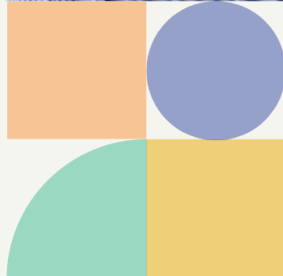


CHANGING OUR (VIRTUAL) REALITY: TELEHEALTH AND THE UNITED STATES MATERNAL HEALTH CRISIS



By: Brittany-Rae Gregory, Ph.D.

Executive Summary

The following research offers a brief history of maternal health, telehealth, and the resulting health crisis in the United States. Information about initiatives and legislation created to address the crisis are detailed in this study. It concludes with a focus on maternal healthcare at the local level, recommending ways that increasing access to telehealth and related technology can reduce maternal morbidity and mortality in communities nationwide.

As society works to address the systemic barriers that contribute to the maternal health crisis, it is important to recognize the role that telehealth could play in improving the United States' maternal health outcomes. Policymakers should take the following into consideration:

- Telehealth providers *must* take cultural competency and practices into account when providing telehealth across communities.
- Continually assessing the effectiveness and individual experiences with telehealth technology can help address challenges as they arise.
- Digital access and literacy are critical for ensuring that telehealth remains a viable option for patients nationwide.
- Advocates at all levels should work to eliminate barriers to telehealth. Doing so would increase access to important preventive and routine care to educate birthing persons and their support systems.
- Researchers should continually study the evolving and unique needs of prenatal and postpartum populations.

Table of Contents

Introduction4

The Challenging History of Maternal Health5

The Unexpected Origins of Telehealth in the United States.....8

Telehealth, Federal Action, and Maternal Health.....9

Fostering Maternal Health in Communal Spaces.....13

**Telehealth Could Reduce Maternal Morbidities and Mortalities
at the Local and State Level15**

Introduction

Addressing the maternal health crisis is urgent, especially in countries with limited resources, knowledge, and technology. Remarkably, even countries with adequate resources experience the disparities plaguing many birthing people today. In fact, the U.S. maternal mortality rate has risen steadily in the last two decades. In 2000, there were 17.6 deaths per 100,000 live births (See Figure I).¹ The number of maternal deaths increased by 203 people annually between 2018 and 2020.² By the year 2020, the national average reached 23.8 deaths per 100,000 live births, equaling a total of 861 recorded maternal deaths in the United States in 2020.

The statistically significant increase in maternal deaths over the past few years is reason enough for swift action to address the U.S. maternal health crisis. It is estimated that two-thirds of pregnancy-related deaths are preventable with proper education, communication, and medical attention.³ The rise in telehealth technology proves beneficial to providers and patients, aiding in monitoring prenatal and postpartum health.

¹ The University of Washington's Institute of Health Metrics and Evaluation, United States Maternal Mortality Ratio (2017), <https://vizhub.healthdata.org/sdg/>.

² National Center for Health Statistics, *Maternal Mortality Rates in 2020*, (last visited August 2, 2022), [https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm#:~:text=The%20maternal%20mortality%20rate%20for,20.1%20in%202019%20\(Table\)](https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm#:~:text=The%20maternal%20mortality%20rate%20for,20.1%20in%202019%20(Table).).

³ Center for Disease Control, *Pregnancy Related Deaths in the United States*, (last visited September 2, 2022), <https://www.cdc.gov/hearher/pregnancy-related-deaths/index.html>.

The Challenging History of Maternal Health

Pregnancy and childbearing have been documented for thousands of years and have been recorded across eras and cultures. Records have a common thread — centering the challenges faced during pregnancy, birth, and post-pregnancy. In a new era of telehealth, technological advances have helped decrease challenges associated with prenatal and postnatal health. Expanding telehealth accessibility and adoption will help address the persisting maternal health crisis head on.



Biblical writings make several references to complicated births and deaths during delivery. In Genesis, the birth of twins Perez and Zerah is highlighted as the twins switch places while exiting the womb.⁴ Later, in 1st Samuel the wife of Phinehas goes into sudden labor after learning of the death of her husband and father-in-law, and ultimately dies in childbirth.⁵

In Ancient Egypt, childbearing solidified women’s status as contributing members of society. Egyptian artifacts reveal that miscarried fetuses and death during childbirth was a health concern faced by their society.⁶

The late Middle Ages saw the development of Midwifery as a necessary and reputable profession for women. European cities started educating and registering midwives in the Fourteenth century.⁷ During this era, it was also common for women to create their wills before delivering because 1 in 3 childbirths resulted in death.⁸

In the Early Modern Era, *Der Swangern Frauen und Hebammen Rosegarten (The Rose Garden for Pregnant Women and Midwives)*, the first known printed work about obstetrics, was published in 1513 by Eucharius Rösslin.⁹ During this same period, medical treatises, though flawed, were

⁴ New International Version, Genesis 38:27-30, (last visited August 2, 2022), <https://www.biblegateway.com/passage/?search=Genesis%2038%3A27-30&version=NIV>.

⁵ New International Version, 1 Samuel 4:19-22, (last visited August 2, 2022), <https://www.biblegateway.com/passage/?search=1%20Samuel%204%3A19-22&version=NIV>.

⁶ National Geographic, This ancient Egyptian woman may have died in childbirth, <https://www.nationalgeographic.com/culture/article/ancient-egypt-pregnant-woman-burial-archaeology> (last visited Aug. 3, 2022).

⁷ NPR, ‘Get Me Out’: Making Babies Through The Ages, (February 1, 2010), <https://www.npr.org/templates/story/story.php?storyId=122805624>.

⁸ The Birth Injury Center, *The history of childbirth*, <https://www.birthinjuryhelpcenter.org/childbirth-history.html> (last visited Aug. 2, 2022).

