

HEALTH

Preventing Infant and Maternal Mortality: State Policy Options



Preventing Infant and Maternal Mortality: State Policy Options

BY AMBER BELLAZAIRE AND ERIK SKINNER

The National Conference of State Legislatures is the bipartisan organization dedicated to serving the lawmakers and staffs of the nation's 50 states, its commonwealths and territories.

NCSL provides research, technical assistance and opportunities for policymakers to exchange ideas on the most pressing state issues, and is an effective and respected advocate for the interests of the states in the American federal system. Its objectives are:

- Improve the quality and effectiveness of state legislatures
- Promote policy innovation and communication among state legislatures
- Ensure state legislatures a strong, cohesive voice in the federal system

The conference operates from offices in Denver, Colorado and Washington, D.C.

NATIONAL CONFERENCE OF STATE LEGISLATURES © 2019



Introduction

Preventing infant and maternal death continues to be a pressing charge for states. State lawmakers recognize the human, societal and financial costs of infant and maternal mortality and seek to address these perennial problems. This brief presents factors contributing to infant and maternal death and provides state-level solutions and policy options. Also provided are examples of how states are using data to identify opportunities for evidence-based interventions, determine evidence-based policies that help reduce U.S. infant and maternal mortality rates, and improve overall health and well-being.

A National Problem

After decades of decline, the maternal mortality rate in the United States has increased over the last 10 years. According to the [Centers for Disease Control and Prevention \(CDC\)](#), between 800 and 900 women in the United States die each year from pregnancy-related complications, illnesses or events. In 2018, the U.S. maternal mortality rate (MMR)—the rate the CDC defines as the number of women that die during pregnancy, child delivery or within 42 days of giving birth—was [20.7 deaths per 100,000 live births](#).

Infant mortality is the death of a child within the first year of life. Worldwide, infant mortality continues to decrease, and in the past 10 years, rates in the United States have fallen by 15% ([CDC](#)). The infant mortality rate is the number of infant deaths for every 1,000 live births. In 2017, the [total number](#) of infant deaths in the United States was approximately 22,258. The infant mortality rate was [5.8 deaths per 1,000 births](#), down from 7.1 in 2005. State rates varied substantially, from 3.7 infant deaths per 1,000 in Massachusetts to 8.6 per 1,000 in Mississippi ([CDC](#)).

In the United States, infant mortality rates are higher than those of other wealthy nations ([Health Affairs](#)). Some of the variation may be due to different reporting methods. For example, in the United States, the infant mortality rate includes perinatal, neonatal and post-neonatal deaths. Perinatal deaths are those that occur within one week of birth, neonatal deaths are those that occur between eight and 27 days after birth, and post-neonatal deaths are measured as deaths occurring between 28 days and one year after birth. Other countries, however, may make different distinctions or set different limits for gestational age and birthweight in their data collection ([HRSA and Kaiser Family Foundation](#)).

Racial Disparities

International comparisons may also be affected by the racial and ethnic variation in birth outcomes within the United States. For example, African American women are **three to four times more likely to die** during or as a result of childbirth than non-Hispanic white women. The **maternal mortality rate** for African American women is 42 per 100,000 live births. For non-Hispanic white women, the rate is 12 per 100,000. The disparity in this rate has remained unchanged for **six decades**.

Although the United States continues to show overall improvements in infant mortality, **women of color and their children** also bear a disproportionate burden of infant deaths (Kim et al). Even in low-risk mothers, children born to African American women are **more than twice** as likely to die before their first birthday than are children born to non-Hispanic white women.

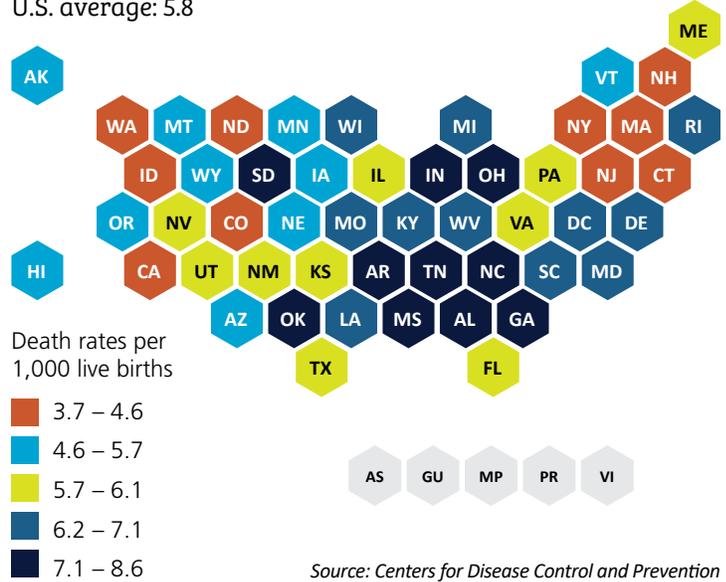
Researchers continue to examine mechanisms that perpetuate such racial disparities, yet explanations remain unclear. For example, data show that non-Hispanic white women who report smoking during pregnancy (a known risk factor) have lower infant mortality rates than African American women who do not smoke during pregnancy. These findings contradict the notion that the higher infant mortality among African American women is explained by unhealthy behaviors during pregnancy.

