

MICHIGAN INFANT DEATH STATISTICS
January 1 through December 31, 2021

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Acknowledgments

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SUMMARY OF 2021 INFANT DEATH STATISTICS

November 2022 Release

INFANT MORTALITY: For every 1,000 Michigan live births, more than six infants die before reaching their first birthday. In 2021, 656 infants under the age of one died, resulting in an infant mortality rate of 6.2 per 1,000 live births. Michigan experienced a significant decline in infant mortality during the early 1990s; but during the 2000s, the infant mortality rates remained around 7.9 deaths per 1,000 births. The 2020 rate is about the same mortality rates as the average of 6.8 per 1,000 since 2010, though down from the 7.9 average in the previous decade. However, in 2021, the infant mortality rate dropped to a historic low of 6.2 infant deaths per 1,000 live births. The total number of Michigan infants who died between 2011-2021 was 8,163. (See Table 1.)

The perinatal death rate has not significantly changed in years; the rate has been approximately 9 fetal or hebdomadal deaths per 1,000 live births since around 2011. The perinatal death rate was 9.4 in 2019 and 9.3 in 2020 and 8.9 in 2021. (See Table 10.)

Historically, the infant death rate has declined over time. In 1900, the infant death rate was 157.1 deaths per 1,000 live births and in 1970, the infant death rate was 20.3. By 1990, the rate had declined to 10.7 and then again to 7.1 deaths per 1,000 live births in 2010. Since 1970, these declines were primarily due to advances in neonatal medicine, artificial lung surfactants, folic acid supplementation, and numerous public health interventions. After 2010, the infant death rate remain around 6.8 to 2020; however, the 2021 infant death rate of 6.2 may be indicative of a long-term, very gradual decline in the infant death rate. (See Figure 1.)

Both the white and black infant mortality rates remained about the same in recent years, with a persistent racial disparity in which African American mothers experienced over three times the risk of an infant death compared to white mothers. Between 2011-2015, the white infant death rate was an average of 5.3 deaths per 1,000 white births; between 2016-2020, the rate slightly declined to 4.8. In 2021, the white infant death rate fall to a historic low of 4.2. The black infant mortality rate showed no declines during the same period. Between 2011-2015, the black infant mortality rate was an average of 13.6 infant deaths per 1,000 black births; between 2016-2020, the average rate slightly increased to 14.1. In 2021, the black infant death rate was 15.5. (See Table 2.)

The Michigan infant mortality rate continues to be higher than the last reported national rate. The 2021 infant death rate for the United States is 5.5. (See Table 6.)

LIVE BIRTHS: In 2021, the number of live births increased to 105,022, from the 2020 live birth count of 104,149. The increase in live births is unusual; the 2012-2020 numbers are historic lows and are part of a trend toward decreasing numbers of births that begun around 1990. Nationally, there were 3,659,289 births in the U.S. in 2021, a decline of 15.2% from the record number reported for 2007. (See Table 1.)

CAUSES OF DEATH: In 2021, 31% of infants died due to conditions related to prematurity and 15% died due to birth defects. In addition, 10% of infants deaths died due to accidents and most of these accidents were due to accidental suffocation in bed. (See Table 14-A.)

Respiratory Distress Syndrome (RDS) declined from about 15 per 10,000 live births in the early eighties to about 5 per 10,000 by the late nineties. Due to surfactant and other therapies, the number of RDS deaths has continued to decline to less than 2 per 10,000 live births in 2019-2021. In the past few years, the SIDS death rate has remained above 3 per 10,000 live births and increase to almost 4 deaths per 10,000. (See Table 13.)

CHARACTERISTICS OF NEWBORN: Certain newborns are at higher risk of dying. In 2021, infants born with very low birth weight (less than 1,500 grams) experienced an infant death rate of 219.4 per 1,000 live births compared to a rate of 2.2 for those infants weighing 2,500 grams or more. Multiple birth infants had an infant mortality rate of 21.3 per 1,000 live births compared to the rate of 5.6 for single birth infants. Male infant death rates are normally higher than female rates. In 2021, the male rate was slightly higher at 6.6 deaths per 1,000 male live births, while females deaths were at 5.8 per 1,000 female live births. (See Table 11.)

CHARACTERISTICS OF MOTHER: Infant death rates were the lowest for mothers aged 30-39 years old and highest for mothers aged under 20 years old. Unmarried mothers had infant mortality rates over twice those of married mothers. Women receiving inadequate prenatal care experienced infant mortality rates of 17.3 per 1,000 compared to an infant mortality rate of 4.6 per 1,000 for those women receiving adequate prenatal care. Mothers exposed to secondhand smoking while pregnant had an infant death rate of 9.9 per 1,000 live births compared to a rate of 5.6 for mothers who were not exposed to secondhand smoking during pregnancy. (See Table 11.)

ADMINISTRATIVE INFANT DEATH RECORDS: In the 2018, two Detroit area funeral homes' licenses were revoked; this action delayed some reports of infant deaths. To adjust for delays, the Michigan Division for Vital Records and Health Statistics (DVRHS) substituted administrative death records for infants who could not be located in Michigan or out-of-state death files (1) and were flagged as deceased in the Michigan Inpatient database and (2) who were verified as deceased by contacting the hospital of the live birth. Administrative death records are infant death records created from hospital, birth and partial death data reported before the revocation. The Michigan death file contains 21 administrative records.

COMMUNITY LEVEL DATA: Infant mortality data are available for most communities in Michigan. On the Internet, go to Michigan's community health information site at www.michigan.gov/healthstatistics. Data for local health department districts, counties and major cities and townships can be reached by choosing "Vital Statistics" and then "Infant Mortality" button. Those who do not have access to the Internet may request that community level data be mailed to them from the address below.

Questions regarding Infant Death Statistics should be addressed to:

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Residence Determined by Reported Residence and Geocoded Residence in the Michigan Death Certificate Registry

Using a process called geocoding, the Division for Vital Records & Health Statistics (DVRHS) has assigned geographic coordinates to most death certificates reported between 2000 and 2021. While the primary purpose of geocoding mortality data is to map patterns of death and to conduct spatial epidemiology, such records can also be used to improve the accuracy of location-related data recorded on the certificate. In mortality datasets, the division has found that the MCD residence is miscoded in certain areas about 10-20% of the time. Often, the person reporting the residence confuses the township with an adjacent city or village. Such errors then alter the calculation of local area statistics; small errors in coding lead to large errors in rates calculated for MCDs with populations below 70,000.

Therefore, all mortality and natality statistics between 2000 and 2021 in division reports of infant deaths were updated and recalculated using the geocoded data. **Birth and death counts and rates are different from data reported prior to 2011.** Statistics for years before 2000 use the residence reported during the course of registering a vital event. When rates calculated from these data differ substantially from Michigan or county rates, one should study the events as part of a trend of geocoded statistics, and consider whether the data reflects jumps indicative of a longterm trend of residence-miscoding.

**Table 1
Number of Infant Deaths
Live Births and Infant Death Rates
Michigan Residents, 1900 - 2021**

| Year | Infant Deaths | Live Births | Infant Death Rate |
|------|---------------|-------------|-------------------|
| 1900 | 6,866 | 43,699 | 157.1 ±3.4 |
| 1910 | 7,998 | 64,109 | 124.8 ±2.6 |
| 1920 | 8,587 | 92,245 | 93.1 ±1.9 |
| 1930 | 6,213 | 98,882 | 62.8 ±1.5 |
| 1940 | 4,022 | 99,106 | 40.6 ±1.2 |
| 1950 | 4,214 | 160,055 | 26.3 ±0.8 |
| 1960 | 4,702 | 195,056 | 24.1 ±0.7 |
| 1970 | 3,492 | 171,667 | 20.3 ±0.7 |
| 1971 | 3,157 | 162,244 | 19.5 ±0.7 |
| 1972 | 2,801 | 146,854 | 19.1 ±0.7 |
| 1973 | 2,561 | 141,550 | 18.1 ±0.7 |
| 1974 | 2,387 | 137,414 | 17.4 ±0.7 |
| 1975 | 2,205 | 133,931 | 16.5 ±0.7 |
| 1976 | 1,978 | 131,378 | 15.1 ±0.7 |
| 1977 | 1,945 | 138,416 | 14.1 ±0.6 |
| 1978 | 1,931 | 138,802 | 13.9 ±0.6 |
| 1979 | 1,921 | 144,452 | 13.3 ±0.6 |
| 1980 | 1,851 | 145,162 | 12.8 ±0.6 |
| 1981 | 1,851 | 140,579 | 13.2 ±0.6 |
| 1982 | 1,672 | 137,950 | 12.1 ±0.6 |
| 1983 | 1,573 | 133,026 | 11.8 ±0.6 |
| 1984 | 1,595 | 135,782 | 11.7 ±0.6 |
| 1985 | 1,575 | 138,052 | 11.4 ±0.6 |
| 1986 | 1,565 | 137,626 | 11.4 ±0.6 |
| 1987 | 1,538 | 140,466 | 10.9 ±0.5 |
| 1988 | 1,542 | 139,635 | 11.0 ±0.5 |
| 1989 | 1,645 | 148,164 | 11.1 ±0.5 |

Table 1
Number of Infant Deaths
Live Births and Infant Death Rates
Michigan Resident 1900 – 2020
(Continued)

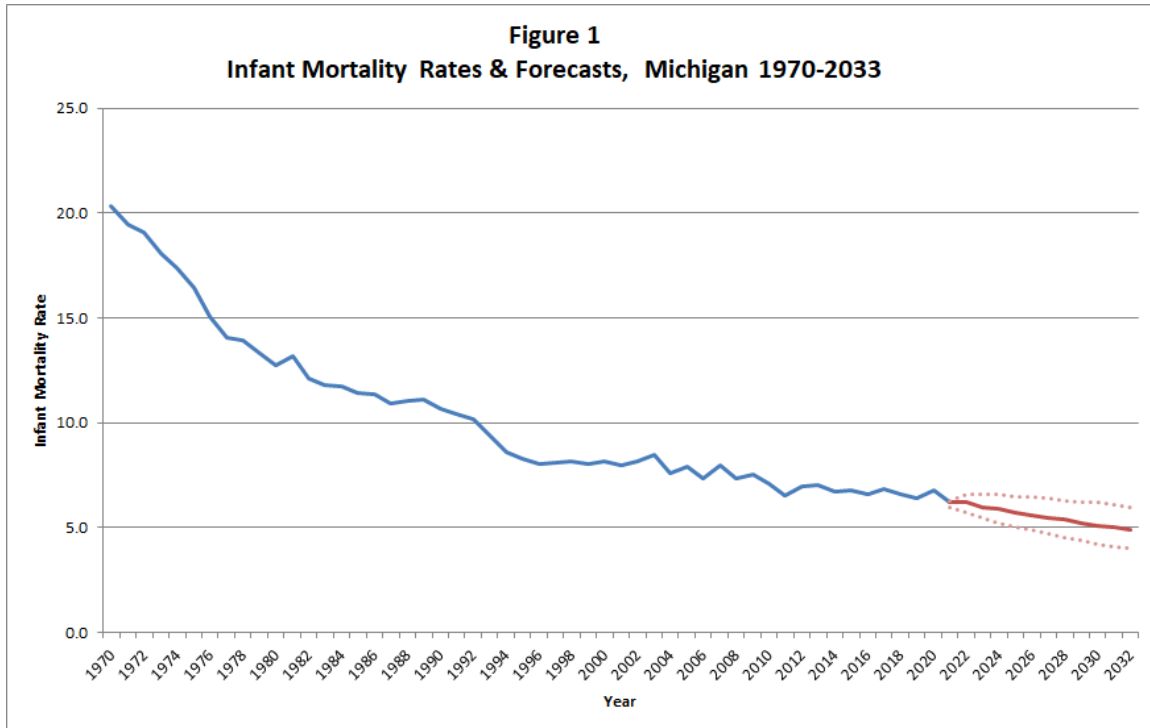
| Year | Infant Deaths | Live Births | Infant Death Rate |
|-------------|----------------------|--------------------|--------------------------|
| 1990 | 1,638 | 153,080 | 10.7 ±0.5 |
| 1991 | 1,554 | 149,478 | 10.4 ±0.5 |
| 1992 | 1,460 | 143,827 | 10.2 ±0.5 |
| 1993 | 1,319 | 139,560 | 9.5 ±0.5 |
| 1994 | 1,184 | 137,844 | 8.6 ±0.5 |
| 1995 | 1,110 | 134,169 | 8.3 ±0.5 |
| 1996 | 1,072 | 133,231 | 8.0 ±0.5 |
| 1997 | 1,085 | 133,549 | 8.1 ±0.5 |
| 1998 | 1,091 | 133,649 | 8.2 ±0.5 |
| 1999 | 1,071 | 133,429 | 8.0 ±0.5 |
| 2000 | 1,112 | 136,048 | 8.2 ±0.5 |
| 2001 | 1,066 | 133,247 | 8.0 ±0.5 |
| 2002 | 1,054 | 129,518 | 8.1 ±0.5 |
| 2003 | 1,112 | 130,850 | 8.5 ±0.5 |
| 2004 | 984 | 129,710 | 7.6 ±0.5 |
| 2005 | 1,013 | 127,518 | 7.9 ±0.5 |
| 2006 | 940 | 127,537 | 7.4 ±0.5 |
| 2007 | 997 | 125,172 | 8.0 ±0.5 |
| 2008 | 894 | 121,231 | 7.4 ±0.5 |
| 2009 | 881 | 117,309 | 7.5 ±0.5 |
| 2010 | 817 | 114,717 | 7.1 ±0.5 |
| 2011 | 749 | 114,159 | 6.6 ±0.5 |
| 2012 | 783 | 112,708 | 6.9 ±0.5 |
| 2013 | 799 | 113,732 | 7.0 ±0.5 |
| 2014 | 773 | 114,460 | 6.8 ±0.5 |

Table 1
Number of Infant Deaths
Live Births and Infant Death Rates
Michigan Resident 1900 – 2020
(Continued)

| Year | Infant Deaths | Live Births | Infant Death Rate |
|------|---------------|-------------|-------------------|
| 2015 | 770 | 113,211 | 6.8 ±0.5 |
| 2016 | 747 | 113,374 | 6.6 ±0.5 |
| 2017 | 763 | 111,507 | 6.8 ±0.5 |
| 2018 | 723 | 110,093 | 6.6 ±0.5 |
| 2019 | 694 | 107,917 | 6.4 ±0.5 |
| 2020 | 706 | 104,149 | 6.8 ±0.5 |
| 2021 | 656 | 105,022 | 6.2 ±0.5 |

Note: Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

Source: 1900-1960 Historical Annuals; 1970 - 2021 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services



Note: Rates are per 1,000 live births. Rates after 2021 are forecasted within an 80% prediction interval indicated by the dotted lines; this means that the future rates fall between the lower and upper bounds of the interval with 80% probability.

Source: 1970- 2021 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Last Updated: 10/14/2022

Table 2
Number of Infant Deaths, Live Births and Infant Death Rates By Race
Michigan Residents, 1970 - 2021

| Year | White | | | Black | | | Other ¹ | | |
|------|---------------|-------------|-------------------|---------------|-------------|-------------------|--------------------|-------------|-------------------|
| | Infant Deaths | Live Births | Infant Death Rate | Infant Deaths | Live Births | Infant Death Rate | Infant Deaths | Live Births | Infant Death Rate |
| 1970 | 2,661 | 144,159 | 18.5 ±0.7 | 811 | 26,513 | 30.6 ±2.1 | 14 | 871 | 16.1 ±8.4 |
| 1971 | 2,293 | 134,486 | 17.1 ±0.7 | 843 | 26,755 | 31.5 ±2.1 | 17 | 890 | 19.1 ±9.0 |
| 1972 | 1,957 | 120,042 | 16.3 ±0.7 | 835 | 25,760 | 32.4 ±2.2 | 8 | 936 | 8.5 ±5.9 |
| 1973 | 1,749 | 115,150 | 15.2 ±0.7 | 796 | 25,252 | 31.5 ±2.2 | 11 | 926 | 11.9 ±7.0 |
| 1974 | 1,673 | 112,768 | 14.8 ±0.7 | 705 | 22,836 | 30.9 ±2.2 | 7 | 950 | 7.4 ±5.4 |
| 1975 | 1,574 | 110,058 | 14.3 ±0.7 | 616 | 22,692 | 27.1 ±2.1 | 8 | 951 | 8.4 ±5.8 |
| 1976 | 1,383 | 108,295 | 12.8 ±0.7 | 575 | 21,778 | 26.4 ±2.1 | 16 | 1,100 | 14.5 ±7.1 |
| 1977 | 1,373 | 114,511 | 12.0 ±0.6 | 559 | 22,620 | 24.7 ±2.0 | 8 | 1,059 | 7.6 ±5.2 |
| 1978 | 1,344 | 114,652 | 11.7 ±0.6 | 566 | 22,423 | 25.2 ±2.1 | 13 | 1,507 | 8.6 ±4.7 |
| 1979 | 1,352 | 119,218 | 11.3 ±0.6 | 550 | 23,346 | 23.6 ±1.9 | 12 | 1,622 | 7.4 ±4.2 |
| 1980 | 1,246 | 119,698 | 10.4 ±0.6 | 582 | 23,422 | 24.8 ±2.0 | 15 | 1,825 | 8.2 ±4.1 |
| 1981 | 1,261 | 116,596 | 10.8 ±0.6 | 564 | 22,002 | 25.6 ±2.1 | 18 | 1,847 | 9.7 ±4.5 |
| 1982 | 1,110 | 114,465 | 9.7 ±0.6 | 548 | 21,574 | 25.4 ±2.1 | 13 | 1,797 | 7.2 ±3.9 |
| 1983 | 1,048 | 109,892 | 9.5 ±0.6 | 506 | 21,295 | 23.8 ±2.0 | 15 | 1,721 | 8.7 ±4.4 |
| 1984 | 1,034 | 111,574 | 9.3 ±0.6 | 541 | 22,322 | 24.2 ±2.0 | 15 | 1,792 | 8.4 ±4.2 |
| 1985 | 1,053 | 114,150 | 9.2 ±0.6 | 510 | 21,935 | 23.3 ±2.0 | 11 | 1,820 | 6.0 ±3.6 |
| 1986 | 999 | 112,255 | 8.9 ±0.5 | 553 | 23,366 | 23.7 ±1.9 | 12 | 1,927 | 6.2 ±3.5 |
| 1987 | 953 | 113,386 | 8.4 ±0.5 | 567 | 24,975 | 22.7 ±1.8 | 17 | 1,992 | 8.5 ±4.0 |
| 1988 | 952 | 112,232 | 8.5 ±0.5 | 570 | 25,217 | 22.6 ±1.8 | 19 | 2,093 | 9.1 ±4.1 |
| 1989 | 946 | 115,186 | 8.2 ±0.5 | 672 | 29,839 | 22.5 ±1.7 | 23 | 2,525 | 9.1 ±3.7 |
| 1990 | 930 | 118,180 | 7.9 ±0.5 | 689 | 31,842 | 21.6 ±1.6 | 18 | 2,623 | 6.9 ±3.2 |
| 1991 | 857 | 114,983 | 7.5 ±0.5 | 683 | 31,543 | 21.7 ±1.6 | 13 | 2,522 | 5.2 ±2.8 |
| 1992 | 781 | 111,458 | 7.0 ±0.5 | 656 | 29,656 | 22.1 ±1.7 | 23 | 2,223 | 10.3 ±4.2 |
| 1993 | 770 | 108,329 | 7.1 ±0.5 | 530 | 28,249 | 18.8 ±1.6 | 17 | 2,418 | 7.0 ±3.3 |
| 1994 | 670 | 106,828 | 6.3 ±0.5 | 495 | 27,129 | 18.2 ±1.6 | 19 | 3,137 | 6.1 ±2.7 |
| 1995 | 655 | 105,274 | 6.2 ±0.5 | 432 | 24,914 | 17.3 ±1.6 | 19 | 3,124 | 6.1 ±2.7 |
| 1996 | 627 | 104,922 | 6.0 ±0.5 | 421 | 24,073 | 17.5 ±1.7 | 21 | 3,307 | 6.4 ±2.7 |
| 1997 | 640 | 104,980 | 6.1 ±0.5 | 425 | 24,201 | 17.6 ±1.7 | 17 | 3,628 | 4.7 ±2.2 |
| 1998 | 660 | 105,161 | 6.3 ±0.5 | 405 | 24,179 | 16.8 ±1.6 | 23 | 3,833 | 6.0 ±2.4 |
| 1999 | 616 | 104,493 | 5.9 ±0.5 | 428 | 23,850 | 17.9 ±1.7 | 19 | 4,210 | 4.5 ±2.0 |

