



MISSISSIPPI INFANT MORTALITY REPORT

Annual Report: Review of 2021
and 2022 Infant Deaths

Publication Date: February, 2025

Submitted to:

Chairmen of the Mississippi House Public Health and Human Services Committee and
Senate Public Health and Welfare Committee

Report prepared by:

Mississippi State Department of Health, Office of Vital Records and Public Health Statistics and
Office of Women's Health, Maternal and Infant Health Bureau with support provided by

Randy Henderson, MD Chair and Neonatologist, Southern Mississippi Neonatology

Tami Brooks, MD Pediatrician and MSDH Interim Medical Director

Acknowledgements

This report reflects the hard work of the Mississippi Child Death Review Panel and those who respond directly to infant and child fatalities. Without the work of coroners, medical examiners, law enforcement, emergency medical services, physicians, social service agencies, and countless others, the Child Death Review Panel would not be able to review these deaths.

The Mississippi State Department of Health acknowledges the families touched by infant death each year. This report is generated with the goal of preventing these tragic losses. This report is generated with the goal of preventing these tragic losses. To explore or request data, please check the Mississippi Statistically Automated Health Resource System (MSTAHRs) or submit an online request for MSDH data or public records at:

<https://apps.msdh.ms.gov/DataRequestEntry/requestform>

A LETTER FROM MSDH EXECUTIVE DIRECTOR AND STATE HEALTH OFFICER



MSDH

Dear Chairman and Colleagues,

I am pleased to submit the 2024 Infant Mortality Report on behalf of the Mississippi State Department of Health and to summarize the key findings. Despite our efforts to address this issue, Mississippi continues to lead the nation in infant mortality. This report includes a ten-year trend analysis to provide insights into infant mortality trends in the state.

In 2022, Mississippi saw 319 infant deaths, with a mortality rate of 9.2 per 1,000 live births, significantly higher than the national average of 5.6 per 1,000. The leading causes of infant death include congenital malformations, accidents (including Sudden Unexpected Infant Death, or SUID), and complications related to preterm birth and low birthweight. The infant mortality rate for Black infants remains more than double that of White infants, highlighting racial disparities.

A significant portion of infant deaths in Mississippi are associated with low birthweight, preterm deliveries, and maternal health issues such as obesity, hypertension, and diabetes. Additionally, the rate of SUID has decreased slightly but remains over twice the national average, with accidental suffocation and strangulation in bed becoming a leading cause.

To address these issues, I recommend improving maternal health through early prenatal care and preconception health initiatives, promoting safe sleep practices, and requiring coroners to consistently complete SUID forms to ensure proper investigations. Strengthening Mississippi's perinatal system and referral patterns for high-risk mothers and infants will also help reduce infant mortality, as will expanding the Fetal and Infant Mortality Review Program and increasing neonatal care training statewide.

I would like to personally thank the members of the review committee and the Mississippi State Department of Health personnel who have supported this important work. Their dedication and expertise have been essential in the preparation of this report and in the continued efforts to improve maternal and infant health in Mississippi.

We believe collaboration between hospitals and healthcare providers, as well as a sustained public education campaign, will be essential in reducing infant deaths in Mississippi.



Daniel Edney, MD, FACP, FASAM
Executive Director State Health Officer
Mississippi State Department of Health

EXECUTIVE SUMMARY



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Executive Summary

Infant mortality is the death of an infant within the first year of life. Unfortunately, for many years, Mississippi has led the nation in infant mortality. Ten-year trend analysis are included to show trends and provide a historical view of infant mortality in Mississippi.

Key Findings

In 2022, there were 319 infant deaths and 34,678 live births to Mississippi residents. **The infant mortality rate was 9.2 per 1000, compared to the national average of 5.6 per 1000.**

1. The top three causes of infant deaths in 2022
 - a. Congenital malformations/ chromosomal abnormalities, birth defects/ malformations
 - b. Accidents which includes death related to unsafe sleep or Sudden Unexpected Infant Death
 - c. Deaths related to short gestation and low birthweight. However, short gestation and low birthweight are likely still the leading cause of infant death if you add up specific causes such as respiratory disease and intraventricular hemorrhage which are more likely to occur in preterm infants.
2. The leading causes of infant death in Mississippi from 2021 to 2023 determined from the Top 15
Leading Causes of Infant Deaths by Rankable 71 Causes of Death.
 - a. Congenital malformations, deformations, and chromosomal abnormalities 158
 - b. Disorders related to short gestation/low birthweight, not elsewhere classified 145
 - c. Sudden Infant Death Syndrome 112
 - d. Unintentional injuries(accidents) 109
3. In 2022, 127 (40%) of 319 deaths were among White, non-Hispanic infants; 170 (53%) were among Black, non-Hispanic infants; and 22 (7%) were among other races. Infant mortality for Whites was 6.7 per 1000 births and for Blacks 12.2 per 1000 births. In 2023, 110 (36%) of 305 deaths were among White, non-Hispanic infants, 171 (56%) were Black, non-Hispanic infants and 24 (8%) were among Other races. The infant mortality was 6.4 per 1000 for White, NH and 12.3% for Black, NH.
4. The percent of low birthweight deliveries was 12.7% in 2022 up from 12.3% in 2021(national average 8.6%).
5. The percent of preterm deliveries was 14.8% in 2022-down slightly from 15% in compared to the national average of 10.4 %. Mississippi leads the nation in preterm deliveries. The preterm birth rate was 17.7% for Black babies and 12.6% for White babies.

6. The number of White low birthweight babies increased from 231 in 2021 to 270 in 2022. The number of Black very low birth weight deliveries went from 489 in 2021 down to 468 in 2022.
7. Neonatal mortality between birth and 27 days of life in Mississippi was 5.1 per 1,000 in 2021, 5.4 per 1,000 in 2022, and 5.3 per 1,000 in 2023 (national average 3.6 per 1,000 in 2023.) The neonatal death rate was 6.8 per 1,000 for Black babies versus 4 per 1,000 for White babies in 2022.
8. Postnatal mortality between 28 and 364 days of life jumped from 3.3 per 1,000 in 2021 to 4.3 per 1,000 in 2022 per 1,000, compared to a national average of 1.9 per 1,000.
9. The rate of Sudden Unexpected Infant Death (SUID) decreased from 87 to 82 or from 2.5 per 1,000 to 2.4 per 1,000. But this SUID rate is over twice the United States average of 1/1,000. SUID due to ASSB (accidental suffocation and strangulation in bed) was up from 18 to 34 in 2022 accounting for 41% of SUID, the largest portion since 2013.
10. **120 babies born less at than 27 weeks accounted for 38% of all infant deaths in 2022. These infants either died in the hospital or at home within the first year.**
11. In 2022, 41% or 132 of the infants who died had a mother who was obese. 13% or 42 of the infants had mothers who were hypertensive. 10% or 33 had mothers who had already delivered a preterm infant. 3% or 8 had a mother with diabetes. 2% or 6 had a mother with syphilis. Testing for syphilis was made a requirement for pregnant mothers in April of 2023. The number of cases of congenital syphilis has risen each year since 2020. In 2020, there were fewer than 40 cases of congenital syphilis and there were over 120 cases reported in 2023.

Key Recommendations

- The best way to reduce infant mortality is to improve maternal health. Promoting preconception health and providing obstetric care in the pregnancy will reduce infant mortality. Presumptive eligibility for Medicaid mothers would result in care up to 6 weeks earlier in the pregnancy and would likely reduce infant mortality.
- Educating parents and caregivers about the dangers of co-sleeping will have an immediate impact on infant mortality by reducing the incidence of SUID. Most of our first time parents, and many repeat parents, need education about safe sleep. A sustained campaign to educate infant parents and caregivers through media and prenatal care and discharge care would be well worth the investment.
- Coroners should be required to fill out SUID forms which would require an appropriate death scene investigation; they are not doing it consistently.
- Mississippi's perinatal system needs incentives for obstetricians to get high risk mothers to a full-service delivery hospital with an NICU if a preterm baby is expected.
- Mississippi's perinatal system should plan outreach education so that all delivering hospitals have trained staff to handle emergent preterm deliveries or complicated term deliveries such as placental abruption. This educational outreach should be coordinated between the state and Mississippi's only children's hospital. Such knowledge will reduce infant mortality.

- Mississippi's referral pattern for mothers and babies should be strengthened and reviewed for each part of the state so that mothers and babies deliver where there is a chance for the best outcome. Like the trauma system, this referral pattern may rely on out of state partners in Memphis, Mobile, and New Orleans. The State Department of Health should track maternal transports and neonatal transports. The goal is to have mothers deliver in the right place to avoid neonatal transports at birth that are associated with higher mortality and morbidity, seeing more maternal transports and fewer neonatal transports.
- The State Department of Health should track neonatal mortality by NICU and work to improve care statewide.
- The State Department of Health should set up a committee of physicians including geneticists, neonatologists, pediatric intensivists, and general pediatricians to review the infant mortality statistics each year. The department should provide resources for this committee and support staff.
- The State Department of Health should expand the Fetal and Infant Mortality Review Program. Currently, there is only one operation FIMR in Mississippi, positioned in Public Health District IX (Coast). These FIMR groups will provide valuable recommendations on the local level to improve care.

DEFINITIONS & TERMS



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Definitions & Terms

Accidental Strangulation or Suffocation: An explained sudden and unexpected infant death in a sleep environment (bed, crib, couch, chair, etc) in which the infant's nose and mouth are obstructed, or the neck or chest is compressed from soft or loose bedding, an overlay, or wedging causing asphyxia.

Bed Sharing or Surface Sharing: Parent(s) and infant sleeping together on any surface (bed, couch, chair).

Cause of Death: On a death certificate, "cause of death" includes the sequence of medical conditions that had the greatest impact in causing death and the approximate time intervals between the onset of each condition and death. The underlying cause of death is used for tabulating death counts. The cause of death and underlying causes listed on the death certificate are coded by the National Center for Health Statistics (NCHS) according to the appropriate revision of the *International Classification of Diseases* (ICD). Effective with deaths occurring in 1999, the United States began using the 10th revision of ICD (ICD-10); during 1979-1998, causes of death were coded and classified according to the 9th revision (ICD-9).

Co-sleeping: A general term for sleeping near or with an infant. This term can describe both room sharing and bed sharing and is not recommended for use.

Infant Mortality: The deaths of children less than one year of age. The birth certificate and infant death certificate are linked, and a data set is created. This data set is a valuable tool for monitoring and exploring the complex inter-relationships between infant death and risk factors present at birth. In the linked birth and infant death data set the information from the death certificate is linked to the information from the birth certificate for each infant under 1 year of age who dies in the United States, Puerto Rico, The Virgin Islands, and Guam. The purpose of the linkage is to use the many additional variables available from the birth certificate to conduct more detailed analyses of infant mortality patterns. The linked files include information from the birth certificate such as age, race, and Hispanic origin of the parents, birth weight, period of gestation, plurality, prenatal care usage, maternal education, live birth order, marital status, and maternal smoking, linked to information from the death certificate such as age at death and underlying and multiple cause of death.

Death Certificate: The death certificate is a permanent record of the fact of death. State law specifies the required time frame for completing and filing the death certificate. The death certificate provides important personal information about the decedent and about the circumstances and cause of death. This information has many uses related to the settlement of the estate and provides family members with closure, peace of mind, and documentation of the cause of death. The death certificate collects demographic information on the decedent such

as sex, age race, ethnicity and medical certification information which includes date and time of death, cause and manner of death. The death certificate is a legal record and has legal safeguards protecting the confidentiality of the record.