⁹ National Library of Medicine, *Early Modern Childbirth*, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1449803/> (last visited Aug. 4, 2022).

important to chronicle what happened during childbirth and *who* could be considered responsible for malpractice that contributed to death during the process.¹⁰

By the Nineteenth Century, anesthetics were developed and helped manage the pain experienced during childbirth. Additionally, there was a greater understanding of disease and infection. Doctors were able to develop antiseptics and hygienic practices that reduced the death rate from infection through new delivery and surgical procedures.¹¹

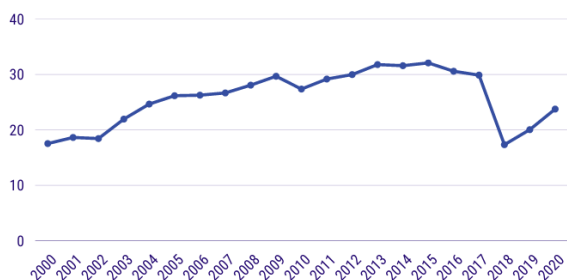


Figure I: Maternal death rates in the United States 2000-2020

Greater knowledge and accessibility to technological advances have not eliminated the disparities that exist among people of childbearing age. In 2020, the United States maternal mortality rate was 23.8 deaths per 100,000 live births.¹² The leading causes of maternal injury and death were “...excessive blood loss, infection, high blood pressure, unsafe abortion, and obstructed labour, as well as indirect causes such as

anemia, malaria, and heart disease.”¹³ The number of individuals who die in childbirth has doubled in the last two decades, and more than half of those deaths were preventable.¹⁴ The outlook is dire for Black child bearers with 55.3 deaths per 100,000 live births occurring in the same period of time (See Figure II).¹⁵

Maternal health morbidities and mortalities are a global concern. Notably, the United States far outpaces other similar countries when it comes to the negative outcomes associated with maternal health. France, the country next in line to the United States when it comes to maternal mortality, has 7.6 maternal deaths per 100,000 births in comparison to the United States’ 23.8 deaths per 100,000 births (See Figure III).¹⁶ For context, a little more than 100,000 people

¹⁰ National Library of Medicine, *Blame and Vindication in the Early Modern Birthing Chamber*, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1592634/> (last visited Aug. 4, 2022).

¹¹ Birth Injury Help Center, *The History of Childbirth*, <https://www.birthinjuryhelpcenter.org/childbirth-history.html> (last visited Aug. 2, 2022).

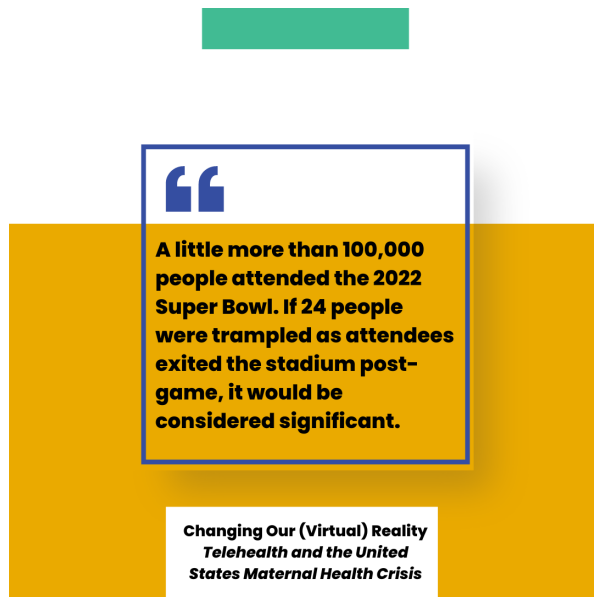
¹² National Center for Health Statistics, *Maternal Mortality Rates in 2020*, [https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm#:~:text=The%20maternal%20mortality%20rate%20for,20.1%20in%202019%20\(Table\)](https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm#:~:text=The%20maternal%20mortality%20rate%20for,20.1%20in%202019%20(Table)) (last visited Aug. 2, 2022).

¹³ World Health Organization, *Maternal Health*, https://www.who.int/health-topics/maternal-health#tab=tab_1 (last visited Aug. 4, 2022).

¹⁴ Every Mother Counts, https://everymothercounts.org/giving-birth-in-america/?qclid=Cj0KCCQjwuaiXBhCCARIsAKZLt3140JGgnD-A5_HNHtmJI7oOWcUPVr53Ju1OIR-ub1BRLuTJ7PIF99QaAoEWEALw_wcB (last visited Aug. 2, 2022).

¹⁵ National Center for Health Statistics, *Maternal Mortality Rates in 2020*, [https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm#:~:text=The%20maternal%20mortality%20rate%20for,20.1%20in%202019%20\(Table\)](https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm#:~:text=The%20maternal%20mortality%20rate%20for,20.1%20in%202019%20(Table)) (last visited Aug. 5, 2022).

¹⁶ Munira Z. Gunja, et al., *Health and Health Care for Women of Reproductive Age How the United States Compares with Other High-Income Countries*, The Commonwealth Fund (Apr. 5, 2022),



attended the 2022 Super Bowl.¹⁷ If 24 people were trampled as attendees exited the stadium post-game, it would be considered significant.

The continued challenges associated with childbearing have led to organizational and federal focus on alleviating the problems concerned with prenatal and postnatal care. Federal efforts to address maternal health and childhood wellbeing were detailed in the 1935 passage of *Title V of the Security Act*. Since its enactment, the bill has undergone several changes.¹⁸

In 1981, the *Title V* program was converted to a block grant program under the *Omnibus Budget*

Reconciliation Act of 1981.¹⁹ Under this change, seven categorical programs were consolidated including maternal and child health; services for children with special health needs; supplemental security income for children with disabilities; lead-based paint poisoning prevention programs; genetic disease programs; sudden infant death syndrome programs; hemophilia treatment centers; and adolescent pregnancy prevention grants.

