

Sleep-Related Infant Deaths in Michigan (2010-2017)

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, data has been gathered on all sleep-related infant deaths in each of the 83 counties in the state. In Michigan, sleep-related infant deaths are defined as deaths to infants less than 1 year of age that occur suddenly and unexpectedly, including:

- 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.

In-depth information on sleep-related infant deaths in select jurisdictions in Michigan can be found at: <https://www.keepingkidsalive.org/resources/fact-sheets/>.

The following report provides an in-depth look at sleep-related infant deaths that occurred in the State of Michigan between 2010 and 2017, and is a supplement to the sleep-related infant death fact sheet for the State of Michigan.

Please contact Katie Hubbard, Senior Project Coordinator at the Michigan Public Health Institute, at khubbard@mphi.org with any questions.

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Section 1: Sleep-Related Infant Deaths in Michigan

Table 1. Sleep-Related Infant Deaths by Year, 2010-2017

Year	No. of Deaths	No. of 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	1.3	1.0	1.5
2014	152	114,460	1.3	1.1	1.5
2015	159	11,3211	1.4	1.2	1.6
2016	142	113,374	1.3	1.0	1.5
2017	123	111,507	1.1	0.9	1.6
2010-2017	1,136	907,868	1.3	1.2	1.3

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Between 2010 and 2017, the rate of death from sleep-related causes in Michigan did not vary much from year to year. While a minor increase or decrease may appear between years, there is not a clear trend showing that the rate is increasing or decreasing.

Table 2. Sleep-Related Infant Deaths – Three Year Moving Average, 2010-2017

Years	No. of Deaths	No. of 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

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Table 1 presented the rate of death from sleep-related causes by year. Using three-year moving averages, Table 2 also shows that the rate does not change significantly over time.

Table 3. Sleep-Related Infant Deaths in Selected Jurisdictions, 2010–2017

Jurisdiction [^]	No. of Deaths	No. of Live Births	Rate per 1,000 Live Births	95% CI	
				L	U
Allegan Co.	7	10,941	-	-	-
Bay Co.	8	8,541	-	-	-
Berrien Co.	31	14,537	2.1**	1.4	3.0
Calhoun Co.	19	13,145	-	-	-
City of Detroit	254	80,259	3.2**	2.8	3.6
Genesee Co.	79	39,374	2.0**	1.6	2.5
Grand Traverse Co.	6	7,408	-	-	-
Gratiot Co.	6	3,235	-	-	-
Ingham Co.	31	26,076	1.2	0.8	1.7
Ionia Co.	9	5,885	-	-	-
Iosco Co.	7	1,806	-	-	-
Isabella Co.	6	5,329	-	-	-
Jackson Co.	16	14,358	-	-	-
Kalamazoo Co.	38	25,081	1.5	1.1	2.1
Kent Co.	60	70,370	0.9**	0.7	1.1
Lapeer Co.	9	6,524	-	-	-
Lenawee Co.	9	8,346	-	-	-
Livingston Co.	10	14,260	-	-	-
Macomb Co.	39	74,092	0.5**	0.4	0.7
Mecosta Co.	7	3,375	-	-	-
Midland Co.	11	6,878	-	-	-
Monroe Co.	18	12,270	-	-	-
Montcalm Co.	10	5,776	-	-	-
Muskegon Co.	31	16,963	1.8	1.2	2.6
Newaygo Co.	10	4,387	-	-	-
Oakland Co.	77	106,989	0.7**	0.6	0.9
Ogemaw Co.	6	1,541	-	-	-
Ottawa Co.	19	26,751	-	-	-
Cities of Pontiac/Southfield	25	14,936	1.7	1.1	2.5
Saginaw Co.	35	18,152	1.9	1.3	2.7
Saint Clair Co.	18	12,564	-	-	-
Saint Joseph Co.	9	6,424	-	-	-
Shiawassee Co.	6	5,662	-	-	-
Tuscola Co.	6	4,393	-	-	-
Van Buren Co.	7	7,209	-	-	-
Washtenaw Co.	28	29,709	0.9	0.6	1.4
Wayne Co.	356	187,837	1.9**	1.7	2.1
Out-Wayne Co.*	102	107,578	0.9**	0.8	1.1
Wexford Co.	7	3,242	-	-	-
Michigan	1,136	907,868	1.3	1.2	1.3