The registration and storage of deaths is supported by state laws and regulations. Mississippi uses an electronic death registration system (EDRS), which is a secure web-based system for registering deaths electronically. This system is designed to simplify the data collection process and enhance communication between medical certifiers, medical examiners and coroners, funeral directors, as they work together to register deaths. The EDRS follows the 2003 U.S. Standard Death Certificate in content and structure and has built-in edits, prompts, and alerts to improve data quality. The U.S. standard certificate is revised periodically to ensure that the data collected relates to current and anticipated needs and is comparable with data from other states.

The death certificate is the source for local, state, and national mortality statistics. Mississippi has a contract with NCHS that allows the federal government to use information from that state's records to produce national vital statistics.

Manner of Death: On a death certificate, "manner of death" is important: 1) in determining accurate causes of death, 2) in processing insurance claims, and 3) in statistical studies of injuries and death. Choices are natural, homicide, accident, pending investigation, suicide and could not be determined. "Could not be determined" should only be used when it is impossible to determine the manner of death.

Natural and External Causes of Death: Natural death is due to internal factors of the body such as heart disease or cancer. An external cause of injury may be classified to Accidents (V01- X59), Intentional self harm (X60-X84), Assault (X85-Y09), Event of undetermined intent (Y10- Y34), Legal intervention and operations of war (Y35-Y36), Complications of medical and surgical care (Y40-Y84), and Sequela of external causes (Y85-Y89). When unspecified, assume all external cause one-term entities to be accidental unless the External Causes of Injury Index provides otherwise.

Overlaying: Overlaying is the accidental death by smothering caused by a larger individual sleeping on top of an infant.

Positional asphyxiation: Positional asphyxiation, also known as postural asphyxia, occurs when someone's breathing is restricted due to their body position, which leads to a blockage in the airway structure, and it might occur in babies, children, and adults.

Room sharing: Parent(s) and infant sleeping in the same room but on a separate sleep surface made for infants.

Sudden Unexpected Infant Death (SUID): An umbrella category that describes all sudden, unexpected infant deaths—those from known causes, such as an injury or accident, and those from unknown causes.

Sudden Infant Death Syndrome (SIDS): The sudden death of a baby younger than 1 year of age that doesn't have a known cause, even after a full investigation. Healthcare providers, law enforcement, and others investigate infant deaths to figure out what caused them. This investigation includes a complete autopsy, examining the death scene, and reviewing the clinical history. If they cannot determine a cause of death for the baby or explain why the baby died, the medical examiner or coroner may categorize the death as SIDS.

Wedging or entrapment: A form of suffocation or mechanical asphyxia in which the nose, mouth or thorax is compressed or obstructed because of the infant being trapped or confined between inanimate objects, preventing respiration.

NCHS 71 Rankable Causes of Infant Death

| | Cause of Death | ICD-10 Codes |
|----|---|--------------|
| 1 | Diarrhea and gastroenteritis of infectious origin | A09 |
| 2 | Tuberculosis | A16-A19 |
| 3 | Tetanus | A33, A35 |
| 4 | Diphtheria | A36 |
| 5 | Whooping cough | A37 |
| 6 | Meningococcal infection | A39 |
| 7 | Septicemia | A40-A41 |
| 8 | Congenital syphilis | A50 |
| 9 | Gonococcal infection | A54 |
| 10 | Acute poliomyelitis | A80 |
| 11 | Varicella | B01 |
| 12 | Measles | B05 |
| 13 | Human immunodeficiency virus (HIV) disease | B20-B24 |
| 14 | Mumps | B26 |
| 15 | Candidiasis | B37 |
| 16 | Malaria | B50-B54 |
| 17 | Pneumocystosis | B59 |
| 18 | Malignant neoplasms | C00-C97 |
| 19 | In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior | D00-D48 |
| 20 | Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism | D50-D89 |
| 21 | Short stature, not elsewhere classified | E34.3 |

| | | |
|----|---|-------------------|
| 22 | Nutritional deficiencies | E40-E64 |
| 23 | Cystic fibrosis | E84 |
| 24 | Volume depletion, disorders of fluid, electrolyte and acid-base balance | E86-E87 |
| 25 | Meningitis | G00, G03 |
| 26 | Infantile spinal muscular atrophy, type I | G12.0 |
| 27 | Infantile cerebral palsy | G80 |
| 28 | Anoxic brain damage, not elsewhere classified | G93.1 |
| 29 | Diseases of the ear and mastoid process | H60-H93 |
| 30 | Diseases of the circulatory system | I00-I99 |
| 31 | Acute upper respiratory infections | J00-J06 |
| 32 | Influenza and pneumonia | J09-J18 |
| 33 | Acute bronchitis and acute bronchiolitis | J20-J21 |
| 34 | Bronchitis, chronic and unspecified | J40-J42 |
| 35 | Asthma | J45-J46 |
| 36 | Pneumonitis due to solids and liquids | J69 |
| 37 | Gastritis, duodenitis, and noninfective enteritis and colitis | K29, K50-K55 |
| 38 | Hernia of abdominal cavity and intestinal obstruction without hernia | K40-K46, K56 |
| 39 | Renal failure and other disorders of kidney | N17-N19, N25, N27 |
| 40 | Newborn affected by maternal hypertensive disorders | P00.0 |
| 41 | Newborn affected by other maternal conditions which may be unrelated to present pregnancy | P00.1-P00.9 |
| 42 | Newborn affected by maternal complications of pregnancy | P01 |
| 43 | Newborn affected by complications of placenta, cord and membranes | P02 |
| 44 | Newborn affected by other complications of labor and delivery | P03 |
| 45 | Newborn affected by noxious influences transmitted via placenta or breast milk | P04 |
| 46 | Slow fetal growth and fetal malnutrition | P05 |
| 47 | Disorders related to short gestation and low birth weight, not elsewhere classified | P07 |
| 48 | Disorders related to long gestation and high birth weight | P08 |
| 49 | Birth trauma | P10-P15 |
| 50 | Intrauterine hypoxia and birth asphyxia | P20-P21 |
| 51 | Respiratory distress of newborn | P22 |

| | | |
|----|---|--------------|
| 52 | Congenital pneumonia | P23 |
| 53 | Neonatal aspiration syndromes | P24 |
| 54 | Interstitial emphysema and related conditions originating in the perinatal period | P25 |
| 55 | Pulmonary hemorrhage originating in the perinatal period | P26 |
| 56 | Chronic respiratory disease originating in the perinatal period | P27 |
| 57 | Atelectasis | P28.0-P28.1 |
| 58 | Bacterial sepsis of newborn | P36 |
| 59 | Omphalitis of newborn with or without mild hemorrhage | P38 |
| 60 | Neonatal hemorrhage | P50-P52, P54 |
| 61 | Hemorrhagic disease of newborn | P53 |
| 62 | Hemolytic disease of newborn due to isoimmunization and perinatal jaundice | P55-P59 |
| 63 | Hematological disorders | P60-P61 |
| 64 | Syndrome of infant of a diabetic mother and neonatal diabetes mellitus | P70.0-P70.2 |
| 65 | Necrotizing enterocolitis of newborn | P77 |
| 66 | Hydrops fetalis not due to hemolytic disease | P83.2 |
| 67 | Congenital malformations, deformations and chromosomal abnormalities | Q00-Q99 |
| 68 | Sudden infant death syndrome | R95 |
| 69 | Unintentional injuries (accidents) | V01-X59 |
| 70 | Assault (homicide) | U01, X85-Y09 |
| 71 | Complications of medical and surgical care | Y40-Y84 |

Child Death Review Selected Causes of Death

| Causes of Death | ICD-10 Codes |
|------------------------------|--|
| External causes of death | V01-Y36, Y44-Y48, Y90-Y98, R99, R95 |
| Fire | U01.3, X01-X19, X76-X77, X97-X98, Y26-Y27, Y36.3 |
| Suicide | X60-X79, X80-X84, Y87.0 |
| All motor vehicle, transport | V00-V99, Y85 |
| Drowning | W65-W69, W70-W74 |
| Homicide | X85-X99, Y00-Y09, Y87.1 |
| SUID | R99, R95, W75 |
| Firearms | W32-W34, X72-X74, X93-X95, Y22-Y24, Y35.0, U01.4 |

DATA



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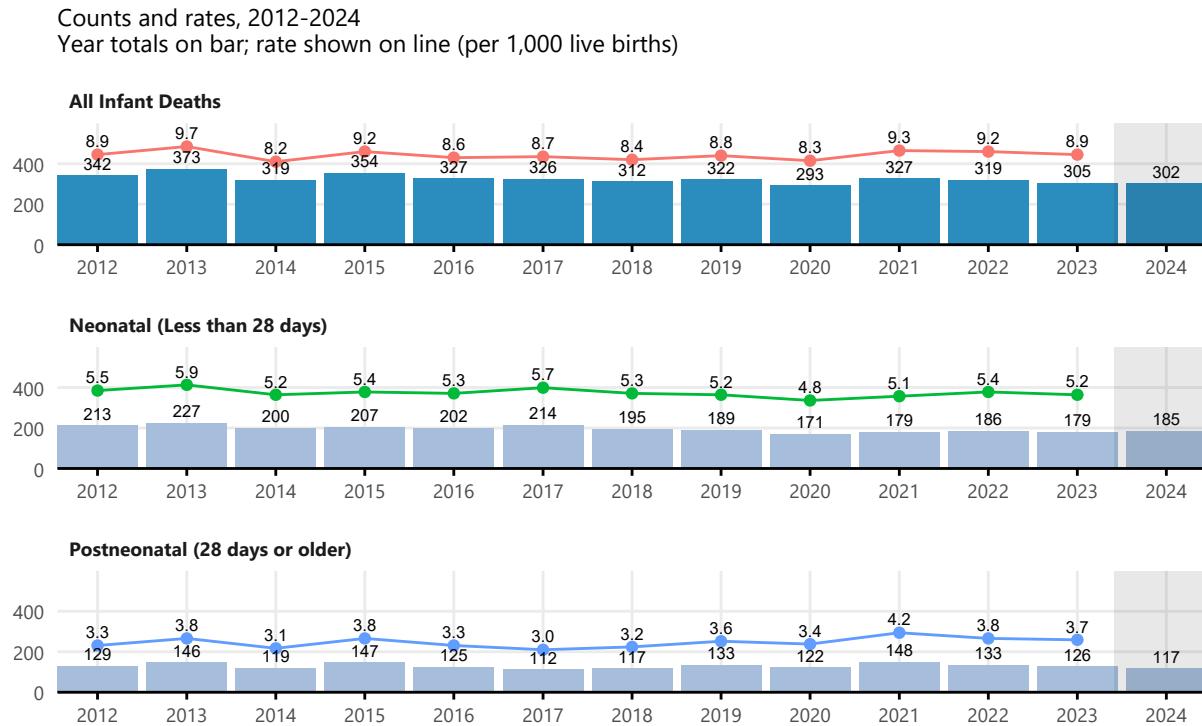
Provisional Infant Mortality, Mississippi 2012-2024

MSDH Office of Vital Records and Public Health Statistics, 1/24/2025



- Infant deaths include those occurring after live birth and within one year of life.
- Counts and corresponding rates for less than 20 events should be interpreted with caution.
- Counts may be incomplete and are subject to change.

Figure 1: Provisional Infant Mortality, Mississippi, 2012-2024



NOTE: Case counts may be incomplete and are subject to change; Shaded region more likely to be incomplete.

