women's incomes. Structural racism has been related to a greater prevalence of chronic disease because of the lack of access to health care, housing, safety, and education. Cardiomyopathy and hypertension, among other things, are more often to blame for the higher rate of maternal death among Black women during pregnancy. Black women are less likely than other women to get excellent medical treatment because of medical racism. As a consequence, women of color may suffer avoidable deaths and morbidity as a result of delayed diagnosis or treatment by clinicians who refuse to listen.

Most pregnancy deaths occur before the baby is born, despite recent efforts to improve maternity care in hospitals. Not just after delivery, but also before, during, and after pregnancy, women's health care must be enhanced. Pregnant women must be encouraged to keep their current health insurance plan during and after pregnancy. After the birth of a child, a large proportion of mothers die. This shows that too many women are losing access to health care after childbirth, which is a serious problem. There must be an integrated strategy to reducing maternal mortality in the United States in order to improve health care for all women while ensuring racial equity.

This is why women's health is critical to the growth of both the United States and the rest of the globe. All parties involved in the management of women's reproductive health must work together to provide the best outcomes for women.

When maternal mortality is reduced, it will have a positive impact on both families and the country. Measures of maternal mortality are the first stage in these attempts to ensure that they are trustworthy and comparable. Pregnancy-related mortality may be prevented by implementing targeted treatments tailored to the specific requirements of each community. Education on family planning and expert care from providers prior to, during and after delivery are essential and vital stages in preserving women' lives.

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