[^]Counties with less than 6 deaths are excluded from this analysis; rates are excluded for counties with fewer than 20 deaths due to instability in rates with small numbers of deaths.
*Out-Wayne County excludes the City of Detroit.
**Statistically significant difference from the overall Michigan rate at the 95% level.
Sources: Death data are by county of residence from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: The rate of sleep-related infant death varies by jurisdiction across the State of Michigan. The jurisdictions that have a rate of sleep-related infant death that is statistically significantly higher than the overall rate of sleep-related infant death for the State of Michigan are Berrien County, Genesee County, Wayne County, and the City of Detroit. The jurisdictions that have a rate of sleep-related infant death that is statistically significantly lower than the overall rate of sleep-related infant death for the State of Michigan are Kent County, Macomb County, Oakland County, and Out-Wayne County (Wayne County excluding the City of Detroit).

Section 2: Sleep-Related Infant Deaths in Michigan by Infant Characteristics

Table 4. Infant’s Race, 2010-2017

Race	No. of Deaths*	No. of Live Births	Rate per 1,000 Live Births	95% CI	
				L	U
White	542	666,842	0.8	0.7	0.9
Black	474	173,833	2.7**	2.5	3.0
Other^	118	64,292	1.8**	1.5	2.2

*Race was unknown/missing for two infants.
^Other includes American Indian, Asian, Pacific Islander, and multi-racial infants.
**Statistically significant difference from the rate for White infants at the 95% level.
Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Significant racial disparities exist among sleep-related infant deaths. In Michigan, Black infants are 3.4 times more likely to die of sleep-related causes than White infants (2.7 sleep-related infant deaths per 1,000 live births for Black infants compared to 0.8 per 1,000 live births for White infants). Compared to White infants, infants whose race was categorized as Other (including American Indian, Asian, Pacific Islander, and multi-racial infants) are more than twice as likely to die of sleep-related causes (1.8 sleep-related infant deaths per 1,000 live births when “Other” is listed as the race compared to 0.8 per 1,000 live births for White infants).

Table 5. Infant’s Race – Three-Year Moving Averages, 2010-2017

Years	Total (all races)*	White	Black	Other^
2010-2012	n=418 rate: 1.2 ⁺	n=197 rate: 0.8	n=167 rate: 2.5	n=53 rate: 2.3
2011-2013	n=420 rate: 1.2	n=195 rate: 0.8	n=169 rate: 2.6	n=55 rate: 2.4
2012-2014	n=425 rate: 1.2	n=201 rate: 0.8	n=173 rate: 2.7	n=49 rate: 2.0
2013-2015	n=453 rate: 1.3	n=212 rate: 0.8	n=197 rate: 3.0	n=43 rate: 1.7
2014-2016	n=453 rate: 1.3	n=215 rate: 0.9	n=196 rate: 3.1	n=41 rate: 1.6
2015-2017	n=424 rate: 1.3	n=199 rate: 0.8	n=188 rate: 2.9	n=37 rate: 1.5

*The number of sleep-related infant deaths for White, Black, and Other do not sum to the total number of sleep-related infant deaths as race was missing/unknown for two infants.
⁺Rates are presented per 1,000 live births.
^Other includes American Indian, Asian, Pacific Islander, and multi-racial infants.
Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: While the rate of sleep-related infant deaths per 1,000 live births for White infants has remained steady between 2010 and 2017, the rate for Black infants has increased over time. The rate for the Other race category decreased over time.

Table 6. Infant’s Ethnicity, 2010-2017

Race	No. of Deaths*	No. of Live Births	Rate per 1,000 Live Births	95% CI	
				L	U
Hispanic or Latino	81	62,156	1.3	0.9	1.8
Not Hispanic or Latino	1,043	845,708	1.2	1.2	1.3

*Ethnicity was unknown/missing for 12 infants.
Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: The rate of death from sleep-related causes for Hispanic/Latino infants is not different from the rate of death from sleep-related causes for infants who are not Hispanic/Latino.

Table 7. Infant’s Sex, 2010-2017

Sex	Sleep-Related Infant Deaths		Infant Mortality – All Causes		All Live Births	
	Number	%	Number	%	Number	%
Male	672	59	3,436	56	464,705	51
Female	464	41	2,718	44	443,100	49

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Males are overrepresented among all infants who die before their first birthday from any cause and among all infants who die of sleep-related causes. In Michigan, 51% of live births are male; however, males account for 56% of all infant deaths from any cause and 59% of deaths from sleep-related causes.