Table 1: Provisional Infant Deaths, 2012-2024

| Year | All Infant Deaths | | | Neonatal (Less than 28 days) | | | Postneonatal (28 days or older) | | |
|------|-------------------|------|-----------------|------------------------------|------|-----------------|---------------------------------|------|-----------------|
| | Count | Rate | Rate, 3-yr avg. | Count | Rate | Rate, 3-yr avg. | Count | Rate | Rate, 3-yr avg. |
| 2023 | 305 | 8.9 | 9.1 | 179 | 5.2 | 5.2 | 126 | 3.7 | 3.9 |
| 2022 | 319 | 9.2 | 8.9 | 186 | 5.4 | 5.1 | 133 | 3.8 | 3.8 |
| 2021 | 327 | 9.3 | 8.8 | 179 | 5.1 | 5.0 | 148 | 4.2 | 3.8 |
| 2020 | 293 | 8.3 | 8.5 | 171 | 4.8 | 5.1 | 122 | 3.4 | 3.4 |
| 2019 | 322 | 8.8 | 8.6 | 189 | 5.2 | 5.4 | 133 | 3.6 | 3.3 |
| 2018 | 312 | 8.4 | 8.6 | 195 | 5.3 | 5.4 | 117 | 3.2 | 3.2 |
| 2017 | 326 | 8.7 | 8.9 | 214 | 5.7 | 5.5 | 112 | 3.0 | 3.4 |
| 2016 | 327 | 8.6 | 8.7 | 202 | 5.3 | 5.3 | 125 | 3.3 | 3.4 |
| 2015 | 354 | 9.2 | 9.0 | 207 | 5.4 | 5.5 | 147 | 3.8 | 3.6 |
| 2014 | 319 | 8.2 | 8.9 | 200 | 5.2 | 5.5 | 119 | 3.1 | 3.4 |
| 2013 | 373 | 9.7 | - | 227 | 5.9 | - | 146 | 3.8 | - |
| 2012 | 342 | 8.9 | - | 213 | 5.5 | - | 129 | 3.3 | - |

Note:
Rate calculated as infant deaths per 1,000 live births
3-year average rate calculated as total aggregate of listed year and previous two years

To compare Mississippi to the US, the infant mortality rate is shown below using NVSS data and comparable death certificate data from the Office of Vital Records and Public Health Statistics.

Figure 2: Comparing Mississippi and United States Infant Mortality, 2012-2023

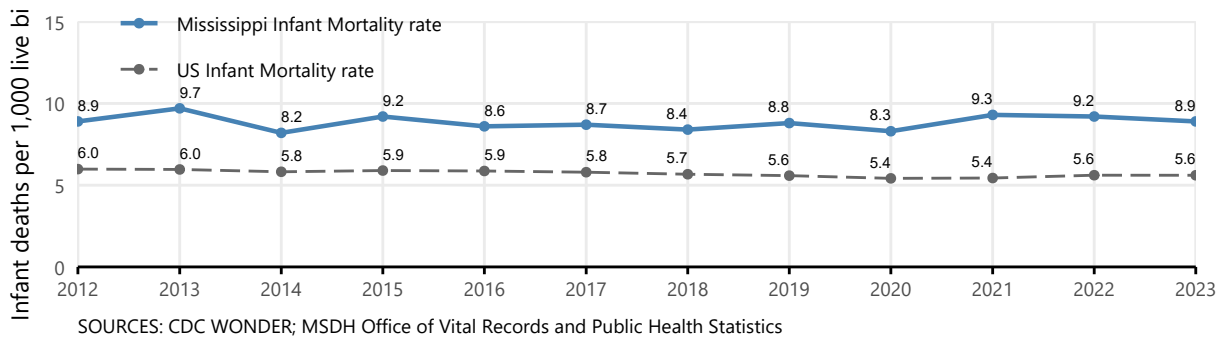
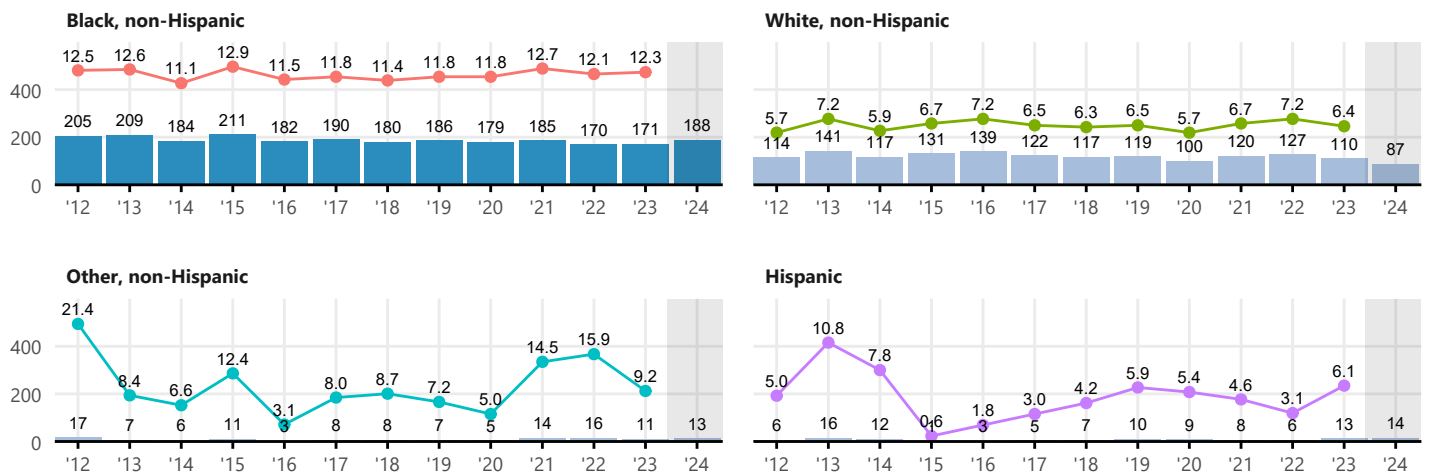


Figure 3: Provisional Infant Mortality by Race/Ethnicity, 2012-2024

Mississippi Counts and rates, 2012-2024
Year totals on bar; rate shown on line (per 1,000 live births)



NOTE: Case counts may be incomplete and are subject to change; Shaded region more likely to be incomplete.

Table 2: Infant Deaths by Race/Ethnicity, 2012-2024 (Provisional)

| Year | All race/ethnicities | | Black, NH | | White, NH | | Other, NH | | Hispanic | |
|------|----------------------|------|-----------|------|-----------|------|-----------|------|----------|------|
| | Count | Rate | Count | Rate | Count | Rate | Count | Rate | Count | Rate |
| 2023 | 305 | 8.9 | 171 | 12.3 | 110 | 6.4 | 11 | 9.2 | 13 | 6.1 |
| 2022 | 319 | 9.2 | 170 | 12.1 | 127 | 7.2 | 16 | 15.9 | 6 | 3.1 |
| 2021 | 327 | 9.3 | 185 | 12.7 | 120 | 6.7 | 14 | 14.5 | 8 | 4.6 |
| 2020 | 293 | 8.3 | 179 | 11.8 | 100 | 5.7 | 5 | 5.0 | 9 | 5.4 |
| 2019 | 322 | 8.8 | 186 | 11.8 | 119 | 6.5 | 7 | 7.2 | 10 | 5.9 |
| 2018 | 312 | 8.4 | 180 | 11.4 | 117 | 6.3 | 8 | 8.7 | 7 | 4.2 |
| 2017 | 326 | 8.7 | 190 | 11.8 | 122 | 6.5 | 8 | 8.0 | 5 | 3.0 |
| 2016 | 327 | 8.6 | 182 | 11.5 | 139 | 7.2 | 3 | 3.1 | 3 | 1.8 |
| 2015 | 354 | 9.2 | 211 | 12.9 | 131 | 6.7 | 11 | 12.4 | 1 | 0.6 |
| 2014 | 319 | 8.2 | 184 | 11.1 | 117 | 5.9 | 6 | 6.6 | 12 | 7.8 |
| 2013 | 373 | 9.7 | 209 | 12.6 | 141 | 7.2 | 7 | 8.4 | 16 | 10.8 |
| 2012 | 342 | 8.9 | 205 | 12.5 | 114 | 5.7 | 17 | 21.4 | 6 | 5.0 |

Note:

Shaded colors correspond to race/ethnicity-specific rates higher than the yearly rate for all race/ethnicities; Counts and corresponding rates for an event size of less than 20 should be interpreted with caution; Rate calculated as infant deaths per 1,000 live births; For purposes of this report, records with an unknown ethnicity were included in the non-hispanic group

Table 3: Top 15 Leading Causes of Infant Deaths by Rankable 71 Causes of Infant Death, 2021-2023 (provisional)

| Cause Group | All | | Black, NH | | White, NH | | Other, NH | | Hispanic | |
|---|-------|------|-----------|------|-----------|------|-----------|------|----------|------|
| | Count | Rate | Count | Rate | Count | Rate | Count | Rate | Count | Rate |
| Congenital malformations, deformations and chromosomal abnormalities | 158 | 1.5 | 67 | 1.6 | 76 | 1.4 | 10 | 3.2 | 5 | 0.9 |
| Disorders related to short gestation and low birth weight, not elsewhere classified | 145 | 1.4 | 101 | 2.4 | 33 | 0.6 | 7 | 2.2 | 4 | 0.7 |
| Sudden infant death syndrome | 112 | 1.1 | 67 | 1.6 | 38 | 0.7 | 5 | 1.6 | 2 | 0.3 |
| Unintentional injuries (accidents) | 109 | 1.0 | 60 | 1.4 | 46 | 0.9 | 2 | 0.6 | 1 | 0.2 |
| Newborn affected by maternal complications of pregnancy | 28 | 0.3 | 16 | 0.4 | 10 | 0.2 | 0 | 0.0 | 2 | 0.3 |
| Bacterial sepsis of newborn | 24 | 0.2 | 12 | 0.3 | 8 | 0.2 | 3 | 0.9 | 1 | 0.2 |
| Respiratory distress of newborn | 21 | 0.2 | 5 | 0.1 | 14 | 0.3 | 2 | 0.6 | 0 | 0.0 |
| Diseases of the circulatory system | 20 | 0.2 | 9 | 0.2 | 7 | 0.1 | 1 | 0.3 | 3 | 0.5 |
| Necrotizing enterocolitis of newborn | 19 | 0.2 | 11 | 0.3 | 8 | 0.2 | 0 | 0.0 | 0 | 0.0 |
| Newborn affected by complications of placenta, cord and membranes | 17 | 0.2 | 9 | 0.2 | 7 | 0.1 | 1 | 0.3 | 0 | 0.0 |
| Intrauterine hypoxia and birth asphyxia | 16 | 0.2 | 7 | 0.2 | 8 | 0.2 | 0 | 0.0 | 1 | 0.2 |
| Neonatal hemorrhage | 12 | 0.1 | 8 | 0.2 | 4 | 0.1 | 0 | 0.0 | 0 | 0.0 |
| Assault (homicide) | 12 | 0.1 | 6 | 0.1 | 5 | 0.1 | 1 | 0.3 | 0 | 0.0 |
| Atelectasis | 11 | 0.1 | 5 | 0.1 | 5 | 0.1 | 0 | 0.0 | 1 | 0.2 |
| All Other Causes | 167 | 1.6 | 101 | 2.4 | 54 | 1.0 | 8 | 2.5 | 4 | 0.7 |

Note:
Cause groups based on the National Center for Health Statistics 130 rankable grouped infant mortality cause groupings;
Counts and corresponding rates for an event size of less than 20 should be interpreted with caution;
Rate calculated as infant deaths per 1,000 live births