Likewise, the infant mortality rate among foreign-born women of African descent is significantly lower than that of African American women. Infant mortality rates among foreign-born women of African descent are similar to those of non-Hispanic white women, yet strikingly, within one generation, rates of preterm birth and low birthweight (significant risk factors for infant death) begin to mirror those of African American women (David et al). This suggests that women of African descent are not genetically predisposed to higher incidences of infant mortality.

Some researchers interpret such findings as evidence of the influence of **cumulative stress** or “**weathering**”—often the result of racial discrimination—on infant and maternal mortality rates (Lu et al; Matoba et al; Alio et al). Cumulative stress, often higher in African American women, takes a physical toll, including during pregnancy and childbirth. Dr. Michael Lu, a pre-

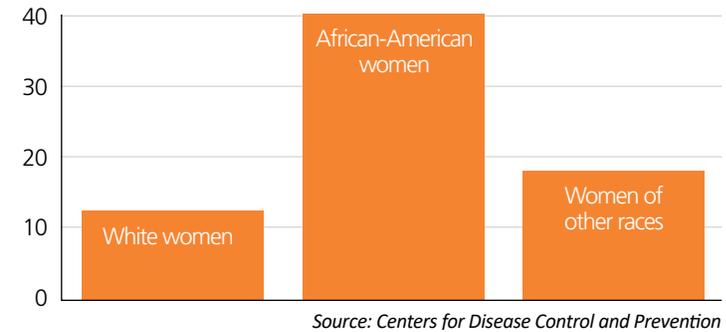
Infant Mortality Rates by State, 2017

U.S. average: 5.8



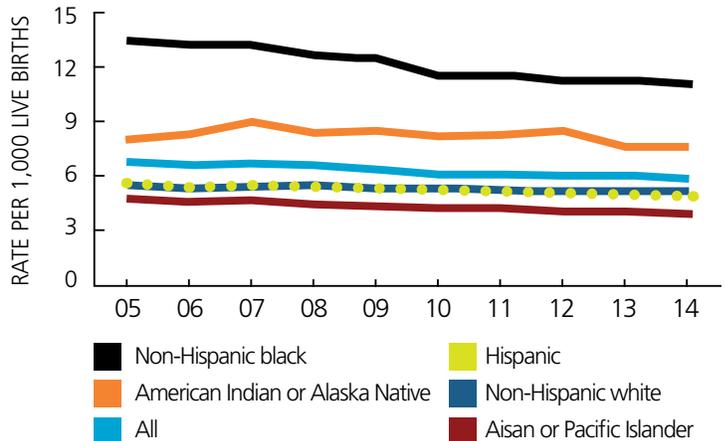
Maternal mortality rates per 100,000 live births

United States, 2011-2014



Infant Mortality Rates, by Race and Hispanic Origin of Mother

United States, 2005-2014



eminent physician in the field of obstetrics and gynecology and former associate director of the Maternal and Child Health Bureau of the Health Resources and Services Administration, explains it this way: “As women get older, birth outcomes get worse...if that happens in the 40s for white women, it actually starts to happen for African American women in their 30s.” (NCSL).



Social Determinants of Health

Daily social, environmental and economic conditions, such as where we live, work and play, are referred to as the social determinants of health. These non-medical factors heavily influence the health of populations. For example, educational attainment is considered a social determinant of health, and research suggests that girls who are educated tend to be healthier throughout their lives and go on to have fewer and healthier children. [The U.S. Maternal and Child Health Bureau put it this way](#): “If all infants in the United States had the same risk of death as those born to mothers with a college degree or higher, the United States would climb...in international infant mortality rankings and tie with Austria, Germany, and the Netherlands.” Education may help to prevent some of the worst health outcomes.

Social and economic well-being also affect population health. For example, rural residents are more likely to experience isolation, limited job opportunities and [poor housing quality](#). These conditions can increase the risk of adverse health outcomes, including outcomes for moms and babies ([Rural Health Information Hub](#)). Recent data show that rural communities have a greater prevalence of infant and maternal mortality than urban centers ([CDC](#)). Examining [the social determinants in relation to higher rates of mortality among moms and newborns](#) is an important step in identifying primary causes of disability, disease and death.

In 2016, [Ohio](#) enacted a [bill](#) that authorized the Ohio Housing Finance Agency to establish a pilot program to expand housing opportunities, including rental assistance for new and expecting mothers. The legislation appropriated up to \$1 million for such projects and provided that the Office of Health Transformation establish quality improvement goals and best practices for family planning and reducing adverse birth outcomes. The legislation also called for a [study](#) to review and identify opportunities to improve state policies and programs that impact the social determinants of health for infants and women of child-bearing age, particularly programs intended to improve educational attainment, public transportation, housing options and employment access. The study would also examine the impact of a state-funded housing assistance program on infant mortality reduction and evaluate best practices other states have implemented to improve the social determinants of health for infants and women of child-bearing age.

