

Sudden Unexpected Infant Death 2023 Report

(Wisconsin data from 2019–2021)



WISCONSIN DEPARTMENT
of HEALTH SERVICES

P-02498 (05/2024)

Dear Wisconsin Community,

The death of any child is a tragedy no family should have to experience. Especially tragic is a child death that could have been prevented. This report focuses on the impact of sudden unexpected infant deaths (SUIDs) in Wisconsin. From 2019-21, a total of 172 Wisconsin families experienced a SUID. However, Black and Hispanic families experience SUIDs at higher rates than white families. Access to quality health care, education status, economic stability and other social determinants of health can influence birth outcomes. This report calls attention to multiple demographics that contribute to SUIDs, and measures that can be used to prevent them.

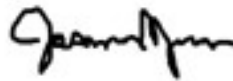
Now more than ever, we must join together to raise awareness about our current SUID trends and strategies for prevention. Each statistic and data point represents a real life, an impacted family and community-wide generational ripple effects.

Thank you to all the champions who have contributed to the impactful work already happening to prevent SUIDs. There's still more work to be done, and that's where you come in. As you review this report, please think about what you, and/or your organization, are already doing to prevent SUID, along with additional strategies you can implement this year to grow those efforts even more.

Together, we can make a difference.



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Sudden Unexpected Infant Death in Wisconsin

SUID is a term used to describe the death of an infant less than 365 days of age, in which the cause of death is not clear before investigation (Centers for Disease Control and Prevention [CDC], 2022a). These deaths often occur in the infant’s sleep environment. While the most common causes of infant death in Wisconsin are birth defects and conditions originating in the perinatal period (Wisconsin Department of Health Services [DHS], 2023), SUIDs comprised 16% of all infant deaths from 2019–2021.

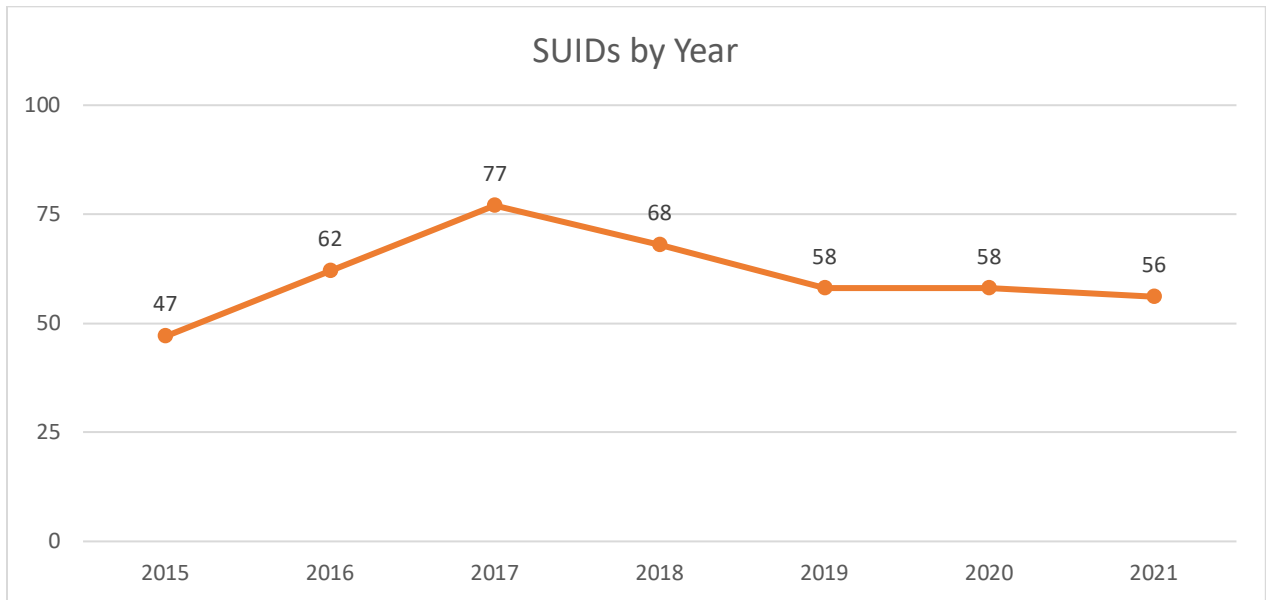


Figure 1: This graph represents Wisconsin’s total number of SUIDs per year, from 2015–2021.