Table 4: Causes of Infant Deaths by 130 NCHS Selected Cause Groupings, 2021-2023)

| Cause Group | All | | Black, NH | | White, NH | | Other, NH | | Hispanic | |
|---|-------|------|-----------|------|-----------|------|-----------|------|----------|------|
| | Count | Rate | Count | Rate | Count | Rate | Count | Rate | Count | Rate |
| Sudden infant death syndrome | 112 | 1.1 | 67 | 1.6 | 38 | 0.7 | 5 | 1.6 | 2 | 0.3 |
| Extremely low birth weight or extreme immaturity | 110 | 1.1 | 81 | 1.9 | 24 | 0.5 | 1 | 0.3 | 4 | 0.7 |
| Accidental suffocation and strangulation in bed | 83 | 0.8 | 46 | 1.1 | 35 | 0.7 | 1 | 0.3 | 1 | 0.2 |
| Other symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | 64 | 0.6 | 43 | 1.0 | 17 | 0.3 | 3 | 0.9 | 1 | 0.2 |
| Other perinatal conditions | 54 | 0.5 | 34 | 0.8 | 17 | 0.3 | 3 | 0.9 | 0 | 0.0 |
| Congenital malformations of heart | 41 | 0.4 | 21 | 0.5 | 18 | 0.3 | 2 | 0.6 | 0 | 0.0 |
| Other low birth weight or preterm | 35 | 0.3 | 20 | 0.5 | 9 | 0.2 | 6 | 1.9 | 0 | 0.0 |
| Bacterial sepsis of newborn | 24 | 0.2 | 12 | 0.3 | 8 | 0.2 | 3 | 0.9 | 1 | 0.2 |
| Edwards syndrome | 23 | 0.2 | 5 | 0.1 | 15 | 0.3 | 3 | 0.9 | 0 | 0.0 |
| Respiratory distress of newborn | 21 | 0.2 | 5 | 0.1 | 14 | 0.3 | 2 | 0.6 | 0 | 0.0 |
| Congenital malformations of genitourinary system | 20 | 0.2 | 7 | 0.2 | 11 | 0.2 | 1 | 0.3 | 1 | 0.2 |
| Necrotizing enterocolitis of newborn | 19 | 0.2 | 11 | 0.3 | 8 | 0.2 | 0 | 0.0 | 0 | 0.0 |
| Congenital malformations of respiratory system | 14 | 0.1 | 10 | 0.2 | 3 | 0.1 | 0 | 0.0 | 1 | 0.2 |
| Newborn affected by premature rupture of membranes | 14 | 0.1 | 9 | 0.2 | 5 | 0.1 | 0 | 0.0 | 0 | 0.0 |
| Other congenital malformations and deformations | 13 | 0.1 | 7 | 0.2 | 5 | 0.1 | 1 | 0.3 | 0 | 0.0 |

Note:
Cause groups based on the National Center for Health Statistics 130 rankable infant mortality cause groupings;
Counts and corresponding rates for an event size of less than 20 should be interpreted with caution;
Rate calculated as infant deaths per 1,000 live births

Sudden Unexpected Infant Deaths (SUID), 2013-2022

Table 5: Infant SUID deaths and infant mortality (IM) rates, 2013-2022 Mississippi resident deaths

| | 2022 | | | 2013-2022 Total | | |
|----------------------------|-------|---------|-------|-----------------|---------|-------|
| | Count | IM rate | % | Count | IM rate | % |
| Total | 82 | 2.4 | 100.0 | 712 | 1.9 | 100.0 |
| Sex | | | | | | |
| Female | 32 | 1.9 | 39.0 | 300 | 1.7 | 42.1 |
| Male | 50 | 2.8 | 61.0 | 412 | 2.2 | 57.9 |
| Race/ethnicity | | | | | | |
| Black, non-Hispanic | 55 | 3.9 | 67.1 | 394 | 2.5 | 55.3 |
| White, non-Hispanic | 25 | 1.4 | 30.5 | 287 | 1.5 | 40.3 |
| Other, non-Hispanic | 2 | 2.0 | 2.4 | 18 | 1.9 | 2.5 |
| Hispanic | 0 | 0.0 | 0.0 | 13 | 0.8 | 1.8 |
| Cause group | | | | | | |
| SIDS | 18 | 0.5 | 22.0 | 200 | 0.5 | 28.1 |
| ASSB | 34 | 1.0 | 41.5 | 160 | 0.4 | 22.5 |
| Unknown | 30 | 0.9 | 36.6 | 352 | 1.0 | 49.4 |

Note:

Infant mortality (IM) rates calculated as per 1,000 births

Figure 4: SUID infant deaths by sex and race/ethnicity, Mississippi, 2013-2022

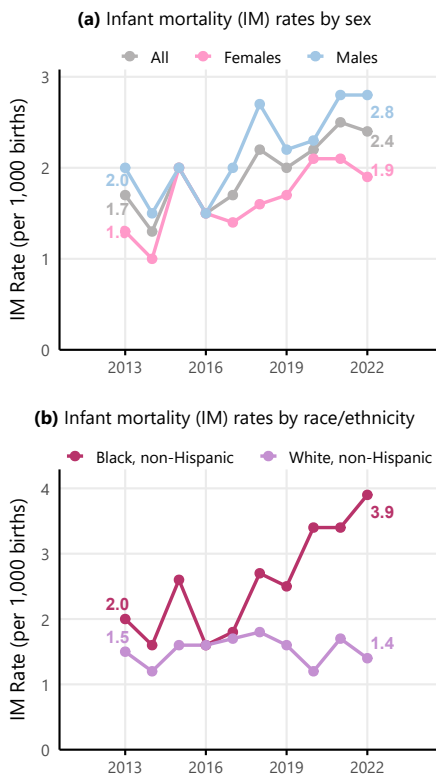
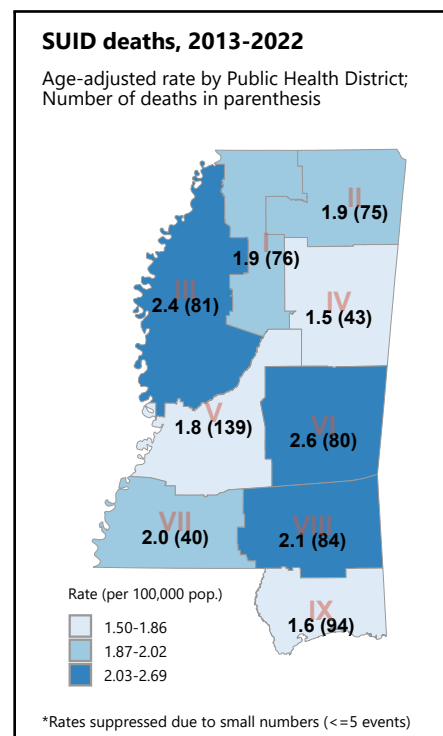


Figure 5: SUID infant deaths by Public Health District, 2013-2022



In 2022, Mississippi had the highest infant mortality rate in the US at 9.2 deaths per 1,000 births. Among Mississippi's 319 infant deaths in 2022, SUID deaths made up 25.7% (82 deaths) of total infant deaths.

Sudden unexpected infant deaths (SUID) include deaths due to sudden infant death syndrome (SIDS), accidental suffocation and strangulation in bed (ASSB), and other deaths from unknown causes. Among Mississippi's 2022 SUID deaths, SIDS accounted for 21.9% of deaths, ASSB accounted for 41.5%, and unknown causes made up the remaining 36.6%. Between 2013 and 2022, the SUID cause specific infant mortality rate increased by 41%. However, fluctuations between ASSB, SIDS, and unknown causes have been seen over the last ten years (Figure 1). These fluctuations may be due to physician training, increased awareness on SUID, and additional investigation reporting.

SUID deaths are defined using the following underlying cause of death ICD-10 codes: W75 (ASSB), R95 (SIDS), and R99 (unknown cause). The SUID rate is the combination of ASSB, SIDS, and unknown cause deaths. To learn more about SUID deaths, visit <https://www.cdc.gov/sids/data.htm>

Figure 6: Rates of Infant Mortality Caused by All SUID, SIDS, ASSB, and Unknown Causes, Mississippi, 2013-2022

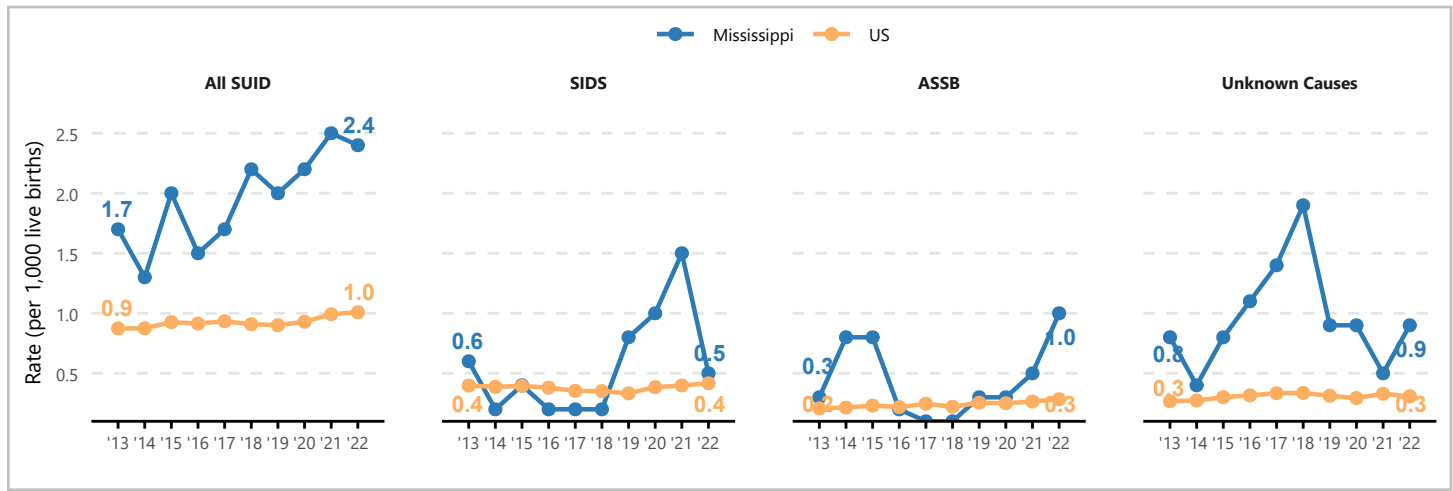


Table 6: Counts and Rates of Infant Mortality Caused by All SUID, SIDS, ASSB, and Unknown Causes, Mississippi, 2013-2022

| Year | ALL SUIDS | | | SIDS | | | ASSB | | | Unknown Causes | | |
|------|-----------|---------|---------|----------|---------|---------|----------|---------|---------|----------------|---------|---------|
| | MS Count | MS Rate | US Rate | MS Count | MS Rate | US Rate | MS Count | MS Rate | US Rate | MS Count | MS Rate | US Rate |
| 2013 | 65 | 1.7 | 0.9 | 23 | 0.6 | 0.4 | 13 | 0.3 | 0.2 | 29 | 0.8 | 0.3 |
| 2014 | 50 | 1.3 | 0.9 | 6 | 0.2 | 0.4 | 30 | 0.8 | 0.2 | 14 | 0.4 | 0.3 |
| 2015 | 76 | 2.0 | 0.9 | 15 | 0.4 | 0.4 | 30 | 0.8 | 0.2 | 31 | 0.8 | 0.3 |
| 2016 | 57 | 1.5 | 0.9 | 8 | 0.2 | 0.4 | 7 | 0.2 | 0.2 | 42 | 1.1 | 0.3 |
| 2017 | 64 | 1.7 | 0.9 | 8 | 0.2 | 0.4 | 3 | 0.1 | 0.2 | 53 | 1.4 | 0.3 |
| 2018 | 81 | 2.2 | 0.9 | 7 | 0.2 | 0.4 | 2 | 0.1 | 0.2 | 72 | 1.9 | 0.3 |
| 2019 | 72 | 2.0 | 0.9 | 28 | 0.8 | 0.3 | 12 | 0.3 | 0.3 | 32 | 0.9 | 0.3 |
| 2020 | 78 | 2.2 | 0.9 | 36 | 1.0 | 0.4 | 11 | 0.3 | 0.3 | 31 | 0.9 | 0.3 |
| 2021 | 87 | 2.5 | 1.0 | 51 | 1.5 | 0.4 | 18 | 0.5 | 0.3 | 18 | 0.5 | 0.3 |
| 2022 | 82 | 2.4 | 1.0 | 18 | 0.5 | 0.4 | 34 | 1.0 | 0.3 | 30 | 0.9 | 0.3 |

¹ US rates retrieved from CDC WONDER, July 2024;

² SUID deaths are defined using the following underlying cause of death ICD-10 codes: W75 (ASSB), R95 (SIDS), and R99 (unknown cause). The SUID rate is the combination of ASSB, SIDS, and unknown cause deaths.