Contributing Factors to High Rates of Maternal Death

Efforts to improve maternal and child health can begin before pregnancy. Preconception health encourages men and women to maintain healthy behaviors during their reproductive years to increase the likelihood of having a healthy baby in the future. One key indicator of preconception health includes maintaining a healthy weight before conception to prevent complications, such as gestational diabetes and maternal hypertension (HRSA).

A recent report by the CDC and other maternal and child health stakeholders estimates that 60% of pregnancy-related maternal deaths are preventable. About half are attributable to cardiovascular issues or hemorrhage.

Maternal Obesity and Diabetes

Obesity is becoming more prevalent among women of reproductive age. Obesity in pregnant women increases the risk for a wide range of negative health outcomes for the mother like stroke, hemorrhage and gestational diabetes. Prepregnancy obesity also increases the risk for complications during delivery. Managing maternal weight during pregnancy is an increasingly important component of maternal health to mitigate the effects of obesity, diabetes or gestational diabetes. Gestational diabetes increases the mother's risk for a medically necessary cesarean section and for diabetes later in life.

Maternal obesity can also increase the risk of obesity and congenital malformations in the child. Both high- and low-income countries struggle with rising rates of severe obesity during pregnancy. Increased risk of maternal death and severe maternal morbidity are consequences of these rising rates.

Scientific research supports the close connection between the health of the mother and the health of her baby. Researchers identified indicators associated with both maternal and infant outcomes, such as intrauterine growth restriction (IUGR), inadequate weight gain during pregnancy, and pregnancy-related hypertension. Prevention measures include high-quality nutrition before, during and after pregnancy, as well as access to health screenings, improved education by providers to promote the prevention of congenital anomalies, managing diabetes and other interventions.

Maternal Hypertension

Complications resulting from hypertension (high blood pressure) during pregnancy are a growing problem. Rates rose from 5.3% of delivery hospitalizations in 1993 to 9.1% in 2014. Complications from hypertension are common, but treatable, before and during pregnancy. Chronic hypertension and gestational hypertension elevate the risk of negative outcomes such as preeclampsia (characterized by high blood pressure, damage to the liver and kidneys and other symptoms), eclampsia (a progression of preeclampsia), stroke, pregnancy induction (speeding up pregnancy to give birth) and placental abruption (placenta separating from the wall of the uterus). In addition to immediate morbidity and mortality, hypertensive disorders can lead to prematurity for the fetus and other neonatal conditions. Hypertensive disorders also increase the risk for cardiovascular disease later in life (ACOG).

Reducing and preventing maternal hypertension is often cited in legislation and other state efforts as an area of focus to address maternal mortality and morbidity. In the 2019 legislative session, state legislatures introduced bills that addressed hypertension by requiring the departments of health to develop best practices for hospitals on maternity care evaluation, urging Congress to pass specific maternal health legislation and establishing maternal mortality review committees.

Risk Factors for Maternal Mortality

- Hypertension
- Diabetes
- Chronic Heart Disease
- Race
- Insufficient hospital care
- Untreated infections
- Insufficient prenatal care

Source: Centers for Disease Control and Prevention

Contributing Factors to High Rates of Infant Death

Congenital Malformations

The leading cause of infant mortality continues to be congenital malformations, a medical term for [birth defects](#). Severe birth defects account for approximately 20% of infant deaths, and, although many congenital malformations cannot be prevented, there are [ways to lower the risk](#) (CDC and Kaiser Family Foundation). For example, taking [folic acid](#), a B vitamin, before and during early pregnancy, can help to prevent malformations of the spine and brain.

State lawmakers have instituted [educational campaigns](#) to inform women of the potential preventive benefits of consuming folic acid during pregnancy, established [distribution programs](#) to increase access to folic acid supplements, and required [health insurers to cover preventive services](#), such as folic acid for expectant mothers. Likewise, with the passage and reauthorization of the Prematurity Research Expansion and Education for Mothers Who Deliver Infants Early (PREEMIE) Act, Congress acknowledged the importance of preconception and prenatal care, including good nutrition and folic acid.

Timely [maternal vaccination](#), especially the measles, mumps and rubella (MMR) vaccine, can protect pregnant women against infections and viruses that cause birth defects. Pregnant women and women who wish to become pregnant can talk to their doctor about vaccines [recommended during pregnancy](#). For more on efforts to increase the number of babies born healthy and without preventable conditions, please visit the [National Center on Birth Defects and Developmental Disabilities](#).

For non-preventable congenital conditions, states utilize [newborn screenings](#). Annually, state public health agencies screen an estimated 4 million infants for genetic and metabolic congenital disorders. There are three types of newborn screening tests, but commonly the screening requires blood from a single heel stick within a few days of birth. States screen newborns because early detection can prevent significant disability, disease and or death.

State legislators can play a role in deciding which conditions are included in their state's newborn screening list (known as a panel). In 2011, for example, **Maryland** enacted a [bill](#) creating an expert advisory group to recommend best practices for screening for congenital heart disease in newborns. As of March 2019, 47 states and territories mandate newborn screening for congenital heart disease. The process for altering a newborn screening panel varies by state. In some states, the panel is set in state statute, while in others, the health department has the authority to alter the panel by regulation.