The Omnibus Budget Reconciliation Act of 1989 created the Agency for Healthcare Policy and Research.²⁰

In 1996, an abstinence education program was added to *Title V*, with additional funding for abstinence programming added in 2000. Then, in 2010, three new sections were added under the Patient Protection and Affordable Care Act (ACA). They included the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) program; grants for Services for Individuals with Postpartum Conditions and Their Families; and the Personal Responsibility Education Grant Program.²¹ The addition of the three aforementioned programs is indicative of the shifted focus to educating people of childbearing age and supporting families and individuals whose prenatal and postpartum journeys could be impacted by their health and systemic barriers.

<https://www.commonwealthfund.org/publications/issue-briefs/2022/apr/health-and-health-care-women-reproductive-age>.

¹⁷ Michael Potts, *How many fans are at the Super Bowl? Official attendance confirmed at SoFi Stadium*, RadioTimes (Feb. 10, 2022), <https://www.radiotimes.com/tv/sport/super-bowl-2022-attendance/>.

¹⁸ Maternal and Child Health Library, *Title V @ 85: Beyond Legislation, Bold Leaders, and Bright Legacies*, <https://www.mchlibrary.org/collections/history/> (last visited Aug. 2, 2022).

¹⁹ The United States Senate, *Omnibus Budget Reconciliation Act of 1981*, <https://www.aging.senate.gov/imo/media/doc/reports/rpt681.pdf> (last visited Aug. 19, 2022).

²⁰ Institute of Medicine Committee to Advise the Public Health Service on Clinical Practice Guidelines, *Clinical Practice Guidelines: Directions for a New Program* (eds. MJ Field & KN Lohr 1990)(available at <https://www.ncbi.nlm.nih.gov/books/NBK235749/>).

²¹ Maternal and Child Health Library, *Title V @ 85: Beyond Legislation, Bold Leaders, and Bright Legacies*, <https://www.mchlibrary.org/collections/history/> (last visited Sept. 7, 2022).

As the nation commits to acknowledging the varied factors impacting maternal health, additional governmental measures are underway to eradicate the ongoing maternal health crisis. These include the development of the Congressional Black Maternal Health Caucus²² and the Executive Branch's focus on the Black Maternal Health crisis.²³ In addition to affecting policy changes, in recent years lawmakers, advocates, healthcare providers, and patients have acknowledged that proper adoption and use of telehealth technologies could be instrumental in decreasing maternal mortality rates.



An 1879 account of a doctor diagnosing a baby with croup via telephone is one of the first documented accounts of telehealth as we know it today.

**Changing Our (Virtual) Reality
Telehealth and the United
States Maternal Health Crisis**

The Unexpected

Origins of Telehealth in the United States

Technology and distance communication for health has been fast-tracked in the last thirty years by households and private businesses using in-home Internet. However, using technology to communicate about healthcare is almost as old as time. For example, during the period when maritime travel was the primary mode of inter- and intra-country travel, ships would fly flags to alert other ships of contagious sickness on board.²⁴

The United States first used electronic communication for health during the Civil War. At the time, telegraphs were used to share information about casualties, patient transport, and medical supply requests. By the end of the following decade, medical practitioners were using the telephone to reduce in-office patient visits. An 1879 account of a doctor diagnosing a baby with croup via telephone is one of the first documented accounts of telehealth as we know it today.²⁵

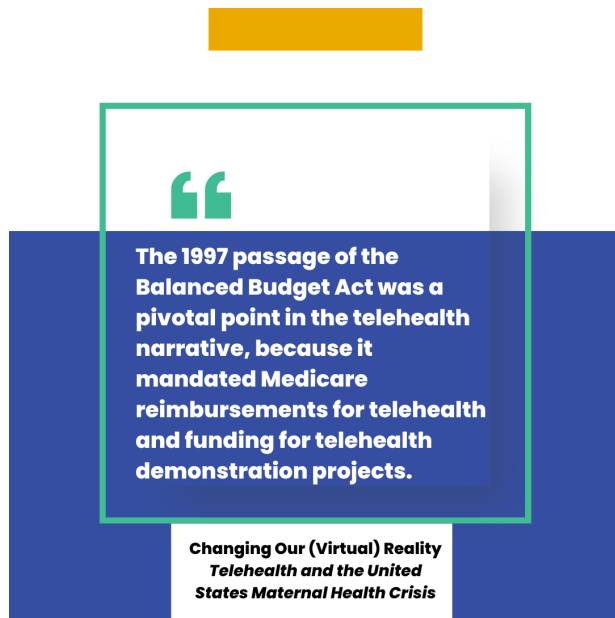
Throughout the early part of the twentieth-century, doctors began using telehealth technology more regularly to treat and diagnose patients. As radio technology became more prevalent, radio audio and sometimes video were used for telehealth visits with patients and became a trustworthy mode of analysis. By the late-1950s the first widely-used interactive video communications were

²² Black Maternal Health Caucus, *About the Black Maternal Health Omnibus Act of 2021*, <https://blackmaternalhealthcaucus-underwood.house.gov/Momnibus> (last visited Sept. 7, 2022).

²³ The White House, *Remarks by Vice President Harris on the Administration's Commitment to Improve Maternal Health* (Apr. 4, 2022), <https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/04/21/remarks-by-vice-president-harris-on-the-administrations-commitment-to-improve-maternal-health/>.

²⁴ Nesbitt, Thomas S., and Jana Katz-Bell, *Understanding Telehealth* (eds. Karen Schuller Rheuban, and Elizabeth A. Krupinski 2018) (available at <https://accessmedicine.mhmedical.com/content.aspx?bookid=2217§ionid=187794434#1158358707>).