Table 2
Number of Infant Deaths, Live Births and Infant Death Rates By Race
Michigan Residents, 1970 - 2021 (Continued)

| Year | White | | | Black | | | Other ¹ | | |
|------|---------------|-------------|-------------------|---------------|-------------|-------------------|--------------------|-------------|-------------------|
| | Infant Deaths | Live Births | Infant Death Rate | Infant Deaths | Live Births | Infant Death Rate | Infant Deaths | Live Births | Infant Death Rate |
| 2000 | 637 | 106,322 | 6.0 ±0.5 | 437 | 24,069 | 18.2 ±1.7 | 30 | 4,525 | 6.6 ±2.4 |
| 2001 | 635 | 104,489 | 6.1 ±0.5 | 398 | 23,494 | 16.9 ±1.7 | 25 | 4,752 | 5.3 ±2.1 |
| 2002 | 611 | 101,611 | 6.0 ±0.5 | 410 | 22,248 | 18.4 ±1.8 | 21 | 5,056 | 4.2 ±1.8 |
| 2003 | 680 | 102,146 | 6.7 ±0.5 | 391 | 22,380 | 17.5 ±1.7 | 37 | 5,508 | 6.7 ±2.2 |
| 2004 | 527 | 100,795 | 5.2 ±0.4 | 388 | 22,484 | 17.3 ±1.7 | 61 | 5,719 | 10.7 ±2.7 |
| 2005 | 549 | 99,117 | 5.5 ±0.5 | 400 | 22,365 | 17.9 ±1.7 | 62 | 5,461 | 11.4 ±2.8 |
| 2006 | 534 | 98,551 | 5.4 ±0.5 | 339 | 22,873 | 14.8 ±1.6 | 60 | 5,636 | 10.6 ±2.7 |
| 2007 | 549 | 93,868 | 5.8 ±0.5 | 368 | 22,314 | 16.5 ±1.7 | 74 | 6,932 | 10.7 ±2.4 |
| 2008 | 496 | 91,509 | 5.4 ±0.5 | 332 | 22,695 | 14.6 ±1.6 | 61 | 6,691 | 9.1 ±2.3 |
| 2009 | 470 | 87,471 | 5.4 ±0.5 | 346 | 22,292 | 15.5 ±1.6 | 46 | 6,980 | 6.6 ±1.9 |
| 2010 | 462 | 84,597 | 5.5 ±0.5 | 312 | 22,046 | 14.2 ±1.6 | 38 | 7,425 | 5.1 ±1.6 |
| 2011 | 411 | 84,172 | 4.9 ±0.5 | 300 | 21,950 | 13.7 ±1.5 | 34 | 7,529 | 4.5 ±1.5 |
| 2012 | 455 | 82,949 | 5.5 ±0.5 | 291 | 21,623 | 13.5 ±1.5 | 35 | 7,696 | 4.5 ±1.5 |
| 2013 | 473 | 83,339 | 5.7 ±0.5 | 290 | 22,055 | 13.1 ±1.5 | 35 | 8,081 | 4.3 ±1.4 |
| 2014 | 452 | 84,492 | 5.3 ±0.5 | 284 | 21,282 | 13.3 ±1.5 | 36 | 8,574 | 4.2 ±1.4 |
| 2015 | 423 | 82,938 | 5.1 ±0.5 | 311 | 21,457 | 14.5 ±1.6 | 22 | 8,583 | 2.6 ±1.1 |
| 2016 | 401 | 83,388 | 4.8 ±0.5 | 294 | 21,523 | 13.7 ±1.6 | 33 | 8,182 | 4.0 ±1.4 |
| 2017 | 393 | 80,967 | 4.9 ±0.5 | 320 | 21,897 | 14.6 ±1.6 | 35 | 8,222 | 4.3 ±1.4 |
| 2018 | 363 | 80,003 | 4.5 ±0.5 | 326 | 21,643 | 15.1 ±1.6 | 23 | 8,099 | 2.8 ±1.2 |
| 2019 | 364 | 77,739 | 4.7 ±0.5 | 281 | 21,400 | 13.1 ±1.5 | 33 | 8,369 | 3.9 ±1.3 |
| 2020 | 369 | 74,608 | 4.9 ±0.5 | 284 | 20,650 | 13.8 ±1.6 | 23 | 8,287 | 2.8 ±1.1 |
| 2021 | 317 | 76,190 | 4.2 ±0.5 | 285 | 18,384 | 15.5 ±1.8 | 34 | 9,400 | 3.6 ±1.2 |

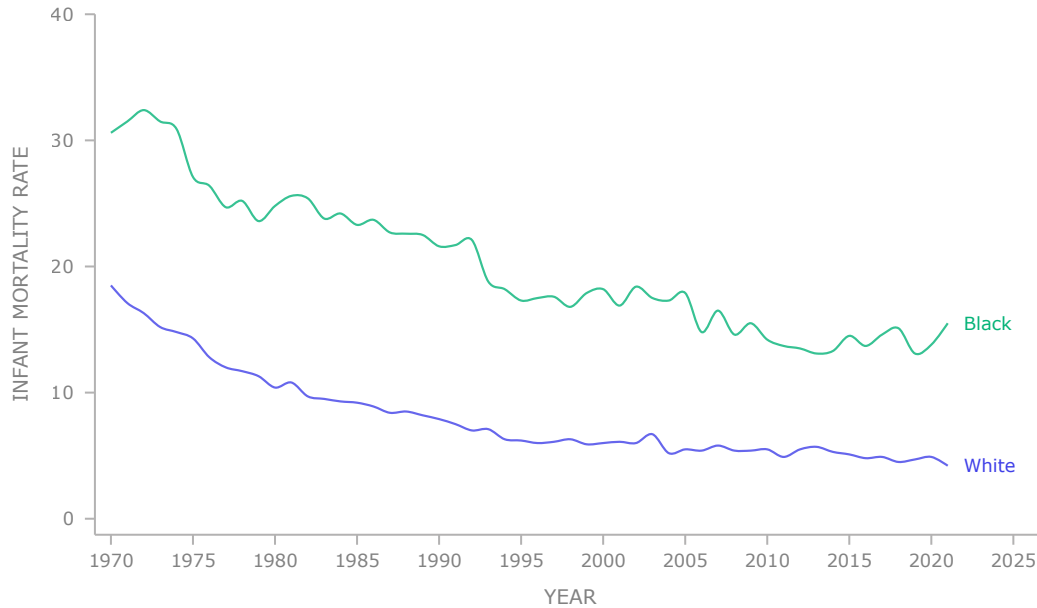
Note: Infant deaths by race of infant; live births used in calculating infant death rates are by race of mother. Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

Infant deaths of unknown race are not included in this table.

¹Between 2004-2008, multi-racial infants were reported as "other."

Source: 1970 - 2021 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Figure 2
Comparison of White and Black Infant Death Rates for
Michigan Residents, 1970-2021



Note: Rates are per 1,000 live births. The range indicated by the grey band represents a 95% confidence interval; this means that the true rate lies between the lower and upper bounds of the interval with 95% statistical confidence.

Source: 1970-2021 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 3
Number of Infant Deaths, Live Births and Infant Death Rates by
Michigan and Michigan County of Residence,
2021 and 2017 - 2021 Average

| County of Residence | 2021 | | | 2017 - 2021 | | |
|---------------------|---------------|-------------|-------------------|-----------------------|---------------------|---------------------------|
| | Infant Deaths | Live Births | Infant Death Rate | Average Infant Deaths | Average Live Births | Average Infant Death Rate |
| MICHIGAN | 656 | 105,022 | 6.2 ±0.5 | 708.4 | 107,741.0 | 6.6 ±0.2 |
| Alcona | - | 75 | - | 0.6 | 67.0 | * |
| Alger | - | 82 | - | 0.2 | 64.4 | * |
| Allegan | 1 | 1,263 | * | 5.2 | 1,316.6 | 3.9 ±1.5 |
| Alpena | - | 287 | - | 1.2 | 263.2 | 4.6 ±3.6 |
| Antrim | 1 | 204 | * | 0.4 | 178.6 | * |
| Arenac | - | 152 | - | 0.2 | 132.4 | * |
| Baraga | 1 | 92 | * | 0.4 | 74.8 | * |
| Barry | 3 | 641 | * | 4.0 | 637.4 | 6.3 ±2.7 |
| Bay | 5 | 949 | * | 5.2 | 951.8 | 5.5 ±2.1 |
| Benzie | - | 151 | - | 0.8 | 152.8 | * |
| Berrien | 10 | 1,569 | 6.4 ±3.9 | 11.6 | 1,617.4 | 7.2 ±1.8 |
| Branch | 3 | 572 | * | 4.0 | 563.2 | 7.1 ±3.1 |
| Calhoun | 7 | 1,545 | 4.5 ±3.3 | 9.8 | 1,513.0 | 6.5 ±1.8 |
| Cass | 4 | 456 | * | 4.2 | 476.2 | 8.8 ±3.8 |
| Charlevoix | - | 217 | - | 1.0 | 221.8 | * |
| Cheboygan | 3 | 220 | * | 2.6 | 205.6 | 12.6 ±6.8 |
| Chippewa | 3 | 281 | * | 2.2 | 305.0 | 7.2 ±4.2 |
| Clare | 3 | 305 | * | 2.4 | 315.4 | 7.6 ±4.3 |
| Clinton | 2 | 759 | * | 2.4 | 786.0 | 3.1 ±1.7 |
| Crawford | - | 114 | - | 0.8 | 116.6 | * |
| Delta | 1 | 341 | * | 2.6 | 337.4 | 7.7 ±4.2 |
| Dickinson | 3 | 240 | * | 1.4 | 240.8 | 5.8 ±4.3 |
| Eaton | 4 | 1,130 | * | 4.8 | 1,124.8 | 4.3 ±1.7 |
| Emmet | 2 | 254 | * | 1.2 | 268.4 | 4.5 ±3.6 |
| Genesee | 34 | 4,425 | 7.7 ±2.6 | 31.4 | 4,508.8 | 7.0 ±1.1 |
| Gladwin | 1 | 230 | * | 1.2 | 243.2 | 4.9 ±3.9 |
| Gogebic | - | 104 | - | 0.2 | 116.2 | * |
| Gd. Traverse | 2 | 887 | * | 4.2 | 880.4 | 4.8 ±2.0 |
| Gratiot | 2 | 348 | * | 1.2 | 381.8 | 3.1 ±2.5 |
| Hillsdale | 4 | 497 | * | 3.2 | 506.4 | 6.3 ±3.1 |

Table 3
Number of Infant Deaths, Live Births and Infant Death Rates by
Michigan and Michigan County of Residence,
2021 and 2017 - 2021 Average

(Continued)

| County of Residence | 2021 | | | 2017 - 2021 | | |
|---------------------|---------------|-------------|-------------------|-----------------------|---------------------|---------------------------|
| | Infant Deaths | Live Births | Infant Death Rate | Average Infant Deaths | Average Live Births | Average Infant Death Rate |
| Houghton | 1 | 377 | * | 1.6 | 362.8 | 4.4 ±3.0 |
| Huron | - | 273 | - | 1.6 | 282.6 | 5.7 ±3.9 |
| Ingham | 19 | 2,762 | 6.9 ±3.1 | 20.4 | 2,956.0 | 6.9 ±1.3 |
| Ionia | 3 | 673 | * | 3.0 | 678.8 | 4.4 ±2.2 |
| Iosco | 2 | 216 | * | 2.6 | 231.4 | 11.2 ±6.1 |
| Iron | 1 | 74 | * | 1.2 | 85.2 | 14.1 ±11.2 |
| Isabella | 2 | 597 | * | 5.0 | 622.8 | 8.0 ±3.1 |
| Jackson | 17 | 1,667 | 10.2 ±4.8 | 11.6 | 1,706.0 | 6.8 ±1.7 |
| Kalamazoo | 15 | 2,760 | 5.4 ±2.7 | 18.8 | 2,932.6 | 6.4 ±1.3 |
| Kalkaska | - | 182 | - | 0.4 | 178.0 | * |
| Kent | 40 | 8,195 | 4.9 ±1.5 | 46.6 | 8,366.8 | 5.6 ±0.7 |
| Keweenaw | - | 9 | - | 0.2 | 12.8 | * |
| Lake | - | 90 | - | 1.0 | 97.4 | * |
| Lapeer | 10 | 803 | 12.5 ±7.7 | 4.8 | 798.4 | 6.0 ±2.4 |
| Leelanau | - | 184 | - | 0.4 | 163.0 | * |
| Lenawee | 5 | 840 | * | 3.8 | 950.4 | 4.0 ±1.8 |
| Livingston | 6 | 1,810 | 3.3 ±2.6 | 5.4 | 1,770.6 | 3.0 ±1.1 |
| Luce | - | 55 | - | 0.8 | 53.4 | * |
| Mackinac | - | 84 | - | - | 84.2 | - |
| Macomb | 46 | 8,787 | 5.2 ±1.5 | 50.8 | 9,039.8 | 5.6 ±0.7 |
| Manistee | 1 | 193 | * | 1.0 | 193.2 | * |
| Marquette | 3 | 567 | * | 2.2 | 567.0 | 3.9 ±2.3 |
| Mason | 1 | 238 | * | 1.0 | 261.6 | * |
| Mecosta | 1 | 434 | * | 2.2 | 416.0 | 5.3 ±3.1 |
| Menominee | 1 | 185 | * | 1.0 | 182.8 | * |
| Midland | 2 | 863 | * | 2.2 | 849.0 | 2.6 ±1.5 |
| Missaukee | - | 170 | - | 0.2 | 169.8 | * |
| Monroe | 13 | 1,502 | 8.7 ±4.7 | 11.4 | 1,508.6 | 7.6 ±2.0 |
| Montcalm | 3 | 678 | * | 3.4 | 696.4 | 4.9 ±2.3 |
| Montmorency | - | 73 | - | 0.4 | 73.0 | * |

Table 3
Number of Infant Deaths, Live Births and Infant Death Rates by
Michigan and Michigan County of Residence,
2021 and 2017 - 2021 Average

(Continued)

| County of Residence | 2021 | | | 2017 - 2021 | | |
|---------------------|---------------|-------------|-------------------|-----------------------|---------------------|---------------------------|
| | Infant Deaths | Live Births | Infant Death Rate | Average Infant Deaths | Average Live Births | Average Infant Death Rate |
| Muskegon | 14 | 1,868 | 7.5 ±3.9 | 12.4 | 1,976.8 | 6.3 ±1.6 |
| Newaygo | 1 | 497 | * | 3.0 | 526.6 | 5.7 ±2.9 |
| Oakland | 62 | 12,876 | 4.8 ±1.2 | 65.4 | 12,882.0 | 5.1 ±0.5 |
| Oceana | 2 | 262 | * | 1.4 | 266.2 | 5.3 ±3.9 |
| Ogemaw | - | 183 | - | 0.8 | 184.6 | * |
| Ontonagon | 1 | 35 | * | 0.2 | 27.6 | * |
| Osceola | 1 | 254 | * | 1.4 | 257.8 | 5.4 ±4.0 |
| Oscoda | 1 | 83 | * | 0.6 | 84.0 | * |
| Otsego | - | 229 | - | 1.4 | 241.0 | 5.8 ±4.3 |
| Ottawa | 12 | 3,160 | 3.8 ±2.1 | 13.0 | 3,174.8 | 4.1 ±1.0 |
| Presque Isle | 1 | 85 | * | 1.0 | 91.4 | * |
| Roscommon | 1 | 149 | * | 1.4 | 152.4 | 9.2 ±6.8 |
| Saginaw | 10 | 2,015 | 5.0 ±3.1 | 16.6 | 2,116.2 | 7.8 ±1.7 |
| St. Clair | 7 | 1,436 | 4.9 ±3.6 | 9.0 | 1,492.4 | 6.0 ±1.8 |
| St. Joseph | 4 | 647 | * | 4.8 | 720.4 | 6.7 ±2.7 |
| Sanilac | 3 | 396 | * | 2.2 | 410.2 | 5.4 ±3.2 |
| Schoolcraft | - | 59 | - | 0.4 | 66.4 | * |
| Shiawasee | 6 | 686 | 8.7 ±7.0 | 3.8 | 678.6 | 5.6 ±2.5 |
| Tuscola | 1 | 508 | * | 3.2 | 529.2 | 6.0 ±3.0 |
| Van Buren | 6 | 815 | 7.4 ±5.9 | 3.2 | 828.8 | 3.9 ±1.9 |
| Washtenaw | 23 | 3,347 | 6.9 ±2.8 | 18.2 | 3,448.8 | 5.3 ±1.1 |
| Wayne | 207 | 21,362 | 9.7 ±1.3 | 225.2 | 22,358.2 | 10.1 ±0.6 |
| Wexford | 2 | 334 | * | 3.2 | 364.4 | 8.8 ±4.3 |
| Unknown | - | 5 | - | - | 4.4 | - |

Note: Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

Source: 2017 - 2021 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

**Table 4
Number of Infant Deaths, Live Births and Infant Death Rates for
Selected Cities of Residence, 2021 and 2017 - 2021 Average**

| City of Residence | 2021 | | | 2017 - 2021 | | |
|-------------------|---------------|-------------|-------------------|-----------------------|---------------------|---------------------------|
| | Infant Deaths | Live Births | Infant Death Rate | Average Infant Deaths | Average Live Births | Average Infant Death Rate |
| Ann Arbor | 11 | 937 | 11.7 ±6.9 | 5.2 | 962.4 | 5.4 ±2.1 |
| Battle Creek | 6 | 699 | 8.6 ±6.8 | 5.4 | 733.2 | 7.4 ±2.8 |
| Dearborn | 9 | 1,601 | 5.6 ±3.7 | 7.8 | 1,613.6 | 4.8 ±1.5 |
| Dearborn Heights | 2 | 860 | * | 4.2 | 814.2 | 5.2 ±2.2 |
| Detroit | 127 | 7,994 | 15.9 ±2.7 | 130.8 | 9,052.8 | 14.4 ±1.1 |
| East Lansing | - | - | - | - | - | - |
| Farmington Hills | 1 | 891 | * | 4.6 | 891.6 | 5.2 ±2.1 |
| Flint | 15 | 982 | 15.3 ±7.7 | 16.8 | 1,267.2 | 13.3 ±2.8 |
| Grand Rapids | 15 | 2,800 | 5.4 ±2.7 | 18.2 | 2,966.6 | 6.1 ±1.3 |
| Kalamazoo | 8 | 838 | 9.5 ±6.6 | 8.2 | 1,101.2 | 7.4 ±2.3 |
| Kentwood | 5 | 738 | * | 4.8 | 744.8 | 6.4 ±2.6 |
| Lansing | 12 | 1,469 | 8.2 ±4.6 | 14.0 | 1,599.2 | 8.8 ±2.0 |
| Livonia | 2 | 896 | * | 3.8 | 899.0 | 4.2 ±1.9 |
| Midland | 1 | 492 | * | 1.4 | 470.6 | 3.0 ±2.2 |
| Muskegon | 4 | 439 | * | 3.0 | 523.4 | 5.7 ±2.9 |
| Novi | 3 | 579 | * | 3.8 | 609.4 | 6.2 ±2.8 |
| Pontiac | 9 | 772 | 11.7 ±7.6 | 9.8 | 953.8 | 10.3 ±2.9 |
| Portage | 1 | 491 | * | 2.6 | 525.4 | 4.9 ±2.7 |
| Rochester Hills | - | 766 | - | 1.6 | 720.2 | 2.2 ±1.5 |
| Roseville | - | 500 | - | 3.2 | 539.2 | 5.9 ±2.9 |
| Royal Oak | 3 | 777 | * | 3.2 | 745.2 | 4.3 ±2.1 |
| Saginaw | 7 | 607 | 11.5 ±8.5 | 8.8 | 721.4 | 12.2 ±3.6 |
| Southfield | 9 | 704 | 12.8 ±8.3 | 6.4 | 737.8 | 8.7 ±3.0 |
| St Clair Shores | 6 | 579 | 10.4 ±8.2 | 3.2 | 599.0 | 5.3 ±2.6 |
| Sterling Heights | 5 | 1,205 | * | 6.4 | 1,340.0 | 4.8 ±1.7 |
| Taylor | 11 | 702 | 15.7 ±9.2 | 8.8 | 796.4 | 11.0 ±3.2 |
| Troy | 2 | 737 | * | 4.2 | 757.4 | 5.5 ±2.4 |
| Warren | 15 | 1,538 | 9.8 ±4.9 | 12.0 | 1,670.0 | 7.2 ±1.8 |
| Westland | 5 | 953 | * | 8.2 | 991.8 | 8.3 ±2.5 |
| Wyoming | 5 | 1,029 | * | 6.4 | 1,088.2 | 5.9 ±2.0 |

Note: This table shows cities with (1) populations greater than 40,000 according to 2007 estimates and (2) three-year average births of greater than 200. City birth and mortality statistics have changed from pre-2011 reports due to geocoding. See Data Quality Considerations for further details. Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