For example, in 2015, **California** enacted a [bill](#) requiring its department of public health to include in the state newborn screening panel any condition adopted by the federal Recommended Uniform Screening Panel (RUSP), which recommends certain conditions for states to adopt as part of their newborn screening panel. Conditions on the RUSP are chosen based on evidence that supports the potential net benefit of screening, the ability of states to screen for the disorder and the availability of effective treatments. Currently, the RUSP includes 35 core conditions and 26 secondary conditions. Many states screen for the conditions on the RUSP, and some states screen for additional conditions.

Risk Factors for Birth Defects

- Family history of birth defects
- Prenatal exposure to tobacco smoke, alcohol or drugs
- Certain medications, such as isotretinoin and lithium.
- Maternal age greater than 35
- Untreated infections
- Untreated gestational diabetes
- Insufficient prenatal care

Source: Centers for Disease Control and Prevention

Low Birthweight

Low birthweight, defined as weighing less than 5 pounds, 8 ounces, accounts for approximately 18% of infant deaths—the second largest contributor to infant mortality (CDC). Primarily, low birthweight in infants is explained in one of three ways: (1) an infant is healthy but small, which is sometimes referred to as “small for gestational age,” (2) an infant is born preterm (prior to 37 weeks gestation) or (3) an infant experiences intrauterine growth restriction (IUGR).

Infants born too soon or too small may experience significant health complications, such as difficulty breathing, gaining weight and fighting off infection. While preterm conditions, i.e., preterm birth and low birthweight, cannot be prevented in all cases, there are several known risk factors expecting parents can avoid. For example, pregnant women who smoke or who are exposed to secondhand smoke are at greater risk for delivering a low birthweight baby. [Time-ly access to prenatal care](#) as well as nutrient-dense, low-glycemic diets may also help to decrease the risk of adverse birth outcomes (Barger et al; HRSA).

Not all risk factors associated with preterm conditions are alterable. For example, race and ethnicity appear to affect preterm birth and intrauterine growth restriction rates. Such rates are twofold greater among infants born to African American women. Researchers suggest that preterm conditions account for up to 54% of the disparity in infant mortality rates for babies born to African American women and non-Hispanic white women (CDC; Schoendorf et al).

The likelihood of preterm conditions also varies by maternal age. Women younger than 20 and older than 35 are at increased risk of delivering preterm and delivering a low birthweight infant. Medical complications and the use of fertility treatments, which increase the probability of multiple births, can partly explain higher rates of preterm conditions among women aged 35 years and older. Multiple birth babies are more likely to be preterm and/or low birthweight (HRSA). This increased risk for preterm conditions partially explains the higher infant mortality rates among multiple births compared to single births (CDC). The infant mortality rate for twins is four times the rate for single births and for triplets, the mortality rate is 12 times that of single births.

Women who have previously delivered preterm are at a higher risk for preterm delivery in subsequent pregnancies. However, for moms who have delivered a baby preterm in the past, weekly “17P” injections (a progesterone medicine) have been shown to reduce the likelihood of a second preterm delivery by one-third (Meis et al). In recent years, state lawmakers and agencies have partnered with health care providers and used Medicaid to improve access to 17P. For example, [Mississippi enacted legislation](#) in 2015 that established an Infant Mortality Reduction Collaborative charged with “ensuring the availability, accessibility and affordability of the hormonal supplement that is used to prevent preterm deliveries in pregnant women.”

Risk Factors for Intrauterine Growth Restriction and Preterm Birth

- Prenatal exposure to tobacco smoke, alcohol or drugs
- Maternal age
- Being pregnant with multiples
- Having a preterm or a growth-restricted baby in the past
- Low pre-pregnancy weight
- Insufficient weight gain during pregnancy
- Low socioeconomic status
- Intimate partner violence
- Untreated chronic conditions, such as hypertension or diabetes
- Untreated intrauterine infections
- Certain medications and chemicals
- Uterine and placental anomalies
- Preeclampsia
- Polyhydramnios
- Non-medically indicated inductions prior to 39 weeks gestation
- Short (less than an 18-month interval between pregnancies)

Source: U.S. Department of Health and Human Services; Centers for Disease Control and Prevention; American College of Obstetricians and Gynecologists.

Sudden Unexpected Infant Death (SUID)

Sudden unexpected infant death (SUID) describes the death of an infant less than 1 year old in which the cause of death is not obvious prior to investigation. SUID includes accidental suffocation in a sleeping environment, deaths from unknown causes as well as sudden infant death syndrome (SIDS). Approximately 7% of all infant deaths are attributable to SIDS (CDC). Many states have [laws regarding SUID](#), and at least 22 states and jurisdictions have active [SUID monitoring programs](#).

The percentage of infant deaths attributable to SIDS has decreased significantly—by approximately 29%—in recent years, and educational campaigns regarding [safe sleep practices](#) may explain some of this decline ([National Center for Health Statistics](#)). For example, the American Academy of Pediatrics released [recommendations](#) for expectant parents to educate families about safe sleep for infants and to reduce the risk of sleep-related infant deaths. Recommendations include placing infants on their backs to sleep, avoiding soft bedding and bed-sharing, and refraining from tobacco, alcohol and other substance use in the presence of a newborn.