²⁵ *Id.*



put into place at the University of Nebraska Hospital where doctors communicated via video with medical students across campus.²⁶

The 1990s was a critical decade for telehealth advancement. At this point in history, video had become the dominant form of telehealth technology used by medical practitioners. Meanwhile, telehealth technology also became more widely available, and the government invested more resources into making widespread use of telecommunications possible.²⁷

The Office for the Advancement of Telehealth, formerly the Office for Rural Healthcare, was

developed in 1987 under the Health Resources and Services Administration to advise the U.S. Department of Health and Human Services on rural health concerns.²⁸ Since its inception, the office has expanded its mission to focus on rural, urban, and underserved communities.²⁹ The 1997 passage of the *Balanced Budget Act* was a pivotal point in the telehealth narrative, because it mandated Medicare reimbursements for telehealth and funding for telehealth demonstration projects.³⁰ By 2010, health telecommunications had expanded to include all 50 states and was most popular among neurologists, intensive care units, and pediatrics.³¹

Telehealth, Federal Action, and Maternal Health

Telehealth technology has proven beneficial to patients and providers over the years. However, telehealth technology cannot rise to its fullest potential unless more people have access to its benefits. It is imperative that federal and state agencies continue to prioritize telehealth and develop technology that meets the needs of its users.

THE DEPARTMENT OF HEALTH AND HUMAN SERVICES

The Department of Health and Human Services (HHS) recognizes that incorporating telehealth programs into prenatal and postnatal care could provide much-needed supplements for birthing individuals in remote, rural, and underserved communities. HHS places emphasis on maternal

²⁶ *Id.*

²⁷ *Id.*

²⁸ Understanding Telehealth, *The History of Telehealth*, <https://accessmedicine.mhmedical.com/content.aspx?bookid=2217§ionid=187794434#1158358707> (last visited August 2, 2022).

²⁹ Health Resources & Services Administration, Office for the Advancement of Telehealth, <https://www.hrsa.gov/rural-health/topics/telehealth> (last visited Aug. 2, 2022).

³⁰ See generally, *Balanced Budget Act of 1997*, Pub. L. No. 105-33 (1997).

³¹ Understanding Telehealth, *The History of Telehealth*, <https://accessmedicine.mhmedical.com/content.aspx?bookid=2217§ionid=187794434#1158358707> (last visited Aug. 2, 2022).

health because of the United States' high mortality rate associated with pregnancy in comparison to countries with similar resources. Additionally, the COVID-19 pandemic accelerated the need for maternal telehealth options.³²

To help localities assess maternal telehealth needs, HHS created a maternal-health-specific telehealth guide for local healthcare providers to use when deciding whether to implement telehealth practices for their maternal health community. The guide emphasizes that telehealth could be instrumental in bridging gaps that exist within communities, breaking down systemic healthcare barriers, and providing culturally-specific care that is important for the individual.³³

The HHS site also provides a useful overview for locating and accessing telehealth services for patients.³⁴ Additionally, the site provides case studies that highlight real-life telehealth experiences. Site users can pare down research study options to specific studies about maternal health.³⁵ At the federal level, in-depth resources like the one that HHS has provided are important for expanding telehealth availability and options. Resources like the HHS site outline a framework and illustrate successful examples that can help healthcare providers and organizations of various sizes create telehealth programs that cater to the unique needs of their communities.

THE CENTERS FOR DISEASE CONTROL AND PREVENTION

The Centers for Disease Control and Prevention (CDC) is an organization within the Department of Health and Human Services. The CDC addresses public health concerns in the United States, and international health concerns that impact residents.³⁶ The CDC's Division of Reproductive Health recently launched the HEAR HER campaign. The initiative centers on listening to pregnant people, recognizing health warning signs before they become dire, and increasing communication and cultural competency among providers. Allyson Felix, U.S. Track and Field Olympian, is the current spokesperson for the campaign. She has been forthcoming about the challenges she faced during and after her pregnancy with her daughter.³⁷

THE NATIONAL INSTITUTES OF HEALTH

The National Institutes of Health (NIH), the medical arm of the U.S. Department of Health and Human Services, serves as the country's medical research agency. In response to the ongoing maternal health crisis, they launched Implementing a Maternal health and Pregnancy Outcomes Vision for Everyone (IMPROVE). The goals of the initiative are to:

- address the leading causes of death during pregnancy, childbirth, and the postpartum period.

³² The Department of Health and Human Services, *Introduction to telehealth for maternal services*, <https://telehealth.hhs.gov/providers/telehealth-for-maternal-health-services/> (last visited Aug. 5, 2022).

³³ *Id.*

³⁴ The Department of Health and Human Services, *For patients*, <https://telehealth.hhs.gov/patients/> (last visited Aug. 5, 2022).

³⁵ The Department of Health and Human Services, *For researchers*, <https://telehealth.hhs.gov/for-researchers/> (last visited Aug. 4, 2022).

³⁶ The Centers for Disease Control and Prevention, *Mission, Role and Pledge*, <https://www.cdc.gov/about/organization/mission.htm> (last visited Sept. 2, 2022).

³⁷ The Centers for Disease Control and Prevention, *HEAR HER Campaign*, <https://www.cdc.gov/hearher/index.html> (last visited Sept. 2, 2022).

