

South Dakota Infant Mortality Analysis – 2024

(Provisional Data)

OVERVIEW

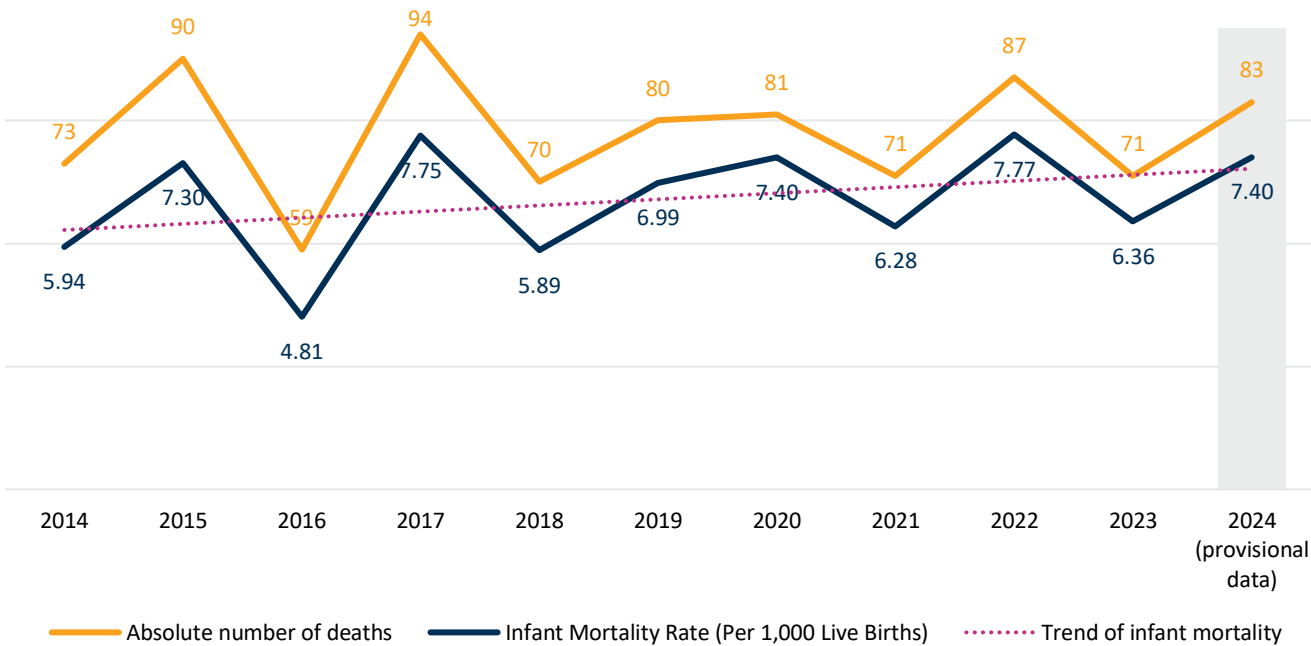
This report analyzes provisional 2024 infant mortality data in South Dakota, comparing it with trends and causes of death from the past decade (2014–2023). The 2024 data highlight a concerning stability in infant mortality rates: *the curve has remained unchanged over the past 11 years*. Moreover, preventable causes like congenital malformations, unsafe sleep environments, and modifiable risk factors (such as maternal smoking) continue to present opportunities for meaningful intervention.

To truly make a difference, South Dakota must take bold steps to address the root causes of infant mortality. By prioritizing early detection of congenital malformations, expanding the reach and scope of the newborn screening program, continuing to educate families on safe sleep practices, and enhancing maternal health initiatives, we can create impactful change.

All data for 2024 should be considered provisional and subject to revision.

Figure 1: Infant mortality in SD: absolute number of cases and rates, 2024 versus previous decade.

The graph below displays the number of infant deaths, infant mortality rates (deaths per 1,000 live births), and a trend line illustrating the overall direction of the mortality rate over the last decade.