Several states have led their own safe sleep campaigns. The **Tennessee** Department of Health, for example, partnered with the Tennessee Hospital Association in January 2014 to ensure hospitals focused on safe sleep modeling in hospitals. In the first year of implementation, hospitals observed a 45% decrease in unsafe sleep environments ([Tennessee Department of Health](#)).

Did You Know?

Breastfed infants are at a lower risk of SIDS and infections, and moms who breastfeed are at a lower risk of [postpartum depression](#) and ovarian cancer. Increasing breastfeeding rates, a goal outlined in [Healthy People 2020](#), may be another opportunity for states to improve infant and maternal health and reduce medical spending. To learn more about state laws regarding breastfeeding, please visit www.ncsl.org.

Data-driven Efforts to Support Maternal and Infant Health

Home Visiting

Legislators play a vital role in strengthening data systems as well as supporting [cost-effective and research-based investments](#) in their states. [Evidence-based home visiting programs](#) support pregnant moms and new parents. Programs are voluntary and are commonly led by nurses, social workers, early childhood educators or other trained professionals. Home visiting improves maternal and child health and has been shown to [reduce infant mortality](#), preterm births and emergency room utilization ([NCSL](#); [NCSL](#); [HRSA](#)).

Federal investment in home visiting—that is, the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program—funds states and territories to develop [evidence-based home visiting programs](#) to support pregnant women and parents with young children up to kindergarten entry. MIECHV home visitors educate parents about safe sleep practices and the importance of postpartum care. They also screen for intimate partner violence and [maternal depression](#). Depression during pregnancy affects between 14% and 23% of women, according to the American Congress of Obstetricians and Gynecologists. Left untreated, depression may increase the likelihood of preterm delivery and [affect an infant's development](#) ([Wiley](#)).

In 2012, **Maryland** passed [legislation](#) to establish standardized home visiting measures, many of which align with MIECHV benchmarks. Such measures focus on screening for intimate partner violence and mental health conditions as well as adherence to regular well-child visits. Five years later, approximately 94% of children enrolled in a home visiting program were up to date on their child well visits ([MD State-funded Home Visiting Outcomes Report](#)). Likewise, in 2012, **Michigan** passed [legislation](#) to support home visi-

tation programs to improve maternal and child health, and reduce preterm births. Five years later, 87% of mothers who had enrolled in a home visiting program delivered their baby at full term ([Michigan Home Visiting Report](#)). More recently, **New Jersey** passed [legislation](#) establishing a three-year Medicaid home visitation demonstration project to provide information, support and essential referrals to health and social services to families and young children. For more state legislation on home visiting, please visit [NCSL's Early Care and Education Database](#).

Access to High Quality Prenatal Care

Generally, prenatal care includes physical exams, laboratory screening tests, nutrition counseling and mental health services for pregnant women. Yet, approximately [one quarter](#) of U.S. women are unable to access the [recommended number of prenatal visits](#), in part because of disparities in insurance and a shortage of maternity care providers ([March of Dimes](#)). Counties with limited or no obstetric care or obstetric providers, called “[maternity care deserts](#)” by the March of Dimes, may be at an increased risk of adverse outcomes since women who do not receive prenatal care die at three to four times the rate of those who do. States, hospitals and non-profits improve access to prenatal care in a variety of ways and through various payment or program models. For example, some states allow for “presumptive eligibility,” which automatically enrolls low-income pregnant women in Medicaid so they are eligible for prenatal services.

Medical practices in at least 46 states have adopted the [Centering Pregnancy](#) model. This model, thus far implemented as hospital-based pilot programs, brings together expectant mothers for a series of enhanced prenatal visits. In addition to medical care, participating women receive guidance about nutrition, breastfeeding, labor and delivery. The program also builds community and peer support. Where implemented, Centering Pregnancy can decrease the rate of preterm and low-weight births, reducing costly neonatal intensive care unit (NICU) admissions. One study estimated more than 4-to-1 return on investment for every dollar spent on Centering Pregnancy ([District of Columbia Primary Care Association](#)).

Between 2012 to 2014, the March of Dimes expanded Centering Pregnancy in 13 states— **Colorado, Connecticut, Georgia, Indiana, Kentucky, Maine, Missouri, Nevada, New Hampshire, New York, Ohio, Virginia and Wisconsin**. More than 8,000 women received group prenatal care and the preterm birth rate among these women was 7.4%, significantly lower than the 12% average for those 13 states over the same two-year period ([March of Dimes](#)).

Federal Action

The following are examples of enacted federal legislation supporting state efforts to reduce infant and maternal mortality.

■ **The Comprehensive Addiction and Recovery Act of 2016 (S. 524)** makes changes to the Child Abuse Prevention and Treatment Act (CAPTA) and supports states’ efforts to ensure the safety, permanency and well-being of infants affected by substance use disorder.

■ **The Preventing Maternal Deaths Act of 2017 (H.R. 1318)** supports states in establishing or improving maternal mortality review committees and authorizes access to federal resources and funds to assist states in their efforts. The law also sets forth reporting standards and guidance for state departments of health to ensure provider education

for quality maternal care.

