Sleep-Related Infant Deaths in Michigan (2010-2022)

The Centers for Disease Control and Prevention's Division of Reproductive Health supports Sudden Unexpected Infant Death (SUID) monitoring programs in 22 states and jurisdictions, covering about 1 in 3 SUID cases in the United States. The SUID Case Registry builds on local child death review programs and uses the National Center for Fatality Review and Prevention's Case Reporting System to compile information about the circumstances associated with SUID cases as well as information about investigations into these deaths. Participating states and jurisdictions use data about SUID trends and circumstances to develop strategies to prevent future fatalities.

The SUID Case Registry first began in Michigan in 2010. Since that time, comprehensive information about the circumstances associated with the deaths of all Michigan resident infants due to sleep-related causes has been compiled. In Michigan, sleep-related infant deaths are defined as deaths to infants less than 1 year of age that occur suddenly and unexpectedly due to:

- Suffocation/Positional Asphyxia;
- Sudden Infant Death Syndrome (SIDS);
- Undetermined/Sudden Unexpected Infant Death (SUID); and
- Other causes when the sleep environment was likely to have contributed to the death.

Additional information about sleep-related infant deaths in Michigan can be found on the Data, Reports & Fact Sheets page on the Michigan Fatality Review and Prevention website (URL: https://mifrp.org/publications/).

Sources

Death data are from the CDC SUID Case Registry, Michigan Public Health Institute, 2025. Birth data are from the Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2025.

Citation

Centers for Disease Control and Prevention (CDC) SUID Case Registry – 2010 to 2022, Michigan Public Health Institute, 2025.

Contact

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Date: March 17, 2025

Table 01. Sleep-Related Infant Deaths by Year (2010-2022)

Year	Number of Deaths	Number of Live Births	Rate per 1,000 Live Births	95% CI (L – U)
2010	140	114,717	1.2	1.0 – 1.4
2011	147	114,159	1.3	1.1 – 1.5
2012	131	112,708	1.2	1.0 – 1.4
2013	142	113,732	1.2	1.0 – 1.5
2014	152	114,460	1.3	1.1 – 1.5
2015	159	113,211	1.4	1.2 – 1.6
2016	142	113,374	1.3	1.0 – 1.5
2017	123	111,507	1.1	0.9 – 1.3
2018	151	110,093	1.4	1.2 – 1.6
2019	149	107,917	1.4	1.2 – 1.6
2020	161	104,149	1.5	1.3 – 1.8
2021	157	105,022	1.5	1.3 – 1.7
2022	150	102,404	1.5	1.2 – 1.7
2010-2022	**1,904**	**1,437,453**	**1.3**	**1.3 – 1.4**

Summary:
From 2010 to 2022, an average of 1.3 Michigan infants died due to sleep-related causes per 1,000 live births.

Table 02. Sleep-Related Infant Deaths – Three-Year Moving Averages (2010-2022)

Years	Number of Deaths	Number of Live Births	Rate per 1,000 Live Births	95% CI (L – U)
2010 – 2012	418	341,584	1.2	1.1 – 1.3
2011 – 2013	420	340,599	1.2	1.1 – 1.4
2012 – 2014	425	340,900	1.2	1.1 – 1.4
2013 – 2015	453	341,403	1.3	1.2 – 1.4
2014 – 2016	453	341,045	1.3	1.2 – 1.5
2015 – 2017	424	338,092	1.3	1.1 – 1.4
2016 – 2018	416	334,974	1.2	1.1 – 1.4
2017 – 2019	423	329,517	1.3	1.2 – 1.4
2018 – 2020	461	322,159	1.4	1.3 – 1.6
2019 – 2021	468	317,088	1.5	1.3 – 1.6
2020 – 2022	469	311,575	1.5	1.4 – 1.6

Summary:
Table 01 presented the rate of death from sleep-related causes for Michigan infants by year. Using three-year moving averages, Table 02 shows that the rate of sleep-related infant death has increased when comparing the rate of death from 2010-2012 to the rate of death from 2019-2021 and 2020-2022.

Table 03. Sleep-Related Infant Deaths by Infant's Residence (2010-2022)

Notes: ^ Jurisdictions with fewer than six deaths are excluded from this analysis. Rates are excluded for jurisdictions with fewer than 20 deaths due to instability in rates with small numbers. Suppressed information is indicated with a caret (^) in the cell.
* An asterisk (*) indicates a statistically significant difference from the overall Michigan rate of sleep-related infant death at the 95% confidence level.
+ County of birth was unknown for 29 Michigan infants.