Although SUIDs have decreased since 2017, the number remains steady and disparities still exist, which necessitates further action and prevention efforts.

In 2018, nearly all SUIDs occurred in the sleep environment. After routine death investigation, SUIDs fell into three categories in Wisconsin:

63%

Undetermined

34%

Asphyxia

3%

Medical cause with unsafe sleep factors

Quick facts:

More than **one infant dies every week** in Wisconsin due to SUID.

172 infants died due to SUID in Wisconsin from 2019–2021.

SUIDs were responsible for **16% of all infant deaths** in Wisconsin from 2019–2021.

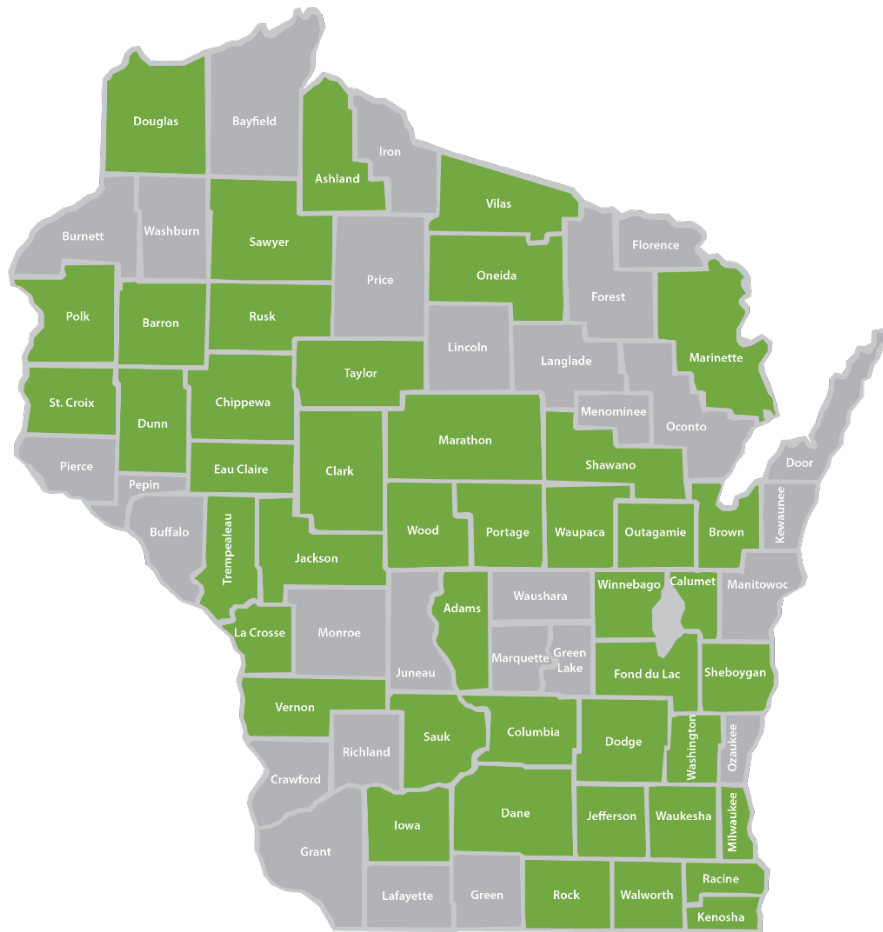


Figure 2: This map highlights green counties that have experienced at least one SUID from 2019–2021.