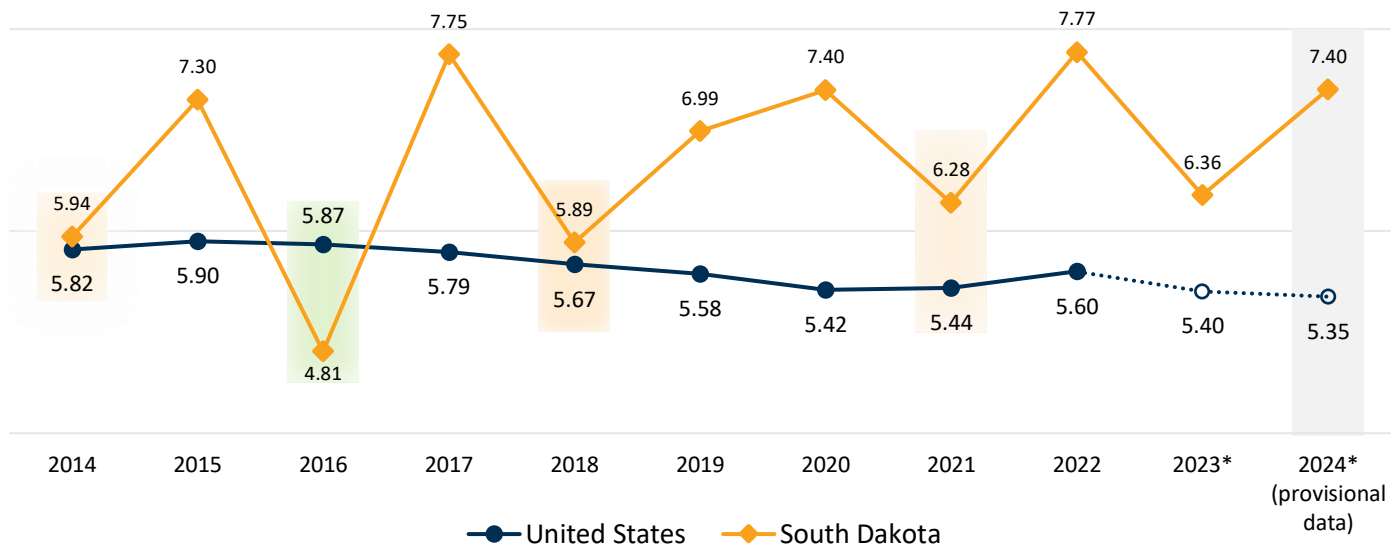


KEY FINDINGS

- Infant mortality rates in South Dakota have ranged from 4.8 per 1,000 live births in 2016 to 7.8 in 2017 and 2022, with a slow increase over the past decade, as shown by the trend line.
- We ran statistical tests to verify if the trend indicates a “true” increase. The results showed a positive slope (0.099), but the p-value (0.287) was *not* statistically significant – the observed trend could be due to random fluctuations rather than a meaningful long-term increase.
- In other words, it is very likely that **Infant Mortality has remained stable in South Dakota for the past 11 years.**

- The lack of progress in South Dakota's infant mortality rates during this period is deeply concerning. South Dakota's rates consistently exceed the national average, and while national rates have shown a modest decline over time, South Dakota's rates have remained stable.
- The graph below displays South Dakota's infant mortality rates compared to those of the United States.
- Over the past 11 years, South Dakota's infant mortality rate has consistently exceeded the national average, though not always at a statistically significant level. In 2017, the difference between South Dakota and the U.S. was statistically significant ($p < 0.05$), indicating a true excess in mortality. In 2015 and 2016, the differences were marginally significant ($0.05 < p < 0.1$), suggesting possible trends worth further monitoring. In most other years—including 2014, 2018, and 2024—the differences were not statistically significant ($p > 0.1$), meaning the observed gaps could be due to random variation.
- Despite year-to-year variability, South Dakota's long-term trend has not shown statistically significant improvement, while national rates have slowly declined. These findings reinforce the need for sustained, data-driven interventions to reduce preventable infant deaths in the state.
- Compared to the country's performance, South Dakota has made no measurable progress to reduce infant mortality.

Figure 2: Infant mortality rates: SD versus the United States, 2014-2024¹.