- research what societal, biological, and cultural factors contribute to poor maternal healthcare.
- study the impact that illnesses and outbreaks have on at-risk populations and their maternal healthcare.
- support the development of tools, technologies, and interventions that could lower and prevent maternal morbidity and mortality; and
- play a role in creating evidenced-based solutions for individuals and communities negatively impacted by the crisis.³⁸

THE U.S. HOUSE OF REPRESENTATIVES

In Congress, Representative Lauren Underwood (IL-04) has been instrumental in uplifting the maternal health cause within the United States House of Representatives. In April 2022, she led the introduction of the *NIH Improve Act*, which would provide necessary funding for NIH's IMPROVE initiative.³⁹ Additionally, Representative Underwood joined together with Representative Alma Adams (NC-12) to create the Black Maternal Health Caucus. Both leaders consider this Caucus an essential part of addressing one of the medical community's most urgent matters — the high rate of maternal morbidity and mortality among Black people.⁴⁰

In 2021, Representative Underwood sponsored *H.R.959 - Black Maternal Health Momnibus Act of 2021*, which builds on existing legislative efforts. Each of the twelve individual bills of the *Momnibus Act* was introduced by cosponsoring legislators. A summary of the bill provided by Representative Underwood's office asserts that The Black Maternal Health Momnibus Act will:⁴¹

1. Make critical investments in **social determinants of health** that influence maternal health outcomes, like housing, transportation, and nutrition.
2. Provide funding to **community-based organizations** that are working to improve maternal health outcomes and promote equity.
3. Comprehensively study the unique maternal health risks facing **pregnant and postpartum veterans** and support VA maternity care coordination programs.
4. Grow and diversify the **perinatal workforce** to ensure that every mom in America receives culturally congruent maternity care and support.

³⁸ National Institutes of Health, *IMPROVE Initiative*, <https://www.nih.gov/research-training/medical-research-initiatives/improve-initiative> (last visited Aug. 4, 2022).

³⁹ Press Release, Office of Congresswoman Lauren Underwood, Underwood, Herrera Beutler, Murphy Introduce Bipartisan, Bicameral Legislation to Provide Funding for Critical NIH Maternal Health Research Program (Apr. 20, 2022), <https://underwood.house.gov/media/press-releases/underwood-herrera-beutler-murphy-introduce-bipartisan-bicameral-legislation#:~:text=The%20NIH%20IMPROVE%20Act%20builds,outcomes%20and%20save%20moms%27%20lives.>

⁴⁰ United States House of Representatives Black Maternal Health Caucus, *Black Maternal Health Caucus*, <https://blackmaternalhealthcaucus-underwood.house.gov/> (last visited Aug. 4, 2022).

⁴¹ United States House of Representatives Black Maternal Health Caucus, *Momnibus*, <https://blackmaternalhealthcaucus-underwood.house.gov/Momnibus> (last visited Sept. 7, 2022).

5. Improve **data collection processes and quality measures** to better understand the causes of the maternal health crisis in the U.S. and inform solutions to address it.
6. Support moms with **maternal mental health** conditions and substance use disorders.
7. Improve maternal health care and support for **incarcerated moms**.
8. Invest in **digital tools** like telehealth to improve maternal health outcomes in underserved areas.
9. Promote **innovative payment models** to incentivize high-quality maternity care and non-clinical perinatal support.
10. Invest in federal programs to address the unique risks for and effects of **COVID-19 during and after pregnancy** and to advance respectful maternity care in future public health emergencies.
11. Invest in community-based initiatives to reduce levels of and exposure to **climate change-related risks for moms and babies**.
12. Promote **maternal vaccinations** to protect the health and safety of moms and babies.⁴²

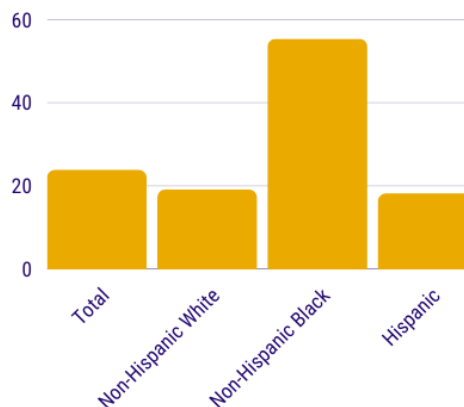


Figure II: Maternal deaths per 100,000 live births by race in the United States (2020)

The *Tech to Save Moms Act*, introduced by Representative Eddie Bernice Johnson (TX-32) and Senator Bob Menendez (D-NJ), would directly address the role of telehealth in reducing maternal mortalities and morbidities. This Bill would:

1. Require the Center for Medicare & Medicaid Innovation to consider models that improve the integration of telehealth services in maternal health care.
2. Provide funding for technology-enabled collaborative learning and capacity-building models that will develop and disseminate instructional programming and training for maternity care providers in underserved areas.
3. Establish a grant program to promote digital tools designed to address racial and ethnic disparities in maternal health outcomes, particularly in underserved communities.
4. Study the use of new technologies, like artificial intelligence, in maternal health care to prevent racial and ethnic biases from being built into maternity care innovations.⁴³

⁴² The United States House of Representatives Black Maternal Health Caucus, *About the Black Maternal Health Momnibus Act of 2021*, <https://blackmaternalhealthcaucus-underwood.house.gov/Momnibus> (last visited Sept. 2, 2022).

⁴³ *Tech to Save Moms Act*, S. 893, 117th Cong. (2021) (available at <https://www.congress.gov/bill/117th-congress/senate-bill/893/text>).

THE WHITE HOUSE

In April 2022, the Biden Administration released *The White House Blueprint for Addressing the Maternal Health Crisis*.⁴⁴ The 68-page Blueprint details a government-wide approach for decreasing the United States' maternal morbidity and mortality rates. The plan includes a focus on extending postpartum healthcare coverage, medical bill transparency, maternal mental health, healthcare provider diversity, and partnerships with federal agencies.