Source: 2017-2019 Geocoded Michigan Death Records; 2020-2021 Michigan Death Records. 2017-2021 Geocoded Michigan Birth Records Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 5
Number and Rate of Infant Deaths by Race for
Residents of Michigan, Detroit City, Wayne County (Excluding Detroit City)
and Michigan (Excluding Wayne County), 1990- 2021

| Year | Race | Michigan | | Detroit City | | Wayne County (excluding Detroit) | | Michigan (excluding Wayne County) | |
|-------------|-------|----------|-----------|--------------|-----------|-------------------------------------|-----------|--------------------------------------|-----------|
| | | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| 1990 | Total | 1,638 | 10.7 ±0.5 | 491 | 20.3 ±1.8 | 170 | 10.3 ±1.5 | 977 | 8.7 ±0.5 |
| | White | 930 | 7.9 ±0.5 | 36 | 8.7 ±2.8 | 130 | 8.8 ±1.5 | 764 | 7.7 ±0.5 |
| | Black | 689 | 21.6 ±1.6 | 451 | 23.0 ±2.1 | 38 | 24.8 ±7.8 | 200 | 18.7 ±2.6 |
| 1991 | Total | 1,554 | 10.4 ±0.5 | 456 | 19.4 ±1.8 | 139 | 8.4 ±1.4 | 959 | 8.8 ±0.6 |
| | White | 857 | 7.5 ±0.5 | 39 | 10.0 ±3.1 | 103 | 7.1 ±1.4 | 715 | 7.4 ±0.5 |
| | Black | 683 | 21.7 ±1.6 | 417 | 21.6 ±2.1 | 34 | 20.3 ±6.7 | 232 | 21.9 ±2.8 |
| 1992 | Total | 1,460 | 10.2 ±0.5 | 462 | 21.4 ±1.9 | 128 | 8.1 ±1.4 | 870 | 8.2 ±0.5 |
| | White | 781 | 7.0 ±0.5 | 43 | 12.3 ±3.7 | 92 | 6.6 ±1.4 | 646 | 6.9 ±0.5 |
| | Black | 656 | 22.1 ±1.7 | 415 | 23.3 ±2.2 | 34 | 21.8 ±7.2 | 207 | 20.1 ±2.7 |
| 1993 | Total | 1,319 | 9.5 ±0.5 | 348 | 17.2 ±1.8 | 111 | 7.1 ±1.3 | 860 | 8.3 ±0.6 |
| | White | 770 | 7.1 ±0.5 | 28 | 9.1 ±3.3 | 88 | 6.4 ±1.3 | 654 | 7.2 ±0.5 |
| | Black | 530 | 18.8 ±1.6 | 317 | 18.7 ±2.0 | 21 | 14.4 ±6.1 | 192 | 19.4 ±2.7 |
| 1994 | Total | 1,184 | 8.6 ±0.5 | 322 | 16.6 ±1.8 | 105 | 6.8 ±1.3 | 757 | 7.3 ±0.5 |
| | White | 670 | 6.3 ±0.5 | 28 | 9.4 ±3.5 | 69 | 5.1 ±1.2 | 573 | 6.3 ±0.5 |
| | Black | 495 | 18.2 ±1.6 | 293 | 18.2 ±2.1 | 35 | 23.7 ±7.7 | 167 | 17.5 ±2.6 |
| 1995 | Total | 1,110 | 8.3 ±0.5 | 274 | 15.6 ±1.8 | 89 | 5.8 ±1.2 | 747 | 7.4 ±0.5 |
| | White | 655 | 6.2 ±0.5 | 17 | 6.0 ±2.8 | 64 | 4.8 ±1.2 | 574 | 6.4 ±0.5 |
| | Black | 432 | 17.3 ±1.6 | 254 | 17.6 ±2.1 | 25 | 18.2 ±7.1 | 153 | 16.8 ±2.6 |
| 1996 | Total | 1,072 | 8.0 ±0.5 | 248 | 15.0 ±1.8 | 101 | 6.7 ±1.3 | 723 | 7.1 ±0.5 |
| | White | 627 | 6.0 ±0.5 | 9 | 3.4 ±2.2 | 74 | 5.6 ±1.3 | 544 | 6.1 ±0.5 |
| | Black | 421 | 17.5 ±1.7 | 238 | 17.5 ±2.2 | 23 | 16.2 ±6.6 | 160 | 17.7 ±2.7 |
| 1997 | Total | 1,085 | 8.1 ±0.5 | 253 | 15.1 ±1.8 | 100 | 6.6 ±1.3 | 732 | 7.2 ±0.5 |
| | White | 640 | 6.1 ±0.5 | 23 | 8.6 ±3.5 | 76 | 5.8 ±1.3 | 541 | 6.1 ±0.5 |
| | Black | 425 | 17.6 ±1.7 | 229 | 16.7 ±2.1 | 23 | 16.5 ±6.7 | 173 | 19.1 ±2.8 |

Table 5
Number and Rate of Infant Deaths by Race for
Residents of Michigan, Detroit City, Wayne County (Excluding Detroit City)
and Michigan (Excluding Wayne County), 1990- 2021 (Continued)

| Year | Race | Michigan | | Detroit City | | Wayne County (excluding Detroit) | | Michigan (excluding Wayne County) | |
|-------------|-------|----------|-----------|--------------|-----------|-------------------------------------|-----------|--------------------------------------|-----------|
| | | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| 1998 | Total | 1,091 | 8.2 ±0.5 | 241 | 14.7 ±1.8 | 99 | 6.6 ±1.3 | 751 | 7.4 ±0.5 |
| | White | 660 | 6.3 ±0.5 | 15 | 5.8 ±2.9 | 74 | 5.7 ±1.3 | 571 | 6.4 ±0.5 |
| | Black | 405 | 16.8 ±1.6 | 219 | 16.1 ±2.1 | 22 | 14.9 ±6.2 | 164 | 18.0 ±2.7 |
| 1999 | Total | 1,071 | 8.0 ±0.5 | 245 | 15.5 ±1.9 | 97 | 6.4 ±1.3 | 729 | 7.1 ±0.5 |
| | White | 616 | 5.9 ±0.5 | 15 | 5.6 ±2.8 | 72 | 5.6 ±1.3 | 529 | 5.9 ±0.5 |
| | Black | 428 | 17.9 ±1.7 | 228 | 17.8 ±2.3 | 23 | 15.1 ±6.1 | 177 | 18.6 ±2.7 |
| 2000 | Total | 1,112 | 8.2 ±0.5 | 232 | 14.7 ±1.9 | 98 | 6.4 ±1.3 | 782 | 7.4 ±0.5 |
| | White | 637 | 6.0 ±0.5 | 20 | 7.5 ±3.3 | 64 | 5.0 ±1.2 | 553 | 6.1 ±0.5 |
| | Black | 437 | 18.2 ±1.7 | 206 | 16.1 ±2.2 | 33 | 20.2 ±6.8 | 198 | 20.5 ±2.8 |
| 2001 | Total | 1,066 | 8.0 ±0.5 | 210 | 13.9 ±1.9 | 81 | 5.3 ±1.2 | 775 | 7.5 ±0.5 |
| | White | 635 | 6.1 ±0.5 | 14 | 5.3 ±2.8 | 58 | 4.5 ±1.2 | 563 | 6.3 ±0.5 |
| | Black | 398 | 16.9 ±1.7 | 195 | 15.9 ±2.2 | 21 | 12.9 ±5.5 | 182 | 18.9 ±2.7 |
| 2002 | Total | 1,054 | 8.1 ±0.5 | 239 | 16.8 ±2.1 | 103 | 6.9 ±1.3 | 712 | 7.1 ±0.5 |
| | White | 611 | 6.0 ±0.5 | 20 | 8.0 ±3.5 | 70 | 5.7 ±1.3 | 521 | 6.0 ±0.5 |
| | Black | 410 | 18.4 ±1.8 | 217 | 19.1 ±2.5 | 28 | 16.9 ±6.2 | 165 | 17.9 ±2.7 |
| 2003 | Total | 1,112 | 8.5 ±0.5 | 227 | 16.2 ±2.1 | 120 | 8.1 ±1.4 | 765 | 7.5 ±0.5 |
| | White | 680 | 6.7 ±0.5 | 28 | 11.7 ±4.3 | 85 | 7.1 ±1.5 | 567 | 6.5 ±0.5 |
| | Black | 391 | 17.5 ±1.7 | 199 | 17.9 ±2.5 | 29 | 16.9 ±6.1 | 163 | 17.1 ±2.6 |
| 2004 | Total | 984 | 7.6 ±0.5 | 211 | 15.6 ±2.1 | 89 | 6.1 ±1.3 | 684 | 6.7 ±0.5 |
| | White | 527 | 5.2 ±0.4 | 12 | 5.0 ±2.8 | 54 | 4.6 ±1.2 | 461 | 5.3 ±0.5 |
| | Black | 388 | 17.3 ±1.7 | 193 | 17.9 ±2.5 | 30 | 16.1 ±5.7 | 165 | 16.8 ±2.5 |
| 2005 | Total | 1,013 | 7.9 ±0.5 | 210 | 16.0 ±2.1 | 93 | 6.5 ±1.3 | 710 | 7.1 ±0.5 |
| | White | 549 | 5.5 ±0.5 | 13 | 5.7 ±3.1 | 58 | 5.1 ±1.3 | 478 | 5.6 ±0.5 |
| | Black | 400 | 17.9 ±1.7 | 188 | 17.9 ±2.5 | 34 | 17.7 ±5.9 | 178 | 17.9 ±2.6 |

Table 5
Number and Rate of Infant Deaths by Race for
Residents of Michigan, Detroit City, Wayne County (Excluding Detroit City)
and Michigan (Excluding Wayne County), 1990- 2021 (Continued)

| Year | Race | Michigan | | Detroit City | | Wayne County (excluding Detroit) | | Michigan (excluding Wayne County) | |
|-------------|-------|----------|-----------|--------------|-----------|-------------------------------------|-----------|--------------------------------------|-----------|
| | | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| 2006 | Total | 940 | 7.4 ±0.5 | 175 | 13.5 ±2.0 | 98 | 6.8 ±1.4 | 667 | 6.7 ±0.5 |
| | White | 534 | 5.4 ±0.5 | 9 | 4.0 ±2.6 | 61 | 5.5 ±1.4 | 464 | 5.4 ±0.5 |
| | Black | 339 | 14.8 ±1.6 | 153 | 14.7 ±2.3 | 31 | 14.4 ±5.0 | 155 | 15.0 ±2.3 |
| 2007 | Total | 997 | 8.0 ±0.5 | 179 | 14.8 ±2.1 | 95 | 6.7 ±1.3 | 723 | 7.3 ±0.5 |
| | White | 549 | 5.8 ±0.5 | 13 | 7.1 ±3.8 | 59 | 5.5 ±1.4 | 477 | 5.9 ±0.5 |
| | Black | 368 | 16.5 ±1.7 | 155 | 16.1 ±2.5 | 25 | 11.4 ±4.5 | 188 | 17.9 ±2.5 |
| 2008 | Total | 894 | 7.4 ±0.5 | 175 | 14.8 ±2.2 | 100 | 7.2 ±1.4 | 619 | 6.5 ±0.5 |
| | White | 496 | 5.4 ±0.5 | 8 | 4.7 ±3.3 | 63 | 5.9 ±1.5 | 425 | 5.4 ±0.5 |
| | Black | 332 | 14.6 ±1.6 | 159 | 16.7 ±2.6 | 27 | 12.3 ±4.6 | 146 | 13.3 ±2.1 |
| 2009 | Total | 881 | 7.5 ±0.5 | 166 | 14.8 ±2.2 | 82 | 6.1 ±1.3 | 633 | 6.8 ±0.5 |
| | White | 470 | 5.4 ±0.5 | 6 | 4.3 ±3.5 | 54 | 5.4 ±1.4 | 410 | 5.4 ±0.5 |
| | Black | 346 | 15.5 ±1.6 | 152 | 16.7 ±2.6 | 19 | 7.9 ±3.5 | 175 | 16.2 ±2.4 |
| 2010 | Total | 817 | 7.1 ±0.5 | 146 | 13.3 ±2.2 | 87 | 6.6 ±1.4 | 584 | 6.4 ±0.5 |
| | White | 462 | 5.5 ±0.5 | 10 | 9.6 ±5.9 | 44 | 4.6 ±1.4 | 408 | 5.5 ±0.5 |
| | Black | 312 | 14.2 ±1.6 | 128 | 14.3 ±2.5 | 37 | 15.0 ±4.8 | 147 | 13.8 ±2.2 |
| 2011 | Total | 749 | 6.6 ±0.5 | 130 | 12.6 ±2.1 | 100 | 7.5 ±1.5 | 519 | 5.7 ±0.5 |
| | White | 411 | 4.9 ±0.5 | 5 | * | 58 | 6.0 ±1.5 | 348 | 4.7 ±0.5 |
| | Black | 300 | 13.7 ±1.5 | 119 | 14.0 ±2.5 | 37 | 14.6 ±4.7 | 144 | 13.2 ±2.1 |
| 2012 | Total | 783 | 6.9 ±0.5 | 151 | 15.0 ±2.4 | 87 | 6.7 ±1.4 | 545 | 6.1 ±0.5 |
| | White | 455 | 5.5 ±0.5 | 12 | 15.7 ±8.8 | 56 | 5.9 ±1.6 | 387 | 5.3 ±0.5 |
| | Black | 291 | 13.5 ±1.5 | 133 | 16.0 ±2.7 | 27 | 11.2 ±4.2 | 131 | 12.0 ±2.0 |
| 2013 | Total | 799 | 7.0 ±0.5 | 132 | 13.1 ±2.2 | 84 | 6.2 ±1.3 | 583 | 6.5 ±0.5 |
| | White | 473 | 5.7 ±0.5 | 7 | 8.8 ±6.5 | 57 | 6.0 ±1.6 | 409 | 5.6 ±0.5 |
| | Black | 290 | 13.1 ±1.5 | 119 | 14.4 ±2.6 | 22 | 8.2 ±3.4 | 149 | 13.5 ±2.1 |

Table 5
Number and Rate of Infant Deaths by Race for
Residents of Michigan, Detroit City, Wayne County (Excluding Detroit City)
and Michigan (Excluding Wayne County), 1990- 2021 (Continued)

| Year | Race | Michigan | | Detroit City | | Wayne County (excluding Detroit) | | Michigan (excluding Wayne County) | |
|-------------|-------|----------|-----------|--------------|-----------|-------------------------------------|-----------|--------------------------------------|-----------|
| | | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| 2014 | Total | 773 | 6.8 ±0.5 | 130 | 13.2 ±2.3 | 88 | 6.5 ±1.4 | 555 | 6.1 ±0.5 |
| | White | 452 | 5.3 ±0.5 | 8 | 9.6 ±6.6 | 55 | 5.9 ±1.6 | 389 | 5.2 ±0.5 |
| | Black | 284 | 13.3 ±1.5 | 120 | 14.7 ±2.6 | 25 | 9.7 ±3.8 | 139 | 13.2 ±2.2 |
| 2015 | Total | 770 | 6.8 ±0.5 | 142 | 14.4 ±2.3 | 83 | 6.1 ±1.3 | 545 | 6.1 ±0.5 |
| | White | 423 | 5.1 ±0.5 | 9 | 10.1 ±6.6 | 60 | 6.4 ±1.6 | 354 | 4.9 ±0.5 |
| | Black | 311 | 14.5 ±1.6 | 125 | 15.4 ±2.7 | 17 | 6.4 ±3.1 | 169 | 15.8 ±2.4 |
| 2016 | Total | 747 | 6.6 ±0.5 | 125 | 13.3 ±2.3 | 80 | 5.8 ±1.3 | 542 | 6.0 ±0.5 |
| | White | 401 | 4.8 ±0.5 | 7 | 8.0 ±5.9 | 49 | 5.1 ±1.4 | 345 | 4.7 ±0.5 |
| | Black | 294 | 13.7 ±1.6 | 105 | 13.6 ±2.6 | 30 | 10.8 ±3.8 | 159 | 14.4 ±2.2 |
| 2017 | Total | 763 | 6.8 ±0.5 | 137 | 14.2 ±2.4 | 108 | 7.9 ±1.5 | 518 | 5.9 ±0.5 |
| | White | 393 | 4.9 ±0.5 | 7 | 7.2 ±5.3 | 45 | 4.7 ±1.4 | 341 | 4.8 ±0.5 |
| | Black | 320 | 14.6 ±1.6 | 122 | 15.5 ±2.7 | 52 | 18.8 ±5.1 | 146 | 13.0 ±2.1 |
| 2018 | Total | 723 | 6.6 ±0.5 | 158 | 16.7 ±2.6 | 87 | 6.5 ±1.4 | 478 | 5.5 ±0.5 |
| | White | 363 | 4.5 ±0.5 | 7 | 6.4 ±4.7 | 43 | 4.6 ±1.4 | 313 | 4.5 ±0.5 |
| | Black | 326 | 15.1 ±1.6 | 146 | 18.9 ±3.0 | 43 | 15.3 ±4.5 | 137 | 12.3 ±2.0 |
| 2019 | Total | 694 | 6.4 ±0.5 | 103 | 11.0 ±2.1 | 113 | 8.6 ±1.6 | 478 | 5.6 ±0.5 |
| | White | 364 | 4.7 ±0.5 | 4 | * | 60 | 6.6 ±1.7 | 300 | 4.4 ±0.5 |
| | Black | 281 | 13.1 ±1.5 | 92 | 12.2 ±2.5 | 46 | 16.4 ±4.7 | 143 | 12.9 ±2.1 |
| 2020 | Total | 706 | 6.8 ±0.5 | 129 | 14.6 ±2.5 | 84 | 6.5 ±1.4 | 493 | 6.0 ±0.5 |
| | White | 369 | 5.0 ±0.5 | 6 | 5.8 ±4.6 | 44 | 5.1 ±1.5 | 319 | 4.9 ±0.5 |
| | Black | 284 | 14.0 ±1.6 | 116 | 16.6 ±3.0 | 32 | 11.8 ±4.1 | 136 | 12.8 ±2.1 |
| 2021 | Total | 656 | 6.2 ±0.5 | 127 | 15.9 ±2.7 | 80 | 6.0 ±1.3 | 449 | 5.4 ±0.5 |
| | White | 317 | 4.2 ±0.5 | 11 | 12.1 ±7.1 | 41 | 5.0 ±1.5 | 265 | 3.9 ±0.5 |
| | Black | 285 | 15.5 ±1.8 | 112 | 18.1 ±3.3 | 34 | 12.8 ±4.3 | 139 | 14.5 ±2.4 |