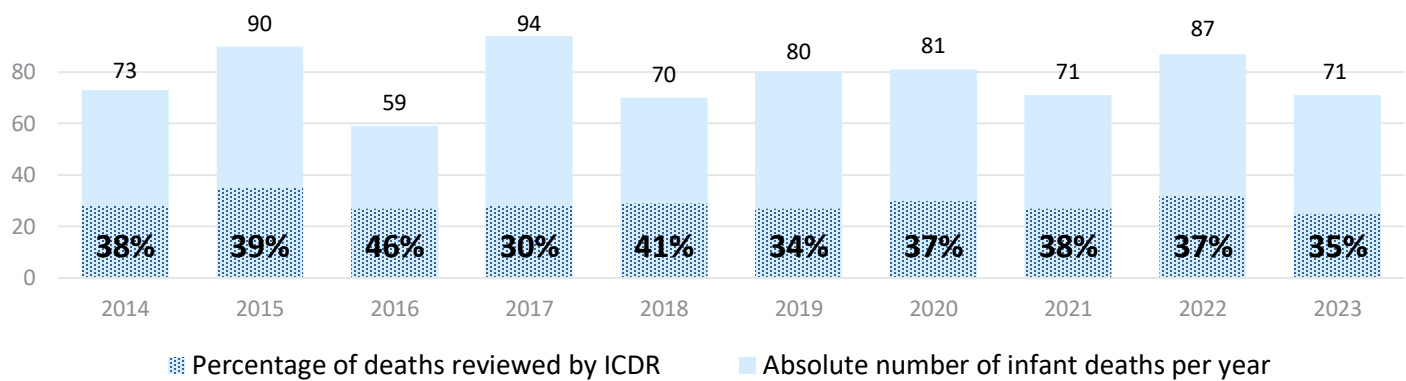
- As the graph above demonstrates, except for 2016, our rates persistently exceeded the Healthy People target of 5.0 infant deaths per 1,000 live births. This persistent gap underscores the urgent need for targeted interventions and a renewed focus on addressing the underlying factors contributing to these elevated rates.

SOUTH DAKOTA WORK TO INVESTIGATE INFANT DEATHS: THE INFANT AND CHILD DEATH REVIEW COMMITTEES (ICDR)

- South Dakota has been reviewing infant deaths since 2012, initially focusing on infants before expanding to include child deaths. The state now has two Infant and Child Death Review (ICDR) committees, one on each side of the river.
- These committees do not review cases where infants were born, hospitalized, and never discharged before passing away. The goal of ICDR is to gather detailed information to assess preventability and recommend interventions to reduce future deaths. From 2014 to 2023, 288 of 776 infant deaths (37.1%) met the criteria for review. This percentage does not include 2024 deaths, as ICDR reviews for the year are ongoing.

¹ National infant mortality rates for 2023 and 2024 are not yet available. Rates displayed are estimated projections (what those rates will probably be) based on the last 20 years of live births and infant deaths counts.

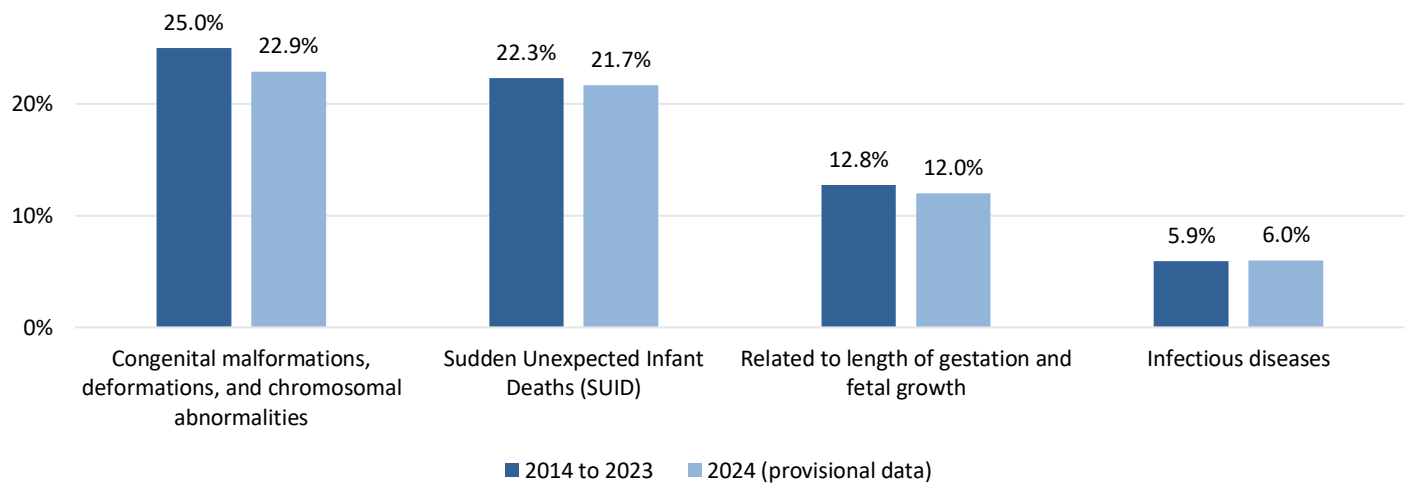
Figure 3: percentage of infant deaths reviewed by the ICDR committees *versus* all SD infant deaths: 2019-2023.