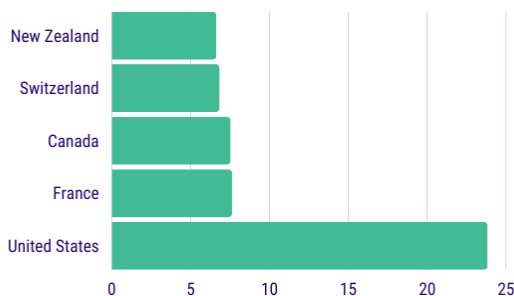


Figure III: Maternal deaths per 100,000 live births

The momentum about righting maternal health morbidities and mortalities continues to intensify. Recently the House Committee on Energy and Commerce held a hearing entitled "Investing in Public Health: Legislation to Support Patients, Workers, and Research."⁴⁵ The *NIH Improve Act* and the *Rural Telehealth Access Task Force Act*⁴⁶ were both pieces of legislation used to inform the discussion.

Fostering Maternal Health in Communal Spaces

Communal spaces nurtured by advocates and birthing people play an important role in affirming identity and lived experiences, as well as educating pregnant people about the challenges associated with the prenatal and postnatal journey.

NONPROFIT ORGANIZATIONS

There are several nonprofit organizations focused on eliminating the existing disparities around childbirth in the United States at the local and national levels. Commonsense Childbirth, an organization committed to equitable perinatal care, is one of the advocacy organizations working to educate, expand access, and advance legislation toward the betterment of maternal health in the United States. Commonsense works to address the systemic barriers that directly impact childbearing and postpartum health.⁴⁷

In addition to organizations that focus more broadly on issues related to prenatal and postnatal health, there are also nonprofits whose work centers on assisting and advocating for individuals

⁴⁴ Press Release, The White House, FACT SHEET: President Biden's and Vice President Harris's Maternal Health Blueprint Delivers for Women, Mothers, and Families (June 24, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/24/fact-sheet-president-bidens-maternal-health-blueprint-delivers-for-women-mothers-and-families/>.

⁴⁵ Hearing on Investing in "Investing in Public Health: Legislation to Support Patients, Workers, and Research," before the House Committee on Energy and Commerce, <https://energycommerce.house.gov/committee-activity/hearings/hearing-on-investing-in-public-health-legislation-to-support-patients> (last visited Aug. 19, 2022).

⁴⁶ See Rural Telehealth Access Task Force Act, H.R. 5506, 117th Cong. (2021).

⁴⁷ Common Sense Childbirth, <https://commonsensechildbirth.org/> (last visited Aug. 3, 2022).

from specific communities, like the Black Mamas Matter Alliance. Based in Atlanta, the national organization focuses on education, healthcare, and legislation from the lens of Black birthing people.⁴⁸ Commonsense and Black Mamas Matter carve out space for birthing people whose experiences are often overlooked or disregarded.

CULTURALLY COMPETENT DOULAS AND MIDWIVES

It goes without saying that the pregnancy and postpartum periods encompass more than what is happening medically. They are emotional journeys for both birthing people and their loved ones. For child bearers, having care team members who can connect emotionally is critical for safe delivery and postpartum care. The use of doulas and midwives has increased in popularity over the past few years for this very reason.

In recent years, focus has shifted to the prenatal and postpartum experiences among those giving birth. Research indicates that people of color are disproportionately mistreated during this process, which leads many of them to seek out additional members of their birthing community aside from the traditional team that helps to deliver the baby in the hospital. Prenatal and postpartum mistreatment includes but is not limited to: “loss of autonomy; being shouted at, scolded, or threatened; and being ignored, refused, or receiving no response to requests for help.”⁴⁹

Recent statistics indicate the direct and indirect benefits of having a birth and/or postpartum doula as part of a childbirth care team. People who have doulas on their care team are less likely to have a Cesarean birth, more likely to have a shorter labor time frame, and overall take fewer medications to aid in delivery.⁵⁰ Doulas are available both in-person and digitally.

Organizations nationwide are committed to educating and providing doula services for families of all socioeconomic levels. Based in Chicago, DONA International is a doula certifying organization that educates people on supporting families through childbirth.⁵¹ The SistaMidwife Directory is an example of a publication that helps pregnant people, and their families identify culturally aligned midwives and doulas.

SOCIAL MEDIA, ONLINE FORUMS, AND MEDIA COMMUNITIES

Living up to its desired purpose, there are social media accounts that help to create communities for birthing people and their loved ones as they work through the prenatal and postnatal journey. The accounts are managed by everyone from licensed midwives and doulas to everyday parenting people.

⁴⁸ Black Mamas Matter Alliance, <https://blackmamasmatter.org/> (last visited Aug. 3, 2022).

⁴⁹ See Saraswathi Vedam et al., *The Giving Voice to Mothers study: inequity and mistreatment during pregnancy and childbirth in the United States* (2019), <https://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-019-0729-2>.

⁵⁰ Dona International, *Benefits of a Doula*, <https://www.dona.org/what-is-a-doula/benefits-of-a-doula/> (last visited Aug. 2, 2022).

⁵¹ Dona International, <https://www.dona.org/> (last visited Aug. 2, 2022).

One content creator, A Werking Mama, has curated an online space that feels familiar, where people can have hard conversations about things that matter to them during their birthing and postpartum process. This online space exists across platforms, which include her blog,⁵² her YouTube Channel,⁵³ and her Instagram account. In addition to a rich online community, she also holds a class series called “Werk Your Birth,” which aims to educate individuals and families about the intricacies of childbearing from pregnancy to birth. The people that take the course forge a bond amongst themselves and serve as extended support and resources well after their respective deliveries.⁵⁴

Media has also been critical in pushing the concerns about the maternal health crisis to the forefront. In January 2022, the documentary *Aftershock* premiered at the Sundance Film Festival. The documentary follows the partners of two Black women who died because of childbirth and/or post-childbirth negligence.⁵⁵ Since its premiere on streaming services in July 2022, many mainstream outlets such as the *Washington Post* have used the documentary to prompt discussions about the Black maternal health crisis.⁵⁶

Telehealth Could Reduce Maternal Morbidities and Mortalities at the Local and State Level

The government and media have played key roles in highlighting the birthing disparities that exist within the country. As illustrated above, the community is critical to ensuring that birthing people have access to the resources they need for a healthy pregnancy, birth, and postpartum journey. Maternal telehealth is an important cause to champion because the resources provided through telehealth appointments, webinars, and sessions fill in the gap for people in underserved, underrepresented, and unserved communities.