Note: Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

Source: 1990- 2021 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

Table 6
Number and Rate of Infant Deaths by Race,
Michigan and United States Residents, 1989 - 2021

| Year | United States | | | | | | Michigan | | | | | |
|------|---------------|------|--------|------|--------|------|-----------|------|--------|------|--------|------|
| | All Races | | White | | Black | | All Races | | White | | Black | |
| | Number | Rate | Number | Rate | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| 1989 | 39,655 | 9.8 | 25,794 | 8.0 | 12,527 | 18.6 | 1,645 | 11.1 | 946 | 8.2 | 672 | 22.5 |
| 1990 | 38,351 | 9.2 | 24,883 | 7.6 | 12,290 | 18.0 | 1,638 | 10.7 | 930 | 7.9 | 689 | 21.6 |
| 1991 | 36,766 | 8.9 | 23,657 | 7.3 | 11,994 | 17.6 | 1,554 | 10.4 | 857 | 7.5 | 683 | 21.7 |
| 1992 | 34,628 | 8.5 | 22,164 | 6.9 | 11,348 | 16.8 | 1,460 | 10.2 | 781 | 7.0 | 656 | 22.1 |
| 1993 | 33,466 | 8.4 | 21,497 | 6.8 | 10,887 | 16.5 | 1,319 | 9.5 | 770 | 7.1 | 530 | 18.8 |
| 1994 | 31,710 | 8.0 | 20,504 | 6.6 | 10,072 | 15.8 | 1,184 | 8.6 | 670 | 6.3 | 495 | 18.2 |
| 1995 | 29,583 | 7.6 | 19,490 | 6.3 | 9,118 | 15.1 | 1,110 | 8.3 | 655 | 6.2 | 432 | 17.3 |
| 1996 | 28,487 | 7.3 | 18,761 | 6.1 | 8,730 | 14.7 | 1,072 | 8.0 | 627 | 6.0 | 421 | 17.5 |
| 1997 | 28,045 | 7.2 | 18,539 | 6.0 | 8,496 | 14.2 | 1,085 | 8.1 | 640 | 6.1 | 425 | 17.6 |
| 1998 | 28,371 | 7.2 | 18,561 | 6.0 | 8,726 | 14.3 | 1,091 | 8.2 | 660 | 6.3 | 405 | 16.8 |
| 1999 | 27,953 | 7.1 | 18,069 | 5.8 | 8,832 | 14.6 | 1,071 | 8.0 | 616 | 5.9 | 428 | 17.9 |
| 2000 | 28,035 | 6.9 | 18,144 | 5.7 | 8,771 | 14.0 | 1,112 | 8.2 | 637 | 6.0 | 437 | 18.2 |
| 2001 | 27,568 | 6.8 | 17,955 | 5.7 | 8,498 | 14.0 | 1,066 | 8.0 | 635 | 6.1 | 398 | 16.9 |
| 2002 | 28,034 | 7.0 | 18,369 | 5.8 | 8,524 | 14.4 | 1,054 | 8.1 | 611 | 6.0 | 410 | 18.4 |
| 2003 | 28,025 | 6.9 | 18,440 | 5.7 | 8,402 | 14.0 | 1,112 | 8.5 | 680 | 6.7 | 391 | 17.5 |
| 2004 | 27,936 | 6.8 | 18,231 | 5.7 | 8,494 | 13.3 | 984 | 7.6 | 527 | 5.2 | 388 | 17.3 |
| 2005 | 28,440 | 6.9 | 18,514 | 5.7 | 8,695 | 13.7 | 1,013 | 7.9 | 549 | 5.5 | 400 | 17.9 |
| 2006 | 28,527 | 6.7 | 18,403 | 5.6 | 8,858 | 13.3 | 940 | 7.4 | 534 | 5.4 | 339 | 14.8 |
| 2007 | 29,138 | 6.8 | 18,807 | 5.6 | 8,944 | 13.2 | 997 | 8.0 | 549 | 5.8 | 368 | 16.5 |
| 2008 | 28,059 | 6.6 | 18,164 | 5.6 | 8,543 | 12.7 | 894 | 7.4 | 496 | 5.4 | 332 | 14.6 |
| 2009 | 26,412 | 6.4 | 16,817 | 5.3 | 8,312 | 12.6 | 881 | 7.5 | 470 | 5.4 | 346 | 15.5 |
| 2010 | 24,548 | 6.1 | 15,933 | 5.2 | 7,388 | 11.6 | 817 | 7.1 | 462 | 5.5 | 312 | 14.2 |
| 2011 | 23,910 | 6.1 | 15,453 | 5.1 | 7,058 | 11.2 | 749 | 6.6 | 411 | 4.9 | 300 | 13.7 |
| 2012 | 23,654 | 6.0 | 15,264 | 5.1 | 6,896 | 10.9 | 783 | 6.9 | 455 | 5.5 | 291 | 13.5 |
| 2013 | 23,440 | 6.0 | 15,125 | 5.0 | 7,123 | 11.2 | 799 | 7.0 | 473 | 5.7 | 290 | 13.1 |
| 2014 | 23,215 | 5.8 | 14,883 | 5.1 | 7,076 | 10.4 | 773 | 6.8 | 452 | 5.3 | 284 | 13.3 |
| 2015 | 23,455 | 5.9 | 14,834 | 5.0 | 7,289 | 10.6 | 770 | 6.8 | 423 | 5.1 | 311 | 14.5 |
| 2016 | 23,161 | 5.9 | 14,568 | 4.9 | 7,229 | 10.6 | 747 | 6.6 | 401 | 4.8 | 294 | 13.7 |
| 2017 | 22,335 | 5.7 | 13,867 | 4.7 | 7,099 | 10.5 | 763 | 6.8 | 393 | 4.9 | 320 | 14.6 |
| 2018 | 21,467 | 5.6 | 13,428 | 4.7 | 6,760 | 10.2 | 723 | 6.6 | 363 | 4.5 | 326 | 15.1 |
| 2019 | 20,921 | 5.5 | 12,990 | 4.6 | 6,748 | 10.4 | 694 | 6.4 | 364 | 4.7 | 281 | 13.1 |
| 2020 | 19,582 | 5.4 | 11,773 | 4.4 | 6,051 | 10.4 | 706 | 6.8 | 369 | 4.9 | 284 | 13.8 |
| 2021 | 19,920 | 5.5 | 11,981 | 4.6 | 6,006 | 10.2 | 656 | 6.2 | 317 | 4.2 | 285 | 15.5 |

Note: Rates are per 1,000 live births.

Source: 1989 - 2021 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.
 2007-2012 NCHS, Linked Birth / Infant Death Records; 2007-2021 on CDC WONDER On-line Database. Accessed at <http://wonder.cdc.gov/lbd-current.html> on October 11, 2022. Infant Mortality in the United States, 2017, NVSR Vol 68, No. 10. "Deaths: Final Data for 2006", Vol 57, No. 14, April 2009; and [National Center for Health Statistics, historical data. 2021 data is provisional.](#)

Table 7-A
Number of Hispanic and Middle Easterner Infant Deaths by Selected County and Michigan
Michigan Residents, 2011 - 2021

Hispanic Infant Deaths

| County | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Michigan | 44 | 74 | 80 | 61 | 77 | 68 | 58 | 48 | 55 | 48 | 56 |
| Hispanic Infant Death Rates | 5.6 | 9.7 | 10.3 | 8.0 | 9.9 | 8.8 | 7.6 | 6.5 | 7.3 | 10.1 | 7.9 |
| Allegan | 1 | - | 3 | - | - | 1 | 2 | - | 3 | - | - |
| Genesee | 2 | - | - | 1 | 2 | 4 | 3 | 3 | 1 | 2 | 2 |
| Ingham | 1 | 2 | 4 | 2 | 1 | 2 | 2 | 2 | 4 | - | 2 |
| Kalamazoo | - | 2 | 2 | 1 | 4 | 1 | 1 | - | - | 2 | - |
| Kent | 12 | 10 | 6 | 7 | 13 | 10 | 4 | 9 | 6 | 9 | 4 |
| Lenawee | 1 | 2 | 5 | 2 | - | 1 | 1 | 1 | - | - | - |
| Macomb | - | 1 | 3 | - | 5 | 2 | 3 | 3 | 2 | 2 | 6 |
| Muskegon | 1 | 1 | 5 | - | 2 | 2 | 1 | 3 | 2 | - | - |
| Oakland | 7 | 8 | 8 | 4 | 9 | 1 | 5 | 7 | 2 | 2 | 6 |
| Ottawa | 2 | 4 | 8 | 2 | 4 | 4 | 3 | 2 | 3 | 2 | 3 |
| Saginaw | 2 | 5 | 4 | 4 | 2 | 8 | - | 4 | 4 | 3 | 3 |
| Van Buren | - | 2 | 1 | 2 | 3 | 1 | - | 2 | 1 | - | 1 |
| Washtenaw | - | 2 | 1 | - | - | 1 | - | 1 | - | 1 | - |
| Wayne | 8 | 16 | 17 | 13 | 21 | 13 | 18 | 6 | 15 | 12 | 18 |
| All Other Counties | 7 | 19 | 13 | 23 | 11 | 17 | 15 | 5 | 12 | 13 | 11 |

Table 7-B
Number of Hispanic and Middle Easterner Infant Deaths by Selected County and Michigan
Michigan Residents, 2011 - 2021 (Continued)

Middle Easterner Infant Deaths

| County | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Michigan | 24 | 26 | 36 | 21 | 26 | 30 | 22 | 31 | 22 | 25 | 17 |
| Arabic Infant Death Rates | 5.9 | 6.2 | 7.8 | 4.4 | 5.3 | 6.0 | 4.1 | 6.0 | 4.5 | 5.6 | 3.8 |
| Macomb | 2 | 5 | 6 | 3 | 2 | 6 | 4 | 6 | 4 | 1 | 1 |
| Oakland | 3 | 5 | 7 | 3 | 4 | 5 | 2 | 3 | 2 | 8 | - |
| Wayne | 15 | 14 | 17 | 9 | 16 | 13 | 14 | 17 | 13 | 13 | 14 |
| All Other Counties | 4 | 2 | 6 | 6 | 4 | 6 | 2 | 5 | 3 | 3 | 2 |

Note: The increase in hispanic mortality incidence reflects a change in death certificate reporting. Michigan's death certificate was revised in 2003 to comply with a change in the National Standard death certificate and a separate indicator of hispanic ancestry was introduced. In 2005, the hispanic ancestry indicator was used in tabulations for the first time, resulting in the identification of hispanic deaths that might otherwise have been missed. The increase in hispanic death cases between 2004 and 2005 should not be considered as a change in trend.

Caution: Care should be taken drawing inferences from rates based on small numbers of events or small population base. These rates tend to exhibit considerable variation which may negate their usefulness for comparative purpose

Source: 2011-2021 Michigan Resident Infant Death Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

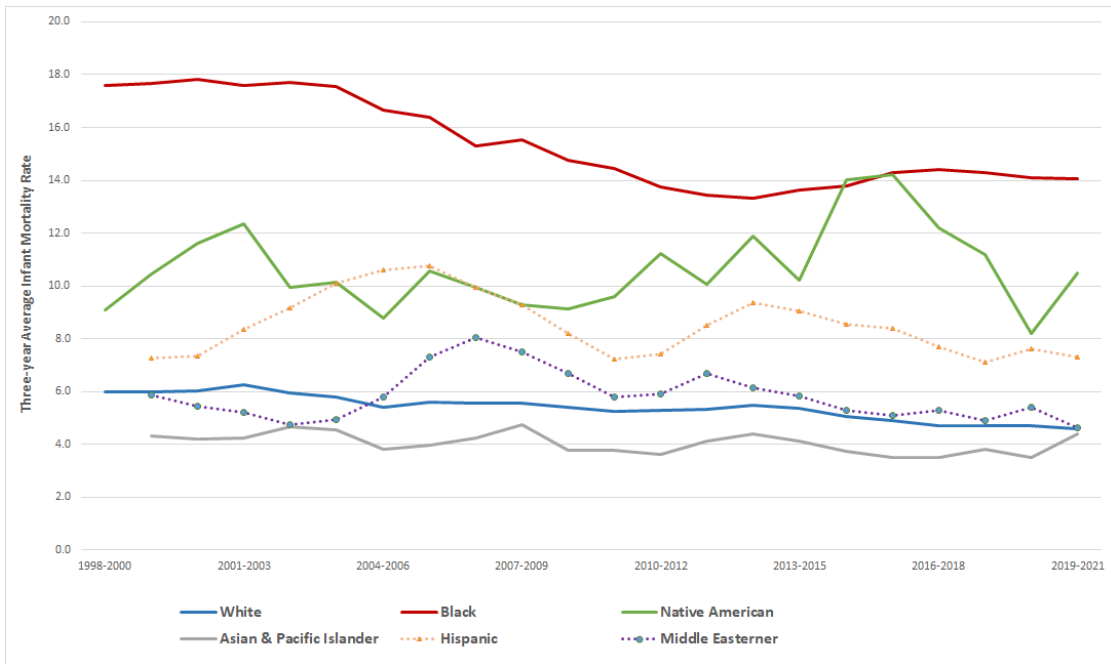
Table 8
Three-year Average Infant Death Rates by Race and Ancestry,
Michigan Residents, 1999 - 2021

| Trends | Race | | | | Ancestry | |
|-----------|-------|-------|-----------------|----------------------------|----------|------------------|
| | White | Black | Native American | Asian and Pacific Islander | Hispanic | Middle Easterner |
| 1999-2001 | 6.0 | 17.7 | 10.5 | 4.3 | 7.3 | 5.9 |
| 2000-2002 | 6.0 | 17.8 | 11.6 | 4.2 | 7.4 | 5.4 |
| 2001-2003 | 6.2 | 17.6 | 12.4 | 4.2 | 8.3 | 5.2 |
| 2002-2004 | 6.0 | 17.7 | 10.0 | 4.7 | 9.2 | 4.7 |
| 2003-2005 | 5.8 | 17.5 | 10.1 | 4.5 | 10.1 | 4.9 |
| 2004-2006 | 5.4 | 16.6 | 8.8 | 3.8 | 10.6 | 5.8 |
| 2005-2007 | 5.6 | 16.4 | 10.6 | 4.0 | 10.8 | 7.3 |
| 2006-2008 | 5.6 | 15.3 | 9.9 | 4.2 | 9.9 | 8.1 |
| 2007-2009 | 5.6 | 15.5 | 9.3 | 4.8 | 9.3 | 7.5 |
| 2008-2010 | 5.4 | 14.8 | 9.1 | 3.8 | 8.2 | 6.7 |
| 2009-2011 | 5.2 | 14.5 | 9.6 | 3.8 | 7.2 | 5.8 |
| 2010-2012 | 5.3 | 13.8 | 11.2 | 3.6 | 7.4 | 5.9 |
| 2011-2013 | 5.3 | 13.4 | 10.1 | 4.1 | 8.5 | 6.7 |
| 2012-2014 | 5.5 | 13.3 | 11.9 | 4.4 | 9.4 | 6.1 |
| 2013-2015 | 5.4 | 13.6 | 10.2 | 4.1 | 9.1 | 5.8 |
| 2014-2016 | 5.1 | 13.8 | 14.0 | 3.7 | 8.6 | 5.2 |
| 2015-2017 | 4.9 | 14.3 | 14.2 | 3.5 | 8.4 | 5.1 |
| 2016-2018 | 4.7 | 14.4 | 12.2 | 3.5 | 7.7 | 5.3 |
| 2017-2019 | 4.7 | 14.3 | 11.2 | 3.8 | 7.1 | 4.9 |
| 2018-2020 | 4.7 | 14.1 | 8.2 | 3.5 | 7.6 | 5.4 |
| 2019-2021 | 4.6 | 14.1 | 10.5 | 4.4 | 7.3 | 4.6 |

Note: Rates are per 1,000 live births.

Source: 1999 - 2021 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Figure 3
Three-year Average Infant Mortality Rates by Race and Ancestry,
Michigan Residents, 1998-2021



Note: Rates are infant deaths per 1,000 live births.

Source: 1998-2021 Michigan Resident Infant Death File, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

Table 9
Infant, Hebdomadal, Fetal and Perinatal Death Rates
by Specified Race and Ancestry
Michigan Residents, 2021

| Race/Ancstry | Live Births | Infant Deaths | | Hebdomadal Deaths | | Fetal Deaths | | Perinatal Deaths | |
|----------------------------|-------------|---------------|-----------|-------------------|----------|--------------|-----------|------------------|-----------|
| | | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| All Races | 105,022 | 656 | 6.2 ±0.5 | 353 | 3.4 ±0.4 | 590 | 5.6 ±0.4 | 943 | 8.9 ±0.6 |
| White | 76,190 | 317 | 4.2 ±0.5 | 173 | 2.3 ±0.3 | 323 | 4.2 ±0.5 | 496 | 6.5 ±0.6 |
| Black | 18,384 | 285 | 15.5 ±1.8 | 149 | 8.1 ±1.3 | 190 | 10.2 ±1.4 | 339 | 18.3 ±1.9 |
| American Indian | 808 | 9 | 11.1 ±7.2 | 3 | * | 9 | 11.0 ±7.2 | 12 | 14.7 ±8.2 |
| Asian and Pacific Islander | 3,702 | 24 | 6.5 ±2.6 | 19 | 5.1 ±2.3 | 24 | 6.4 ±2.6 | 43 | 11.5 ±3.4 |
| Middle Easterner | 4,474 | 17 | 3.8 ±1.8 | 10 | 2.2 ±1.4 | 12 | 2.7 ±1.5 | 22 | 4.9 ±2.0 |
| Hispanic | 7,056 | 56 | 7.9 ±2.1 | 27 | 3.8 ±1.4 | 34 | 4.8 ±1.6 | 61 | 8.6 ±2.1 |

Note: Hebdomadal deaths are deaths to infants ages zero to six days. Perinatal deaths are hebdomadal plus fetal deaths.

Infant death and hebdomadal rates are per 1,000 live births. Fetal death and perinatal death rates are per 1,000 live births plus fetal deaths.

Rates are calculated using live births by race/ancestry of mother as denominator. Live births are by the race/ancestry of the mother on the birth certificate. Infant and hebdomadal deaths are by the race on the death certificate. Fetal deaths are by the race of the mother on the fetal death certificate. Perinatal deaths are by mother's race/ancestry on the fetal death certificate or the infant's race/ancestry on the death certificate.

Asterisk (*) indicates that data do not meet standards of precision or reliability.

Caution: Care should be taken drawing inferences from rates based on small numbers of events or small population base. These rates tend to exhibit considerable variation which may negate their usefulness for comparative purposes.

Source: 2021 Michigan Resident Infant Death File, 2021 Michigan Fetal Death Registry
 Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

Table 10
Infant, Hebdomadal, Fetal and Perinatal Death Rates
Michigan Residents, 2007-2021

| Year | Live Births | Infant Deaths | | Hebdomadal Deaths | | Fetal Deaths | | Perinatal Deaths | |
|------|-------------|---------------|------|-------------------|------|--------------|------|------------------|------|
| | | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| 2007 | 125,172 | 997 | 8.0 | 553 | 4.4 | 727 | 5.8 | 1,280 | 10.2 |
| 2008 | 121,231 | 894 | 7.4 | 501 | 4.1 | 775 | 6.4 | 1,276 | 10.5 |
| 2009 | 117,309 | 881 | 7.5 | 478 | 4.1 | 688 | 5.8 | 1,166 | 9.9 |
| 2010 | 114,717 | 817 | 7.1 | 475 | 4.1 | 640 | 5.5 | 1,115 | 9.7 |
| 2011 | 114,159 | 749 | 6.6 | 414 | 3.6 | 627 | 5.5 | 1,041 | 9.1 |
| 2012 | 112,708 | 783 | 6.9 | 459 | 4.1 | 587 | 5.2 | 1,046 | 9.2 |
| 2013 | 113,732 | 799 | 7.0 | 431 | 3.8 | 622 | 5.4 | 1,053 | 9.2 |
| 2014 | 114,460 | 773 | 6.8 | 417 | 3.6 | 616 | 5.4 | 1,033 | 9.0 |
| 2015 | 113,211 | 770 | 6.8 | 400 | 3.5 | 542 | 4.8 | 942 | 8.3 |
| 2016 | 113,374 | 747 | 6.6 | 393 | 3.5 | 618 | 5.4 | 1,011 | 8.9 |
| 2017 | 111,507 | 763 | 6.8 | 442 | 4.0 | 605 | 5.4 | 1,047 | 9.3 |
| 2018 | 110,093 | 723 | 6.6 | 396 | 3.6 | 657 | 5.9 | 1,053 | 9.5 |
| 2019 | 107,917 | 694 | 6.4 | 374 | 3.5 | 636 | 5.9 | 1,010 | 9.4 |
| 2020 | 104,149 | 706 | 6.8 | 373 | 3.6 | 601 | 5.7 | 974 | 9.3 |
| 2021 | 105,022 | 656 | 6.2 | 353 | 3.4 | 590 | 5.6 | 943 | 8.9 |

Note: Hebdomadal deaths are deaths to infants ages zero to six days.
 Perinatal deaths are hebdomadal plus fetal deaths.

Infant death and hebdomadal rates are per 1,000 live births. Fetal death and perinatal death rates are per 1,000 live births plus fetal deaths.

In 2017, hospital audits found additional fetal deaths. The number of fetal deaths between 2007-2015 will not match what was reported in the past.

Source: 2007-2021 Michigan Resident Infant Death File, 2007-2021 Michigan Fetal Death Registry
 Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

Table 11
Number of Infant Deaths, Live Births and Infant Death Rates
by Selected Characteristics of Newborn and of Mother
for Michigan Residents, 2021

| Characteristics of Newborn | Infant Deaths | Live Births | Infant Death Rate |
|--|---------------|-------------|-------------------|
| Sex of Infant | 656 | 105,022 | 6.2 ±0.5 |
| Male | 356 | 53,643 | 6.6 ±0.7 |
| Female | 299 | 51,377 | 5.8 ±0.7 |
| Birthweight | 656 | 105,022 | 6.2 ±0.5 |
| 1,499 Grams or Less | 349 | 1,591 | 219.4 ±20.6 |
| 1,500 - 2,499 Grams | 91 | 8,119 | 11.2 ±2.3 |
| 2,500 Grams or More | 207 | 95,253 | 2.2 ±0.3 |
| Plurality | 656 | 105,022 | 6.2 ±0.5 |
| Single Birth | 569 | 101,128 | 5.6 ±0.5 |
| Multiple Birth | 83 | 3,891 | 21.3 ±4.5 |
| Characteristics of Mother | Infant Deaths | Live Births | Infant Death Rate |
| Age of Mother | 656 | 105,022 | 6.2 ±0.5 |
| < 20 | 45 | 3,924 | 11.5 ±3.3 |
| 20 - 29 | 326 | 50,022 | 6.5 ±0.7 |
| 30 - 39 | 249 | 48,035 | 5.2 ±0.6 |
| 40 + | 32 | 3,011 | 10.6 ±3.7 |
| Marital Status | 656 | 105,022 | 6.2 ±0.5 |
| Married | 213 | 56,654 | 3.8 ±0.5 |
| Unmarried | 410 | 41,607 | 9.9 ±0.9 |
| Level of Prenatal Care | 656 | 105,022 | 6.2 ±0.5 |
| Adequate | 328 | 72,016 | 4.6 ±0.5 |
| Intermediate | 172 | 24,359 | 7.1 ±1.1 |
| Inadequate | 149 | 8,593 | 17.3 ±2.8 |
| Exposure to Tobacco | Infant Deaths | Live Births | Infant Death Rate |
| Smoked During Pregnancy | 656 | 105,022 | 6.2 ±0.5 |
| No | 535 | 103,178 | 5.2 ±0.4 |
| Yes | 121 | 1,844 | 65.6 ±11.3 |
| Secondhand Smoke During Pregnancy | 656 | 105,022 | 6.2 ±0.5 |
| No | 519 | 92,668 | 5.6 ±0.5 |
| Yes | 84 | 8,495 | 9.9 ±2.1 |
| Smoked or Secondhand Smoke During Pregnancy | 656 | 105,022 | 6.2 ±0.5 |
| No | 458 | 91,452 | 5.0 ±0.5 |
| Yes | 150 | 9,884 | 15.2 ±2.4 |
| History of smoking | 656 | 105,022 | 6.2 ±0.5 |
| No | 491 | 89,589 | 5.5 ±0.5 |
| Yes | 140 | 14,913 | 9.4 ±1.5 |

Note: Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95% statistical confidence. Records with selected characteristics unknown are included in total only. Level of prenatal care is according to the Kessner Index which is a classification of prenatal care based on the month of pregnancy in which prenatal care began, the number of prenatal visits and the length of pregnancy (i.e. for shorter pregnancies, fewer prenatal visits constitute adequate care.)