■ **The Congenital Heart Futures Reauthorization Act of 2017 (H.R. 1222)** enhances research and surveillance at the Centers for Disease Control and Prevention, awards grants to further study congenital heart disease and directs the National Institutes of Health to report on their ongoing research efforts.

■ **The SUPPORT for Patients and Communities Act of 2018 (H.R. 6)** requires the U.S. Department of Health and Human Services to provide states with guidance and additional financing options to improve care for infants with neonatal abstinence syndrome and caregivers with substance use disorder (SUD).

Source: U.S. Department of Health and Human Services



Colorado's Prenatal Plus Program targets Medicaid-enrolled, expectant mothers with early and comprehensive services, such as nutrition counseling, mental health services and coordinated care. A 2002 study by the Colorado Health Sciences Center found that each dollar spent on the program saved Medicaid approximately \$2.48 in an infant's first year of life. Additionally, the rate of low birthweight infants born to Prenatal Plus Program participants was 22.5% lower than the expected rate for women without Prenatal Plus services ([AMCHP](#)).

National Data Collection

In 1986, the [CDC](#) partnered with the American College of Obstetricians and Gynecologists (ACOG) to develop a national surveillance system to track pregnancy-related deaths. Since this time, several states have gone on to establish their own data tracking systems to fill knowledge gaps needed to determine causes of maternal and infant death, as well as to ensure that programs are evidence-based and achieving desired results. The Association of Maternal & Child Health Programs (AMCHP) published a [policy brief](#) about such data systems, including information about the Pregnancy Risk Assessment Monitoring System ([PRAMS](#)) and how states are using PRAMS data to support moms and babies. Forty-seven states participate in PRAMS, along with New York City, Puerto Rico, the District of Columbia and the Great Plains Tribal Chairmen's Health Board. PRAMS participants represent about 83% of all U.S. births ([CDC](#)).

Relatedly, in 2012, the U.S. Department of Health and Human Services (HHS) announced the first national strategy to address infant mortality. This announcement led to the establishment of the Infant Mortality Collaborative Improvement and Innovation Network (CoIIN), which seeks to advance state and local infant mortality reduction efforts and encourage state health officials to identify and scale demonstrated strategies to reduce infant mortality. To learn more about how the Infant Mortality CoIIN supports states making changes to decrease infant mortality rates and reduce disparities, please visit the [Infant Mortality CoIIN Prevention Toolkit](#).

Fatality Review Committees

In 1990, the American College of Obstetricians and Gynecologists (ACOG) and the Maternal and Child Health Bureau (MCHB) established the Fetal and Infant Mortality Review (FIMR) program. The program was designed to examine fetal and infant deaths, determine preventability, and engage community leaders to take action. FIMR programs provided specific recommendations, such as service system improvement, community education and improved clinical practices. [ACOG](#) provides free access to evaluations and resources related to FIMR programs.

Such efforts to measure, understand and classify infant death provided the foundation for contemporary infant mortality review committees. Now, many states have established multidisciplinary fatality review committees, commonly composed of members from each legislative chamber and representatives from child protective services, law enforcement, public health, behavioral health and the medical community ([CDC et al](#)). These committee teams investigate and evaluate fatality data to accurately identify the conditions, policies, and behaviors that contribute to preventable deaths ([Christian et al](#)).

State maternal mortality review committees (MMRCs) are the primary data source detailing pregnancy-associated and pregnancy-related death. In addition to monitoring the maternal mortality rate, states can expand their [review of maternal deaths](#) by considering [pregnancy-related and pregnancy-associated deaths](#). Pregnancy-related deaths cover maternal death occurring within one year after the end of pregnancy from a pregnancy complication or events initiated by pregnancy. Pregnancy-associated death covers all maternal death within a year of the end of pregnancy, regardless of the cause.

State legislatures authorize maternal mortality review committees and establish their composition and purpose. State MMRC legislation may also determine how the state will maintain patient privacy for the records they review. Generally, [MMRCs](#) investigate at a more detailed level than the death certificate. There are 38 states and two cities with [MMRCs operating through partnerships](#) with the state vital statistics office and epidemiologists to examine deaths of women of reproductive age to determine if they occurred during pregnancy or within one year of delivery. Generally, representatives from each chamber of the state legislature are members of the MMRC, in addition to state and local maternal health experts.

Analyzing data and common themes from MMRCs can help to identify groups of people, illnesses and settings where outcomes are worst. In recent years, states sought to refine their [approach](#), but improving data can uncover more challenges. For example, data from a [report from nine MMRCs pointed to the disparate outcomes across race and other demographics](#): “Recent trends address efforts to measure maternal mortality and understand the drivers of maternal mortality in terms of death in relation to pregnancy, cause of death and other demographic data. This data uncovered racial, income-related and geographic disparities in maternal mortality rates.” Such data inform the policy recommendations put forth by MMRCs. Recommendations largely focus on clinical protocols, documentation, systems-level care coordination and provider training. Review committees can be an effective vehicle for state leaders working to reduce infant and maternal mortality.