SUID Case Registry

Wisconsin has participated in the [Sudden Unexpected Infant Death Case Registry](#) (the Registry) through the CDC since 2013. Wisconsin collects information on the circumstances and risk factors of SUIDs through local child death review (CDR) teams, along with teams in 24 other states and jurisdictions. The Registry aims to monitor SUID rates, identify trends and risk factors throughout the U.S., improve the quality and consistency of SUID investigations, and use SUID data to inform prevention efforts at both the program and policy levels (CDC, 2023).

Regional differences in how SUIDs are certified lead to challenges in monitoring trends among SUIDs in the U.S. (Shapiro-Mendoza et al., 2018). The Registry utilizes an algorithm to categorize SUID cases in order to standardize how SUIDs are classified. The algorithm is based on components of the investigation and the conditions in the infant’s sleep environment and categorizes cases according to each individual circumstance. It is important to note that 23% of cases from 2019–2021 were categorized as either “incomplete case information” or “no autopsy or death scene investigation.” These cases may have involved unsafe sleep factors but were lacking the investigation components required to categorize them further. These results emphasize the need for accessible and affordable death scene investigation trainings for investigators throughout Wisconsin.

What is Safe Sleep?

In response to the high numbers of sleep-related infant deaths, the American Academy of Pediatrics (AAP) recommended that infants be placed to sleep on their backs and launched the “Safe to Sleep” campaign in 1994 (Moon et al., 2022a). This led to a 53% reduction in these types of deaths over the next 10 years. However, sleep-related infant deaths continue to be the leading cause of injury death in infants in the U.S. Today, the AAP produces a [policy statement](#) on updated safe sleep guidelines for infants for reducing infant deaths in the sleep environment (Moon et al., 2022b). It is important to note that cultural practices may influence a baby’s sleep environment. Incorporating cultural sensitivity and respect is essential when discussing safe sleep with parents and caregivers.

Safely Sleeping Infants

Alone in a crib or pack n play | Breastfeeding | Firm flat surface | Pacifier | Prenatal care | Placed on the back to sleep | Share a room not a bed | Smoke-free air



Popular products

Social media and commercial product advertising often portray infant products that contradict the AAP safe sleep recommendations, which can make it hard for parents to create a safe sleep environment.

Not Safe for Sleeping Infants

Infant loungers | Nursing pillows | Sleep positioners | Swings and bouncers | Weighted blankets or sleep sacks



A Note on Bed Sharing

Continued, frank conversations among parents, pediatricians and caregivers around safe sleep practices that can vary between families are encouraged. The AAP acknowledges the complexities surrounding bed sharing, including family and cultural traditions and beliefs. However, despite these considerations, the AAP takes a firm stance against bed sharing (Moon et al., 2022b). Citing evidence that highlights the risks associated with this practice, the AAP emphasizes the importance of prioritizing infant safety and well-being. Instead, the AAP advocates for keeping infants close by in a crib or bassinet next to the parents' bed, allowing for convenient access for feeding, comforting, and responding to the infant's needs throughout the night.

One of the key factors that the AAP underscores is the increased risk of bed sharing when certain conditions are present. Environmental factors significantly elevate the potential dangers associated with bed sharing. These factors such as bed sharing with individuals impaired in alertness, affected by sedating substances, or even having a history of tobacco use, can significantly increase risks and should be part of safe sleep conversation between families and caregivers.

These environmental factors increase the likelihood of accidental suffocation or other sleep-related incidents, emphasizing the importance of creating a safe sleep environment for infants. It is crucial for parents, pediatricians, and caregivers to remain informed and vigilant when making decisions regarding infant sleep arrangements.

Direct and respectful conversations with families and acknowledging traditional practices while being grounded in evidence around unintentionally posing a significant threat should continue to be encouraged. By balancing family and cultural traditions with evidence-based recommendations from organizations like the AAP, caregivers can help prioritize infant's safety and well-being, while fostering a nurturing and secure sleeping environment for their little ones.