CAUSES OF DEATH

As noted in the following graph, there haven't been any meaningful changes in the top four causes of death in 2024 when compared to the previous decade.

Figure 4: Leading causes of infant death in South Dakota: 2024 compared to previous decade.



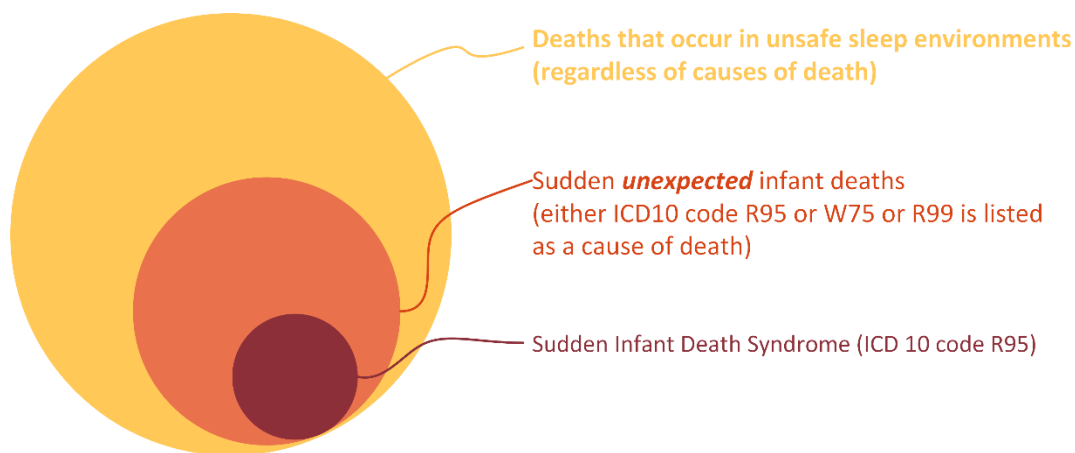
Congenital malformations:

- Congenital malformations, also known as birth defects, are structural or functional abnormalities that develop in the womb and are present at birth. These anomalies can affect nearly any part of the body, including the heart, brain, limbs, digestive system, and chromosomes.
- Some congenital anomalies are mild and have little impact on health, while others cause severe disabilities or result in early infant death.
- In South Dakota, congenital malformations remain the leading cause of infant mortality, accounting for **23%** of all infant deaths in 2024, consistent with the ~25% average over the past decade.
- Over the past decade, approximately 78% of deaths due to congenital malformations occurred after the neonatal period, emphasizing the need for continued detection and coordinated care beyond birth.
- While historically viewed as difficult to prevent, advances in early detection, targeted education, and coordinated care offer increasing opportunities to improve outcomes.

- **Opportunities for Intervention:** The newborn screening program is a key strategy for early detection. Expanding screening scope and strengthening follow-up care can improve identification and management of congenital conditions, potentially reducing infant mortality and long-term impacts.