Jurisdiction	Number of Deaths^	Number of Live Births+	Rate per 1,000 Live Births^	95% CI (L – U)
Alcona County	^	835	^	^
Alger County	0	785	^	^
Allegan County	11	17,445	^	^
Alpena County	0	3,417	^	^
Antrim County	^	2,486	^	^
Arenac County	^	1,683	^	^
Baraga County	^	990	^	^
Barry County	7	8,277	^	^
Bay County	14	13,224	^	^
Benzie County	^	1,978	^	^
Berrien County	49	22,348	2.2*	1.6 – 2.9
Branch County	8	7,131	^	^
Calhoun County	27	20,646	1.3	0.9 – 1.9
Cass County	7	6,224	^	^
Charlevoix County	^	2,973	^	^
Cheboygan County	^	2,628	^	^
Chippewa County	^	4,275	^	^
Clare County	8	4,169	^	^
Clinton County	^	10,324	^	^
Crawford County	^	1,522	^	^
Delta County	^	4,515	^	^
Dickinson County	6	3,187	^	^
Eaton County	11	14,940	^	^
Emmet County	^	3,697	^	^
Genesee County	135	61,421	2.2*	1.8 – 2.6
Gladwin County	6	3,233	^	^
Gogebic County	^	1,558	^	^
Grand Traverse County	9	11,746	^	^

Table 03. Sleep-Related Infant Deaths by Infant's Residence (2010-2022) *Continued*

Jurisdiction	Number of Deaths^	Number of Live Births+	Rate per 1,000 Live Births^	95% CI (L – U)
Gratiot County	8	5,128	^	^
Hillsdale County	6	6,833	^	^
Houghton County	^	4,846	^	^
Huron County	^	3,789	^	^
Ingham County	61	40,380	1.5	1.1 – 2.0
Ionia County	13	9,174	^	^
Iosco County	10	2,911	^	^
Iron County	^	1,156	^	^
Isabella County	10	8,368	^	^
Jackson County	31	22,727	1.4	0.9 – 1.9
Kalamazoo County	57	39,344	1.4	1.1 – 1.9
Kalkaska County	0	2,284	^	^
Kent County	102	111,430	0.9*	0.7 – 1.1
Keweenaw County	^	206	^	^
Lake County	0	1,254	^	^
Lapeer County	13	10,525	^	^
Leelanau County	^	2,150	^	^
Lenawee County	12	13,015	^	^
Livingston County	16	23,117	^	^
Luce County	^	674	^	^
Mackinac County	0	1,105	^	^
Macomb County	76	118,736	0.6*	0.5 – 0.8
Manistee County	6	2,492	^	^
Marquette County	8	7,851	^	^
Mason County	0	3,605	^	^
Mecosta County	11	5,456	^	^
Menominee County	^	2,535	^	^
Midland County	14	11,063	^	^
Missaukee County	^	2,250	^	^
Monroe County	35	19,849	1.8	1.2 – 2.5
Montcalm County	15	9,238	^	^
Montmorency County	^	885	^	^
Muskegon County	45	26,580	1.7	1.2 – 2.3

Table 03. Sleep-Related Infant Deaths by Infant's Residence (2010-2022) *Continued*

Jurisdiction	Number of Deaths^	Number of Live Births+	Rate per 1,000 Live Births^	95% CI (L – U)
Newaygo County	15	7,009	^	^
Oakland County	118	170,663	0.7*	0.6 – 0.8
Oceana County	^	3,772	^	^
Ogemaw County	8	2,422	^	^
Ontonagon County	^	383	^	^
Osceola County	^	3,384	^	^
Oscoda County	^	1,108	^	^
Otsego County	^	3,190	^	^
Ottawa County	26	42,452	0.6*	0.4 – 0.9
Presque Isle County	0	1,209	^	^
Roscommon County	^	2,102	^	^
Saginaw County	54	28,381	1.9*	1.4 – 2.5
St. Clair County	30	20,009	1.5	1.0 – 2.1
St. Joseph County	16	10,007	^	^
Sanilac County	^	5,574	^	^
Schoolcraft County	^	851	^	^
Shiawassee County	9	9,068	^	^
Tuscola County	11	6,966	^	^
Van Buren County	11	11,286	^	^
Washtenaw County	47	46,689	1.0	0.7 – 1.3
Wayne County	625	297,253	2.1*	1.9 – 2.3
City of Detroit	*433*	*123,904*	*3.5**	*3.2 – 3.8*
Out-Wayne County	*192*	*173,349*	*1.1**	*1.0 – 1.3*
Wexford County	11	5,033	^	^
Michigan	**1,904**	**1,437,453**	**1.3**	**1.3 – 1.4**