The Sleep Environment

Data from 2019–2021

SUID risk factor summary

97%

occurred
in a sleep
environment

56%

occurred
in an
adult bed

86%

occurred
with soft
objects or loose
bedding

52%

exposed to
tobacco
smoke

- 97% of SUIDs from 2019–2021 occurred in the sleep environment.
- Risk factors
 - 56% of infants were placed to sleep in an adult bed.
 - 86% of infants had soft objects or loose bedding in their sleep environment.
 - 52% of infants were exposed to prenatal and/or postnatal tobacco smoke.

For full data table, refer to [Appendix A](#)

Share safe sleep recommendations with others

Alone in a crib or pack n play | Breastfeeding | Firm flat surface |
Pacifier | Prenatal care | Placed on the back to sleep | Share a
room not a bed | Smoke-free air



Demographics

Data from 2019–2021

SUID demographic summary



- Nearly 7 in 10 SUIDs occurred in the first four months of life.
- The rate of SUID was nearly three times greater among pre-term infants compared to term infants. An infant is pre-term if they are born at less than 37 weeks gestation
- 25 percent of SUIDs were either low or very low birth weight. The rate was nearly four times greater among very low birth weight infants compared to normal birth weight infants. Low birth weight is defined as a birth weight of 3.3 to 5.5 pounds, while very low birth weight is less than 3.3 pounds.

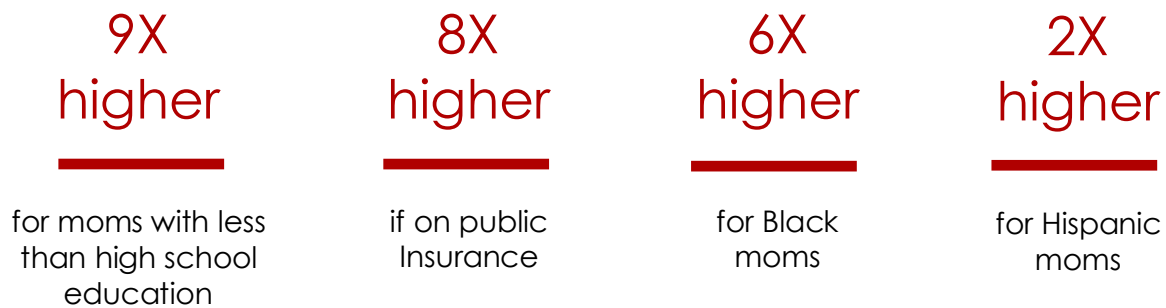
For full data table, refer to [Appendix B](#)

Socioeconomic Factors and Disparities

Data from 2019–2021

Social and economic factors influence the health of infants and their families, both directly and indirectly. Often described as the social determinants of health, these factors are outside of an individual’s control but affect the environment in which the individual lives (CDC, 2022b). Examples of these factors include employment, housing instability and quality, poverty, education, discrimination, and access to health care. Social determinants influence health inequities, which can be defined as systematic differences in health outcomes that are both unfair and avoidable. Health inequities can be reflected in differences in length and quality of life, rates of disease and disability, and access to treatment (World Health Organization, 2022).

Understanding SUID inequities help determine where resources and efforts should be directed in order to reduce disparities, especially in communities that are significantly impacted by high infant mortality rates. Health equity is achieved when every person has an opportunity to attain their highest standard of health. SUID data helps to better understand inequities that exist and can include information on maternal education, maternal race and ethnicity, and health insurance type among others.



- Mothers age 25–29, with less than a high school education, experienced SUID at a rate of nearly nine times higher than mothers with a college degree.
- Nearly 8 in 10 SUIDs were publicly insured.
 - Public insurance includes Medicaid and other state health insurance programs.
 - These infants experienced SUID at a nearly eight times greater rate than those that were privately insured.
- Black mothers experienced SUID at a more than six times higher rate than white mothers.
- Hispanic mothers experienced SUID at a nearly two times greater rate than white mothers.