Table 12
Number of Infant Deaths by Cause of Death,
1980-2021, Michigan Residents

| Causes of Death | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| All Causes | 2,280 | 1,575 | 1,638 | 1,110 | 1,112 | 1,013 | 817 | 770 | 747 | 763 | 723 | 694 | 706 | 656 |
| Certain gastrointestinal diseases | 7 | 6 | 6 | 6 | 10 | 12 | 9 | 7 | 3 | 5 | 4 | 3 | 3 | 1 |
| Septicemia | 8 | 6 | 17 | 2 | 5 | 10 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 5 |
| Remainder of infectious and parasitic diseases | 5 | 11 | 18 | 12 | 7 | 6 | 3 | 4 | 4 | 3 | 4 | 1 | 4 | 2 |
| Meningitis | 13 | 7 | 11 | 2 | 3 | 3 | 5 | - | 3 | 1 | 1 | 2 | - | - |
| Pneumonia and Influenza | 27 | 11 | 26 | 20 | 20 | 6 | 8 | 5 | 2 | 9 | 9 | 5 | 4 | 5 |
| Congenital anomalies | 321 | 330 | 300 | 204 | 192 | 197 | 184 | 152 | 149 | 141 | 122 | 112 | 121 | 98 |
| Newborn affected by maternal complications of pregnancy | 72 | 52 | 108 | 47 | 45 | 67 | 40 | 45 | 36 | 32 | 27 | 27 | 34 | 29 |
| Newborn affected by complications of placenta, cord and membranes | 50 | 34 | 24 | 33 | 36 | 28 | 26 | 31 | 28 | 30 | 19 | 18 | 22 | 31 |
| Disorders relating to short gestation and unspecified low birthweight | 145 | 150 | 251 | 219 | 262 | 219 | 198 | 149 | 161 | 196 | 188 | 177 | 158 | 150 |
| Birth trauma | 45 | 14 | 16 | 8 | 2 | 1 | - | - | 1 | - | - | - | 1 | - |
| Intrauterine hypoxia and birth asphyxia | 69 | 43 | 25 | 11 | 24 | 19 | 20 | 11 | 5 | 15 | 6 | 9 | 11 | 14 |
| Respiratory distress syndrome | 206 | 176 | 164 | 82 | 65 | 57 | 23 | 14 | 18 | 22 | 13 | 12 | 25 | 9 |
| Other respiratory conditions | 199 | 132 | 120 | 63 | 65 | 52 | 27 | 17 | 21 | 13 | 19 | 30 | 15 | 21 |
| Infections specific to the perinatal period | 35 | 32 | 33 | 23 | 35 | 42 | 27 | 21 | 23 | 28 | 16 | 24 | 21 | 23 |
| Neonatal hemorrhage | 38 | 10 | 8 | 13 | 28 | 23 | 12 | 16 | 9 | 9 | 12 | 13 | 13 | 6 |
| All other and ill-define conditions originating in the perinatal period | 169 | 168 | 73 | 47 | 39 | 46 | 27 | 39 | 31 | 24 | 24 | 32 | 40 | 27 |
| Sudden infant death syndrome | 260 | 228 | 257 | 148 | 99 | 47 | 44 | 33 | 45 | 32 | 34 | 46 | 43 | 34 |
| Accidents and adverse effects | 39 | 35 | 38 | 40 | 55 | 68 | 66 | 97 | 82 | 82 | 83 | 81 | 76 | 76 |
| Homicides | 7 | 8 | 17 | 12 | 13 | 15 | 13 | 6 | 9 | 14 | 10 | 11 | 13 | 3 |
| All other causes | 136 | 122 | 126 | 118 | 107 | 95 | 81 | 120 | 113 | 103 | 128 | 87 | 98 | 122 |

Note: Causes of death are coded using the 9th and 10th revisions to the International Classification of Diseases. The ICD-9 and ICD-10 codes are grouped into broader categories for the causes listed in this table in order to classify these selected causes of death. See [Selected Causes of Groups for Infant Mortality](#) for details of grouping and comparability.

Source: 1980-2021 Michigan Resident Infant Death File, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

Table 13
Three-year Moving Average Infant Deaths Rates per 10,000 Live Births, by Cause of Death,
1980-2021, Michigan Residents

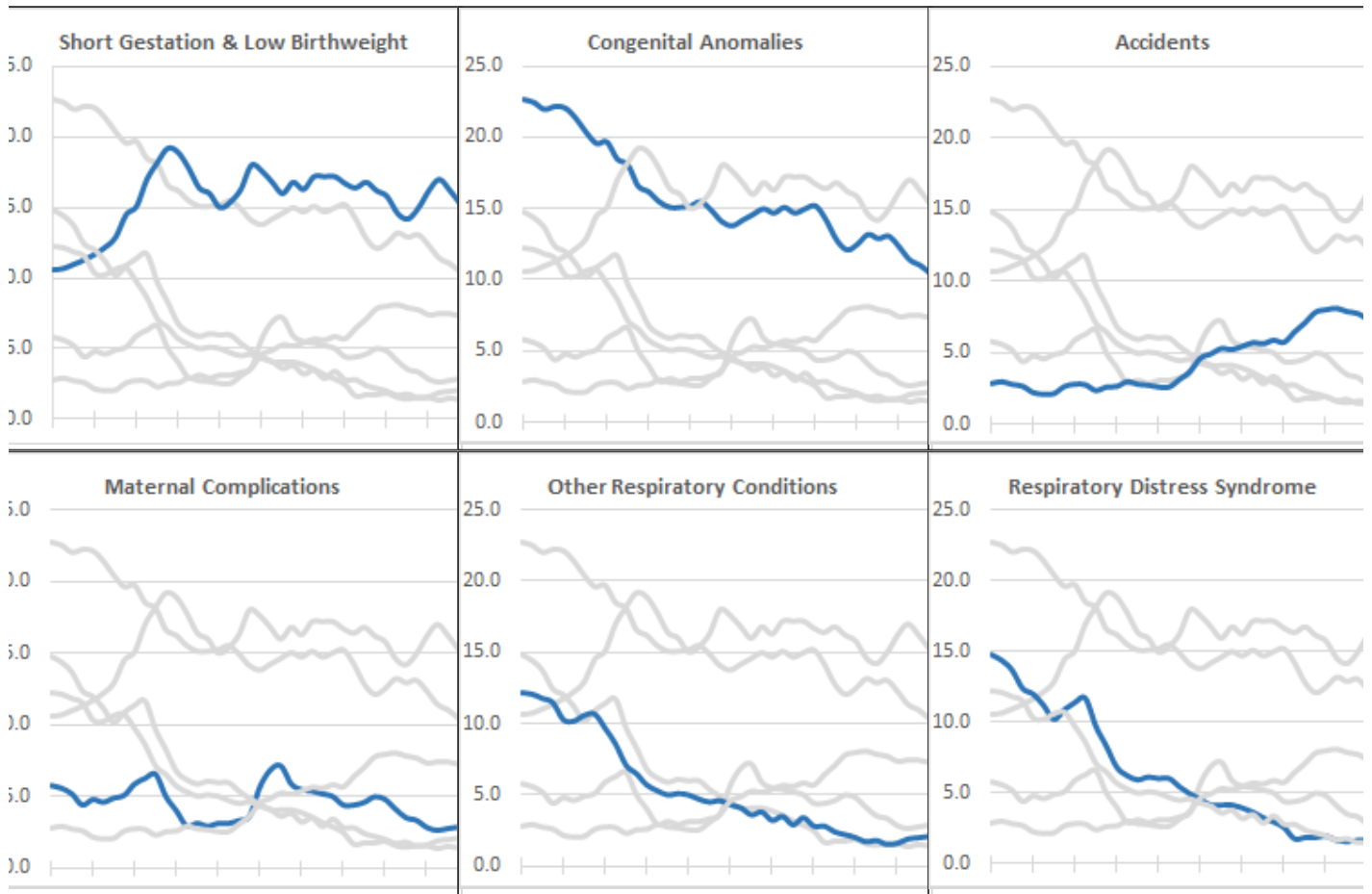
| Causes of Death | 1980 to 1982 | 1985 to 1987 | 1990 to 1992 | 1995 to 1997 | 2000 to 2002 | 2005 to 2007 | 2010 to 2012 | 2014 to 2016 | 2015 to 2017 | 2016 to 2018 | 2017 to 2019 | 2018 to 2020 | 2019 to 2021 |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Total Infant Deaths | 126.8 | 112.4 | 104.2 | 81.5 | 81.0 | 77.6 | 68.8 | 67.1 | 67.4 | 66.7 | 66.2 | 65.9 | 64.8 |
| Certain gastrointestinal diseases | .6 | .6 | .6 | .6 | .6 | .9 | .8 | .5 | .4 | .4 | .4 | .3 | .2 |
| Septicemia | .4 | .5 | .9 | .4 | .5 | .6 | .4 | .4 | .3 | .4 | .4 | .4 | .4 |
| Remainder of infectious and parasitic diseases | .4 | .8 | 1.1 | .6 | .5 | .5 | .2 | .4 | .3 | .3 | .2 | .3 | .2 |
| Meningitis | .9 | .4 | .4 | * | * | .3 | .2 | * | * | * | * | * | * |
| Pneumonia and Influenza | 1.4 | 1.1 | 1.8 | 1.1 | 1.1 | .5 | .6 | .4 | .5 | .6 | .7 | .6 | .4 |
| Congenital anomalies | 22.7 | 21.4 | 18.1 | 15.1 | 13.8 | 15.1 | 12.8 | 12.9 | 13.1 | 12.3 | 11.4 | 11.0 | 10.4 |
| Newborn affected by maternal complications of pregnancy | 5.8 | 4.6 | 6.6 | 2.9 | 5.7 | 5.4 | 4.6 | 3.6 | 3.3 | 2.8 | 2.6 | 2.7 | 2.8 |
| Newborn affected by complications of placenta, cord and membranes | 3.2 | 2.6 | 2.1 | 2.9 | 2.4 | 2.1 | 2.1 | 2.6 | 2.6 | 2.3 | 2.0 | 1.8 | 2.2 |
| Disorders relating to short gestation and unspecified low birthweight | 10.6 | 12.2 | 18.2 | 16.0 | 17.6 | 17.2 | 16.8 | 14.2 | 15.0 | 16.3 | 17.0 | 16.2 | 15.3 |
| Birth trauma | 2.5 | .7 | .7 | .4 | .2 | * | * | * | * | * | - | * | * |
| Intrauterine hypoxia and birth asphyxia | 4.5 | 2.4 | 1.6 | 1.2 | 1.6 | .9 | 1.2 | .7 | .9 | .8 | .9 | .8 | 1.1 |
| Respiratory distress syndrome | 14.8 | 11.2 | 9.7 | 6.1 | 4.5 | 3.6 | 1.8 | 1.5 | 1.6 | 1.6 | 1.4 | 1.6 | 1.5 |
| Other respiratory conditions | 12.2 | 10.2 | 7.1 | 5.1 | 4.3 | 3.5 | 2.4 | 1.8 | 1.5 | 1.6 | 1.9 | 2.0 | 2.1 |
| Infections specific to the perinatal period | 2.2 | 2.3 | 2.2 | 2.1 | 3.0 | 2.9 | 2.0 | 2.0 | 2.1 | 2.0 | 2.1 | 1.9 | 2.1 |
| Neonatal hemorrhage | 2.0 | .7 | .6 | .8 | 1.3 | 1.3 | 1.0 | 1.3 | 1.0 | .9 | 1.0 | 1.2 | 1.0 |
| All other and ill-define conditions originating in the perinatal period | 13.3 | 12.1 | 5.1 | 3.7 | 3.1 | 4.3 | 2.9 | 2.9 | 2.8 | 2.4 | 2.4 | 3.0 | 3.1 |
| Sudden infant death syndrome | 16.6 | 17.1 | 16.6 | 10.8 | 4.3 | 3.8 | 2.7 | 3.3 | 3.3 | 3.3 | 3.4 | 3.8 | 3.9 |
| Accidents and adverse effects | 2.8 | 2.1 | 2.4 | 2.7 | 4.6 | 5.7 | 7.1 | 7.9 | 7.7 | 7.4 | 7.5 | 7.4 | 7.3 |
| Homicides | .4 | .9 | .9 | .9 | .8 | .8 | 1.1 | .8 | .9 | 1.0 | 1.1 | 1.1 | .9 |
| All other causes | 9.7 | 8.6 | 7.6 | 7.9 | 8.3 | 8.3 | 7.9 | 10.0 | 9.9 | 10.3 | 9.7 | 9.7 | 9.7 |

Note: For purposes of comparing small values, these rates are calculated at deaths per **10,000** live births; in most Michigan Community Health infant death reports, infant deaths are per **1,000**. **Causes of death** are coded using the 9th and 10th revisions to the International Classification of Diseases. The ICD-9 and ICD-10 codes are grouped into broader categories for the causes listed in this table in order to classify these selected causes of death. See [Selected Causes of Groups for Infant Mortality](#) for details of grouping and comparability.

An asterisk (*) indicates the rate does not meet standards of reliability or precision. A dash (-) indicates quantity zero.

Source: 1980-2021 Michigan Resident Infant Death File, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

Figure 4
Infant Mortality Rates by Leading Causes of Infant Deaths,
Michigan Residents, 1980-2021



Note: For purposes of comparing small values, these rates are calculated at deaths per **10,000** live births; in most Michigan Community Health infant death reports, infant deaths are per **1,000**.

Causes of death are coded using the 9th and 10th revisions to the International Classification of Diseases. The ICD-9 and ICD-10 codes are grouped into broader categories for the causes listed in this table in order to classify these selected causes of death. See [Selected Causes of Groups for Infant Mortality](#) for details of grouping and comparability.

An asterisk (*) indicates the rate does not meet standards of reliability or precision. A dash (-) indicates quantity zero.

Source: 1980-2021 Michigan Resident Infant Death File, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

**Table 14-A
Number of Infant Deaths by Cause of Death,
2014-2021, Michigan Residents**

Dollfus Primary Cause of Death Group

| Cause of Death Group | Number of Deaths | | | | | | | | Percent of Deaths | | | | | | | |
|-------------------------------------|------------------|------------|------------|------------|------------|------------|------------|------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| Total | 773 | 770 | 747 | 763 | 723 | 694 | 706 | 656 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Prematurity & related conditions | 247 | 223 | 228 | 255 | 248 | 250 | 239 | 207 | 32.0 | 29.0 | 30.5 | 33.5 | 34.3 | 36.0 | 33.9 | 31.6 |
| Congenital anomalies | 139 | 152 | 151 | 141 | 122 | 112 | 121 | 98 | 18.0 | 19.7 | 20.2 | 18.5 | 16.9 | 16.1 | 17.1 | 14.9 |
| Sudden Infant Death Syndrome (SIDS) | 35 | 33 | 45 | 32 | 34 | 46 | 43 | 34 | 4.5 | 4.3 | 6.0 | 4.2 | 4.7 | 6.6 | 6.1 | 5.2 |
| Obstetric conditions | 47 | 52 | 39 | 38 | 29 | 31 | 44 | 46 | 6.1 | 6.8 | 5.2 | 5.0 | 4.0 | 4.5 | 6.2 | 7.0 |
| Birth asphyxia | 7 | 11 | 5 | 15 | 6 | 9 | 11 | 14 | 0.9 | 1.4 | 0.7 | 2.0 | 0.8 | 1.3 | 1.6 | 2.1 |
| Perinatal infections | 40 | 36 | 37 | 46 | 28 | 38 | 30 | 33 | 5.2 | 4.7 | 5.0 | 6.0 | 3.9 | 5.5 | 4.2 | 5.0 |
| Other infections | 29 | 25 | 17 | 22 | 21 | 15 | 16 | 13 | 3.8 | 3.2 | 2.3 | 2.9 | 2.9 | 2.2 | 2.3 | 2.0 |
| External causes | 105 | 104 | 98 | 103 | 98 | 98 | 94 | 81 | 13.6 | 13.5 | 13.1 | 13.5 | 13.6 | 14.1 | 13.3 | 12.3 |
| Other causes | 124 | 134 | 127 | 110 | 137 | 96 | 108 | 130 | 16.0 | 17.4 | 17.0 | 14.4 | 18.9 | 13.8 | 15.3 | 19.8 |

Table 14-B Dollfus Subcategory Cause of Death Group

| Dollfus Subcategory | Number of Deaths | | | | | | | | | Percent of Deaths | | | | | | |
|---|------------------|------------|------------|------------|------------|------------|------------|------------|--------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| Total | 773 | 770 | 747 | 763 | 723 | 694 | 706 | 656 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Short gestation & low birthweight | 174 | 149 | 161 | 196 | 188 | 177 | 158 | 150 | 22.5 | 19.4 | 21.6 | 25.7 | 26.0 | 25.5 | 22.4 | 22.9 |
| Birth trauma, neonatal hemorrhage, & hematological disorders | 18 | 15 | 10 | 8 | 11 | 13 | 13 | 6 | 2.3 | 1.9 | 1.3 | 1.0 | 1.5 | 1.9 | 1.8 | 0.9 |
| RDS, interstitial emphysema, pulmonary hemorrhage, & atelectasis | 35 | 26 | 29 | 29 | 26 | 34 | 38 | 19 | 4.5 | 3.4 | 3.9 | 3.8 | 3.6 | 4.9 | 5.4 | 2.9 |
| Chronic respiratory distress syndrome, & respiratory diseases originating in the perinatal period | 1 | 3 | 5 | 4 | 5 | 5 | 2 | 11 | 0.1 | 0.4 | 0.7 | 0.5 | 0.7 | 0.7 | 0.3 | 1.7 |
| Necrotizing enterocolitis | 11 | 17 | 14 | 11 | 8 | 9 | 11 | 7 | 1.4 | 2.2 | 1.9 | 1.4 | 1.1 | 1.3 | 1.6 | 1.1 |
| Neonatal cardiac failure & other cardiovascular disorders originating in the perinatal period | 8 | 13 | 9 | 7 | 10 | 12 | 17 | 14 | 1.0 | 1.7 | 1.2 | 0.9 | 0.7 | 1.7 | 2.4 | 2.1 |
| Congenital malformations, deformations, & chromosomal anomalies, congenital disorders | 139 | 152 | 151 | 141 | 122 | 112 | 121 | 98 | 18.0 | 19.7 | 20.2 | 18.5 | 16.9 | 16.1 | 17.1 | 14.9 |
| Sudden Infant Death Syndrome | 35 | 33 | 45 | 32 | 34 | 46 | 43 | 34 | 4.5 | 4.3 | 6.0 | 4.2 | 4.7 | 6.6 | 6.1 | 5.2 |
| Incompetent cervix, premature rupture of membranes | 20 | 26 | 28 | 26 | 23 | 20 | 28 | 26 | 2.6 | 3.4 | 3.7 | 3.4 | 3.2 | 2.9 | 4.0 | 4.0 |
| Multiple pregnancy | 13 | 12 | 3 | - | - | 6 | 3 | 2 | 1.7 | 1.6 | 0.4 | - | - | 0.9 | 0.4 | 0.3 |
| Placental previa, separation and placental abnormalities | 14 | 14 | 8 | 12 | 6 | 5 | 13 | 18 | 1.8 | 1.8 | 1.1 | 1.6 | 0.8 | 0.7 | 1.8 | 2.7 |
| Intrauterine hypoxia, birth asphyxia | 7 | 11 | 5 | 15 | 6 | 9 | 11 | 14 | 0.9 | 1.4 | 0.7 | 2.0 | 0.8 | 1.3 | 1.6 | 2.1 |
| Streptococcal meningitis | 1 | - | 1 | 1 | 1 | - | - | - | 0.1 | - | 0.1 | 0.1 | 0.1 | - | - | - |
| Maternal renal and urinary tract diseases, maternal infections, and parasitic diseases | 1 | - | - | 1 | - | 3 | 2 | 1 | 0.1 | - | - | 0.1 | - | 0.4 | 0.3 | 0.2 |
| Chorioamnionitis | 12 | 13 | 10 | 15 | 10 | 9 | 7 | 9 | 1.6 | 1.7 | 1.3 | 2.0 | 1.4 | 1.3 | 1.0 | 1.4 |
| Bacterial Sepsis, congenital pneumonia, and other infections specific to the perinatal period | 26 | 23 | 26 | 29 | 17 | 26 | 21 | 23 | 3.4 | 3.0 | 3.5 | 3.8 | 2.3 | 3.7 | 3.0 | 3.5 |
| Other infectious and parasitic diseases | 18 | 13 | 11 | 12 | 12 | 7 | 11 | 8 | 2.3 | 1.7 | 1.5 | 1.6 | 1.7 | 1.0 | 1.6 | 1.2 |
| Bacterial haemophilus and pneumococcal meningitis | 1 | - | 2 | - | - | 2 | 1 | - | 0.1 | - | 0.3 | - | - | 0.3 | 0.1 | - |
| Influenza and pneumonia and other respiratory infections | 10 | 12 | 4 | 10 | 9 | 6 | 4 | 5 | 1.3 | 1.6 | 0.5 | 1.3 | 1.2 | 0.9 | 0.6 | 0.8 |
| Accidents involving transportation | 2 | 2 | 3 | 5 | 1 | 3 | 3 | 1 | 0.3 | 0.3 | 0.4 | 0.7 | 0.1 | 0.4 | 0.4 | 0.2 |
| Accidents involving falls | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | 0.2 |
| Accidental drowning or ingestion causing obstruction to the airways | 1 | 1 | 3 | 4 | 4 | 1 | - | - | 0.1 | 0.1 | 0.4 | 0.5 | 0.6 | 0.1 | - | - |
| Accidents involving suffocation or strangulation in bed | 75 | 73 | 60 | 54 | 70 | 65 | 69 | 64 | 9.7 | 9.5 | 8.0 | 7.1 | 9.7 | 9.4 | 9.8 | 9.8 |
| Assault and other intentional injuries | 13 | 6 | 9 | 13 | 10 | 10 | 12 | 2 | 1.7 | 0.8 | 1.2 | 1.7 | 1.4 | 1.4 | 1.7 | 0.3 |
| Injuries with undetermined intent or unspecified cause | 3 | 1 | 7 | 8 | 5 | 7 | 6 | 3 | 0.4 | 0.1 | 0.9 | 1.0 | 1.4 | 1.0 | 0.8 | 0.5 |
| Other unintentional injuries | 11 | 21 | 16 | 19 | 8 | 12 | 4 | 10 | 1.4 | 2.7 | 2.1 | 2.5 | 1.1 | 1.7 | 0.6 | 1.5 |
| Neoplasms, anemias, and other conditions not otherwise specified | 124 | 134 | 127 | 110 | 137 | 96 | 108 | 130 | 16.0 | 17.4 | 17.0 | 14.4 | 18.9 | 13.8 | 15.3 | 19.8 |