Summary:
The rate of sleep-related infant death varies by jurisdiction across the state of Michigan. The following jurisdictions had statistically significantly higher rates of sleep-related infant death than the overall rate of sleep-related infant death for the state of Michigan: Berrien County, Genesee County, Saginaw County, Wayne County, and the City of Detroit. The following jurisdictions had statistically significantly lower rates of sleep-related infant death than the overall rate of sleep-related infant death for the state of Michigan: Kent County, Macomb County, Oakland County, Ottawa County, and Out-Wayne County (excluding the City of Detroit).

Table 04. Sleep-Related Infant Deaths by Prosperity Region (2010-2022)

Notes: ^ The total number of sleep-related infant deaths for Prosperity Regions 5 and 7 have been suppressed as reporting the number of deaths for each of these Prosperity Regions would inadvertently release the number of sleep-related infant deaths for an individual county with a count fewer than 6. Suppressed information is indicated with a caret (^) in the cell.

* An asterisk (*) indicates a statistically significant difference from the overall Michigan rate of sleep-related infant death at the 95% confidence level.

+ The sum of the number of live births reported for all 10 Prosperity Regions does not equal the total number of live births reported for Michigan as county of birth was unknown for 29 Michigan infants.

Prosperity Region	Number of Deaths^	Number of Live Births+	Rate per 1,000 Live Births^	95% CI (L – U)
Region 1	42	34,917	1.2	0.9 – 1.6
Region 2	34	37,089	0.9	0.6 – 1.3
Region 3	40	22,229	1.8	1.3 – 2.5
Region 4	252	249,076	1.0*	0.9 – 1.1
Region 5	^	75,249	^	^
Region 6	203	117,352	1.7*	1.5 – 2.0
Region 7	^	65,644	^	^
Region 8	175	116,986	1.5	1.3 – 1.7
Region 9	147	132,230	1.1	0.9 – 1.3
Region 10	819	586,652	1.4	1.3 – 1.5
Michigan	**1,904**	**1,437,424**	**1.3**	**1.3 – 1.4**

Summary:
The rate of sleep-related infant death varies by jurisdiction across the state of Michigan. From 2010 to 2022, Prosperity Region 6 had a rate of sleep-related infant death that was statistically significantly higher than the overall rate of sleep-related infant death for the state of Michigan. During this same time period, Prosperity Region 4 had a rate of sleep-related infant death that was statistically significantly lower than the overall rate of sleep-related infant death for the state of Michigan. Please note that Prosperity Region 3 had the widest confidence interval out of all 10 Prosperity Regions.

Table 05. Infant's Race (2010-2022)

Notes: ^ Rates are not calculated for groups with fewer than 20 deaths due to instability in rates with small numbers. Suppressed information is indicated with a caret (^) in the cell.
* An asterisk (*) indicates a statistically significant difference from the overall Michigan rate of sleep-related infant death at the 95% confidence level.
+ American Indian race includes infants who were identified as American Indian alone or in combination with one or more additional races. Additional Groups includes infants of all other races as well as those of multiple races, excluding infants who were identified as American Indian alone or in combination with one or more additional races.

Race+	Number of Deaths	Number of Live Births	Rate per 1,000 Live Births^	95% CI (L – U)
American Indian	129	61,058	2.1*	1.7 – 2.5
Asian or Pacific Islander Only	11	49,099	^	^
Black Only	844	259,223	3.3*	3.0 – 3.5
White Only	787	969,811	0.8*	0.8 – 0.9
Additional Groups	123	83,538	1.5	1.2 – 1.7
Unknown	10	14,724	^	^

Summary:
Significant racial disparities exist among all child deaths, including infant deaths due to sleep-related causes, due to inequities rooted in systemic and structural racism, including historical trauma, that unfairly disadvantage some individuals and communities.

Although racial identity is unique to every individual, and no single term can encompass the experiences of a diverse group of people, in this report we use the term "Black" to maintain consistency with how race data are recorded in the National Fatality Review-Case Reporting System. In alignment with the language presented in the Urban Institute's brief, *What Happens When People Face Unfair Treatment or Judgment When Applying for Public Assistance or Social Services?*, we have also "capitalized Black to denote the unique Black experience as one characteristic of a diverse group of people, ethnicities, and cultures ... (and) have not capitalized white, a term and label for a range of historically grouped ethnicities used to delineate a contrast with people of color."