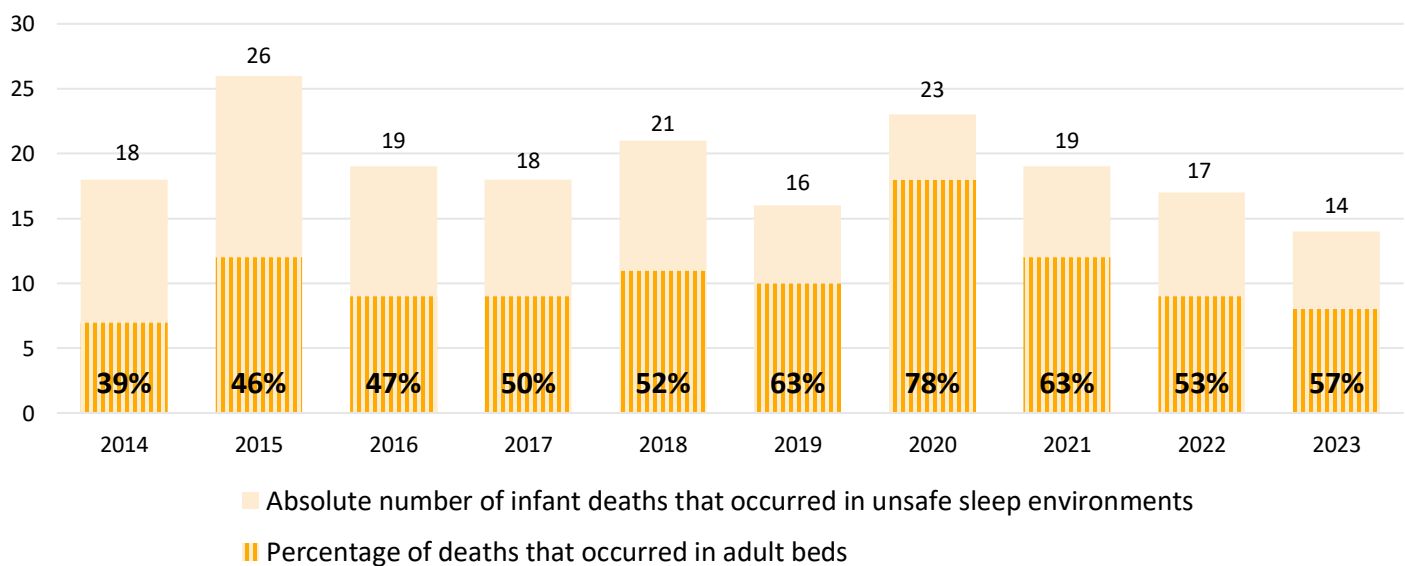
Sudden unexpected infant deaths (SUID):

- Includes all deaths coded as R95 (Sudden Infant Death Syndrome or SIDS), W75 (accidental suffocation and strangulation in bed), and R99 (ill-defined and unspecified causes of mortality), and other cases where an unsafe sleep environment (such as co-sleeping, improper bedding, or unsafe sleep positions) was mentioned in the death certificate.
- In 2024, SUID accounted for 21.7% of all infant deaths, which is consistent with the ~22% average observed over the previous decade (Figure 4).
- Some infant deaths occur in unsafe sleep environments but are not assigned an ICD-10 code associated with SUID. Through death reviews, the SD ICDR committees can identify these cases, ensuring that unsafe sleep conditions contributing to such deaths are recognized and documented.



- In reviewing infant deaths, the SD ICDR found out that most occurred when the infant was placed in an adult bed: from 2014-2023, 55% of all sleep-related infant deaths occurred in an adult bed.
- The percentage of sleep-related infant deaths occurring in an adult bed has increased over time: from 2019–2023, 63% of these deaths happened in an adult bed, up from 47% in the previous five-year period.

Figure 5: Infant deaths in adult beds compared to all other unsafe sleep-related infant deaths: SD, 2014-2023.



- At the time of this publication, data on infant deaths occurring in unsafe sleep environments in 2024 is not yet available, as the SD ICDCR committees have not yet completed their review of these cases. Based on our experience in previous years, it is very likely that new cases of such deaths will be identified as they are reviewed.
- **Opportunities for Intervention:** Deaths related to unsafe sleep environments *can be prevented*, underscoring the need for targeted public health interventions.

Length of gestation and fetal growth:

- Consistently the third leading cause, accounting for ~12.0% of deaths in 2024 and similar proportions over the past decade (please see Figure 4).
- **Opportunities for Intervention:** Research consistently links maternal smoking to both short gestational age and low birth weight, two critical factors contributing to infant mortality. In 2024, ~596 South Dakota mothers reported smoking during pregnancy—this is a modifiable risk factor requiring robust public health interventions. Other factors, such as substance use disorder, and maternal co-morbidities, may also have an impact on low birth weight and gestational age. Further investigation of those factors is necessary to fully understand the risk factors behind this cause of death.

HEALTH DISPARITIES BY RACE

- Over the past decade (2014–2023), major disparities in infant mortality rates persisted by race:
 - **Black or African American:** Highest rate at 15.1 per 1,000 live births.
 - **American Indian or Alaska Native:** Second highest rate at 10.7 per 1,000 live births.
 - **White:** 5.9 per 1,000 live births.
 - **Hispanic or Latino:** 4.0 per 1,000 live births.
 - **Asian:** 3.9 per 1,000 live births.
 - **Two or More Races:** Lowest rate at 2.3 per 1,000 live births.
- **2024 Comparison:** Provisional data for 2024 shows the following rates²:
 - **American Indian or Alaska Native:** 13.2 per 1,000 live births — a notable increase compared to the decade average (10.7)
 - **White:** 5.8 per 1,000 live births — a slight decrease from the decade average (5.9)
- These persistent and, in some cases, widening disparities highlight the ongoing need for targeted interventions, particularly among American Indian and Black communities, to address social determinants of health, access to care, and chronic exposure to risk factors.