Note: The categories listed in this table conform to "[Infant Mortality: Development of a Proposed Update to the Dollfus Classification of Infant Deaths](#)" (Nakamura, et. al.), with the exception of certain external causes. Due to the high number of accidental suffocations of infants in bed, the DVRHS lists "Accidents involving suffocation or strangulation in bed" as a separate category.

Source: 2014-2021 Michigan Resident Infant Death File, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

Table 15-A
Sudden Infant Death Syndrome (SIDS), Accidental Suffocation & Strangulation in Bed (ASSB)
and
Sudden Unexpected Infant Deaths (SUID),
Michigan Residents 1989-2021

| Year | Number | | | | Rate Per 10,000 Live Births | | |
|------|--------|------|-----------------------------|------|-----------------------------|------|------|
| | SIDS | ASSB | Unknown & unspecified cause | SUID | SIDS | ASSB | SUID |
| 1989 | 254 | 10 | 1 | 265 | 17.1 | 0.7 | 17.9 |
| 1990 | 256 | 11 | 2 | 269 | 16.7 | 0.7 | 17.6 |
| 1991 | 240 | 13 | 3 | 256 | 16.1 | 0.9 | 17.1 |
| 1992 | 243 | 7 | 4 | 254 | 16.9 | 0.5 | 17.7 |
| 1993 | 210 | 10 | 10 | 230 | 15.0 | 0.7 | 16.5 |
| 1994 | 167 | 10 | 8 | 185 | 12.1 | 0.7 | 13.4 |
| 1995 | 148 | 15 | 5 | 168 | 11.0 | 1.1 | 12.5 |
| 1996 | 149 | 8 | 5 | 162 | 11.2 | 0.6 | 12.2 |
| 1997 | 138 | 9 | 13 | 160 | 10.3 | 0.7 | 12.0 |
| 1998 | 148 | 11 | 13 | 172 | 11.1 | 0.8 | 12.9 |
| 1999 | 114 | 12 | 9 | 135 | 8.5 | 0.9 | 10.1 |
| 2000 | 99 | 28 | 6 | 133 | 7.3 | 2.1 | 9.8 |
| 2001 | 96 | 39 | 1 | 136 | 7.2 | 2.9 | 10.2 |
| 2002 | 85 | 32 | 10 | 127 | 6.6 | 2.5 | 9.8 |
| 2003 | 49 | 33 | 14 | 96 | 3.7 | 2.5 | 7.3 |
| 2004 | 51 | 49 | 10 | 110 | 3.9 | 3.8 | 8.5 |
| 2005 | 47 | 52 | 10 | 109 | 3.7 | 4.1 | 8.5 |
| 2006 | 51 | 52 | 9 | 112 | 4.0 | 4.1 | 8.8 |
| 2007 | 46 | 56 | 8 | 110 | 3.7 | 4.5 | 8.8 |
| 2008 | 48 | 52 | 2 | 102 | 4.0 | 4.3 | 8.4 |
| 2009 | 45 | 63 | 4 | 112 | 3.8 | 5.4 | 9.5 |
| 2010 | 44 | 52 | 7 | 103 | 3.8 | 4.5 | 9.0 |
| 2011 | 33 | 69 | 13 | 115 | 2.9 | 6.0 | 10.1 |
| 2012 | 15 | 75 | 16 | 106 | 1.3 | 6.7 | 9.4 |
| 2013 | 31 | 72 | 14 | 117 | 2.7 | 6.3 | 10.3 |
| 2014 | 35 | 76 | 14 | 125 | 3.1 | 6.6 | 10.9 |
| 2015 | 33 | 73 | 24 | 125 | 2.9 | 6.5 | 11.0 |
| 2016 | 45 | 60 | 13 | 118 | 4.0 | 5.3 | 10.4 |
| 2017 | 32 | 54 | 13 | 99 | 2.9 | 4.8 | 8.9 |
| 2018 | 34 | 70 | 32 | 136 | 3.1 | 6.4 | 12.4 |
| 2019 | 46 | 65 | 14 | 125 | 4.3 | 6.0 | 11.6 |
| 2020 | 43 | 69 | 25 | 137 | 4.1 | 6.6 | 13.2 |
| 2021 | 34 | 64 | 33 | 131 | 3.2 | 6.1 | 12.5 |

**Table 15-B
Accidental Suffocation & Strangulation in Bed and Total Accidents,
Michigan Residents, 1989-2021**

| Year | ASSB | Other Accidents & adverse effects | Total Accidents | ASSB Percent of Accidents |
|------|------|-----------------------------------|-----------------|---------------------------|
| 1989 | 10 | 37 | 47 | 21.3% |
| 1990 | 11 | 27 | 38 | 28.9% |
| 1991 | 13 | 25 | 38 | 34.2% |
| 1992 | 7 | 22 | 29 | 24.1% |
| 1993 | 10 | 35 | 45 | 22.2% |
| 1994 | 10 | 27 | 37 | 27.0% |
| 1995 | 15 | 25 | 40 | 37.5% |
| 1996 | 8 | 28 | 36 | 22.2% |
| 1997 | 9 | 24 | 33 | 27.3% |
| 1998 | 11 | 24 | 35 | 31.4% |
| 1999 | 12 | 24 | 36 | 33.3% |
| 2000 | 28 | 27 | 55 | 50.9% |
| 2001 | 39 | 18 | 57 | 68.4% |
| 2002 | 32 | 40 | 72 | 44.4% |
| 2003 | 33 | 31 | 64 | 51.6% |
| 2004 | 49 | 21 | 70 | 70.0% |
| 2005 | 52 | 16 | 68 | 76.5% |
| 2006 | 52 | 19 | 71 | 73.2% |
| 2007 | 56 | 21 | 77 | 72.7% |
| 2008 | 52 | 10 | 62 | 83.9% |
| 2009 | 63 | 11 | 74 | 85.1% |
| 2010 | 52 | 13 | 65 | 80.0% |
| 2011 | 69 | 14 | 83 | 83.1% |
| 2012 | 75 | 17 | 92 | 81.5% |
| 2013 | 72 | 18 | 90 | 80.0% |
| 2014 | 76 | 14 | 90 | 84.4% |
| 2015 | 73 | 24 | 97 | 75.3% |
| 2016 | 60 | 22 | 82 | 73.2% |
| 2017 | 54 | 28 | 82 | 65.9% |
| 2018 | 70 | 13 | 83 | 84.4% |
| 2019 | 65 | 16 | 81 | 80.2% |
| 2020 | 69 | 7 | 76 | 90.8% |
| 2021 | 64 | 12 | 76 | 84.2% |

Notes: Causes of death are coded using the 9th and 10th revisions to the International Classification of Diseases. The ICD-9 and ICD-10 codes are grouped into broader categories for the causes listed in this table in order to classify these selected causes of death. Before 1999, causes of death were classified according to the following ICD-9 codes: SIDS: 798.0, ASSB: E913.0, Unknown: 799.9. On or after 1999, deaths were classified according to the following ICD-10 codes: SIDS: R95, ASSB: W75 and Unknown: R99.

After 1996, SUID death-scene guidelines and subsequent reporting instructions have shifted how SIDS and ASSB deaths were coded. As a result, some deaths that may have been attributed to SIDS before 1999 were classified as ASSB after 1999.

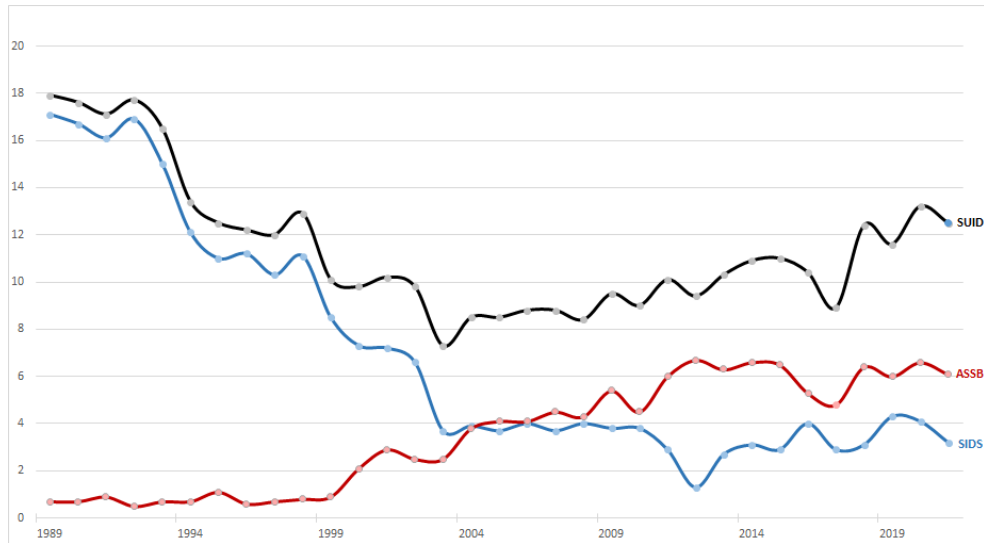
For further information on sudden unexplained infant deaths, see the Sudden Unexpected Infant Death Case Registry. (www.cdc.gov/sids/index.htm)

Table 16
Three-year Average Mortality Rates by Race
Sudden Infant Death Syndrome (SIDS), Accidental Suffocation & Strangulation in Bed (ASSB)
and Sudden Unexpected Infant Deaths (SUID),
Michigan Residents 1989-2021

| Trend | All | | | White | | | Black | | |
|-----------|------|------|-------|-------|------|-------|-------|------|-------|
| | SIDS | ASSB | SUIDS | SIDS | ASSB | SUIDS | SIDS | ASSB | SUIDS |
| 1989-1991 | 16.6 | 0.8 | 17.5 | 13.4 | 0.5 | 14.1 | 27.1 | 1.7 | 29.0 |
| 1990-1992 | 16.6 | 0.7 | 17.5 | 13.3 | 0.6 | 14.1 | 28.1 | 1.1 | 29.3 |
| 1991-1993 | 16.0 | 0.7 | 17.1 | 12.8 | 0.7 | 13.8 | 28.2 | 0.8 | 29.5 |
| 1992-1994 | 14.7 | 0.6 | 15.9 | 11.6 | 0.6 | 12.7 | 27.3 | 0.8 | 28.7 |
| 1993-1995 | 12.8 | 0.9 | 14.2 | 9.7 | 0.6 | 10.9 | 25.9 | 1.7 | 28.3 |
| 1994-1996 | 11.4 | 0.8 | 12.7 | 8.2 | 0.6 | 9.3 | 26.1 | 1.6 | 28.1 |
| 1995-1997 | 10.8 | 0.8 | 12.2 | 7.7 | 0.7 | 9.0 | 24.9 | 1.2 | 26.6 |
| 1996-1998 | 10.9 | 0.7 | 12.3 | 7.7 | 0.6 | 9.0 | 24.3 | 1.1 | 26.4 |
| 1997-1999 | 10.0 | 0.8 | 11.7 | 7.3 | 0.6 | 8.5 | 21.7 | 1.7 | 24.9 |
| 1998-2000 | 9.0 | 1.3 | 10.9 | 6.4 | 0.9 | 7.7 | 19.7 | 3.1 | 24.1 |
| 1999-2001 | 7.7 | 2.0 | 10.0 | 5.3 | 1.6 | 7.2 | 18.3 | 3.8 | 22.8 |
| 2000-2002 | 7.0 | 2.5 | 9.9 | 5.0 | 1.9 | 7.3 | 16.3 | 5.6 | 22.5 |
| 2001-2003 | 5.8 | 2.6 | 9.1 | 4.5 | 2.2 | 7.2 | 12.8 | 5.3 | 19.4 |
| 2002-2004 | 4.7 | 2.9 | 8.5 | 3.9 | 2.2 | 6.9 | 9.2 | 7.0 | 17.9 |
| 2003-2005 | 3.8 | 3.5 | 8.1 | 3.1 | 2.9 | 6.7 | 7.3 | 6.7 | 15.6 |
| 2004-2006 | 3.9 | 4.0 | 8.6 | 3.0 | 3.0 | 6.7 | 7.7 | 8.9 | 18.0 |
| 2005-2007 | 3.8 | 4.2 | 8.7 | 3.2 | 3.1 | 6.7 | 6.4 | 10.1 | 18.2 |
| 2006-2008 | 3.9 | 4.3 | 8.7 | 3.5 | 2.9 | 6.7 | 5.3 | 10.8 | 17.4 |
| 2007-2009 | 3.8 | 4.7 | 8.9 | 3.6 | 3.0 | 6.8 | 4.9 | 11.9 | 18.1 |
| 2008-2010 | 3.9 | 4.7 | 9.0 | 3.6 | 3.1 | 7.0 | 4.9 | 11.0 | 17.0 |
| 2009-2011 | 3.5 | 5.3 | 9.5 | 3.2 | 3.5 | 7.1 | 5.1 | 12.8 | 19.5 |
| 2010-2012 | 2.7 | 5.7 | 9.5 | 2.5 | 3.9 | 7.3 | 3.7 | 13.7 | 18.6 |
| 2011-2013 | 2.3 | 6.3 | 9.9 | 2.2 | 4.3 | 7.6 | 2.9 | 15.7 | 20.6 |
| 2012-2014 | 2.4 | 5.8 | 9.4 | 2.4 | 3.7 | 6.9 | 2.5 | 15.1 | 19.2 |
| 2013-2015 | 2.9 | 5.7 | 10.1 | 2.9 | 4.0 | 8.0 | 3.4 | 13.3 | 20.2 |
| 2014-2016 | 3.3 | 6.1 | 10.9 | 3.0 | 4.5 | 8.5 | 4.7 | 13.8 | 22.6 |
| 2015-2017 | 3.3 | 5.5 | 10.3 | 2.7 | 3.7 | 7.4 | 5.9 | 13.3 | 22.7 |
| 2016-2018 | 3.3 | 5.5 | 10.5 | 2.7 | 3.7 | 7.4 | 6.5 | 13.2 | 24.1 |
| 2017-2019 | 3.4 | 5.7 | 10.9 | 2.4 | 3.6 | 7.5 | 7.5 | 14.0 | 24.8 |
| 2018-2020 | 3.8 | 6.3 | 12.4 | 2.7 | 4.0 | 8.2 | 8.7 | 16.4 | 30.3 |
| 2019-2021 | 3.7 | 6.3 | 12.4 | 2.6 | 4.1 | 8.2 | 8.6 | 16.3 | 31.1 |

Notes: Rates are per 10,000 live births. After 1996, SUID death-scene guidelines and subsequent reporting instructions shifted how SIDS and ASSB deaths were coded. As a result, some deaths that may have been attributed to SIDS before 1999 were classified as ASSB after 1999.

Figure 5
Sudden Infant Death Rates,
Accidental Suffocation & Strangulation in Bed &
Sudden Unexpected Infant Death Rates
Michigan Residents, 1989-2021



Note: For purposes of comparing small values, these rates are calculated at deaths per **10,000** live births; in most Michigan Community Health infant death reports, infant deaths are per **1,000**.

Causes of death are coded using the 9th and 10th revisions to the International Classification of Diseases. The ICD-9 and ICD-10 codes are grouped into broader categories for the causes listed in this table in order to classify these selected causes of death. See [Selected Causes of Groups for Infant Mortality](#) for details of grouping and comparability.

An asterisk (*) indicates the rate does not meet standards of reliability or precision. A dash (-) indicates quantity zero.