In 2018, **Louisiana** enacted a [bill](#) that created the Healthy Moms, Healthy Babies Advisory Council within the [Louisiana Department of Health](#). The legislation provided that the council, made up of experts and stakeholders committed to addressing racial and ethnic disparities in maternal health outcomes, will support the state [Perinatal Quality Collaborative](#) by incorporating a community-engaged approach to preventing maternal mortality and morbidity. Additionally, the legislation expanded public coverage options to provide access to provider services and other delivery-focused reforms that address maternal health outside the hospital setting.

Maine includes infant, fetal and maternal mortality in its review panel. In 2017, [Maine House Bill 366](#) expanded tracking and investigative activities for fetal death and extended the timeline for investigating maternal death from 42 days to one year after pregnancy. Through a confidential process, Maine’s state health officer connects with surviving family members to ask for voluntary participation in creating a case summary to be shared with the review panel.

In 2010, **Ohio** established the [Ohio Pregnancy Associated Mortality Review](#) (PAMR). Ohio’s statistical reporting and policy recommendations are extensive. The Health Policy Institute of Ohio and the Ohio

Legislative Service Commission collaborated to produce a [233-page report](#) recommending state policy reforms for the legislature and other state agencies. The recommendations focused on housing, transportation, education, employment and other cross-cutting policies that support mothers, families and children.

Quality Improvements in Maternity Care

With support from the Maternal and Child Health Bureau in the Health Resources and Services Administration, at least [21 states](#) and more than 650 hospitals work with the [Alliance for Innovation in Maternal Health](#) (AIM). AIM promotes safe and consistent maternity care through clinical quality improvements and works directly with practitioners in health care facilities who perform approximately 45% of all U.S. births.

Among the program’s tools are “maternal safety bundles”—one- to two-page briefs divided into bulleted sections with reminders for clinical staff on best practices to prevent, recognize, respond to and report on pregnancy-related conditions. When performed collectively and reliably, the strategies work. Safety bundles cover such topics as:

- Early warning signs of complications
- Hemorrhage
- Hypertension
- Vaginal births
- Racial disparities
- Postpartum care
- Care for opioid-dependent women



The American College of Obstetricians and Gynecologists reports that [Illinois](#) has reduced severe maternal morbidity by about 22% and morbidity due to hypertension by nearly 20% through the AIM initiative. [Oklahoma](#) reduced severe maternal morbidity by roughly 20% in its participating hospitals.

Additionally, [perinatal quality collaboratives](#) (PQCs) are state or multi-state networks of teams working to improve infant and maternal health by advancing evidence-informed clinical best practices. [State PQCs](#) can be considered the action arm of maternal mortality review committees (MMRCs) as they frequently translate the data collected and analyzed by review committees into action through clinical reforms. For example, the [California Maternal Quality Care Collaborative](#) (CMQCC), which began at Stanford University in 2006, is an active AIM member and works closely with the state’s [maternal mortality review committee](#). In 2016, the CMQCC, in partnership with the [Hospital Quality Institute](#), developed a [toolkit](#) of clinical best practices to help hospitals reduce preventable mortality and morbidity and racial disparities in California. The toolkit provides users with resources to: improve the culture of care, awareness, and education for cesarean reduction; support intended vaginal birth; manage labor abnormalities and safely reduce cesarean births; and use data to drive reduction in cesarean births.

[California](#) is currently the only state showing consistent reductions in maternal mortality. California reduced the state maternal mortality rate from 16.9 per 100,000 live births in 2006 to 7.3 in 2013. The state attributes the improvement to a variety of efforts, including public-private partnerships and quality improvement efforts through the [Alliance for Innovation in Maternal Health](#).

Additionally, some states have begun applying the principles of patient-centered medical homes to perinatal care in the form of [maternity medical homes](#). Maternity medical homes emphasize early entry into prenatal care, care coordination and standardized risk assessments for moms. In 2011, **North Carolina** launched the Pregnancy Medical Home model, which focuses on reducing the rate of preterm birth and establishing care pathways for conditions such as hypertension and substance use disorder, along with several other improvement goals. **Missouri, Oregon and Wisconsin** have similar initiatives. Early findings suggest that maternity medical home models may benefit the health of moms and babies. [An evaluation of North Carolina's Pregnancy Medical Home](#) model found that the state saw a nearly 7% decrease in the rate of low birthweight babies within the Medicaid population. Such outcomes may signal the benefit of a shift toward a holistic, patient-centered approach to pregnancy care.

Addressing Neonatal Abstinence Syndrome (NAS)

Neonatal abstinence syndrome (NAS) is characterized as a set of health problems resulting from in utero exposure to opioids. In 2013, NAS incidence ranged from 0.7 per 1,000 births in Hawaii to 33.4 per 1,000 births in West Virginia (CDC). Approximately 75% to 90% of exposed infants develop NAS, and effects can include preterm birth, small for gestational age, respiratory complications, seizure activity and feeding difficulties. Longer-term effects for infants who have experienced NAS are not entirely known but may include developmental and behavioral problems.

Opioid misuse continues to challenge communities and affect outcomes for moms and babies across the United States. Thus, the Centers for Medicare and Medicaid Services introduced the Maternal Opioid Misuse (MOM) model to provide funding to states to help increase coordinated, integrated care for pregnant and postpartum Medicaid beneficiaries with opioid use disorder. Additionally, many states have already

begun to implement strategies to address the epidemic.