Table 8. Infant’s Age at Time of Death, 2010-2017

Infant’s Age	Number	%
Less than 1 Month	127	11
1 Month	241	21
2 Months	202	18
3 Months	161	14
4 Months	129	11
5 Months	99	9
6 Months	58	5
7 Months	48	4
8 Months	25	2
9 Months	23	2
10 Months	15	1
11 Months	8	1

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Approximately 3 out of 4 sleep-related infant deaths occur before the infant is five months old.

Table 9. Infant’s Gestational Age, 2010-2017

Gestational Age	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
< 37 Weeks	257	23	90,693	10
37 Weeks or More	866	76	816,754	90
Unknown	13	1	421	<1

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Between 2010 and 2017, 10% of live births in Michigan were born before 37 weeks of gestation. During that same time period, 23% of infants who died of sleep-related causes were born before 37 weeks of gestation. Of the infants born prior to 37 weeks gestation, the rate of sleep-related death is 2.8 per 1,000 live births. Of the infants born at 37 weeks or greater gestation, the rate of sleep-related death is 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 are 2.5 times more likely to die in a sleep environment than infants who are born at or greater than 37 weeks gestation.

Table 10. Infant’s Birthweight, 2010-2017

Birthweight	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
< 2,500 Grams	251	22	76,950	8.5
>= 2,500 Grams	865	76	830,581	91.5
Unknown	20	2	337	<1

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Between 2010 and 2017, 8.5% of live births in Michigan were born weighing less than 2,500 grams. During that same time period, 22% of infants who died of 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 is 3.3 per 1,000 live births. Of the infants born weighing 2,500 grams or more, the rate of sleep-related death is 1.0 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 are 3.3 times more likely to die in a sleep environment than infants who are born weighing greater than or equal to 2,500 grams.

Table 11. Infant’s Insurance Type, 2010-2017

Insurance Type	Sleep-Related Infant Deaths		All Live Births [^]	
	Number	%	Number	%
Private Insurance	165	15	485,983	54
Medicaid or State Plan	883	78	397,573	44
Other*	20	2	20,076	2
Unknown/Missing	68	6	4,236	<1

*Other includes multiple types of insurance coverage, no insurance coverage, and other types of insurance.
[^]Live births to Michigan residents by source of payment for the birth.
 Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: More than 3 out of 4 infants who died of sleep-related causes had publicly-funded healthcare coverage.

Table 12. Infant Had Abnormal Newborn Screening Result, 2010-2017

Abnormal Newborn Screening Result	Number	%
Yes	34	3
No	1,078	95
Unknown	24	2
Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.		

SUMMARY: Almost all of the infants who died of sleep-related causes (95%) had normal newborn screening results.

Table 13. Infant Had Prior Disability or Chronic Illness, 2010-2017

Prior Disability or Chronic Illness	Number	%
Yes	95	8
No	1,008	89
Unknown	33	3
Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.		

SUMMARY: Nine out of ten infants who died of sleep-related causes did not have a prior disability or chronic illness.

Section 3: Sleep-Related Infant Deaths in Michigan by Maternal Characteristics

Table 14. Age of Infant’s Mother, 2010-2017

Age of Infant’s Mother	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
19 Years Old or Younger	126	11	62,284	7
20-24 Years Old	392	35	210,977	23
25-29 Years Old	302	27	275,964	30
30-34 Years Old	156	14	236,203	26
35-39 Years Old	65	6	100,039	11
40 Years Old or Older	11	1	22,353	2
Unknown	84	7	48	<1

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: The average age of a mother whose infant dies of sleep-related causes is 25 years old. For these infants, the age of the mother ranged from a minimum of 14 years old to a maximum of 44 years old.

Table 15. No Previous Live Births to Infant’s Mother, 2010-2017

Mother	% with No Previous Live Births
Mothers Whose Infant Died of Sleep-Related Causes	29%
All Michigan Mothers	39%

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Using an average in Michigan between the years 2010-2017, 39% of live births were the mother's first live birth. In comparison, only 29% of mothers in Michigan who had an infant die of sleep-related causes had no previous live births prior to the decedent's birth.

Table 16. Education Level of Infant’s Mother, 2010-2017

Education Level	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
Less than High School	296	26	117,911	13
High School Diploma/GED	509	45	452,423	50
College	126	11	240,235	26
Post Graduate	8	1	90,897	10
Unknown	197	17	6,402	1

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Between 2010 and 2017, for all mothers who had an infant die of sleep-related causes whose education level was known, 69% had at least a high school diploma or GED. In comparison, for all live births between 2010 and 2017, 87% of mothers whose education level was known had at least a high school diploma or GED. It is important to note that education level is not adjusted by the mother’s age and some mothers were not of an age at the time of the infant’s birth where it would be expected that they had completed high school, college, or a graduate degree.