The data presented in Table 05 reflects methodological changes that were made to better identify American Indian infants. Prevailing data collection and analysis practices often misclassify American Indian and Alaska Native (AIAN) populations, leading to an underestimation and suppression of data due to small numbers. Not being counted is consistent with historical attempts to eliminate or assimilate AIAN people. In accordance with recommendations made by the Urban Indian Health Institute, in this report, American Indian infants are those who were identified as American Indian, alone or in combination with one or more additional races, on the infant's death certificate. This definition is inclusive of ancestry and Tribal affiliation identified on the death record. Similarly, American Indian live births are births to childbearing and/or non-childbearing parents who were identified as American Indian, alone or

in combination with one or more additional races, on the infant's birth abstract. This definition is also inclusive of ancestry.

From 2010 to 2022, Black Michigan infants were 4.0 times more likely to die due to sleep-related causes than white infants (3.3 sleep-related infant deaths per 1,000 live births for Black infants compared to 0.8 sleep-related infant deaths per 1,000 live births for white infants). Compared to white infants, American Indian infants were 2.6 times more likely to die due to sleep-related causes (2.1 sleep-related infant deaths per 1,000 live births for American Indian infants compared to 0.8 sleep-related infant deaths per 1,000 live births for white infants).

Table 06. Infant's Age at Time of Death (2010-2022)

Infant's Age	Number	%
Less than 1 Month	216	11.3
1 Month	382	20.1
2 Months	357	18.8
3 Months	258	13.6
4 Months	199	10.5
5 Months	160	8.4
6 Months	109	5.7
7 Months	77	4.0
8 Months	55	2.9
9 Months	37	1.9
10 Months	33	1.7
11 Months	21	1.1

Summary:
Three out of four (74.2%) sleep-related infant deaths occurred before the infant was five months old.

Table 07. Infant's Gestational Age (2010-2022)

Gestational Age	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
Less Than 37 Weeks	423	22.2	145,228	10.1
37 Weeks or More	1,464	76.9	1,291,132	89.8
Unknown	17	0.9	1,093	0.1

Summary:
From 2010 to 2022, 10.1% of live births in Michigan were born before 37 weeks gestation. During that same time period, 22.2% of infants who died due to sleep-related causes were born before 37 weeks gestation. Of the infants born prior to 37 weeks gestation, the rate of sleep-related death was 2.9 per 1,000 live births. Of the infants born at 37 weeks or greater gestation, the rate of sleep-related death was 1.1 per 1,000 live births.

Infants who are born prior to 37 weeks gestation are at an increased risk of dying due to sleep-related causes. In Michigan, infants born prior to 37 weeks gestation were 2.6 times more likely to die in a sleep environment than infants who were born at or greater than 37 weeks gestation.

Table 08. Infant's Birthweight (2010-2022)

Birthweight	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
Less Than 2,500 Grams	430	22.6	124,237	8.6
2,500 Grams or More	1,449	76.1	1,312,681	91.3
Unknown	25	1.3	535	<0.1

Summary:
From 2010 to 2022, babies born weighing less than 2,500 grams accounted for 8.6% of all live births in Michigan. During that same time period, 22.6% of infants who died due to sleep-related causes were born weighing less than 2,500 grams. Of the infants born weighing less than 2,500 grams, the rate of sleep-related death was 3.5 per 1,000 live births. Of the infants born weighing 2,500 grams or more, the rate of sleep-related death was 1.1 per 1,000 live births.

Infants who are born weighing less than 2,500 grams are at an increased risk of dying due to sleep-related causes. In Michigan, infants born weighing less than 2,500 grams were 3.1 times more likely to die in a sleep environment than infants who were born weighing greater than or equal to 2,500 grams.

Table 09. Infant's Insurance Type (2010-2022)

Notes: + Other insurance type includes multiple types of insurance coverage as well as other types of insurance, such as TRICARE or the Indian Health Service.
~ Live births to Michigan residents by source of payment for the birth.