For full data table, refer to [Appendix C](#)

Pregnancy Risk Assessment Monitoring System

Data from 2019–2021

Each year, mothers in Wisconsin are able to share feedback on their pregnancies and babies through a survey called the Pregnancy Risk Assessment Monitoring System (PRAMS), coordinated by DHS and the CDC. Surveys are sent to a random sample of new mothers and results are based on those who choose to complete it. Survey questions are related to safe pregnancies and healthy infancy. Survey results are meant to be representative of all Wisconsin mothers in a given year. Comparing Registry data to PRAMS results allows us to compare sleep practices of families that experience SUID to all mothers of infants in Wisconsin. You can find more information and data related to PRAMS surveying on the DHS [website](#).

The goals of the PRAMS is to:

- Help us understand why our Black infant mortality rate and Black and white disparity ratio for the infant mortality rate are among the highest in the nation. In 2012, babies born to Black mothers were three times more likely to die before their first birthday than were babies born to white mothers.
- To collect high-quality, population-based data not found in other data sources, on topics related to safe pregnancy and healthy infancy.
- To translate results into information for planning and evaluating public health programs and policy.
- To improve the health of Wisconsin mothers and babies.

(Wisconsin Department of Health Services, 2023)

Wisconsin mothers

- **88%** of mothers indicated that they received health care provider guidance on what things should and should not go in bed with their infant. **Only 14%** of SUIDs did not have objects or loose bedding in their sleep environment.
- **86%** of mothers reported placing their infants to sleep on their backs most often. 94% of mothers were provided this education by their health care provider. **Only 63%** of SUIDs were placed on their backs.
- **61%** of mothers reported that their infant always sleeps alone in their own bed. **64%** of SUIDs were sharing a sleep surface with another person.

For full data table, refer to [Appendix A](#) and [D](#)

SUID Prevention

While many families receive safe sleep information for their infants from health care providers (as demonstrated by PRAMS data), 97% of SUIDs still occur in the sleep environment—most of which were demonstrating at least one unsafe sleep practice. These results show the need for further prevention outside of providing basic information to families in the doctor’s office. This is especially true for Black and Hispanic families, who are disproportionately affected by SUID in Wisconsin. Prevention initiatives should consider the social and economic conditions in which families and infants live, having conversations with families about their safe sleep practices (instead of simply providing information), and improving or standardizing SUID investigations to gather high quality data. Below are prevention efforts that are already ongoing at national, state, and local levels.

National resources

[American Academy of Pediatrics Safe Sleep Campaign Toolkit](#)

The AAP has developed a toolkit for professionals to help guide conversations around safe sleep. The toolkit includes posters, infographics, videos, and social media messages that are free to use for agencies and organizations encouraging safe sleep practices in their communities.



[Cribs for Kids](#)

Cribs for Kids is a program that aims to provide free cribs and safe sleep education to families in need of a safe sleep surface for their infant. If you are a family in need of a crib or safe sleep resources, [find your nearest Cribs for Kids distributor](#) by entering your zip code. [Fill out an application](#) for professional organizations looking to become a Cribs for Kids partner.



Statewide resources

[Sleep Baby Safe](#)

Children’s Health Alliance of Wisconsin (the Alliance) has developed Sleep Baby Safe, a training program intended for professionals working with families in addressing infant safe sleep. Using a train-the-trainer format, it is designed to take safe sleep messaging from a campaign to a conversation. These resources are available to enhance local efforts to promote a consistent, clear, and concise message on infant safe sleep. For more information, [Joanna O’Donnell \(jodonnell@childrenswi.org\)](mailto:jodonnell@childrenswi.org) to schedule a training.



Local resources

[Babies & Beyond](#)

This non-profit organization supports families in the Madison area through programs that are free of charge to expecting mothers, fathers, and their children up to age 4. Services provided include a diaper bank, baby care packages, a helpline, classes, and a safe sleep program which provides pack 'n plays, fitted sheets, sleep sacks, and other safe sleep resources.