Table 17. Prenatal Care Received during Pregnancy by Infant’s Mother, 2010-2017

Prenatal Care Received	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
Yes	1,058	93	895,792	99
No	47	4	12,076	1
Unknown/Missing	31	3	-	-

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Overall, few mothers receive no prenatal care during pregnancy.

Table 18. Number of Prenatal Care Visits Received by Infant’s Mother, 2010-2017

Number of Prenatal Care Visits	Sleep-Related Infant Deaths		All Live Births	
	Number*	%	Number	%
1 to 5	132	12	38,313	4
6 to 10	431	41	264,996	30
11 to 16	420	40	476,772	53
More than 16	51	5	115,653	13
Unknown/Missing	24	2	58	<1
Total	1,058		895,792	

*The mean and median number of prenatal care visits were 10. The number of reported prenatal care visits ranged from 1 to 45 visits.

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Of the mothers who received prenatal care, all Michigan mothers were more likely to receive a greater number of prenatal care visits than mothers whose infant died of sleep-related causes. Mothers whose infant died of sleep-related causes were three times more likely than all Michigan mothers to receive fewer than six prenatal care visits.

Table 19. Month of First Prenatal Care Visit for Infant’s Mother, 2010-2017

Month of First Prenatal Care Visit	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
1 st to 2 nd Month	351	33	369,571	41
3 rd to 4 th Month	428	41	398,926	45
5 th to 6 th Month	183	17	65,253	7
7 th to 9 th Month	76	7	33,387	4
Unknown/Missing	20	2	28,655	3
Total	1,058		895,792	

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Of the mothers who received prenatal care, all Michigan mothers were more likely to enter prenatal care prior to the fifth month of pregnancy than were mothers whose infant died of sleep-related causes. Mothers whose infant died of sleep-related causes were more than twice as likely to enter prenatal care in the fifth or later month of pregnancy as compared to all Michigan mothers.

Table 20. Maternal Smoking during Pregnancy, 2010-2017

Maternal Smoking	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
Yes	590	52	162,395	18
No	516	45	735,033	81
Unknown	30	3	10,440	1

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: Mothers whose infant died of sleep-related causes were 2.9 times more likely to smoke during pregnancy than all Michigan mothers.

Table 21. Infant’s Mother Planned to or Initiated Breastfeeding, 2010-2017

Planned to or Initiated Breastfeeding	Sleep-Related Infant Deaths		All Live Births	
	Number	%	Number	%
Yes	576	51	709,612	78
No	538	47	186,000	20
Unknown	22	2	12,256	1

Sources: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019. Birth data are from Michigan Resident Birth Files, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 2019.

SUMMARY: When compared to all Michigan mothers, mothers whose infant died of sleep-related causes were 2.4 times more likely to not plan to or initiate 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 22. Maternal Smoking during Pregnancy by Breastfeeding Status for Mothers whose Infant Died of Sleep-Related Causes, 2010-2017

Breastfeeding Status	Smoker (%)	Non-Smoker (%)
Ever Breastfed	43	60
Not Breastfed	56	39

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Infants born to mothers who smoked during pregnancy were less likely to have ever been breastfed.

Table 23. Type of Last Feeding for Infants who Died in an Adult Bed, 2010-2017

Feeding Type	Number	%
Formula Only	347	63
Breastmilk Only	83	15
Other*	30	5
Unknown/Missing	87	16

*Other includes infants who were fed other combinations of food, including breastmilk, formula, cereal, and/or baby food.
Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Of the infants who died in an adult bed, the greatest proportion were fed formula only (63%) for their last meal.

Table 24. Caregiver/Supervisor Fell Asleep While Feeding Infant, 2010-2017

Caregiver/Supervisor Fell Asleep	Number	%
Yes	80	7
No	965	85
Unknown	91	8

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Most infants who died of sleep-related causes (85%) did not have a caregiver or supervisor who fell asleep while feeding them.

Table 25. Caregiver/Supervisor Fell Asleep While Feeding Infant by Feeding Type, 2010-2017

Feeding Type	Number	%
Bottle	22	28
Breast	52	65
Unknown	6	8
Total	80	

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: When the infant's caregiver or supervisor did fall asleep while feeding the infant (n=80), the infant was 2.3 times more likely to be breastfed than bottle fed.