Figure 7: Infant Mortality by Public Health District, 2013-2022

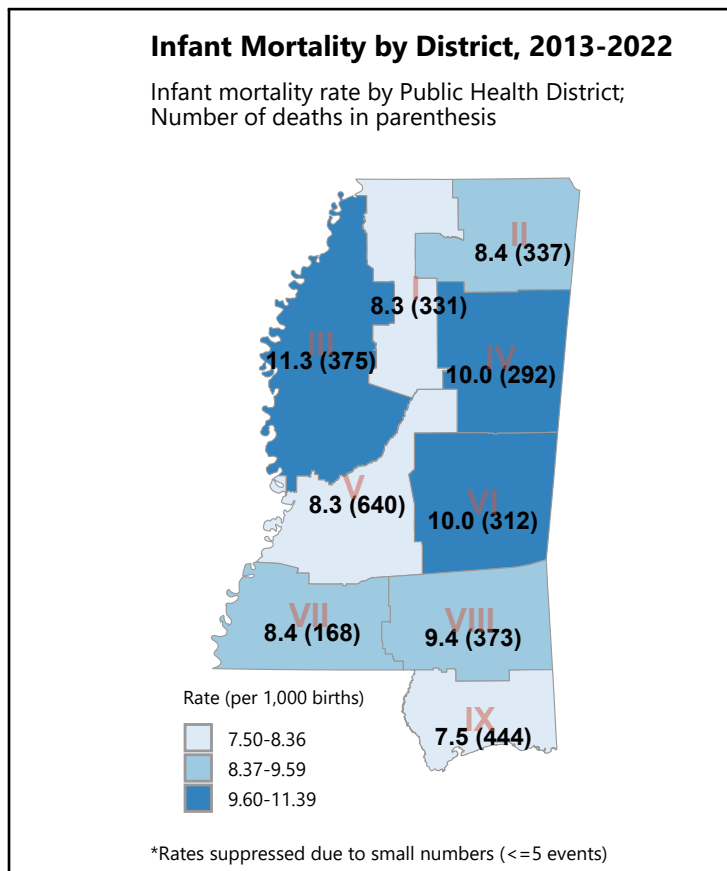
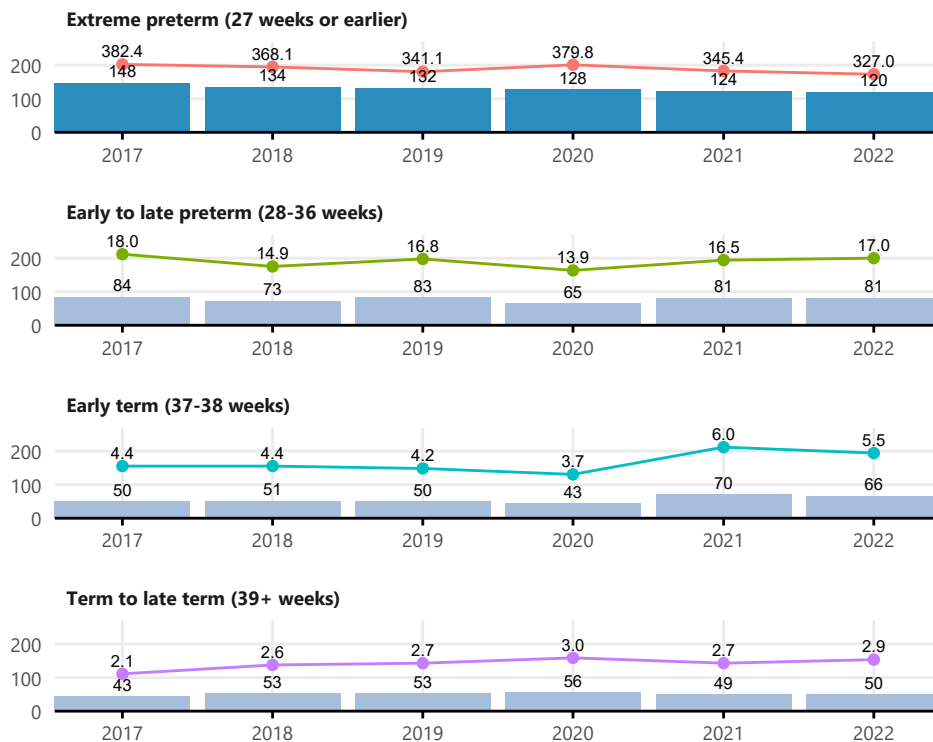


Figure 8: Infant mortality by gestational age at birth, 2017-2022

Counts and rates, 2013-2022
Year totals on bar; rate shown on line



NOTE: Case counts may be incomplete and are subject to change; Shaded region more likely to be incomp MSDH Office of Vital Records; Rates calculated as per 100,000 population

Table 7: Infant mortality by gestational age at birth, 2017-2022

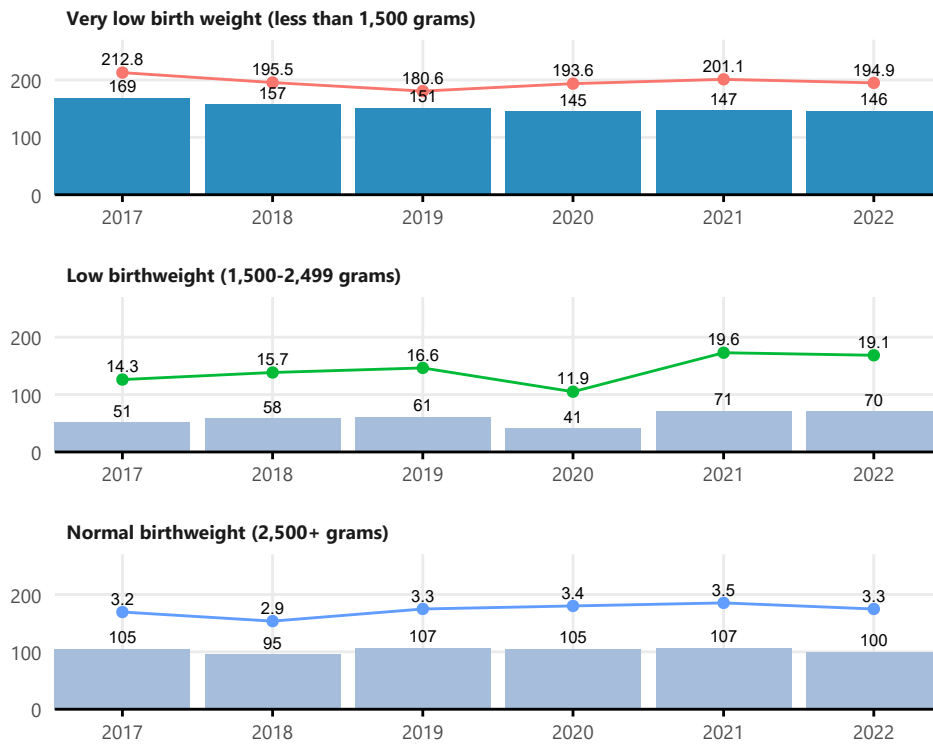
| Year | All | | Black, NH | | White, NH | | Other, NH | | Hispanic | |
|--|-------|-------|-----------|-------|-----------|-------|-----------|---------|----------|-------|
| | Count | Rate | Count | Rate | Count | Rate | Count | Rate | Count | Rate |
| Extreme preterm (27 weeks or earlier) | | | | | | | | | | |
| 2022 | 120 | 327.0 | 68 | 290.6 | 44 | 392.9 | 6 | 600.0 | 2 | 181.8 |
| 2021 | 124 | 345.4 | 79 | 323.8 | 38 | 391.8 | 5 | 833.3 | 2 | 166.7 |
| 2020 | 128 | 379.8 | 85 | 381.2 | 37 | 370.0 | 4 | 1,333.3 | 2 | 181.8 |
| 2019 | 132 | 341.1 | 90 | 350.2 | 35 | 309.7 | 1 | 166.7 | 6 | 545.5 |
| 2018 | 134 | 368.1 | 89 | 335.8 | 41 | 450.5 | 1 | 500.0 | 3 | 500.0 |
| 2017 | 148 | 382.4 | 106 | 389.7 | 38 | 365.4 | 0 | 0.0 | 3 | 500.0 |
| Early to late preterm (28-36 weeks) | | | | | | | | | | |
| 2022 | 81 | 17.0 | 43 | 18.6 | 33 | 15.4 | 3 | 27.0 | 2 | 10.3 |
| 2021 | 81 | 16.5 | 45 | 18.8 | 32 | 14.5 | 1 | 8.9 | 3 | 16.1 |
| 2020 | 65 | 13.9 | 37 | 15.8 | 25 | 12.3 | 1 | 9.0 | 2 | 10.1 |
| 2019 | 83 | 16.8 | 50 | 19.7 | 30 | 14.0 | 2 | 20.0 | 1 | 6.0 |
| 2018 | 73 | 14.9 | 40 | 16.2 | 31 | 14.2 | 1 | 12.2 | 1 | 5.7 |
| 2017 | 84 | 18.0 | 39 | 16.6 | 42 | 20.2 | 3 | 29.4 | 0 | 0.0 |
| Early term (37-38 weeks) | | | | | | | | | | |
| 2022 | 66 | 5.5 | 31 | 6.2 | 32 | 5.3 | 2 | 6.2 | 1 | 1.5 |
| 2021 | 70 | 6.0 | 33 | 6.6 | 26 | 4.5 | 8 | 24.7 | 3 | 5.2 |
| 2020 | 43 | 3.7 | 26 | 4.9 | 15 | 2.7 | 0 | 0.0 | 2 | 4.1 |
| 2019 | 50 | 4.2 | 18 | 3.3 | 29 | 5.0 | 2 | 6.6 | 1 | 1.9 |
| 2018 | 51 | 4.4 | 28 | 5.3 | 21 | 3.7 | 1 | 3.8 | 1 | 2.0 |
| 2017 | 50 | 4.4 | 26 | 5.0 | 19 | 3.5 | 4 | 12.8 | 1 | 1.9 |
| Term to late term (39+ weeks) | | | | | | | | | | |
| 2022 | 50 | 2.9 | 26 | 4.0 | 18 | 1.9 | 5 | 8.8 | 1 | 0.9 |
| 2021 | 49 | 2.7 | 27 | 3.9 | 22 | 2.2 | 0 | 0.0 | 0 | 0.0 |
| 2020 | 56 | 3.0 | 30 | 4.1 | 23 | 2.3 | 0 | 0.0 | 3 | 3.1 |
| 2019 | 53 | 2.7 | 27 | 3.6 | 22 | 2.1 | 2 | 3.5 | 2 | 2.0 |
| 2018 | 53 | 2.6 | 23 | 2.9 | 23 | 2.2 | 5 | 8.7 | 2 | 2.1 |
| 2017 | 43 | 2.1 | 18 | 2.2 | 23 | 2.1 | 1 | 1.7 | 1 | 1.0 |

Note:

Counts and corresponding rates for an event size of less than 20 should be interpreted with caution;
 Rate calculated as infant deaths per 1,000 live births within each specified race and condition tabulation