[Direct On Scene Education \(DOSE\) – Rock County](#)

DOSE is a program in which first responders aid in reducing SUID by identifying safe sleep hazards and addressing them with the family during both emergency and non-emergency calls. First responders will also refer the family to services that provide cribs if a safe sleep surface is not available in the home. The Rock County CDR team discovered this program and is the first to implement it in a Wisconsin county. Visit the website for more information on starting this program in your community.



Children's Health Alliance of Wisconsin and Keeping Kids Alive in Wisconsin

Children's Health Alliance of Wisconsin (the Alliance) carries out their mission of ensuring Wisconsin children are healthy, safe, and able to thrive, through several key initiatives focusing on different aspects of children's health. Through the Keeping Kids Alive initiative, Wisconsin is able to conduct statewide surveillance on SUIDs through the work of local CDR teams and the Wisconsin Child Death Review State Advisory Council. The Alliance thanks local teams and council members for their dedication to reviewing SUIDs, gathering data to help us better understand the risk factors and circumstances leading to SUIDs, and informing prevention efforts focused on reducing the incidence of SUIDs. Visit the [Keeping Kids Alive initiative website](#) for more information.

This report was prepared by Children's Health Alliance of Wisconsin, in partnership with the Wisconsin Department of Health Services. Contact [Natasha Horst \(nhorst@childrenswi.org\)](mailto:nhorst@childrenswi.org) for information about this report.

References

- Centers for Disease Control and Prevention. (2022a). *About SUID and SIDS*. <https://www.cdc.gov/sids/about/index.htm>
- Centers for Disease Control and Prevention. (2022b). *Social Determinants of Health at CDC*. <https://www.cdc.gov/about/sdoh/index.html>
- Centers for Disease Control and Prevention. (2023). *SUID and SDY Case Registry*. <https://www.cdc.gov/sids/case-registry.htm>
- Moon, R.Y., Carlin, R.F., & Hand, I. (2022a). Evidence base for 2022 updated recommendations for a safe infant sleeping environment to reduce the risk of sleep-related infant deaths. *Pediatrics*, 150 (1), e2022057991. <https://doi.org/10.1542/peds.2022-057991>
- Moon, R.Y., Carlin, R.F., & Hand, I. (2022b). Sleep-related infant deaths: Updated 2022 recommendations for reducing infant deaths in the sleep environment. *Pediatrics*, 150(1), e2022057990. <https://doi.org/10.1542/peds.2022-057990>
- Shapiro-Mendoza, C.K., Parks, S., Erck Lambert, A., Camperlengo, L., Cottengim, & C., Olson, C. (2018). The epidemiology of sudden infant death syndrome and sudden unexpected infant deaths: Diagnostic shift and other temporal changes. In J.R. Duncan & R.W. Byrad (Eds.) et. al., *SIDS Sudden Infant and Early Childhood Death: The Past, the Present, and the Future*. University of Adelaide Press.
- Wisconsin Department of Health Services. (2023). *Pregnancy Risk Assessment Monitoring System*. <https://www.dhs.wisconsin.gov/stats/prams/index.htm>
- Wisconsin Department of Health Services. (2023). *WISH query: Infant mortality module*. Retrieved August 18, 2023 from <https://www.dhs.wisconsin.gov/wish/index.htm>
- World Health Organization. (2022). *Social determinants of health*. https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1

Appendix A: Sleep factors

Sleep Environment Factors among SUIDs in Wisconsin	
Recommendation	2019–2021 SUIDs (N = 167) with recommendation met
Back to sleep for every sleep	63%
Use a firm sleep surface	19%
Breastfeeding is recommended (measured as ever breastfed)	56%
Sleep infants in parents' room but on a separate surface designed for infants, ideally for the first year of life, but at least for the first six months	9%
Keep soft objects and loose bedding away from infant's sleep area to reduce the risk of SIDS, suffocation, entrapment, and strangulation	14%
Consider offering a pacifier at naptime and bedtime (excluding infants less than 28 days of age)	9%
Avoid smoke exposure during pregnancy and after birth	40%
Avoid alcohol and illicit drug use during pregnancy and after birth	65%
Avoid overheating and head covering in infants	80%
Pregnant women should obtain regular prenatal care	95%