For example, maternal morbidities and mortality rates are of great concern in the state of Georgia. As of 2021, Georgia has one of the highest maternal mortality rates of all 50 states with 46.2 maternal deaths per 100,000 live births. This number jumps significantly to 66.6 deaths per 100,000 live births among Black birthing people.⁵⁷ Georgia created a Maternal Mortality Review Committee (MMRC) to address the statewide crisis. The committee is made up of volunteers from across the state with expertise in maternal and maternal-related issues. They identify and review deaths that occurred during pregnancy and within the year post-pregnancy to determine if those deaths are pregnancy-related, the causes of death, and other factors that could have contributed

⁵² A Werking Mama, Blog, <https://awerkingmama.com/blog/> (last visited Aug. 2, 2022).

⁵³ Youtube, *A Werking Mama* (Oct. 25, 2019), <https://www.youtube.com/channel/UCaXW4Oth4iBGyRv7qVHEG1q>.

⁵⁴ *Werk Your Birth*, <https://awerkingmama.com/> (last visited Sept. 7, 2022).

⁵⁵ Press Release, Hulu, *Aftershock Now Streaming* (Jul. 19, 2022), <https://press.hulu.com/shows/aftershock/>.

⁵⁶ Julianne McShane, *Black maternal mortality may worsen post-Roe. This doc shows the effects*, *The Washington Post* (July 22, 2022), <https://www.washingtonpost.com/lifestyle/2022/07/22/aftershock-documentary-black-maternal-mortality/>.

⁵⁷ Elizabeth Armstrong-Mensah et al., *Geographic, Health Care Access, Racial Discrimination, and Socioeconomic Determinants of Maternal Mortality in Georgia, United States* (2021), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8679596/#:~:text=However%2C%20the%20steps%20have%20yet,births%20for%20African%20American%20women.>

to death. The MMRC uses this information to make recommendations for preventative measures for the birthing person and healthcare providers, that improve mortality and morbidity rates.⁵⁸

To address some of the access issues that exist around the state's maternal healthcare crisis, Georgia healthcare professionals have incorporated and continue to highlight the advantages of telehealth in unserved and underserved communities. A 2019 report commissioned by the Georgia State House of Representatives highlighted Women's Telehealth, a Sandy Springs-based business that specializes in maternal and fetal telehealth. The organization also expanded its reach to Albany, Georgia, a predominantly-Black city that they felt could greatly benefit from access to specialist care via telecommunications.⁵⁹

The website BabyLiveAdvice.com⁶⁰ supports traditional healthcare with its telehealth services and also offers virtual support to birthing populations that identify as Black, Indigenous, or other People of Color (BIPOC) in places like Illinois and **Georgia**. Georgia is home to four NCC municipalities including Dahlonega, Jefferson, Fairburn, and Rome, with Fairburn having a predominantly-Black population. In each of these municipalities, residents and pregnant people of color will undoubtedly stand to benefit from having virtual access to medical professionals and trained doulas whose work is centered on the experiences of people of color. Telehealth is critical, especially in places where maternal health for minorities is not a short-list priority.

Indiana is another state that has been hit especially hard by the maternal health crisis. In 2021, the *IndyStar* released an investigative piece on the state's high maternal mortality rates and actions that were being taken to address the health crisis. Indiana's rural and Black communities were among the heavily impacted groups affected by maternal mortality. The maternal health statistics were startling. For the four-year period between 2015 and 2019, Indiana's mortality rate was 52 deaths per 100,000 live births. This number was about twice the national maternal mortality rate at the time.⁶¹ In 2017, Indiana lawmakers established the Maternal Mortality Review Committee with the intent to "identify pregnancy-associated deaths, review those caused by pregnancy complications and other associated causes and identify problems contributing to these deaths and recommend interventions that may reduce these deaths."⁶²

According to the recently published Indiana state-level maternal health data from 2019, for pregnancy-related mortalities, 46.7% of pregnant people received prenatal care in their first trimester, 25% of pregnant people received prenatal care in their second trimester, and 25% of

⁵⁸ The Georgia Department of Public Health, *Maternal Mortality* (Aug. 19, 2022), <https://dph.georgia.gov/maternal-mortality>.

⁵⁹ Georgia House Budget and Research Office, *House of Representatives Study Committee on Maternal Mortality* (Aug. 19, 2022), https://www.house.ga.gov/Documents/CommitteeDocuments/2019/MaternalMortality/HR_589_Final_Report.pdf

⁶⁰ Baby Live Advice, <https://babyliveadvice.com/> (last visited Aug. 3, 2022).

⁶¹ IndyStar Staff, *Joy in Jeopardy: 6 things you need to know about maternal mortality in Indiana*, *IndyStar*, <https://www.indystar.com/in-depth/news/investigations/2021/11/15/maternal-mortality-indiana-what-we-learned/6346184001/> (last visited Aug. 4, 2022).

⁶² Indiana Department of Health Division of Fatality Review and Prevention, *Indiana Maternal Mortality Review Committee Annual Report (2021)*, <https://www.in.gov/health/cfr/files/Maternal-Mortality-Report-11.16.21.pdf>.

pregnant people did not receive prenatal care at all. Early prenatal services are critical for identifying high-risk pregnancies that require a greater level of care and monitoring.