Section 4: Sleep-Related Infant Deaths in Michigan by Incident Details

Table 26. Incident Location, 2010-2017

Incident Location	Number[^]	%
Child's Home	878	75
Relative's Home	172	15
Friend's Home	34	3
Licensed Daycare	24	2
Foster Care	11	1
Unlicensed Daycare Home	11	1
Other*	35	3
Unknown/Missing	2	<1

[^]Multiple responses were allowed for incident location therefore the sum is greater than the total number of infants who died of sleep-related causes.
 *Other includes hotel/motel/motor lodge, shelter/homeless/couch, hospital, and other responses.
 Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Three in four infants who died of sleep-related causes in Michigan were found unresponsive in their own home. Another 15% of infants were found unresponsive in a relative's home.

Table 27. Position Infant was Found, 2010-2017

Found Position	Number	%
Back	352	31
Stomach	487	43
Side	129	11
Unknown/Missing	168	15

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: More than half of the infants (54%) who died of sleep-related causes were found in an unsafe sleeping position. Infants were most often found in the prone (stomach) sleeping position. Fewer than one-third of infants were found in a safe sleeping position (on their back). When a baby is on his back, the air tube (trachea) is on top of the food tube (esophagus). If a baby spits up while on his back, the food/fluid run back into the stomach and not to the lungs. When a baby is on his stomach, the esophagus is on top of the trachea and any food/fluid that is spit up can more easily pool at the opening of the trachea, making it possible for the baby to choke.

Table 28. Incident Sleep Place, 2010-2017

Incident Sleep Place	Number	%
Crib/Bassinet	242	21
Adult Bed ⁺	547	48
Couch/Chair	171	15
Other Unsafe Place*	139	12
Unknown/Missing	37	3

+Adult bed includes both futons and waterbeds.
*Other includes playpen, Rock 'n Play, and other structures that were not a portable crib; the floor; car seat; air mattresses; and other responses.
Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: About half (48%) of the infants who have died of sleep-related causes in Michigan were found unresponsive in an adult bed. In total, three in four (75%) of the infants were found in an unsafe sleep place. Only 21% of infants who died of sleep-related causes were found in a crib or bassinet.

Table 29. Sleep Surface Sharing with People/Animals, 2010-2017

Sleep Surface Sharing	Number	%
Yes, Shared Surface	657	58
No, Did Not Share Sleep Surface	417	37
Unknown/Missing	62	5

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Almost six in ten (58%) infants who died of sleep-related causes in Michigan were sharing a sleep surface with other people/animals at the time of the incident. These numbers do not take into account the presence of other objects (such as pillows or blankets) in the sleep environment.

Table 30. Sleep Surface Sharing with People/Animals by Type, 2010-2017

Type	Number	%
Adult(s) Only	443	67
Child(ren) Only	53	8
Adult(s) and Child(ren)	138	21
Other Combinations of People with Pet(s)	8	1
Sleep Surface Sharing, Unknown Type	15	2
Total	657	
Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.		

SUMMARY: Of the 657 infants who were sharing a sleep surface with people/animals at the time of the incident, two-thirds (67%) were sharing a sleep surface with one or more adults. An additional 21% were sharing a sleep surface with one or more adults and one or more other children.

Table 31. Objects in the Sleep Environment (Excluding People or Animals), 2010-2017

Number of Objects Present	Number	%
One	353	52
Two	194	28
Three	109	16
More than Three	26	4
Total	682	
Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.		

SUMMARY: An object was present in the sleep environment in 682 of the 1,136 sleep-related infant deaths (60%) that occurred in Michigan from 2010-2017. "Object" excludes adults and/or other children as well as animals. "Object" also excludes the sleep environment itself (e.g., couch, chair, or mattress) as well as other items that are sometimes listed as an object present in the sleep environment (e.g., wall or crib rail) even if these items likely contributed to the infant's death (e.g., being found face down on a couch, or wedged between the wall and a mattress). Examples of included objects are blankets, pillows, comforters, and stuffed animals -- extra items added to the sleep environment/surface.

Table 32. Crib, Bassinet, or Portable Crib in Home at Time of Incident, 2010-2017

Crib, Bassinet, or Portable Crib in Home	Number	%
Yes	803	71
No	166	15
Unknown/Missing	167	15

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: The majority (71%) of infants who died of sleep-related causes had a crib, bassinet, or portable crib available in the home at the time of the incident. A crib, bassinet, or portable crib was not present in the home in only 15% of deaths.