Source: 1989-2021 Michigan Resident Infant Death File, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

Table 17-A
All Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2010–2021

| County | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|----------------|----------|-----------|-----------|----------|-----------|-----------|----------|----------|----------|----------|
| Michigan | 6.9±0.3 | 6.8±0.3 | 6.9±0.3 | 6.9±0.3 | 6.7±0.3 | 6.7±0.3 | 6.7±0.3 | 6.6±0.3 | 6.6±0.3 | 6.5±0.3 |
| Alcona | * | * | * | * | * | * | * | * | * | * |
| Alger | - | - | - | - | - | - | - | * | * | * |
| Allegan | 4.2±2.0 | 5.0±2.2 | 5.4±2.3 | 6.8±2.5 | 5.7±2.3 | 4.6±2.1 | 3.6±1.8 | 4.7±2.1 | 5.3±2.3 | 4.2±2.1 |
| Alpena | * | * | * | * | * | * | * | * | * | * |
| Antrim | 10.0±8.0 | * | * | * | - | - | * | * | * | * |
| Arenac | * | 16.2±12.9 | 16.5±13.1 | * | * | * | * | - | * | * |
| Baraga | - | * | * | * | * | * | * | * | - | * |
| Barry | 6.8±3.7 | 4.9±3.2 | 4.8±3.1 | 3.2±2.5 | * | 3.6±2.7 | 4.6±3.0 | 5.2±3.2 | 6.3±3.5 | 7.0±3.8 |
| Bay | 7.7±3.0 | 5.3±2.5 | 5.7±2.6 | 6.1±2.7 | 5.4±2.6 | 4.5±2.4 | 4.0±2.2 | 5.5±2.7 | 5.0±2.6 | 5.4±2.7 |
| Benzie | * | * | * | * | * | * | * | * | * | * |
| Berrien | 8.1±2.3 | 8.3±2.4 | 7.8±2.3 | 6.9±2.2 | 6.4±2.2 | 5.2±2.0 | 6.7±2.2 | 7.4±2.4 | 8.4±2.6 | 7.2±2.4 |
| Branch | 7.8±4.4 | 7.0±4.1 | 6.9±4.1 | 6.8±4.0 | 8.1±4.4 | 8.7±4.6 | 9.6±4.7 | 8.3±4.4 | 7.0±3.9 | 5.3±3.5 |
| Calhoun | 8.7±2.6 | 7.2±2.3 | 6.0±2.1 | 6.8±2.3 | 5.8±2.1 | 7.2±2.4 | 6.8±2.3 | 6.4±2.3 | 6.0±2.3 | 5.1±2.1 |
| Cass | 6.6±4.3 | 7.4±4.6 | 8.5±4.8 | 7.3±4.3 | 7.3±4.3 | 6.2±4.0 | 9.8±5.1 | 9.6±5.0 | 9.9±5.1 | 7.1±4.4 |
| Charlevoix | * | * | * | * | * | * | * | * | * | * |
| Cheboygan | - | - | - | * | * | * | 9.7±7.7 | 12.4±8.5 | 13.8±9.5 | 13.2±9.1 |
| Chippewa | 7.5±5.2 | 7.5±5.2 | 5.6±4.5 | * | * | * | * | 7.3±5.4 | 7.6±5.6 | 9.2±6.4 |
| Clare | * | * | * | * | * | 6.1±4.9 | 10.3±6.3 | 8.1±5.6 | 6.4±5.1 | * |
| Clinton | 3.8±2.5 | 2.5±2.0 | 3.8±2.5 | 6.3±3.2 | 6.5±3.2 | 5.2±2.8 | 2.4±1.9 | * | 3.4±2.4 | 4.0±2.6 |
| Crawford | * | * | * | * | * | 15.7±12.5 | * | * | * | * |
| Delta | 6.4±4.7 | 5.4±4.3 | 7.1±4.9 | * | 5.4±4.3 | * | 5.9±4.7 | 7.9±5.5 | 11.0±6.5 | 8.9±5.8 |
| Dickinson | * | * | * | * | * | * | * | * | * | * |
| Eaton | 5.4±2.4 | 6.1±2.6 | 6.0±2.6 | 7.0±2.8 | 6.7±2.7 | 6.0±2.5 | 4.3±2.2 | 3.8±2.1 | 5.1±2.4 | 5.4±2.5 |
| Emmet | * | * | * | * | * | * | * | * | * | * |
| Genesee | 7.1±1.3 | 8.0±1.4 | 8.0±1.4 | 8.5±1.5 | 9.1±1.5 | 9.0±1.5 | 8.0±1.5 | 6.7±1.4 | 6.4±1.4 | 7.0±1.4 |
| Gladwin | * | * | * | 11.2±7.3 | 9.7±6.7 | * | * | * | * | * |
| Gogebic | * | - | * | * | 16.1±12.8 | * | * | - | * | * |
| Grand Traverse | 2.9±2.0 | * | 3.5±2.2 | 5.3±2.7 | 7.5±3.2 | 6.5±3.0 | 5.1±2.7 | 4.6±2.6 | 6.2±3.0 | 5.0±2.7 |
| Gratiot | 6.3±4.3 | 4.8±3.8 | 5.8±4.2 | 6.6±4.6 | 5.1±4.0 | * | * | * | * | * |
| Hillsdale | 3.7±3.0 | 4.3±3.2 | * | 4.8±3.3 | 6.7±4.0 | 10.5±5.0 | 7.4±4.2 | 5.2±3.6 | 4.0±3.2 | 6.8±4.2 |

Table 17-A
All Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2010–2021 (Continued)

| County | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|-------------|----------|----------|-----------|---------|---------|---------|----------|----------|---------|---------|
| Houghton | 5.1±4.0 | 5.3±4.3 | 5.4±4.3 | * | * | 6.3±4.7 | 7.2±5.0 | 6.5±4.8 | * | * |
| Huron | 6.5±5.2 | * | * | - | * | * | 6.7±5.3 | 7.1±5.6 | * | * |
| Ingham | 5.8±1.5 | 7.2±1.7 | 7.1±1.7 | 7.1±1.7 | 6.4±1.6 | 6.0±1.5 | 5.9±1.5 | 6.4±1.6 | 7.6±1.8 | 7.8±1.9 |
| Ionia | 4.0±2.6 | 4.1±2.6 | 4.1±2.7 | 5.0±2.9 | 4.6±2.8 | 4.1±2.7 | 5.6±3.2 | 4.8±3.0 | 5.0±3.1 | 3.5±2.6 |
| Iosco | 9.2±7.4 | * | * | * | * | 8.8±7.0 | 11.2±7.7 | 13.5±8.3 | 9.8±7.2 | 9.1±7.2 |
| Iron | * | * | * | * | * | * | * | * | * | * |
| Isabella | 7.1±3.7 | 6.2±3.5 | 4.0±2.8 | 4.4±2.9 | 4.0±2.7 | 7.0±3.7 | 7.2±3.8 | 9.4±4.3 | 8.2±4.1 | 6.6±3.7 |
| Jackson | 5.3±1.9 | 6.2±2.1 | 5.6±2.0 | 6.2±2.1 | 6.7±2.2 | 8.0±2.4 | 7.4±2.3 | 5.2±2.0 | 5.3±2.0 | 7.4±2.4 |
| Kalamazoo | 6.4±1.6 | 6.0±1.6 | 6.4±1.6 | 6.5±1.6 | 4.6±1.4 | 6.7±1.6 | 6.2±1.6 | 7.7±1.8 | 5.0±1.5 | 5.2±1.5 |
| Kalkaska | 11.3±9.0 | 11.6±9.2 | 17.0±11.0 | * | * | * | * | * | * | * |
| Kent | 6.2±0.9 | 5.6±0.9 | 5.3±0.9 | 5.5±0.9 | 6.2±0.9 | 6.0±0.9 | 5.5±0.9 | 5.4±0.9 | 5.9±0.9 | 6.0±1.0 |
| Keweenaw | - | * | * | * | - | - | - | * | * | * |
| Lake | * | * | * | * | * | * | * | * | * | * |
| Lapeer | 3.6±2.4 | 2.4±1.9 | 4.4±2.6 | 5.3±2.9 | 5.3±2.9 | 4.6±2.7 | 3.7±2.4 | 5.0±2.8 | 4.6±2.7 | 8.0±3.6 |
| Leelanau | * | * | * | * | * | * | * | - | * | * |
| Lenawee | 9.2±3.3 | 7.2±2.9 | 8.2±3.1 | 7.6±3.0 | 7.3±3.0 | 6.2±2.8 | 4.9±2.5 | 3.7±2.2 | 3.1±2.0 | 4.3±2.5 |
| Livingston | 5.9±2.1 | 5.2±2.0 | 5.4±2.0 | 5.1±1.9 | 4.4±1.7 | 3.5±1.6 | 3.3±1.5 | 3.4±1.6 | 2.5±1.3 | 2.5±1.3 |
| Luce | - | - | * | * | * | * | * | * | * | * |
| Mackinac | - | - | - | * | * | * | * | - | - | - |
| Macomb | 5.6±0.9 | 6.3±0.9 | 6.0±0.9 | 6.3±0.9 | 5.7±0.9 | 6.4±0.9 | 6.1±0.9 | 6.2±0.9 | 5.2±0.9 | 5.1±0.9 |
| Manistee | * | * | * | * | * | * | * | * | * | * |
| Marquette | 4.1±2.8 | 4.1±2.9 | * | 4.3±3.0 | 4.2±2.9 | 4.3±3.0 | * | * | 4.2±3.1 | 4.8±3.3 |
| Mason | * | * | * | * | * | * | * | * | * | * |
| Mecosta | 10.2±5.5 | 11.8±6.0 | 9.3±5.2 | 8.6±5.1 | 5.5±4.1 | * | * | 5.6±4.1 | 7.3±4.8 | 5.7±4.2 |
| Menominee | * | * | * | * | * | * | * | * | * | * |
| Midland | 4.6±2.6 | 6.6±3.1 | 7.1±3.3 | 5.8±2.9 | 3.5±2.3 | 2.3±1.9 | * | * | 2.8±2.1 | 2.8±2.1 |
| Missaukee | * | * | * | * | * | * | * | * | * | * |
| Monroe | 4.4±1.9 | 5.8±2.2 | 5.9±2.2 | 6.0±2.3 | 4.2±1.9 | 6.1±2.3 | 4.9±2.0 | 6.4±2.3 | 7.3±2.5 | 9.2±2.8 |
| Montcalm | 6.8±3.4 | 6.4±3.3 | 5.5±3.1 | 4.6±2.9 | 4.3±2.8 | 4.7±2.9 | 4.6±2.9 | 5.7±3.2 | 5.3±3.1 | 5.4±3.2 |
| Montmorency | * | * | * | - | - | - | - | - | * | * |

Table 17-A
All Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2010–2021 (Continued)

| County | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|--------------|-----------|----------|----------|---------|----------|---------|----------|----------|-----------|---------|
| Muskegon | 8.7±2.3 | 8.0±2.2 | 8.1±2.2 | 8.1±2.2 | 8.4±2.3 | 8.4±2.2 | 7.5±2.1 | 5.9±1.9 | 5.6±1.9 | 6.1±2.0 |
| Newaygo | 7.3±4.1 | 7.3±4.1 | 7.2±4.1 | 7.9±4.3 | 7.9±4.3 | 6.2±3.8 | 4.9±3.4 | 5.6±3.7 | 6.3±3.9 | 6.4±3.9 |
| Oakland | 6.2±0.8 | 6.3±0.8 | 6.6±0.8 | 6.0±0.8 | 5.6±0.7 | 5.3±0.7 | 5.6±0.7 | 5.2±0.7 | 5.1±0.7 | 4.6±0.7 |
| Oceana | 9.0±5.9 | * | 12.3±7.2 | 9.1±6.2 | 12.1±7.1 | 6.8±5.5 | * | * | * | * |
| Ogemaw | * | * | * | * | * | * | * | * | * | * |
| Ontonagon | - | - | * | * | * | - | - | - | - | * |
| Osceola | * | * | * | * | * | 8.0±6.4 | 7.5±6.0 | * | * | * |
| Oscoda | * | * | * | * | * | - | * | * | * | * |
| Otsego | 11.9±7.7 | 13.9±8.6 | 12.6±8.2 | 9.3±6.9 | * | * | * | * | 8.3±6.6 | * |
| Ottawa | 5.9±1.5 | 6.6±1.6 | 5.7±1.5 | 6.0±1.5 | 4.9±1.4 | 4.8±1.4 | 4.1±1.3 | 3.9±1.3 | 4.4±1.3 | 4.3±1.3 |
| Presque Isle | 21.7±17.1 | * | * | * | * | * | * | * | * | * |
| Roscommon | * | * | * | * | * | * | * | * | 13.3±10.6 | * |
| Saginaw | 6.1±1.8 | 7.1±2.0 | 7.7±2.1 | 8.7±2.2 | 10.0±2.4 | 8.4±2.2 | 8.4±2.2 | 7.2±2.0 | 10.0±2.5 | 8.8±2.3 |
| St. Clair | 6.2±2.2 | 6.3±2.2 | 6.0±2.2 | 5.1±2.1 | 6.2±2.2 | 5.9±2.2 | 5.4±2.1 | 5.1±2.1 | 6.8±2.4 | 7.0±2.4 |
| St. Joseph | 7.4±3.4 | 7.3±3.4 | 7.9±3.5 | 5.3±2.8 | 5.1±2.9 | 4.8±2.8 | 6.6±3.3 | 6.2±3.3 | 7.2±3.5 | 7.2±3.6 |
| Sanilac | * | 4.6±3.6 | 6.8±4.4 | 6.8±4.4 | 8.4±4.9 | 8.4±4.9 | 6.4±4.4 | * | * | 5.7±4.2 |
| Schoolcraft | - | - | - | - | - | - | - | - | * | * |
| Shiawassee | 3.8±2.6 | 3.2±2.4 | 4.2±2.7 | 4.7±2.9 | 6.1±3.3 | 7.2±3.6 | 6.7±3.5 | 5.9±3.3 | 3.9±2.7 | 5.4±3.2 |
| Tuscola | 6.8±4.0 | 4.9±3.4 | 4.7±3.3 | 4.7±3.3 | 4.2±3.1 | 4.2±3.1 | 4.2±3.1 | 6.7±4.0 | 8.2±4.4 | 6.5±4.0 |
| Van Buren | 5.6±2.8 | 6.5±3.0 | 6.2±3.0 | 5.6±2.8 | 6.1±3.0 | 6.2±3.0 | 6.0±3.0 | 4.0±2.4 | 2.8±2.1 | 3.2±2.2 |
| Washtenaw | 4.7±1.3 | 4.6±1.3 | 5.9±1.4 | 5.5±1.4 | 5.9±1.4 | 4.7±1.3 | 5.2±1.4 | 5.2±1.4 | 5.1±1.4 | 5.6±1.5 |
| Wayne | 9.9±0.7 | 9.7±0.7 | 9.6±0.7 | 9.4±0.7 | 9.3±0.7 | 9.7±0.7 | 10.0±0.7 | 10.3±0.8 | 10.0±0.8 | 9.7±0.7 |
| Wexford | 9.8±5.5 | 9.8±5.5 | 10.8±5.8 | 6.3±4.4 | 5.0±4.0 | 5.1±4.1 | 7.1±4.9 | 7.9±5.2 | 9.0±5.5 | 8.3±5.4 |

Notes: Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*: A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

-: A dash indicates that there were either no births or no infant deaths from this category.

Source: 2010-2019 Geocoded Michigan Death Records; 2020-2021 Michigan Death Records. 2010-2021 Geocoded Michigan Birth Records. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 17-B
White Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2010–2021

| County | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|-----------------------|----------|-----------|-----------|----------|---------|-----------|----------|----------|-----------|----------|
| Michigan | 5.3±0.3 | 5.3±0.3 | 5.5±0.3 | 5.4±0.3 | 5.1±0.3 | 4.9±0.3 | 4.7±0.3 | 4.7±0.3 | 4.7±0.3 | 4.6±0.3 |
| Alcona | * | * | * | * | * | - | - | * | * | * |
| Alger | - | - | - | - | - | - | - | * | * | * |
| Allegan | 4.1±2.0 | 5.0±2.2 | 5.4±2.3 | 6.8±2.6 | 5.4±2.3 | 4.5±2.1 | 3.3±1.8 | 4.1±2.0 | 4.8±2.2 | 3.9±2.0 |
| Alpena | * | * | * | * | * | * | * | * | * | * |
| Antrim | 10.7±8.5 | * | * | * | - | - | * | * | * | * |
| Arenac | * | 16.6±13.2 | 16.8±13.3 | * | * | * | * | - | * | * |
| Baraga | - | - | * | * | * | * | - | - | - | - |
| Barry | 6.9±3.7 | 5.0±3.3 | 4.9±3.2 | 3.2±2.6 | * | 3.7±2.7 | 4.7±3.1 | 5.4±3.3 | 6.5±3.7 | 7.2±3.9 |
| Bay | 7.6±3.0 | 5.3±2.6 | 5.5±2.7 | 5.9±2.8 | 5.1±2.6 | 4.8±2.5 | 3.9±2.3 | 4.8±2.6 | 3.8±2.4 | 4.2±2.5 |
| Benzie | * | * | * | * | * | * | * | * | * | * |
| Berrien | 4.6±2.1 | 4.9±2.2 | 4.9±2.2 | 4.7±2.1 | 5.1±2.3 | 4.4±2.2 | 4.9±2.3 | 4.5±2.3 | 5.3±2.5 | 3.8±2.1 |
| Branch | 6.7±4.1 | 5.2±3.6 | 5.2±3.6 | 6.5±4.0 | 8.6±4.6 | 7.8±4.4 | 8.1±4.4 | 6.9±4.0 | 5.7±3.7 | 4.7±3.5 |
| Calhoun | 6.4±2.5 | 5.9±2.4 | 5.1±2.2 | 5.2±2.3 | 4.4±2.1 | 6.2±2.5 | 5.8±2.5 | 5.8±2.5 | 4.6±2.3 | 4.3±2.2 |
| Cass | 6.8±4.7 | 7.6±5.0 | 9.6±5.4 | 8.1±4.8 | 8.1±4.8 | 6.1±4.2 | 9.4±5.3 | 8.6±5.1 | 8.8±5.2 | 5.6±4.1 |
| Charlevoix | * | * | * | * | * | * | * | * | * | * |
| Cheboygan | - | - | - | * | * | * | 10.3±8.2 | 13.1±9.0 | 14.7±10.1 | 12.5±9.2 |
| Chippewa | * | * | * | * | * | * | * | * | * | * |
| Clare | * | * | * | * | * | 6.3±5.0 | 10.6±6.5 | 8.4±5.8 | 6.6±5.2 | * |
| Clinton | 4.1±2.7 | 2.7±2.2 | 4.1±2.7 | 5.9±3.2 | 6.3±3.3 | 4.4±2.7 | * | * | 3.8±2.6 | 4.4±2.8 |
| Crawford | * | * | - | * | * | 16.4±13.0 | * | * | * | * |
| Delta | 5.8±4.7 | * | 6.5±4.8 | * | * | * | 6.3±5.0 | 8.3±5.8 | 11.7±6.8 | 9.4±6.1 |
| Dickinson | * | * | * | * | * | * | * | * | * | * |
| Eaton | 4.8±2.5 | 4.8±2.5 | 4.8±2.5 | 5.1±2.6 | 5.1±2.6 | 4.5±2.5 | 3.5±2.2 | 3.7±2.3 | 5.3±2.8 | 5.3±2.8 |
| Emmet | * | * | * | * | * | * | * | * | * | * |
| Genesee | 4.8±1.3 | 5.2±1.4 | 5.3±1.4 | 5.7±1.5 | 6.3±1.6 | 6.4±1.6 | 5.4±1.5 | 4.1±1.3 | 3.5±1.2 | 4.3±1.3 |
| Gladwin | * | * | * | 11.4±7.4 | 9.9±6.8 | * | * | * | * | * |
| Gogebic | * | - | - | - | * | * | * | - | * | * |
| Grand Traverse | 3.1±2.2 | * | 3.7±2.3 | 5.6±2.8 | 7.8±3.3 | 6.8±3.1 | 5.0±2.7 | 4.4±2.6 | 5.7±3.0 | 4.9±2.7 |
| Gratiot | 5.8±4.3 | * | 5.2±4.2 | 6.2±4.6 | 5.4±4.3 | * | * | * | * | * |
| Hillsdale | 3.8±3.1 | 4.4±3.2 | * | 4.9±3.4 | 6.9±4.0 | 10.8±5.1 | 7.6±4.3 | 4.7±3.5 | * | 6.3±4.1 |

**Table 17-B
White Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2010–2021 (Continued)**

| County | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|-------------|----------|----------|-----------|---------|---------|---------|---------|----------|----------|---------|
| Houghton | 5.4±4.3 | 5.7±4.6 | 5.7±4.6 | * | * | 5.8±4.6 | 6.7±5.0 | 6.0±4.8 | * | * |
| Huron | 6.7±5.3 | * | * | - | * | * | 6.8±5.4 | 7.2±5.7 | * | * |
| Ingham | 5.3±1.7 | 7.5±2.1 | 7.1±2.0 | 6.4±1.9 | 4.6±1.6 | 4.3±1.6 | 4.7±1.7 | 5.4±1.9 | 5.9±2.0 | 5.6±1.9 |
| Ionia | 3.7±2.6 | 3.7±2.6 | 4.2±2.8 | 5.1±3.0 | 4.8±2.9 | 4.3±2.8 | 5.9±3.3 | 4.5±2.9 | 4.2±2.9 | * |
| Iosco | 9.6±7.6 | * | * | * | * | * | 8.7±6.9 | 11.3±7.8 | 10.4±7.7 | 9.7±7.7 |
| Iron | * | * | * | * | * | * | * | * | * | * |
| Isabella | 6.5±3.8 | 5.9±3.7 | 3.5±2.8 | 4.0±3.0 | 4.0±3.0 | 7.1±4.0 | 7.7±4.2 | 9.5±4.7 | 8.1±4.4 | 6.3±3.9 |
| Jackson | 4.1±1.8 | 4.6±2.0 | 3.9±1.8 | 5.1±2.1 | 5.0±2.0 | 5.8±2.2 | 4.7±2.0 | 3.2±1.7 | 3.5±1.8 | 5.6±2.2 |
| Kalamazoo | 3.9±1.4 | 3.9±1.4 | 4.7±1.6 | 4.7±1.6 | 3.2±1.3 | 4.7±1.6 | 4.6±1.6 | 5.5±1.8 | 3.2±1.3 | 2.9±1.3 |
| Kalkaska | 11.7±9.3 | 11.9±9.5 | 17.4±11.3 | * | * | * | * | * | * | * |
| Kent | 4.4±0.9 | 4.1±0.9 | 4.5±0.9 | 4.9±0.9 | 5.1±1.0 | 4.8±0.9 | 4.4±0.9 | 4.1±0.9 | 4.3±1.0 | 4.0±0.9 |
| Keweenaw | - | * | * | * | - | - | - | * | * | * |
| Lake | * | * | * | * | * | * | * | * | * | * |
| Lapeer | 3.0±2.2 | 2.6±2.1 | 4.7±2.8 | 5.6±3.0 | 5.6±3.0 | 4.8±2.9 | 3.9±2.5 | 5.2±2.9 | 4.8±2.8 | 7.9±3.7 |
| Leelanau | * | * | * | * | * | * | * | - | * | * |
| Lenawee | 9.6±3.6 | 7.6±3.2 | 8.4±3.3 | 7.6±3.2 | 7.0±3.1 | 6.5±3.0 | 5.1±2.6 | 4.1±2.4 | 3.3±2.2 | 3.9±2.4 |
| Livingston | 5.8±2.1 | 5.0±2.0 | 5.1±2.0 | 4.7±1.9 | 4.2±1.7 | 3.0±1.5 | 3.1±1.5 | 3.1±1.5 | 2.6±1.4 | 2.4±1.3 |
| Luce | - | - | * | * | * | * | * | * | * | * |
| Mackinac | - | - | - | * | * | * | * | - | - | - |
| Macomb | 4.8±0.9 | 5.5±1.0 | 5.3±1.0 | 5.4±1.0 | 4.6±0.9 | 5.2±1.0 | 4.7±0.9 | 4.6±0.9 | 3.6±0.8 | 3.7±0.9 |
| Manistee | * | * | * | * | * | * | * | * | - | * |
| Marquette | 4.2±2.9 | 4.3±3.0 | * | 4.5±3.1 | 4.4±3.0 | 4.5±3.1 | * | * | 3.8±3.0 | 4.4±3.3 |
| Mason | * | * | * | * | * | * | * | * | * | * |
| Mecosta | 10.0±5.6 | 11.7±6.1 | 9.9±5.6 | 9.1±5.4 | 5.8±4.3 | * | * | 5.1±4.0 | 6.9±4.7 | 6.0±4.4 |
| Menominee | * | * | * | * | * | - | * | * | * | * |
| Midland | 4.9±2.8 | 5.8±3.0 | 6.3±3.2 | 4.9±2.8 | 3.7±2.4 | 2.5±2.0 | * | * | 3.0±2.2 | 3.0±2.2 |
| Missaukee | * | * | * | * | * | * | * | * | * | * |
| Monroe | 3.6±1.8 | 5.1±2.1 | 5.3±2.2 | 6.0±2.3 | 4.1±1.9 | 6.1±2.4 | 5.0±2.1 | 6.7±2.5 | 7.6±2.6 | 9.5±2.9 |
| Montcalm | 6.5±3.4 | 6.0±3.3 | 5.6±3.2 | 4.7±2.9 | 4.4±2.8 | 4.8±3.0 | 4.8±3.0 | 5.9±3.3 | 5.4±3.2 | 5.0±3.1 |
| Montmorency | * | * | * | - | - | - | - | - | * | * |