Additionally, it was determined that more than half of pregnancy-related deaths occurred among people who received Medicaid coverage.⁶³ Though these numbers indicate that not every maternal mortality occurs among people covered by Medicaid, this is an important factor because 42.1% of births were paid for by Medicaid in 2019. Black people were the most likely to utilize Medicaid for birth, with 65.1% of births covered by Medicaid, followed by 59.0% of Hispanic births and 29.4% of White births.⁶⁴ Though federally funded, Medicaid is state-managed, income-based healthcare.

Four NCC municipalities are in Indiana including Auburn, Bloomington, Chesterton, and South Bend. County-level data illustrates the significant maternal and infant mortality and morbidity rates present in the municipalities as well as the percentage of childbearing residents that received prenatal care in the same places.

Auburn, Indiana, is in the Northeastern region of Indiana in DeKalb County where nearly 40% of pregnant people did not receive prenatal care in their first trimester and about one third of birthing residents receive Medicaid benefits.⁶⁵ Chesterton, Indiana, in Porter County, located in the Northwestern part of the state, had similar statistics. In Porter County 27.3% of pregnant residents went without prenatal care in their first trimester and 31.4% of pregnant residents on Medicaid.⁶⁶ In St. Joseph County, where South Bend, Indiana, is seated, 32.9% of birthing parents did not receive prenatal care during their first trimester, and nearly 50% of pregnant people were on Medicaid.⁶⁷ These two figures are important because they shed light on the potential for telehealth as well as the number of residents relying on state-managed, income-based healthcare.

Indiana is a predominantly rural state with 72 of the 92 counties in the state classified as rural.⁶⁸ The geographical distance between patient and providers is a factor that is considered when analyzing contributors in the state's maternal morbidity and mortality rates. To address this and other concerns, the state established The Rural Maternity Care Coordination (RMCC) Program. Telehealth services are a central part of the program, and will focus on mental health services as well as addiction treatment in maternity clinics.⁶⁹

⁶³ *Id.*

⁶⁴ U.S. Department of Health and Human Services, *Births in the U.S., 2019*, (Oct. 2020), <https://www.cdc.gov/nchs/data/databriefs/db387-H.pdf>

⁶⁵ Indiana Department of Health Division of Maternal and Child Health, *Infant Mortality and Birth Outcomes Fact Sheets*, <https://www.in.gov/health/mch/files/Northeastern-Region-IMR-Fact-Sheet-2020.pdf> (last visited Sept. 7, 2022).

⁶⁶ Indiana Department of Health Division of Maternal and Child Health, *BIRTH OUTCOME INDICATORS: Northwestern Hospital Region 2020*, <https://www.in.gov/health/mch/files/Northwestern-Region-IMR-Fact-Sheet-2020.pdf> (last visited August 18, 2022).

⁶⁷ Indiana Department of Health Division of Maternal and Child Health, *BIRTH OUTCOME INDICATORS: Northern Hospital Region 2020*, <https://www.in.gov/health/mch/files/Northern-Region-IMR-Fact-Sheet-2020.pdf> (last visited August 19, 2022).

⁶⁸ The State of Indiana, *Rural Indiana*, <https://www2.indstate.edu/news/pdf/2014-08-IN%20Rural%20Counties%20Economic%20Overview.pdf> (last visited Aug. 19, 2022).

⁶⁹ Indiana Rural Health Association, *Rural Maternity Care Coordination Program*, <https://www.indianaruralhealth.org/ruralmaternitycarecoordinationprogram> (last visited Aug. 19, 2022).

In 2006, the state of **California** teamed up with the Stanford University School of Medicine to form the California Maternal Quality Care Collaborative (CMQCC) to decrease the staggering number of maternal deaths in the state. Online technology has been the key factor in reducing state maternal mortality rates by 65% over a ten-year period. The CMQCC Maternal Data Center (MDC) lives online and provides medical providers with almost real-time updates about patient discharge data, which provides valuable information about perinatal performance and potential quality improvement measures.

The initiative also routinely hosts webinars to inform medical practitioners of pertinent updates in the field regarding maternal health. As a large state, these online forums are critical. Without prioritizing telehealth technology, this information likely would not be so readily available for residents in many of NCC's 32 California member municipalities including Benicia, Berkeley, Beverly Hills, Burbank, Chula Vista, Culver City, Fountain Valley, Fresno, Garden Grove, Huntington Beach, Los Angeles, Marina, Mendocino County, Menifee, Oakland, Palo Alto, Rancho Cucamonga, Richmond, Riverside, Riverside County, San Francisco, San Jose, San Leandro, Santa Cruz City, Santa Cruz County, Santa Monica, Sonoma County, South San Francisco, Vallejo, Ventura, West Hollywood, and Winters.

Conclusion

The three aforementioned telehealth and telehealth-based initiatives are examples of what is possible when telehealth is inclusive and meets the unique needs of the people it is designed to serve. Removing systemic barriers that contribute to the maternal health crisis requires:


- Promoting culturally competent practices when providing telehealth across communities;
- Continually assessing the effectiveness and individual experiences with telehealth technology; and
- Supporting digital access and literacy, which are critical for making telehealth programs a viable option for patients nationwide.


Advocates at all levels in various disciplines can help to eliminate barriers to telehealth. Researchers should consistently conduct studies that help address the evolving and unique needs of the prenatal and postpartum population. Clearly, telehealth could play a pivotal role in eradicating the maternal health crisis in the United States.



CHANGING OUR VIRTUAL REALITY: TELEHEALTH AND THE UNITED STATES MATERNAL HEALTH CRISIS

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