Figure 9: Infant mortality by gestational weight at birth, 2017-2022

Counts and rates, 2013-2022
Year totals on bar; rate shown on line



NOTE: Case counts may be incomplete and are subject to change; Shaded region more likely to be incompl MSDH Office of Vital Records; Rates calculated as per 100,000 population

Table 8: Infant mortality by gestational weight at birth, 2017-2022

| Year | All | | Black, NH | | White, NH | | Other, NH | | Hispanic | |
|---|-------|-------|-----------|-------|-----------|-------|-----------|-------|----------|-------|
| | Count | Rate | Count | Rate | Count | Rate | Count | Rate | Count | Rate |
| Very low birth weight (less than 1,500 grams) | | | | | | | | | | |
| 2022 | 146 | 194.9 | 80 | 170.9 | 56 | 224.0 | 8 | 727.3 | 2 | 100.0 |
| 2021 | 147 | 201.1 | 93 | 191.0 | 47 | 218.6 | 5 | 454.5 | 2 | 111.1 |
| 2020 | 145 | 193.6 | 90 | 186.7 | 48 | 206.0 | 4 | 363.6 | 3 | 130.4 |
| 2019 | 151 | 180.6 | 100 | 185.5 | 44 | 164.8 | 1 | 83.3 | 6 | 333.3 |
| 2018 | 157 | 195.5 | 105 | 191.6 | 47 | 203.5 | 2 | 285.7 | 3 | 176.5 |
| 2017 | 169 | 212.8 | 119 | 217.2 | 44 | 200.0 | 2 | 133.3 | 3 | 272.7 |
| Intermediate Low Birthweight (1,500-2,499 grams) | | | | | | | | | | |
| 2022 | 70 | 19.1 | 34 | 16.0 | 31 | 23.3 | 3 | 40.0 | 2 | 15.7 |
| 2021 | 71 | 19.6 | 36 | 17.2 | 28 | 21.0 | 5 | 60.2 | 2 | 19.6 |
| 2020 | 41 | 11.9 | 24 | 11.9 | 14 | 11.2 | 1 | 11.6 | 2 | 19.6 |
| 2019 | 61 | 16.6 | 42 | 19.3 | 18 | 13.7 | 1 | 12.8 | 0 | 0.0 |
| 2018 | 58 | 15.7 | 28 | 13.0 | 27 | 19.6 | 1 | 14.5 | 2 | 19.8 |
| 2017 | 51 | 14.3 | 21 | 10.3 | 29 | 21.6 | 1 | 13.9 | 0 | 0.0 |
| Normal birth weight (2,500+ grams) | | | | | | | | | | |
| 2022 | 100 | 3.3 | 53 | 4.6 | 40 | 2.5 | 5 | 5.4 | 2 | 1.1 |
| 2021 | 107 | 3.5 | 56 | 4.7 | 43 | 2.6 | 4 | 4.6 | 4 | 2.4 |
| 2020 | 105 | 3.4 | 63 | 5.0 | 38 | 2.3 | 0 | 0.0 | 4 | 2.6 |
| 2019 | 107 | 3.3 | 44 | 3.4 | 54 | 3.2 | 5 | 5.6 | 4 | 2.5 |
| 2018 | 95 | 2.9 | 46 | 3.5 | 42 | 2.5 | 5 | 5.9 | 2 | 1.3 |
| 2017 | 105 | 3.2 | 49 | 3.6 | 49 | 2.9 | 5 | 5.5 | 2 | 1.3 |

Note:
Counts and corresponding rates for an event size of less than 20 should be interpreted with caution;
Rate calculated as infant deaths per 1,000 live births within each specified race and condition tabulation

Selected Maternal morbidity characteristics

Table 9: 2022 infant mortality by selected maternal morbidity characteristic at birth, 2017-2022

| Maternal Characteristic | All | | Black, NH | | White, NH | | Other, NH | | Hispanic | |
|---------------------------------|-------|------|-----------|------|-----------|------|-----------|-------|----------|------|
| | Count | Rate | Count | Rate | Count | Rate | Count | Rate | Count | Rate |
| Gestational Hypertension | 42 | 12.0 | 26 | 18.3 | 16 | 8.6 | 0 | 0.0 | 0 | 0.0 |
| Gestational Diabetes | 8 | 4.2 | 3 | 4.8 | 4 | 3.6 | 1 | 11.9 | 0 | 0.0 |
| Eclampsia | 1 | 12.0 | 0 | 0.0 | 1 | 25.0 | 0 | 0.0 | 0 | 0.0 |
| Obesity | 132 | 9.4 | 82 | 12.2 | 44 | 7.0 | 5 | 14.7 | 1 | 1.6 |
| Previous Pregnancy | 33 | 22.2 | 23 | 30.6 | 7 | 11.1 | 3 | 85.7 | 0 | 0.0 |
| Syphilis | 6 | 21.2 | 3 | 15.1 | 2 | 28.2 | 1 | 166.7 | 0 | 0.0 |
| Total Infant Deaths | 319 | 9.2 | 170 | 12.1 | 127 | 7.2 | 16 | 15.9 | 6 | 3.1 |

Note:

Counts and corresponding rates for an event size of less than 20 should be interpreted with caution;

Rate calculated as infant deaths per 1,000 live births within each specified race and condition tabulation

Table 10: Infant mortality by selected maternal morbidity characteristic at birth, 2017-2022

| Year | All | | Black, NH | | White, NH | | Other, NH | | Hispanic | |
|----------------------------------|-------|------|-----------|-------|-----------|------|-----------|------|----------|-------|
| | Count | Rate | Count | Rate | Count | Rate | Count | Rate | Count | Rate |
| Gestational hypertension | | | | | | | | | | |
| 2022 | 42 | 12.0 | 26 | 18.3 | 16 | 8.6 | 0 | 0.0 | 0 | 0.0 |
| 2021 | 37 | 10.3 | 24 | 16.2 | 10 | 5.2 | 0 | 0.0 | 3 | 25.6 |
| 2020 | 31 | 9.8 | 22 | 16.2 | 8 | 4.9 | 1 | 13.7 | 0 | 0.0 |
| 2019 | 22 | 7.0 | 11 | 8.0 | 10 | 6.0 | 1 | 15.6 | 0 | 0.0 |
| 2018 | 22 | 8.3 | 11 | 10.1 | 10 | 7.0 | 0 | 0.0 | 1 | 12.2 |
| 2017 | 16 | 6.5 | 4 | 4.0 | 12 | 9.0 | 0 | 0.0 | 0 | 0.0 |
| Gestational diabetes | | | | | | | | | | |
| 2022 | 8 | 4.2 | 3 | 4.8 | 4 | 3.6 | 1 | 11.9 | 0 | 0.0 |
| 2021 | 8 | 4.2 | 4 | 6.3 | 4 | 3.8 | 0 | 0.0 | 0 | 0.0 |
| 2020 | 9 | 5.4 | 8 | 13.7 | 1 | 1.1 | 0 | 0.0 | 0 | 0.0 |
| 2019 | 3 | 2.0 | 1 | 1.9 | 2 | 2.5 | 0 | 0.0 | 0 | 0.0 |
| 2018 | 5 | 3.6 | 2 | 4.1 | 3 | 4.0 | 0 | 0.0 | 0 | 0.0 |
| 2017 | 7 | 4.9 | 3 | 6.4 | 3 | 3.8 | 1 | 11.0 | 0 | 0.0 |
| Eclampsia | | | | | | | | | | |
| 2022 | 1 | 12.0 | 0 | 0.0 | 1 | 25.0 | 0 | 0.0 | 0 | 0.0 |
| 2021 | 2 | 31.7 | 2 | 55.6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2020 | 2 | 21.3 | 1 | 21.7 | 1 | 22.7 | 0 | 0.0 | 0 | 0.0 |
| 2019 | 12 | 60.0 | 9 | 101.1 | 2 | 20.0 | 0 | 0.0 | 1 | 142.9 |
| 2018 | 5 | 33.3 | 4 | 59.7 | 1 | 12.7 | 0 | 0.0 | 0 | 0.0 |
| 2017 | 1 | 8.5 | 1 | 18.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Obesity | | | | | | | | | | |
| 2022 | 132 | 9.4 | 82 | 12.2 | 44 | 7.0 | 5 | 14.7 | 1 | 1.6 |
| 2021 | 148 | 10.7 | 97 | 14.1 | 43 | 7.0 | 6 | 20.5 | 2 | 3.5 |
| 2020 | 142 | 10.2 | 96 | 13.6 | 41 | 6.8 | 2 | 6.9 | 3 | 5.9 |
| 2019 | 145 | 10.7 | 92 | 13.0 | 46 | 8.0 | 3 | 11.2 | 4 | 7.8 |
| 2018 | 136 | 10.2 | 89 | 12.7 | 37 | 6.6 | 4 | 16.5 | 6 | 12.4 |
| 2017 | 139 | 10.6 | 96 | 13.9 | 38 | 7.0 | 4 | 16.1 | 1 | 2.1 |
| Previous preterm delivery | | | | | | | | | | |
| 2022 | 33 | 22.2 | 23 | 30.6 | 7 | 11.1 | 3 | 85.7 | 0 | 0.0 |
| 2021 | 40 | 25.9 | 27 | 36.0 | 10 | 14.5 | 2 | 41.7 | 1 | 17.2 |

| | | | | | | | | | | |
|----------------------------|-----|------|-----|------|-----|------|----|-------|----|------|
| 2020 | 16 | 10.2 | 10 | 12.8 | 5 | 7.3 | 0 | 0.0 | 1 | 14.5 |
| 2019 | 22 | 15.7 | 14 | 20.4 | 6 | 9.7 | 0 | 0.0 | 2 | 38.5 |
| 2018 | 26 | 19.7 | 19 | 29.6 | 6 | 10.3 | 1 | 23.8 | 0 | 0.0 |
| 2017 | 30 | 21.1 | 17 | 24.3 | 10 | 15.5 | 2 | 55.6 | 1 | 22.7 |
| Syphilis | | | | | | | | | | |
| 2022 | 6 | 21.2 | 3 | 15.1 | 2 | 28.2 | 1 | 166.7 | 0 | 0.0 |
| 2021 | 1 | 4.6 | 1 | 6.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2020 | 2 | 11.1 | 1 | 7.6 | 1 | 26.3 | 0 | 0.0 | 0 | 0.0 |
| 2019 | 2 | 15.7 | 2 | 20.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2018 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2017 | 3 | 62.5 | 3 | 75.0 | 0 | 0.0 | 0 | 0.0 | 0 | NaN |
| Total Infant Deaths | | | | | | | | | | |
| 2022 | 319 | 9.2 | 170 | 12.1 | 127 | 7.2 | 16 | 15.9 | 6 | 3.1 |
| 2021 | 327 | 9.3 | 185 | 12.7 | 120 | 6.7 | 14 | 14.5 | 8 | 4.6 |
| 2020 | 293 | 8.3 | 179 | 11.8 | 100 | 5.7 | 5 | 5.0 | 9 | 5.4 |
| 2019 | 322 | 8.8 | 186 | 11.8 | 119 | 6.5 | 7 | 7.2 | 10 | 5.9 |
| 2018 | 312 | 8.4 | 180 | 11.4 | 117 | 6.3 | 8 | 8.7 | 7 | 4.2 |
| 2017 | 326 | 8.7 | 190 | 11.8 | 122 | 6.5 | 8 | 8.0 | 5 | 3.0 |

Note:

Counts and corresponding rates for an event size of less than 20 should be interpreted with caution;
Rate calculated as infant deaths per 1,000 live births within each specified race and condition tabulation

FINDINGS



MSDH

Introduction & Background

According to Health Department records, Mississippi first recorded infant mortality data in 1917. There were 3,689 infant deaths in 1917; 1,296 were White and 2393 were non-White. The infant mortality rate was 99.3 per one thousand births. In 1918, no data was recorded, and only partial data was recorded a year later. From 1920 until now, the data has always shown a higher infant mortality rate for Black versus White babies. The overall number of infant deaths have decreased significantly from 3,689 in 1917 to 319 in 2022. Remarkably, the lowest number of black infant deaths noted since 1920 was recorded at 170 in 2022.

