

# Infant Mortality

## THE DEATH OF AN INFANT BORN ALIVE UNDER AGE 1

Minnesota acknowledges that systemic racism and generational structural (social, economic, political and environmental) inequities result in poor health outcomes. These inequities have a greater influence on health outcomes than individual choices or one’s ability to access health care, and not all communities are impacted the same way. All people living in Minnesota benefit when we reduce health disparities and advance racial equity.

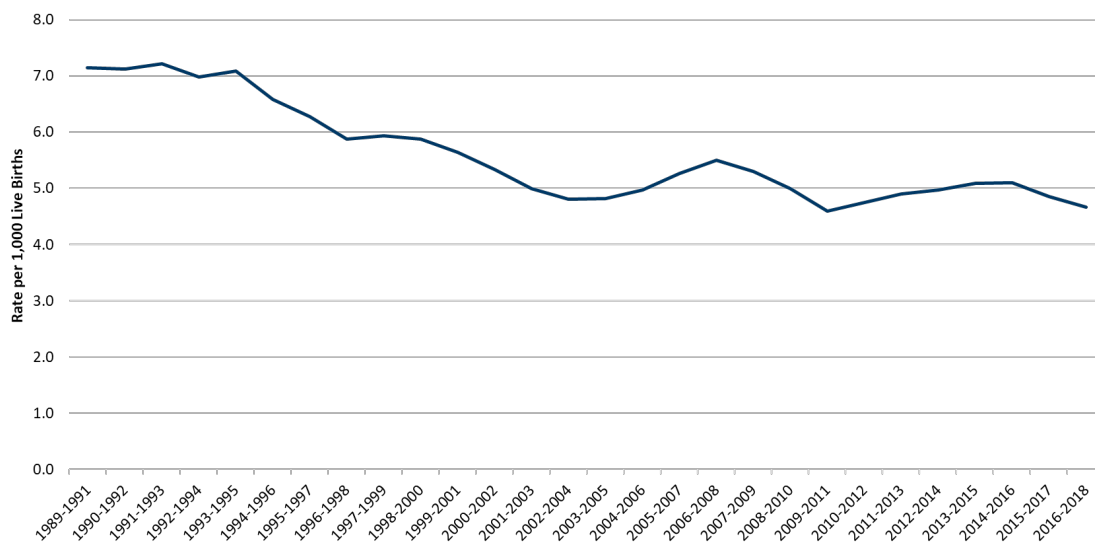
### Current Landscape of Infant Mortality in Minnesota

Infant mortality is widely used as an international measure of overall population health. The United States has a higher infant mortality rate than other developed countries.<sup>1</sup> Infant mortality is a multifactorial societal problem often linked to factors that affect an individual’s physical and mental well-being, including maternal health, socioeconomic status, quality and access to medical care, and public health practices. The loss of an infant can adversely affect families and communities, both socially and emotionally, often resulting in a number of negative symptoms such as depression, grief, and guilt. Families may suffer from long-term psychological distress, which can lead to partner separation or divorce. Grieving parents also face isolation from friends and family.<sup>2,3</sup>

**In 2018, 317 infants born in Minnesota died before their first birthday.**

Minnesota’s infant mortality rate has declined by 35 percent since 1990, from a high of 7.2 deaths per 1,000 live births to its present level of 4.7 in 2018. While Minnesota’s infant mortality rate has historically been lower than the U.S. rate overall, little to no progress has been made in reducing infant mortality in the past decade.

**Figure 1. Minnesota Infant Mortality Rates Overtime, 3-year Rolling Averages**



Source: Minnesota Linked Birth/Infant Death Final File

The leading causes of infant mortality in Minnesota are congenital anomalies (also known as birth defects) and prematurity (birth to an infant under 37 weeks gestation). Prematurity is related to low birth weight (born weighing under 2,500g), short gestation, and respiratory distress. Other common causes of infant mortality in Minnesota include obstetric conditions, sudden unexpected infant deaths

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(SUID), and injury. Obstetric conditions are complications related to pregnancy, childbirth, and the postpartum period. SUID refers to the death of an infant with no obvious cause at the time of death, this includes sudden infant death syndrome (SIDS) and accidental suffocation and strangulation in bed (ASSB).