- In 2014, the Perinatal Quality Collaborative of North Carolina (PQCNC) introduced an NAS pilot in 29 hospitals. The aim was to improve and standardize hospitals' approach to identifying and treating infants with NAS.
- In 2014, Indiana required the state health department to consult with maternal and child health stakeholders to produce a report for the legislature regarding effective models for identification, data collection, and reporting of NAS.
- In 2015, Illinois created the Neonatal Abstinence Syndrome Advisory Committee to assist the state health department to develop, among other responsibilities, a uniform definition of and process for identifying NAS.

Additional State Policy Innovations

USING TELEHEALTH

In addition to the efforts mentioned in earlier sections of this brief, states continue to explore [innovative approaches](#) to support maternal and child health. Providing services through telehealth is an innovative approach states employ to address access to care, particularly in rural areas. [Arkansas](#) and [Virginia](#) operate telehealth programs for high-risk pregnant women. These programs consist of video conferencing with maternal and fetal medicine specialists, and each have demonstrated significant outcome improvements, such as fewer deliveries of very low birthweight infants and shorter stays in neonatal intensive care units.

EXPANDING THE HEALTH CARE WORKFORCE

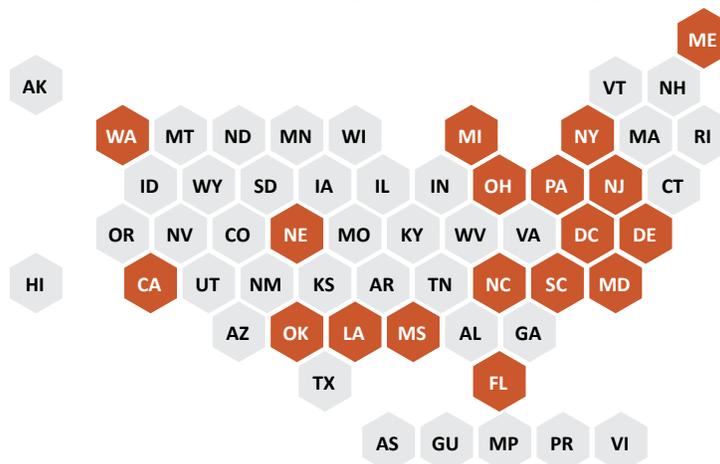
Some states, such as [Washington](#) and [Oregon](#), are expanding their health care workforce by allowing Medicaid reimbursement for midwives. Expectant women who interact with midwives or doulas report more hands-on care and personal support and may be at decreased risk of delivering early or losing their infant ([Horton et al](#); [Sandall et al](#); [Saraswathi Vedam et al](#)). However, while the integration of midwives

and doulas into health care systems may facilitate greater patient-centered care and contribute to positive birth outcomes, women at high risk of [pregnancy complications](#) are encouraged to deliver under the guidance of a specialized physician.

ADDRESSING MATERNAL MENTAL HEALTH

In addition to improving clinical services that address physical maternal health, addressing maternal mental health is an important strategy to reduce maternal mortality rates. As [rates of suicide](#) increase across the United States, maternal and child health professionals are increasingly concerned about suicide as a cause of death among [pregnant and post-partum women](#). Likewise, the [correlation](#) between mental health conditions and substance use disorders suggests that efforts to coordinate mental health services with substance use disorder treatment may keep more moms alive as they work through recovery. The **Missouri** legislature enacted a [bill](#) to extend substance use and mental health treatments for Medicaid-eligible mothers for up to one year after giving birth. Other state legislative examples can be found in NCSL's brief "[From Pregnancy to Postpartum: The Effects of Maternal Depression on Mothers, Infants and Toddlers.](#)"

Enacted Bills Addressing Infant Mortality, 2018



■ States with enacted legislation in 2018 sessions

Source: NCSL, 2018

For additional examples of enacted maternal and child health (MCH) legislation, please visit [NCSL's Maternal and Child Health Database](#). This resource tracks several MCH priorities, including maternal mortality and morbidity, infant mortality, newborn screening and maternal mental health.

Conclusion

Adverse birth outcomes and their long-term economic and societal costs are a serious challenge for states. As researchers continue to identify risk factors for maternal and infant mortality, state legislators have the unique authority to align resources and enact laws for statewide application. State legislators can play a leadership role in ensuring that public investments and policies support data-driven, coordinated strategies that foster healthy families. Lawmakers can also help ensure that other participating governmental organizations, such as public health and child protective services, play active roles in state prevention and response efforts.

This project is supported by the Maternal and Child Health Bureau (MCHB), Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number U1XMC31659-02-00, Supporting State Maternal and Child Health Policy Innovation Program. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

NCSL Contact:

Erik Skinner

Policy Associate, Health Program

303-856-1461

Erik.Skinner@ncsl.org



William T. Pound, Executive Director

7700 East First Place, Denver, Colorado 80230, 303-364-7700 | 444 North Capitol Street, N.W., Suite 515, Washington, D.C. 20001, 202-624-5400

www.ncsl.org

© 2019 by the National Conference of State Legislatures. All rights reserved.