Appendix B: Demographics


Infant and Maternal Demographics in Wisconsin			
Characteristic	SUIDs in WI, 2019–2021 (N = 172)	All infant deaths in WI, 2019–2021 (N = 1062)	All births in WI, 2019- 2021 (N = 185719)
Sex (%)			
Female	48%	47%	49%
Male	52%	53%	51%
Missing	0%	0%	0%
Gestational age (%)			
Pre-term	24%	66%	10%
Term	74%	32%	90%
Missing	1%	2%	0%
Birthweight (%)			
Very low	5%	53%	1%
Low	20%	14%	6%
Normal	74%	32%	92%
Missing	1%	1%	0%
Infant age (%)			
Younger than 1 month	13%	69%	--
1 to 2 months	35%	13%	--
3 to 4 months	21%	7%	--
5 to 6 months	16%	5%	--
7 to 12 months	14%	6%	--
Maternal age (%)			
Under 20 years	6%	7%	3%
20–24 years of age	27%	21%	16%
25–29 years of age	35%	28%	31%
30–34 years of age	23%	29%	33%
35–39 years of age	9%	12%	14%
Age 40 or older	1%	3%	3%
Missing	0%	0%	0%
Residential area			
Urban	58.14%	--	--
Suburban	16.86%	--	--
Rural	20.35%	--	--

Appendix C: Socioeconomic Factors

Characteristic	SUIDs in WI, 2019–2021 (N = 172)	
	Percentage	Rate per 1,000 live births
Highest level of education completed among mothers age 20 and older		
Less than high school	23%	2.5
High school or GED	60%	1.3
College degree	15%	0.3
Missing	1%	---
Highest level of education completed among mothers age 25 and older		
Less than high school	23%	2.4
High school or GED	55%	1.1
College degree	21%	0.3
Missing	1%	---
Maternal race and ethnicity combined		
Hispanic	12%	1.1
Multi-racial, non-Hispanic	3%	1.1
Non-Hispanic Black	38%	3.5
Non-Hispanic white	41%	0.5
Other	5%	0.8
Missing		---
Insurance (infant)		
Private	16%	0.3
Public	77%	2
Other	1%	0.6
None	4%	1.1
Missing	1%	---

Appendix D: PRAMS

Pregnancy Risk Assessment Monitoring System: Wisconsin 2019–2021		
Survey question	Weighted percentage	95% confidence interval (%)
Maternal protective factors against SUID		
Initiated prenatal care in the first trimester	89%	87.5949, 90.5628
Breastfed at some time since birth	89%	87.0877, 90.0840
No exposure to maternal smoking in third trimester	93%	91.1626, 93.8569
Mother does not currently smoke	90%	88.8078, 91.8470
No illicit drug use during pregnancy	94%	92.3850, 94.8249
Sleep practices in the past two weeks		
Infant positioned on back most often when laid to sleep	86%	84.1398, 87.654
Infant always sleeps alone in his or her own bed	61%	58.4925, 63.4090
Crib in the same room as mother when infant sleeps alone	77%	75.158, 79.6951
Infant usually sleeps in a crib, bassinet, or Pack n' Play	92%	90.1249, 92.8757
Infant usually does not have any additional items in the sleep environment	58%	56.0294, 60.9054
Safe sleep education from doctor, nurse, or other health care worker		
Place the infant on his or her back to sleep	94%	92.9516, 95.4763
Place the infant to sleep in a crib, bassinet, or Pack n' Play	90%	88.7586, 92.0145
Place the infant's crib or bed in mother's room	60%	57.7866, 62.7742
What things should and should not go in bed with the infant	88%	86.6351, 90.0532



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