Table 33. Availability of Crib in Home by Incident Sleep Place, 2010-2017

Incident Sleep Place	Adult Bed		Couch/Chair		Other*	
	Number	%	Number	%	Number	%
Crib in Home	378	69	106	62	78	56
No Crib in Home	94	17	32	19	36	26
Unknown	75	14	33	19	25	18

*Other includes playpen (not portable crib), chair, floor, car seat, and other various places like air mattress, bean bag, swing, bouncy seat, toddler bed, and makeshift bed.
Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Infants who were found unresponsive in an other type of unsafe sleep location were less likely to have a crib, bassinet, or portable crib available in the home at the time of the incident than were infants who were found unresponsive in an adult bed or on a couch/chair.

Table 34. Infant Was in New or Different Sleep Environment, 2010-2017

New or Different Sleep Environment	Number	%
Yes	197	17
No	815	72
Unknown	124	11

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Almost three-quarters of the infants who died of sleep-related causes were not in a new or different sleep environment at the time of the incident. A new or different sleep environment is defined as a sleep environment that is not part of the child's normal routine (e.g., the child recently started attending a new daycare, the child was temporarily staying in a hotel due to travel, the child was moved from their usual sleep place for soothing).

Table 35. Crib Availability in Home by New or Different Sleep Environment, 2010-2017

Crib Availability	New Sleep Environment		Not a New Sleep Environment	
	Number	%	Number	%
Crib in Home	101	51	662	81
No Crib in Home	77	39	82	10
Unknown	19	10	71	9
Total	197		815	

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Infants who were not in a new sleep environment (81%) were more likely to have a crib, bassinet, or portable crib available in the home than were infants who were in a new or different sleep environment (51%).

Table 36. Incident Sleep Place for Infants in a New or Different Sleep Environment, 2010-2017

Incident Sleep Place	Number	%
Crib/Bassinet	20	10
Adult Bed	88	45
Couch	58	29
Other	31	16
Total	197	

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Of the infants who were in a new or different sleep environment, the infant was most likely to be in an adult bed at the time of the incident (45%).

Table 37. Incident Location when Infant was in New or Different Sleep Environment, 2010-2017

Incident Location	Number	%
Relative's Home	83	41
Child's Home	74	36
Friend's Home	22	11
Unlicensed Daycare	6	3
Licensed Daycare (Home or Center)	6	3
Other*	12	6
Total[^]	203	

*Other locations include motel, home of non-custodial parent, homeless shelter, women's shelter, home where parents were squatting, home of a church member, rented cottage, grandmother's work, and foster care home.
[^]The total does not sum to the number of infants who were in a new or different sleep environment (n=197) as multiple responses were allowed.
 Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: More than three-quarters of the infants who were in a new or different sleep environment were in a relative's home or in the child's own home.

Table 38. Person Supervising Infant at Time of Incident, 2010-2017

Supervisor	Number	%
Biological Parent	960	85
Grandparent	38	3
Other Relative	30	3
Licensed Child Care Worker	23	2
Babysitter	18	2
Friend	11	1
Foster Parent	10	1
Other	9	<1
Mother's Partner	10	1
Unknown/Missing	27	2

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: A biological parent was most likely to be supervising the infant at the time of the incident.

Table 39. Supervisor Impairment, 2010-2017

Supervisor Impaired	Number	%
Yes	310	27
No	696	61
Unknown/Missing	130	11

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: The majority (61%) of those supervising infants who died of sleep-related causes were not impaired at the time of the incident.

Table 40. Supervisor Impairment by Type, 2010-2017

Impairment Type	Number	%
Alcohol Impaired	132	35
Distracted	107	28
Drug Impaired	108	28
Absent	11	3
Other	23	6
Total*	381	

*The total does not sum to the number of supervisors who were impaired (n=310) as multiple responses were allowed.
Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: The majority (61%) of those supervising infants who died of sleep-related causes were not impaired at the time of the incident. When it was determined that the supervisor was impaired, the supervisor was most likely to be impaired by alcohol, drugs, or distraction.

Table 41. Prevention Determination among Child Death Review Teams, 2010-2017

Prevention Determination	Number	%
Death Could Have Been Prevented	1,003	88
Death Probably Could Not Have Been Prevented	20	2
Team Could Not Determine	112	10
Unknown/Missing	1	<1

Source: Death data are from CDC SUID Case Registry, Michigan Public Health Institute, 2019.

SUMMARY: Local Child Death Review Teams determined that almost nine in ten (88%) sleep-related infant deaths in Michigan could have been prevented.