### **Prematurity and Birth Defects**

Medical services to increase the chances of a premature infant's survival are expensive, with preterm births costing the United States more than \$26 billion annually.<sup>4</sup> Babies who survive an early birth often face increased risk of lifetime health challenges in addition to increased risk for infant mortality. Data tells us that the earlier a baby is born, the greater the risk of death, but even babies born just a few weeks too soon (born between 34 to 36 weeks gestation) have an infant mortality rate three times higher than babies born full term.<sup>4</sup> In 2018, almost 6,000 infants were born premature in Minnesota.

Each year, over 2,000 babies in Minnesota are born with serious birth defects. Babies born with a birth defect are more likely to die before their first birthday, compared to babies born without a birth defect. Birth defects contribute to one in every five infant deaths. Babies born with birth defects that survive have a greater chance of illness and long-term disability than babies without birth defects. Medical services for treating birth defects are costly – hospital costs for the treatment of birth defects are more than \$2.5 billion each year in the United States.<sup>5</sup>

### **Racial Justice and Infant Mortality**

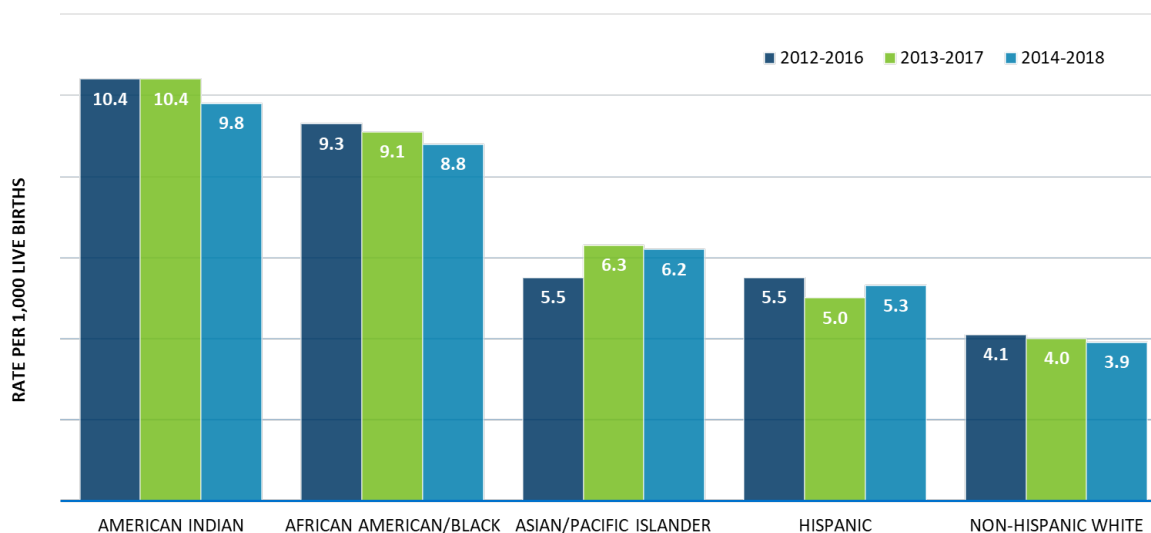
While infant mortality rates for all racial groups in Minnesota have declined over time, the disparities have remained constant for over 20 years. As a result of structural racism, American systems have restricted access to resources for Black, Indigenous, and People of Color (BIPOC) mothers compared to the resources available to White mothers. This includes quality education, higher paying jobs with benefits, sustainable and affordable housing in stable neighborhoods, and culturally appropriate, accessible healthcare. Additionally, there continues to be a mistrust of medical institutions within communities of color rooted in historical medical experiments and segregation of vulnerable and oppressed populations.<sup>6</sup>

Due to structural racism, the infant mortality rate among infants born to African American/Black mothers and American Indian mothers is over two times greater than among non-Hispanic White mothers in Minnesota, as seen in Figure 2. Stress related to racism and discrimination leads to harmful changes in the body that can increase the rate of infant mortality.<sup>7</sup> The infant mortality rates among African Americans/Blacks in Minnesota vary greatly depending on the mother's birth country. From 2014-2018, African Americans/Black mothers born in the United States had an infant mortality rate of 11.5 per 1,000, almost twice the rate of foreign-born mothers, 6.8 per 1,000.