Unfortunately, Mississippi's infant mortality was still the worst in the nation in 2022.

This report includes the most recent data concerning infant mortality in our state. The report pinpoints the most troubled regions of our state. Public Health District III in the Delta region of the state has a Black infant mortality rate of 20 per one thousand and a White infant mortality rate of 9.9 per one thousand. Public Health District VI in the East Central part of the state has a 10.3 infant mortality rate for White babies and a 10.7 rate for Black babies.

This report also shows that there were 68 deaths of Black babies born at less than 27 weeks gestation and 44 deaths of White babies born at less than 27 weeks gestation. In total, 120 babies died who were born at less than 27 weeks at birth in Mississippi. Some died in the hospital and some died after discharge. But this group represents thirty eight percent of infant mortality in Mississippi and is worth targeting for hospital care and care following discharge.

Finally, this report points to the many aspects of poor maternal health that affect infant mortality. Of the 319 infant deaths, 132 had mothers noted to be obese at birth, almost 41%. Obesity often leads to hypertension and diabetes which are other significant risk factors for infant mortality. Preconception health will reduce infant mortality in the long run more effectively than any neonatal intensive care unit. Preconception health starts with learning about good nutrition and getting regular healthcare. Supporting maternal health and providing education about safe sleep at home and in childcare will be important ways to improve infant mortality.

Randy Henderson, MD

Chair and Neonatologist, Southern Mississippi Neonatology

CHILD DEATH REVIEW PANEL

FINDINGS AMONG 2021 AND 2022 INFANT DEATHS REVIEWED

Introduction:

The Mississippi Child Death Review Panel (CDRP) was established by House Bill 560 and became effective July 1, 2006. The intent of the legislation is to foster the reduction of infant and child mortality and morbidity in Mississippi and to improve the health status of infants and children. The review of these fatalities provides insight on factors that lead to the death, trends of behavior pattern, increases or decreases in the number of causes of death, and gaps in systems and policies that hinder the safety and well-being of Mississippi's children. Through the review process, the CDRP develops recommendations on how to most effectively direct state and other resources to decrease infant and child deaths in Mississippi.

Child Death Review Process:

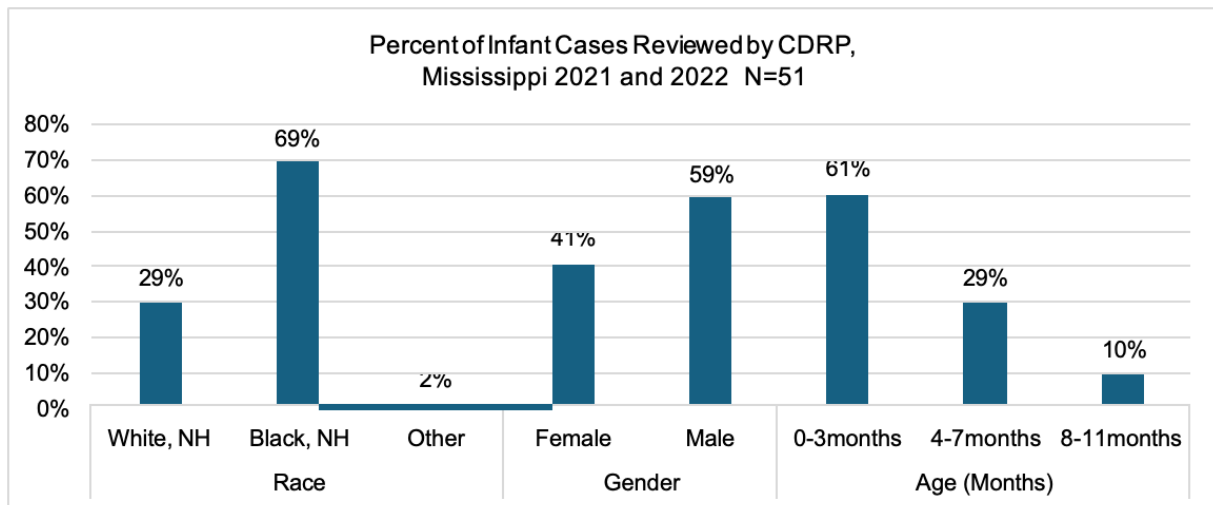
The CDRP reviews all child deaths due to external causes (non-natural causes of death) from birth to 17 years. This excludes child deaths due to cancer, congenital anomalies, prematurity, and communicable diseases. Causes of death categorized as "undetermined/unknown" are also reviewed if external causes cannot be ruled out. Most cases reviewed are residents of Mississippi; however, non-Mississippi residents are reviewed if the incident and/ or death occurred in Mississippi and necessary records can be obtained. Child death cases are provided by the Mississippi State Department of Health's Office of Vital Records and Public Health Statistics by the calendar year of death. The cases are categorized by external cause of death such as accident, homicide, suicide, undetermined, and pending investigation. Cases with causes of death indicating injury or actions that lead directly to the death, or circumstances of an accident that produced the fatal injury are selected for review. These selected cases largely fall into the following causes of death: Sudden Unexpected Infant Death (SUID), Sudden Infant Death Syndrome (SIDS), motor vehicle accidents, homicides, suicides, fire-related, drowning, and other. The category of "other" includes incidents for which a small number of cases appear in that calendar year. Cases are prepared for panel review by gathering death investigation reports, SUID investigation forms, autopsy reports, toxicology reports, police reports, and any other documents that can clearly demonstrate the sequence of events that led to the death. Each case is reviewed individually by a panel member who is responsible for presenting the case summary to the panel at large for further discussion. It is through this process that the panel develops recommendations to decrease the number of infant and child fatalities. Lack of documentation is one of greatest hindrances to the efficiency of the CDRP. The CDRP depends on thoroughly, timely, and accurate reports to assess the circumstances that led to a child's death. Without this information, the CDRP is not able to fully execute its duties.

Purpose and Data Sources:

This annual report provides an overview of the cases reviewed by the CDRP and recommendations made by the Panel. This report is compiled using Mississippi Vital Statistics and the National Fatality Review Case Reporting System. The National Fatality Review Case Reporting System assists the CDRP with tracking trends and risk behaviors in the cases reviewed. The following summarizes infant deaths occurring in 2021 and 2022, which were reviewed by the CDRP.

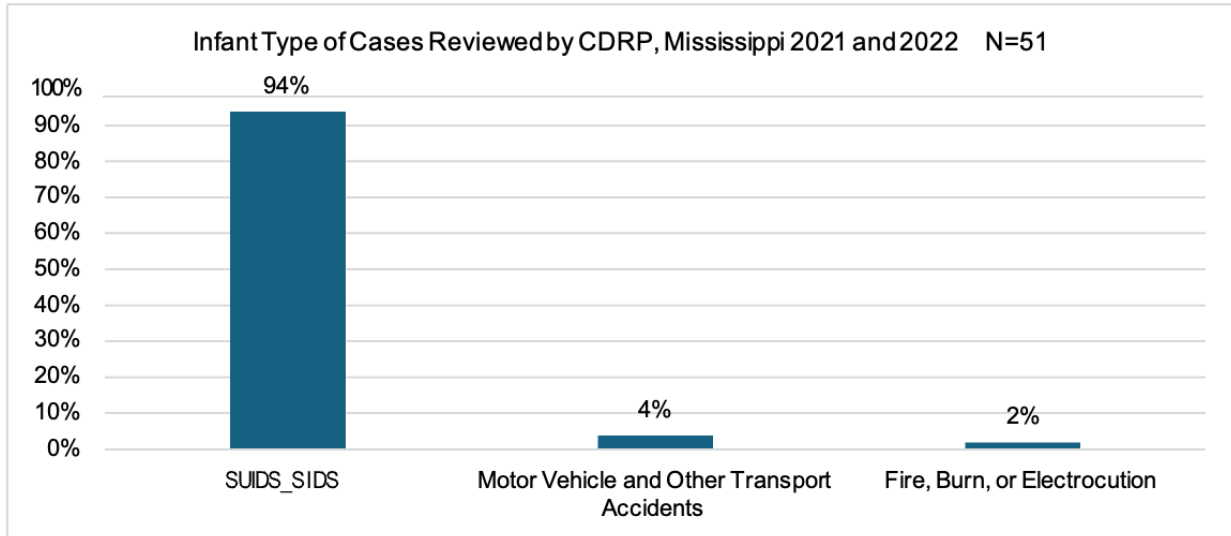
The Child Death Review Panel reviewed a subset of 51 deaths among infants who died in 2021 and 2022 across five meetings in CY2024. The selection of cases reviewed was largely influenced by the overall number of deaths in a category and the availability of information related to the death (i.e., autopsy, toxicology, law enforcement reports, witness reports, Sudden Unexpected Infant Death Investigation (SUIDI) forms, etc.)

Among the 51 infant deaths reviewed by the CDRP, 15 (29%) cases were White, NH, 35 (69%) cases were Black, NH, and 1 (2%) case reviewed listed 'Other' as their race. By age in months, 31 (61%) cases were 0-3 months, 15 (29%) cases were 4-7 months, and 5 (10%) cases were 8-11 months. Twenty-one cases (41%) were female, and 30 cases (59%) were male.



Manner and Cause of Death

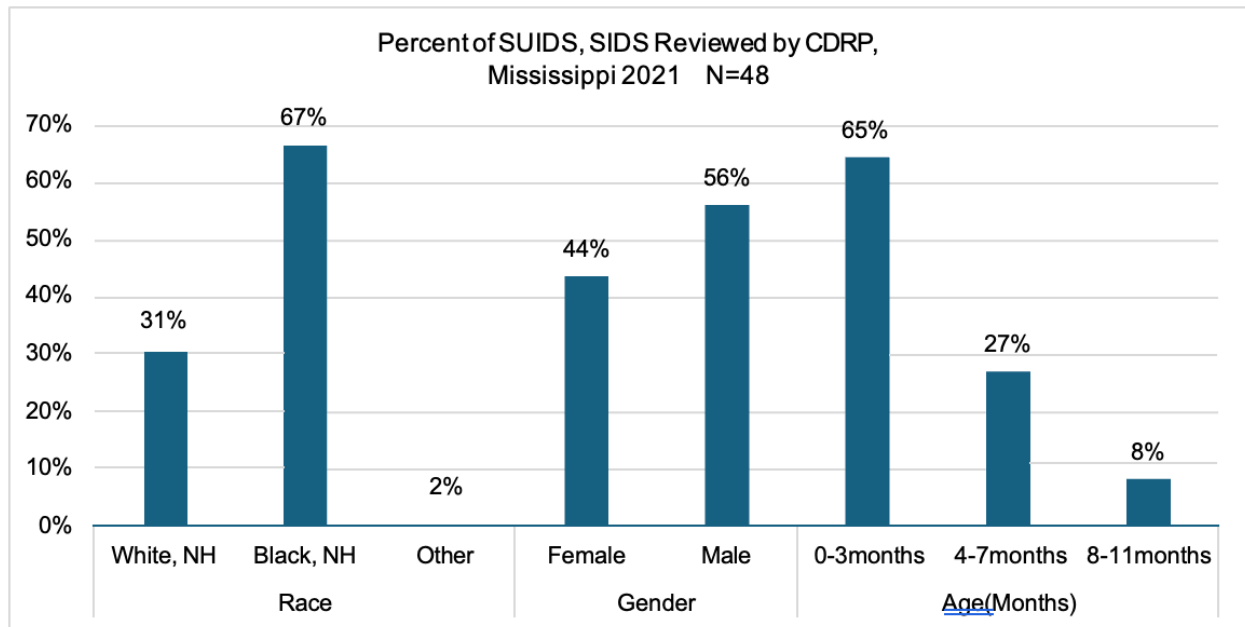
Of the 51 cases reviewed by the CDRP, 48 (94%) were Sudden Unexpected Infant Death cases, 2 cases (4%) were Motor Vehicle and Other Transport -related deaths, and 1 case (2%) was Fire, Burn, or Electrocution death.