Insurance Type	Sleep-Related Infant Deaths		All Live Births~	
	Number	%	Number	%
Private Insurance	341	17.9	785,986	54.7
Medicaid or State Plan	1,447	76.0	609,868	42.4
Other Insurance Type+	26	1.4	11,446	0.8
No Insurance or Self-Pay	9	0.5	24,028	1.7
Unknown	81	4.3	6,125	0.4

Summary:
More than 3 out of 4 (76.0%) Michigan infants who died due to sleep-related causes from 2010 to 2022 had publicly-funded healthcare coverage. During this same time period, 42.4% of all live births were paid for with publicly-funded healthcare coverage.

Table 10. NICU Admission (2010-2022)

NICU Admission	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
Yes	362	19.0	109,384	7.6
No	1,484	77.9	1,321,987	92.0
Unknown	58	3.0	6,082	0.4

Summary:
From 2010 to 2022, 7.6% of all live births in Michigan had been admitted to the NICU. During that same time period, 19.0% of infants who died due to sleep-related causes had been admitted to the NICU. Of the infants who had been admitted to the NICU, the rate of sleep-related death was 3.3 per 1,000 live births. Of the infants who had not been admitted to the NICU, the rate of sleep-related death was 1.1 per 1,000 live births.

Infants who had been admitted to the NICU are at an increased risk of dying due to sleep-related causes. In Michigan, infants who had been admitted to the NICU were 2.9 times more likely to die in a sleep environment than infants who were not admitted to the NICU.

Table 11. Childbearing Parent Smoked During Pregnancy (2010-2022)

Childbearing Parent Smoked During Pregnancy	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
Yes	819	43.0	228,216	15.9
No	1,024	53.8	1,195,853	83.2
Unknown	61	3.2	13,384	0.9

Summary:
From 2010 to 2022, 15.9% of all live births in Michigan were born to a childbearing parent who smoked during pregnancy. During that same time period, 43.0% of infants who died due to sleep-related causes were born to a childbearing parent who smoked during pregnancy. Of the infants born to a childbearing parent who smoked during pregnancy, the rate of sleep-related death was 3.6 per 1,000 live births. Of the infants born to a childbearing parent who did not smoke during pregnancy, the rate of sleep-related death was 0.9 per 1,000 live births.

Infants who are born to a childbearing parent who smoked during pregnancy are at an increased risk of dying due to sleep-related causes. In Michigan, infants born to a childbearing parent who smoked during pregnancy were 4.2 times more likely to die in a sleep environment than infants who were born to a childbearing parent who did not smoke during pregnancy.

Table 12. Infant's Childbearing Parent Planned to or Initiated Breastfeeding (2010-2022)

Childbearing Parent Planned to or Initiated Breastfeeding	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
Yes	1,092	57.4	1,152,313	80.2
No	771	40.5	264,969	18.4
Unknown	41	2.2	20,171	1.4

Summary:
From 2010 to 2022, 80.2% of all live births in Michigan were born to a childbearing parent who planned to or initiated breastfeeding. During that same time period, only 57.4% of infants who died due to sleep-related causes were born to a childbearing parent who planned to or initiated breastfeeding. Of the infants born to a childbearing parent who planned to or initiated breastfeeding, the rate of sleep-related death was 0.9 per 1,000 live births. Of the infants born to a childbearing parent who did not initiate breastfeeding, the rate of sleep-related death was 2.9 per 1,000 live births.

Infants who are born to a childbearing parent who did not initiate breastfeeding are at an increased risk of dying due to sleep-related causes. In Michigan, infants born to a childbearing parent who did not initiate breastfeeding were 3.1 times more likely to die in a sleep environment than infants who were born to a childbearing parent who planned to or initiated breastfeeding. The protective effect of breastfeeding increases with exclusivity. However, any breastfeeding has been shown to be more protective against deaths from sleep-related causes than no breastfeeding.

Table 13. Incident Sleep Place (2010-2022)

Notes: + Examples of other unsafe places include child/toddler beds and play pens (not portable cribs).

Incident Sleep Place	Number	%
Crib/Bassinet (including portable cribs)	421	22.1
Adult Bed (including air mattresses, futons, and waterbeds)	960	50.4
Couch/Chair	265	13.9
Rocking Inclined Sleeper/Swing/Bouncy Chair	52	2.7
Floor	45	2.4
Car Seat	55	2.9
Other Unsafe Place+	46	2.4
Unknown	60	3.2

Summary:
More than half (50.4%) of the infants who died due to sleep-related causes were found unresponsive in an adult bed. In total, three in four (74.7%) of the infants were found in an unsafe sleep place. Only 22.1% of infants who died due to sleep-related causes were found in a crib or bassinet.