Within the American Indian community, systemic racism and oppression has resulted in mistrust in the healthcare system as well. The U.S. government and Child Protective Services have a long history of forcibly removing children from American Indian mothers, which remains a real threat today. This mistrust and higher rates of lacking adequate health insurance can lead to less or no prenatal care among American Indian pregnant people. Additionally, American Indian mothers have indicated experience with racism and stereotyping from health care providers for non-natal appointments increased their mistrust in all health care systems. Others worry that seeing a health care provider may result in a visit from Child Protection Services or other social services that would interfere with their parenting or result in the removal of their children.<sup>8</sup>

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**Figure 2. Minnesota Infant Mortality Rate by Maternal Race/Ethnicity, 5-year averages, 2012-2018**



Source: Minnesota Linked Birth/Infant Death Final File

Factors commonly associated with increased infant mortality rates include infants born to mothers with less than high school education, giving birth to twins or triplets, and tobacco use during pregnancy. Social and structural determinants of health are even more influential. For example, African American/Black mothers with more than a high school education experience the same rate of infant death as non-Hispanic White mothers with less than high school education. Infants born to American Indian and African American/Black mothers are more likely to be low birth weight than those born to White mothers. White women are more likely to receive prenatal care than American Indian and African American/Black women. Prenatal and postpartum care visits are important as they decrease the risk of complications during pregnancy. These visits also decrease the risk of premature infants and increase knowledge about breastfeeding, safe sleep methods, and other strategies to maintain the wellbeing of infants.<sup>9</sup>

The current strategies for improving infant mortality in Minnesota have specific focus on addressing structurally rooted racial disparities in resources, access, and birth outcomes. Community-based initiatives and culturally appropriate resources are major components to the Strategic Plan outlined below.

### **COVID-19 Pandemic: Impact on Infant Mortality**

Data on COVID-19 related infant mortality is not currently available at a national or at state level. As more information becomes available, this section will be updated. However, utilizing a Social Determinants of Health (SDOH) lens can be beneficial for addressing identified and potential problems. The Healthy People 2030 SDOH areas are Economic Stability, Education Access and Quality, Health Care Access and Quality, Neighborhood and Built Environment, and Social and Community Context.<sup>10</sup> In light of the of COVID-19 pandemic in the US, many people are now facing economic instability, lack of adequate health care access, systemic racism, and a reduction of social support, all of which are risk factors for infant mortality. On top of all these factors, CDC recommendations for reducing transmission, including not using public transportation and reducing potential exposures, may have caused hesitancy among some pregnant people in seeking medical care.<sup>11</sup> Some locations in Minnesota reduced the

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number of in-person prenatal visits and limited the number of people who could be present during the birth and hospital stay.<sup>12</sup>

The CDC has indicated that pregnant people are at increased risk of severe illness from COVID-19 and is continuing to collect data to determine the impact of COVID on pregnant people and infants.<sup>11</sup> Initial cohort findings show that COVID positive women had a slightly increased proportion of preterm delivery as compared to the general population in 2019. However, more studies are needed to compare both COVID positive and COVID negative pregnant people to assess the actual risk of preterm birth. The vast majority of COVID infections during pregnancy have been reported in the second and third trimester. It is not yet clear if infections during the first trimester result in negative birth outcomes.<sup>13</sup>

Infants may be more susceptible to infection although they show less severe COVID-19 symptoms.<sup>14</sup> The cumulative rate of COVID-19 hospitalizations of children four and under in the US is 27.8 per 100,000, while in Minnesota it is much higher at 40.7 per 100,000.<sup>15</sup> In one study, 27 percent of hospitalizations due to COVID-19 from March 1, 2020 to July 25, 2020 were among children less than 12 months old. Additionally, Black and Latinx children had higher rates of COVID-19 hospitalizations as compared to White children, reflecting the disparities rooted in systemic racism seen in adult populations.<sup>16</sup>

### Strategic Planning

The Division of Child and Family Health (CFH) in partnership with stakeholders conducted a [comprehensive assessment](#) of the health and well-being of Minnesota's maternal and child health populations – including women, mothers, fathers, caregivers, children and youth (including those with special health needs), families, and communities. Following the prioritization of unmet needs, Infant Mortality was selected as a top priority for Minnesota.