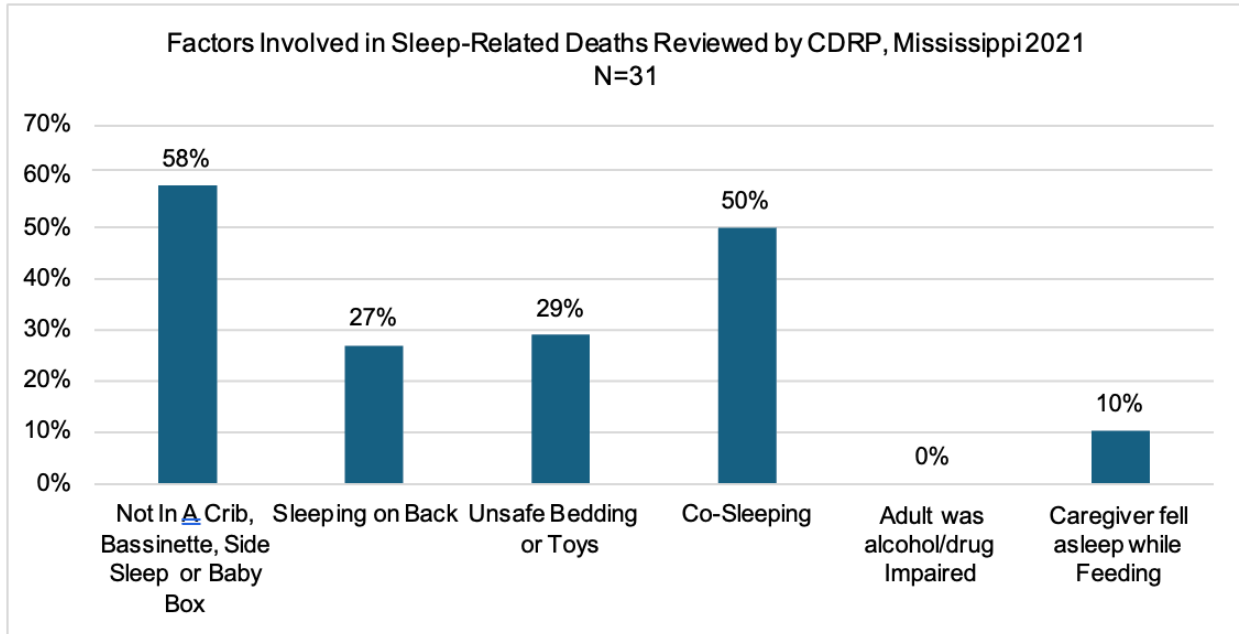
Infant Deaths: Sudden Unexpected Infant Death and Sudden Infant Death Syndrome

Among the 51 infant deaths reviewed, 48 were classified as Sudden Unexpected Infant Death (SUID). SUID is a term used to describe the sudden and unexpected death of an infant less than 1 year old in which the cause is not known before investigation. SUID deaths often occur in the sleep environment or during sleep. SUID deaths fall into three major causes of death: undetermined, Sudden Infant Death Syndrome (SIDS), or accidental suffocation or asphyxiation.

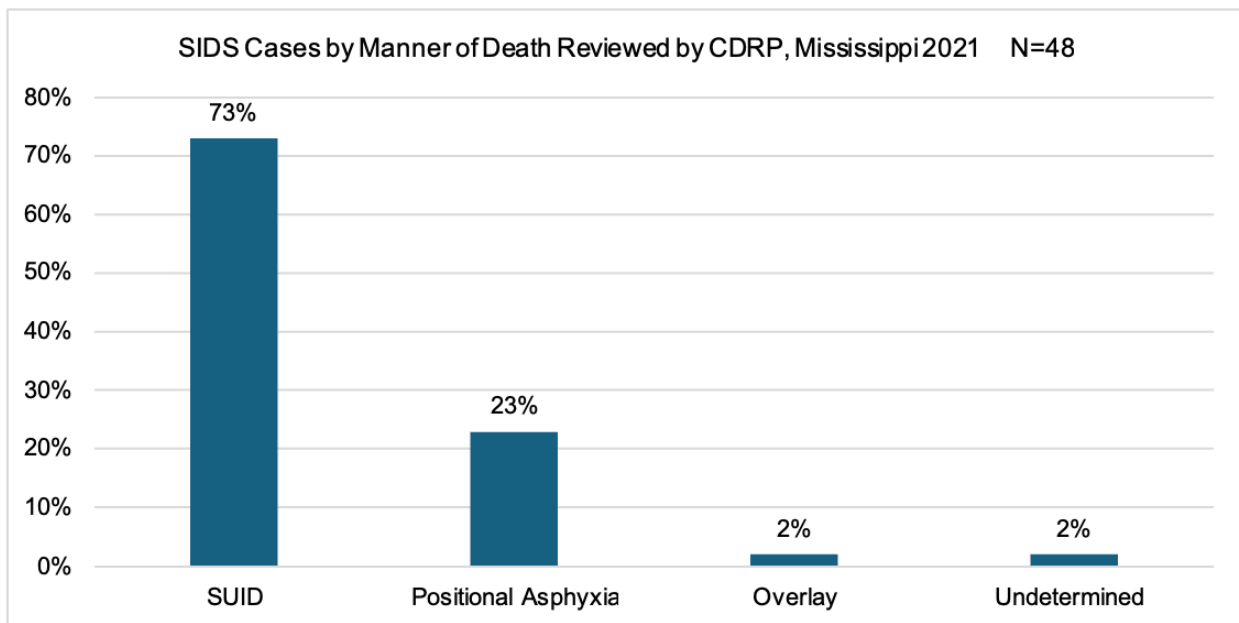
Of the 48 SUID cases reviewed by the CDRP, 15 (31%) cases were White, NH, 32 (67%) cases were Black, NH, and 1 (2%) case reviewed listed 'Other' as their race. By age in months, 31 (65%) cases were 0-3 months, 13 (27%) cases were 4-7 months, and 4 (8%) cases were 8-11 months. 21 cases (44%) were female, and 27 cases (56%) were male



Of the 48 cases reviewed, 31 (65%) were found to have sleep environment related factors. Among sleep-related factors, 28 (58%) were not sleeping in a crib, bassinette, side sleeper, or baby box, 13 (27%) were not sleeping on their back, 14 (29%) had unsafe bedding or toys in the sleeping area, 24 (50%) were co-sleeping with other people (including adult caregivers or siblings) in an adult bed, couch, or recliner, and 5 (10%) cases had the caregiver/supervisor to fall asleep due to tiredness or while feeding (including bottle and breast feeding) while co-sleeping. Unsafe sleep practices (infants not sleeping alone, on their back, or in a crib, bassinet, or pack n' play) continue to be a contributing factor of sudden unexpected infant deaths.



By manner of death, 35 (73%) included SUID as the immediate cause of death; 11 (23%) cases were caused by positional asphyxia; 1 (2%) was undetermined and 1 (2%) case was due to overlay.



Note: This report only contains data for 2021 SUID cases reviewed by the CDRP. SUID deaths which occurred in 2022 remain under review by the CDRP at the time of publication of this report. A report revision will be released to include 2022 SUID death data when the CDRP has completed reviews.

Motor Vehicle and Other Transport Accidents

There were 2 MVA and transport-related infant deaths in 2021 that the CDRP reviewed. Both cases were Black, NH, infants, both male and 1 case was 4-7 months and the other case was 8-11 months. Both were passengers, 1 case occurred on a country road and the other case occurred on a highway.

Fire, Burn, or Electrocution

The CDRP only reviewed 1 infant Fire, Burn, or Electrocution death from 2021. The case was a Black, NH, Male, ages 4-6 months and occurred in a trailer/mobile home.

RECOMMENDATIONS



CHILD DEATH REVIEW PANEL RECOMMENDATIONS FOR PREVENTING INFANT DEATHS

The Child Death Review Panel makes the following recommendations to the Chairmen of the House Public Health and Human Services Committee and the Senate Public Health and Welfare Committee, as well as others engaged in caring for and supporting infants.

- The best way to reduce infant mortality is to improve maternal health. Promoting preconception health and providing obstetric care early in pregnancy will reduce infant mortality. Presumptive eligibility for Medicaid mothers would result in care up to 6 weeks earlier in the pregnancy and would likely reduce infant mortality. Included in this would be assuring that pregnant women received necessary syphilis screening and treatment as promptly as possible, and assessing and referring pregnant women for appropriate substance use treatments.
- Women with high-risk pregnancies should be referred for additional medical and nonmedical support, such as remote patient monitoring, high-risk case management, mental health support, tobacco cessation, and nutritional support.
- Educating parents and infant caregivers about the dangers of co-sleeping will have an immediate impact on infant mortality by reducing the incidence of SUID. Most of our first time parents, and many repeat parents, as well as grandparents, need education about safe sleep. A sustained campaign to educate infant caregivers through media during prenatal care and at discharge would be well worth the investment. Mass media campaigns focused on realistic and safe approaches to help put babies to sleep.
- Coroners should be required to fill out SUIDI forms which would require an appropriate death scene investigation; they are not doing this consistently or completely.
- Mississippi's perinatal system needs incentives for obstetricians to get high risk mothers to a full-service delivery hospital with an NICU if a preterm baby is expected. Reimbursement for obstetricians who decide to transfer mothers to ensure appropriate NICU care should be considered.
- Mississippi's perinatal system should plan outreach education so that all delivering hospitals have trained staff to handle emergent preterm or complicated term deliveries such as placental abruption. This educational outreach should be coordinated between the state and our only children's hospital. Such knowledge will reduce infant mortality.
- Mississippi's referral pattern for mothers and babies should be strengthened and reviewed for each part of the state so that mothers and babies deliver where there is a chance for the best outcome. Like the trauma system, this referral pattern may rely on out of state partners in Memphis, Mobile, and New Orleans. The State Department of Health should track maternal transports and neonatal transports. The goal is to have mothers deliver in the right place to avoid neonatal transports at birth that are associated with higher mortality and morbidity, seeing more maternal transports and fewer neonatal transports.

- The State Department of Health should track neonatal mortality by NICU and work to improve care statewide. The Mississippi Perinatal Quality Collaborative (MSPQC) should work closely with the Child Death Review Panel, the Fetal Infant Mortality Review Programs, and the MSDH Maternal and Infant Health Bureau to improve collaboration and infant health outcomes statewide.
- Hospitals, law enforcement agencies, and others involved in the pre-mortem or post-mortem response to a child or infant death should be required to release all relevant information to the Child Death Review Panel and its administrative agents to assure comprehensive reviews can be conducted.
- The State Department of Health should operationalize Fetal and Infant Mortality Review Programs throughout the state, notably in public health districts with the highest infant mortality rates. Other agencies or organizations charged with carrying out FIMR programs should assure they prioritize this work, partnering with MSDH to support them in doing so. These FIMR groups will provide valuable recommendations on the local level to improve care.
- The State Department of Health should create a committee of physicians including geneticists, neonatologists, pediatric intensivists, and general pediatricians to review the infant mortality statistics each year. The department should provide resources for this committee and support staff.



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