RECOMMENDATIONS

Congenital malformations and early detection:

Leverage the Newborn Screening program to expand early detection efforts.

Additional resources for follow-up care, counseling, and management of identified conditions can reduce infant mortality associated with congenital malformations.

- Collaborate with healthcare systems to enhance data collection and analysis of detected conditions, enabling the identification of trends, risk factors, and gaps in care.
- Launch public awareness campaigns to educate families and healthcare providers about the importance of newborn screening and the available resources for managing detected conditions.
- Develop programs to offer counseling, financial assistance, and educational materials for families of infants diagnosed through screening.

² Analysis of infant mortality for other races for a single year is limited by the small number of cases.

- Establish performance metrics to track the impact of screening on infant health outcomes, adjusting strategies based on findings.

Safe sleep:

Enhance public health outreach:

- Enhance public health outreach on safe sleep practices (campaigns) to educate caregivers and families on safe sleep practices and reduce preventable deaths associated with unsafe sleep environments.
- Focus messaging on reducing risk factors such as co-sleeping, improper bedding, and unsafe sleep positions.
- Utilize social media platforms, leverage community events, and produce public service announcements to disseminate safe sleep messaging and resources.
- Collaborate with multisector stakeholders to expand the reach of safe sleep education and resources across the state.

Support the ICDR committees:

- Support and strengthen the ICDR committees work in identifying deaths related to unsafe sleep and assess contributing risk factors.
- Use findings from case reviews to identify the most prevalent risk factors and tailor interventions accordingly.

Evaluation and metrics:

- Examine factors such as poverty, housing instability, and lack of access to healthcare and their contribution to unsafe sleep practices.
- Regularly review data and feedback from stakeholders and caregivers to adjust strategies and improve outcomes.
- Develop new metrics to track the effectiveness of safe sleep initiatives, such as rates of sleep-related infant deaths.

Maternal health focus:

- Analyze data to determine whether additional maternal health factors, such as substance use disorder and other maternal health conditions, contribute to infant mortality in South Dakota. Assess the extent of these factors' impact on infant mortality, to help guide targeted prevention and intervention efforts.
- Encourage early and adequate pre-natal care.
- Address maternal health factors like smoking during pregnancy (5.3% in 2024) to reduce risks associated with gestational and fetal growth disorders.

Health disparities:

- Prioritize interventions targeting populations with higher infant mortality rates, particularly Black and American Indian communities, which have considerably higher rates compared to other racial groups.

By strengthening partnerships and using data-driven strategies,
we can give every infant in South Dakota the best chance for a healthy start in life.

Note: All 2024 data is provisional and subject to change pending final analyses. A detailed investigation of infant deaths in 2024 will be prepared on the second semester, after the data is finalized and no longer provisional.

ACKNOWLEDGEMENT

This data brief was prepared by Fabricia Latterell (Maternal and Child Health Epidemiologist) and Isaac Snaza (Infant and Child Mortality Epidemiologist), with reviews from Katelyn Strasser (Deputy Division Director, Family & Community Health), Kristy Jackson (Program Director, Children and Youth with Special Health Care Needs), Abhinav Datti (Prevention Services Manager), and Laurel Rick (Women & Infant Health Coordinator).

Data used to estimate South Dakota's 2014-2023 infant mortality rates came from de-identified birth and death records provided by the Office of Health Statistics, SD Department of Health, and from the National Center for Fatality Review and Prevention, which hosts SD ICDR data. SD infant mortality provisional 2024 estimates were provided by Mark Gildemaster (Administrator, Office of Health Statistics, SD Department of Health).

Data for United States infant mortality was obtained from Ely DM, Driscoll AK. Infant mortality in the United States: Provisional data from the 2022 period linked birth/infant death file. National Center for Health Statistics. Vital Statistics Rapid Release; no 33. Hyattsville, MD: National Center for Health Statistics. 2023. DOI: <https://doi.org/10.15620/cdc:133699>.

To all who contributed to this brief, we extend our heartfelt gratitude.

For questions, comments and suggestions, please reach out to the MCH Data team at DOH.MCHdata@state.sd.us.

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