In order to advance maternal and child health outcomes and health equity, CFH acknowledges that we need to work together in authentic, collaborative, and innovative ways. CFH continued to engage stakeholders by implementing a community-focused process to set and implement strategies to address the priority needs using [Strategy Teams](#). We have only begun this work and know there is still much work to do. The outcome of this process helped form a statewide strategic plan that guides work on improving maternal and child health systems going forward.

### Vision for the Future

We envision a Minnesota where all families have equitable access to resources that ensure healthy pregnancies and birth outcomes and where all babies survive and thrive beyond their first birthday to achieve their full health potential. We strive for a Minnesota where all families have equal access to safe, stable, and affordable housing and new parents have paid parental leave available to them regardless of race, ethnicity, socioeconomic status, or where they live. When a family experiences a tragedy, we seek a future where their loss is not stigmatized and the family does not fear shame or punishment. We work toward a reality where communities across Minnesota can come together to support each other in the birthing, raising, and loss of infants.

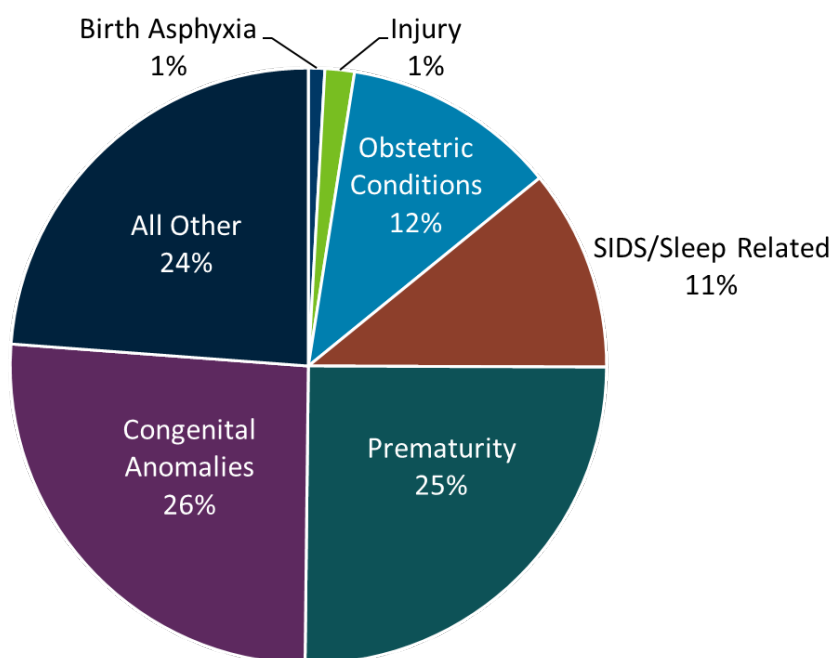
### Strategies to Address Infant Mortality

The Infant Mortality Strategy Team identified strategies to address infant mortality and racial and ethnic inequities by focusing on activities to address the root causes of infant mortality and promote protective practices like breastfeeding. Below is a brief summary of Minnesota's strategies to reduce infant mortality and the racial disparities present in Minnesota. To learn more see the entire [Minnesota Title V Maternal and Child Block Grant Application and Annual Report](#).

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One of Minnesota's aims is to accelerate infant mortality declines by addressing prematurity, SUIDS, and deaths related to congenital anomalies. As shown in Figure 3, these three causes of infant mortality make up 53 percent of the state's 340 to 380 infant deaths each year. The statewide measures mask systemic inequalities experienced by Black, American Indian and other Minnesotans of color. Reducing these inequalities stemming from structural and systemic racism is an additional aim of these strategies.

**Figure 3. Causes of Infant Mortality in Minnesota 2014-2018**



Source: Minnesota Resident Linked Birth/Infant Death Vital Records File

Another aim to reduce infant mortality is to increase breastfeeding. Racial and ethnic disparities in breastfeeding mirror the disparities in infant mortality found in Minnesota. Studies have shown that breastfed babies are much less likely to die from SIDS than infants who did not receive any breast milk.<sup>17</sup>

### **Strategy A. Apply Culturally-Specific, Community-Based Best Practices**

To address historic disparities among infants born to African American/Black and American Indian mothers, Minnesota will engage and build better partnerships with internal programs and external community partners working on infant mortality-related topics. While the strategies focus specifically on African American/Black and American Indian populations, addressing the inequities identified will benefit other racial and ethnic groups. Activities include:

- Promoting safe-sleep practices for all infants.
- Promoting infant sleep safety by providing consistent and inclusive safe sleep messaging.
- Providing trainings with CFH Family Home Visiting (FHV) on safe sleep, bereavement and breastfeeding to public health nurses/home visitors and other health professionals working with families.
- Expanding community-based infant mortality prevention education through collaboration with existing community initiatives and programs.
- Reducing disparities in modifiable risk factors for birth defects.

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- Continuing culturally-specific support for breastfeeding.
- Addressing prematurity through initiatives such as the Interventions to Minimize Preterm and Low birth weight Infants using Continuous quality Improvement Techniques (IMPLICIT) model to incorporate interconception care for the mother into well child visits to improve birth outcomes.

### Strategy B. Improve Data Collection and Evaluation

Minnesota will improve data collection and evaluation as a strategy to reduce infant mortality. The data will help validate information and strengthen the ability to identify root causes. It will also ensure relevant and timely data for planning, programmatic, and policy decisions aimed at improving maternal and infant health outcomes in communities around the state. Evaluation will help monitor our progress towards achieving our desired maternal and infant health outcomes. In the year ahead, staff will aim to accomplish the following activities:

- Improving data-sharing by exploring the possibility of removing barriers in data sharing, restoring privileges for data access to birth outside of Minnesota and continuing efforts with sharing SUID data.
- Establishing a Fetal and Infant Mortality Review (FIMR).

### Strategy C. Facilitate Policy and Systems Changes to Reduce Infant Mortality

MDH will make every effort to encourage policy and systems changes aimed at fostering optimal infant health outcomes in Minnesota. To ensure providers are promoting best practices, MDH will promote:

- Increasing the number of Safe Sleep Certified Hospitals.
- Increasing the number of MDH Breastfeeding-Friendly Designated Maternity Centers.
- Considering future policy and systems change strategies recommended by the Strategy Team, including paid parental leave, expanding Medical Assistance coverage to one-year postpartum, simplifying enrollment for Minnesota Health Care Programs, and increasing support for incarcerated pregnant people and parents.

## Highlighting Success

The Superior Babies Program was started in 1998 and is a collaboration between the St. Louis County Public Health & Human Services and the Arrowhead Center LLC. It was established to “support women who are at risk of to deliver babies affected by their chemical use.”<sup>18</sup> The program promotes healthy prenatal and parenting behavior and offers a collaborative, case management team approach to an intensive home visiting model. The voluntary and free program includes assessments, interventions, education, and referrals for pregnant clients with chemical use problems.<sup>19</sup> According to their website, the last evaluation was conducted in 2010. Of the 31 babies who were born to mothers in the Superior Babies program, 96 percent had negative toxicology results, normal APGAR scores, and normal birth weights. Additionally, 58 percent of mothers completed parenting training, 21 percent completed all CPS involvement, 42 percent were participating in a 12-step program, and 42 percent were using mental health services available to them.<sup>18</sup>

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Child and Family Health Division  
Minnesota Department of Health  
PO Box 64975  
St. Paul, MN 55164-0975  
651-201-3589  
health.cfhcommunications@state.mn.us  
[www.health.state.mn.us](http://www.health.state.mn.us)

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