Table 17-B
White Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2010–2021 (Continued)

| County | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|--------------|-----------|----------|----------|---------|----------|---------|---------|---------|-----------|---------|
| Muskegon | 7.1±2.4 | 6.6±2.3 | 5.8±2.2 | 4.6±1.9 | 4.1±1.8 | 4.2±1.8 | 3.8±1.8 | 3.7±1.8 | 3.5±1.7 | 3.7±1.8 |
| Newaygo | 6.9±4.1 | 7.0±4.1 | 7.6±4.3 | 8.4±4.6 | 8.4±4.5 | 6.6±4.1 | 5.2±3.6 | 6.0±3.9 | 6.7±4.1 | 6.8±4.2 |
| Oakland | 5.7±0.9 | 5.6±0.9 | 5.4±0.8 | 4.5±0.8 | 4.0±0.7 | 3.8±0.7 | 4.3±0.8 | 4.0±0.7 | 3.9±0.7 | 3.2±0.7 |
| Oceana | 9.6±6.3 | * | 13.5±7.9 | 8.7±6.4 | 10.7±7.0 | * | * | * | * | * |
| Ogemaw | * | * | * | * | * | * | * | * | * | * |
| Ontonagon | - | - | * | * | * | - | - | - | - | * |
| Osceola | * | * | * | * | * | * | 7.7±6.2 | * | * | * |
| Oscoda | * | * | * | * | * | - | * | * | * | * |
| Otsego | 12.2±7.9 | 14.4±8.9 | 11.5±8.0 | 8.3±6.6 | * | * | * | * | 8.5±6.8 | * |
| Ottawa | 5.6±1.5 | 6.3±1.6 | 5.3±1.5 | 5.6±1.5 | 4.7±1.4 | 4.6±1.4 | 4.2±1.3 | 3.7±1.3 | 3.9±1.3 | 3.5±1.2 |
| Presque Isle | 22.1±17.5 | * | * | * | * | * | * | * | * | * |
| Roscommon | * | * | * | * | * | * | * | * | 13.7±10.9 | * |
| Saginaw | 2.9±1.5 | 4.2±1.8 | 6.2±2.2 | 6.3±2.2 | 7.5±2.5 | 5.5±2.1 | 6.3±2.3 | 5.2±2.1 | 7.0±2.5 | 5.8±2.3 |
| St. Clair | 6.2±2.3 | 6.3±2.3 | 5.9±2.3 | 4.3±1.9 | 5.0±2.1 | 4.7±2.1 | 5.1±2.1 | 5.0±2.1 | 6.1±2.3 | 5.5±2.2 |
| St. Joseph | 6.9±3.4 | 6.4±3.2 | 6.6±3.3 | 4.3±2.7 | 4.5±2.8 | 4.7±2.9 | 6.1±3.3 | 6.4±3.4 | 7.5±3.8 | 7.6±4.0 |
| Sanilac | * | 4.6±3.7 | 6.9±4.5 | 6.1±4.2 | 7.7±4.8 | 7.8±4.8 | 6.5±4.5 | * | * | 5.9±4.4 |
| Schoolcraft | - | - | - | - | - | - | - | - | * | * |
| Shiawassee | 3.9±2.7 | 3.3±2.5 | 4.3±2.8 | 4.3±2.8 | 5.8±3.3 | 6.9±3.6 | 6.9±3.6 | 6.0±3.4 | 4.1±2.8 | 5.6±3.3 |
| Tuscola | 7.0±4.1 | 5.0±3.5 | 4.9±3.4 | 4.8±3.3 | 4.3±3.2 | 4.4±3.2 | 4.4±3.3 | 7.0±4.1 | 8.5±4.6 | 6.7±4.2 |
| Van Buren | 5.4±2.9 | 6.2±3.1 | 5.8±3.0 | 5.3±2.9 | 6.2±3.1 | 6.3±3.2 | 5.8±3.2 | 4.0±2.6 | 2.7±2.2 | 3.1±2.3 |
| Washtenaw | 3.9±1.4 | 4.2±1.5 | 5.4±1.7 | 5.0±1.6 | 4.3±1.5 | 3.2±1.3 | 3.0±1.3 | 3.3±1.3 | 3.3±1.3 | 3.3±1.4 |
| Wayne | 5.9±0.9 | 6.3±0.9 | 6.4±0.9 | 6.4±0.9 | 6.1±0.9 | 5.6±0.8 | 5.0±0.8 | 5.3±0.8 | 5.4±0.8 | 5.8±0.9 |
| Wexford | 10.1±5.7 | 9.3±5.4 | 10.3±5.8 | 5.7±4.2 | 5.1±4.1 | 5.3±4.2 | 7.3±5.1 | 8.2±5.3 | 9.3±5.7 | 8.6±5.6 |

Notes: Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*: A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

-: A dash indicates that there were either no births or no infant deaths from this category.

Source: 2010-2019 Geocoded Michigan Death Records; 2020-2021 Michigan Death Records. 2010-2021 Geocoded Michigan Birth Records. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

**Table 17-C
Black Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2010–2021**

| County | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|------------------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Michigan | 13.8±0.9 | 13.4±0.9 | 13.3±0.9 | 13.7±0.9 | 13.8±0.9 | 14.3±0.9 | 14.4±0.9 | 14.3±0.9 | 14.1±0.9 | 14.1±0.9 |
| Berrien | 18.6±6.9 | 17.3±6.7 | 16.5±6.7 | 13.3±6.1 | 10.4±5.6 | 7.4±4.8 | 13.3±6.5 | 15.5±6.9 | 17.1±7.4 | 17.3±7.7 |
| Calhoun | 20.2±10.1 | 13.8±8.1 | 9.9±6.8 | 14.6±8.2 | 11.3±7.3 | 12.6±7.8 | 11.7±7.6 | 10.4±7.2 | 10.6±7.3 | 8.0±6.4 |
| Cass | * | * | - | - | - | - | * | * | * | * |
| Genesee | 12.4±3.3 | 14.2±3.5 | 14.6±3.6 | 15.6±3.7 | 16.5±3.9 | 15.2±3.7 | 13.6±3.5 | 12.6±3.4 | 13.2±3.6 | 13.4±3.7 |
| Ingham | 11.4±5.0 | 10.1±4.7 | 10.1±4.7 | 12.9±5.2 | 14.2±5.5 | 14.5±5.6 | 12.1±5.0 | 13.8±5.3 | 16.4±5.8 | 16.1±5.9 |
| Jackson | 13.0±9.0 | 18.5±10.8 | 16.2±10.0 | 15.0±9.7 | 20.2±11.3 | 26.5±12.8 | 28.7±13.1 | 20.9±11.2 | 16.3±10.0 | 17.6±10.8 |
| Kalamazoo | 17.6±6.3 | 15.5±5.9 | 14.2±5.7 | 15.3±5.9 | 11.0±4.9 | 15.3±5.6 | 12.8±5.0 | 16.4±5.6 | 12.4±5.0 | 14.6±5.7 |
| Kent | 14.6±3.9 | 12.9±3.6 | 9.9±3.2 | 10.7±3.3 | 13.0±3.7 | 12.8±3.6 | 9.7±3.1 | 10.4±3.1 | 11.8±3.3 | 14.5±3.8 |
| Macomb | 11.4±3.2 | 11.1±3.1 | 9.9±2.9 | 10.7±2.9 | 10.6±2.9 | 12.8±3.1 | 12.7±3.0 | 13.6±3.1 | 11.1±2.8 | 10.1±2.7 |
| Muskegon | 16.4±6.8 | 12.8±6.0 | 14.9±6.7 | 19.7±7.7 | 23.1±8.3 | 23.2±8.1 | 18.7±7.1 | 13.2±6.0 | 12.7±6.0 | 15.5±7.1 |
| Oakland | 10.6±2.4 | 11.1±2.5 | 13.7±2.8 | 14.7±2.9 | 14.3±2.9 | 13.5±2.8 | 12.2±2.7 | 11.3±2.6 | 10.7±2.6 | 12.3±2.8 |
| Saginaw | 13.4±5.1 | 14.3±5.2 | 12.2±5.0 | 15.9±5.7 | 17.3±5.9 | 16.2±5.6 | 14.1±5.2 | 11.7±4.8 | 15.4±5.5 | 14.5±5.5 |
| St. Clair | * | * | * | * | 34.3±25.0 | 33.7±24.5 | * | * | * | 36.6±26.7 |
| Van Buren | * | * | * | * | * | * | * | - | - | * |
| Washtenaw | 8.9±4.1 | 8.3±4.1 | 10.9±4.7 | 12.1±5.2 | 16.4±5.9 | 14.4±5.5 | 16.7±5.9 | 14.1±5.5 | 13.4±5.4 | 14.1±5.6 |
| Wayne | 14.5±1.3 | 14.0±1.3 | 13.7±1.3 | 13.2±1.2 | 13.2±1.3 | 14.1±1.3 | 15.7±1.4 | 15.9±1.4 | 15.6±1.4 | 15.0±1.4 |

Notes: Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*: A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

-: A dash indicates that there were either no births or no infant deaths from this category.

Source: 2010-2019 Geocoded Michigan Death Records; 2020-2021 Michigan Death Records. 2010-2021 Geocoded Michigan Birth Records. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 18-A
All Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2010–2021

| Health Department | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Michigan | 6.9±0.3 | 6.8±0.3 | 6.9±0.3 | 6.9±0.3 | 6.7±0.3 | 6.7±0.3 | 6.7±0.3 | 6.6±0.3 | 6.6±0.3 | 6.5±0.3 |
| Allegan County | 4.2±2.0 | 5.0±2.2 | 5.4±2.3 | 6.8±2.5 | 5.7±2.3 | 4.6±2.1 | 3.6±1.8 | 4.7±2.1 | 5.3±2.3 | 4.2±2.1 |
| Barry-Eaton District | 5.9±2.0 | 5.7±2.0 | 5.6±2.0 | 5.7±2.0 | 5.0±1.9 | 5.1±1.9 | 4.4±1.8 | 4.3±1.8 | 5.5±2.0 | 6.0±2.1 |
| Bay County | 7.7±3.0 | 5.3±2.5 | 5.7±2.6 | 6.1±2.7 | 5.4±2.6 | 4.5±2.4 | 4.0±2.2 | 5.5±2.7 | 5.0±2.6 | 5.4±2.7 |
| Benzie-Leelanau District | * | * | 6.2±5.0 | 8.2±5.7 | 8.2±5.7 | 6.0±4.8 | * | * | * | * |
| Berrien County | 8.1±2.3 | 8.3±2.4 | 7.8±2.3 | 6.9±2.2 | 6.4±2.2 | 5.2±2.0 | 6.7±2.2 | 7.4±2.4 | 8.4±2.6 | 7.2±2.4 |
| Branch-Hillsdale-St. Joseph | 6.4±2.1 | 6.3±2.1 | 6.2±2.0 | 5.6±1.9 | 6.4±2.1 | 7.6±2.3 | 7.7±2.3 | 6.6±2.1 | 6.3±2.1 | 6.5±2.2 |
| Calhoun County | 8.7±2.6 | 7.2±2.3 | 6.0±2.1 | 6.8±2.3 | 5.8±2.1 | 7.2±2.4 | 6.8±2.3 | 6.4±2.3 | 6.0±2.3 | 5.1±2.1 |
| Central Michigan District | 5.6±2.0 | 5.4±2.0 | 4.6±1.8 | 5.7±2.0 | 5.5±2.0 | 6.3±2.1 | 6.9±2.2 | 7.2±2.3 | 7.2±2.3 | 5.7±2.1 |
| Chippewa County | 7.5±5.2 | 7.5±5.2 | 5.6±4.5 | * | * | * | * | 7.3±5.4 | 7.6±5.6 | 9.2±6.4 |
| City Of Detroit | 13.6±1.3 | 13.6±1.3 | 13.8±1.3 | 13.6±1.3 | 13.6±1.3 | 14.0±1.4 | 14.7±1.4 | 14.0±1.4 | 14.1±1.4 | 13.7±1.4 |
| Dickinson-Iron District | * | * | 5.8±4.6 | 5.9±4.7 | * | * | 7.4±5.1 | 6.9±5.1 | 8.2±5.7 | 7.4±5.5 |
| District #10 | 7.6±1.9 | 7.0±1.8 | 8.2±1.9 | 7.1±1.8 | 7.0±1.8 | 5.4±1.6 | 5.6±1.6 | 5.9±1.7 | 6.1±1.7 | 5.4±1.6 |
| District #2 | 8.9±4.5 | 6.5±3.8 | 7.0±3.9 | 4.1±3.1 | 4.6±3.2 | 5.3±3.4 | 7.9±4.1 | 9.8±4.6 | 8.2±4.3 | 6.7±3.9 |
| District #4 | 6.5±3.7 | 4.9±3.2 | 4.8±3.1 | 4.1±2.9 | 4.6±3.0 | 6.1±3.4 | 7.3±3.8 | 8.8±4.2 | 8.8±4.3 | 7.5±3.9 |
| Genesee County | 7.1±1.3 | 8.0±1.4 | 8.0±1.4 | 8.5±1.5 | 9.1±1.5 | 9.0±1.5 | 8.0±1.5 | 6.7±1.4 | 6.4±1.4 | 7.0±1.4 |
| Grand Traverse County | 2.9±2.0 | * | 3.5±2.2 | 5.3±2.7 | 7.5±3.2 | 6.5±3.0 | 5.1±2.7 | 4.6±2.6 | 6.2±3.0 | 5.0±2.7 |
| Huron County | 6.5±5.2 | * | * | - | * | * | 6.7±5.3 | 7.1±5.6 | * | * |
| Ingham County | 5.8±1.5 | 7.2±1.7 | 7.1±1.7 | 7.1±1.7 | 6.4±1.6 | 6.0±1.5 | 5.9±1.5 | 6.4±1.6 | 7.6±1.8 | 7.8±1.9 |
| Ionia County | 4.0±2.6 | 4.1±2.6 | 4.1±2.7 | 5.0±2.9 | 4.6±2.8 | 4.1±2.7 | 5.6±3.2 | 4.8±3.0 | 5.0±3.1 | 3.5±2.6 |
| Jackson County | 5.3±1.9 | 6.2±2.1 | 5.6±2.0 | 6.2±2.1 | 6.7±2.2 | 8.0±2.4 | 7.4±2.3 | 5.2±2.0 | 5.3±2.0 | 7.4±2.4 |
| Kalamazoo County | 6.4±1.6 | 6.0±1.6 | 6.4±1.6 | 6.5±1.6 | 4.6±1.4 | 6.7±1.6 | 6.2±1.6 | 7.7±1.8 | 5.0±1.5 | 5.2±1.5 |
| Kent County | 6.2±0.9 | 5.6±0.9 | 5.3±0.9 | 5.5±0.9 | 6.2±0.9 | 6.0±0.9 | 5.5±0.9 | 5.4±0.9 | 5.9±0.9 | 6.0±1.0 |
| Lapeer County | 3.6±2.4 | 2.4±1.9 | 4.4±2.6 | 5.3±2.9 | 5.3±2.9 | 4.6±2.7 | 3.7±2.4 | 5.0±2.8 | 4.6±2.7 | 8.0±3.6 |
| Lenawee County | 9.2±3.3 | 7.2±2.9 | 8.2±3.1 | 7.6±3.0 | 7.3±3.0 | 6.2±2.8 | 4.9±2.5 | 3.7±2.2 | 3.1±2.0 | 4.3±2.5 |
| Livingston County | 5.9±2.1 | 5.2±2.0 | 5.4±2.0 | 5.1±1.9 | 4.4±1.7 | 3.5±1.6 | 3.3±1.5 | 3.4±1.6 | 2.5±1.3 | 2.5±1.3 |
| Luce-Mackinac-Alger-Schoolcraft | - | - | * | * | 11.6±7.6 | 9.0±6.6 | * | * | 8.9±6.6 | 8.8±6.5 |
| Macomb County | 5.6±0.9 | 6.3±0.9 | 6.0±0.9 | 6.3±0.9 | 5.7±0.9 | 6.4±0.9 | 6.1±0.9 | 6.2±0.9 | 5.2±0.9 | 5.1±0.9 |
| Marquette County | 4.1±2.8 | 4.1±2.9 | * | 4.3±3.0 | 4.2±2.9 | 4.3±3.0 | * | * | 4.2±3.1 | 4.8±3.3 |
| Midland County | 4.6±2.6 | 6.6±3.1 | 7.1±3.3 | 5.8±2.9 | 3.5±2.3 | 2.3±1.9 | * | * | 2.8±2.1 | 2.8±2.1 |

Table 18-A
All Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2010–2021 (Continued)

| County | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|--|---------|---------|---------|---------|----------|---------|---------|---------|----------|---------|
| Mid-Michigan District | 5.5±1.9 | 4.4±1.7 | 4.8±1.8 | 5.7±1.9 | 5.4±1.9 | 4.6±1.7 | 3.4±1.5 | 3.5±1.5 | 3.7±1.6 | 4.2±1.7 |
| Monroe County | 4.4±1.9 | 5.8±2.2 | 5.9±2.2 | 6.0±2.3 | 4.2±1.9 | 6.1±2.3 | 4.9±2.0 | 6.4±2.3 | 7.3±2.5 | 9.2±2.8 |
| Muskegon County | 8.7±2.3 | 8.0±2.2 | 8.1±2.2 | 8.1±2.2 | 8.4±2.3 | 8.4±2.2 | 7.5±2.1 | 5.9±1.9 | 5.6±1.9 | 6.1±2.0 |
| Northwest Michigan Community Health | 6.9±2.9 | 6.7±2.9 | 6.2±2.8 | 5.8±2.7 | 3.7±2.2 | 3.5±2.1 | 3.9±2.3 | 4.7±2.6 | 4.8±2.6 | 4.1±2.4 |
| Oakland County | 6.2±0.8 | 6.3±0.8 | 6.6±0.8 | 6.0±0.8 | 5.6±0.7 | 5.3±0.7 | 5.6±0.7 | 5.2±0.7 | 5.1±0.7 | 4.6±0.7 |
| Ottawa County | 5.9±1.5 | 6.6±1.6 | 5.7±1.5 | 6.0±1.5 | 4.9±1.4 | 4.8±1.4 | 4.1±1.3 | 3.9±1.3 | 4.4±1.3 | 4.3±1.3 |
| Delta & Menominee | 5.4±3.5 | 4.7±3.2 | 5.7±3.5 | 4.0±2.9 | 5.2±3.4 | 3.7±2.9 | 5.1±3.5 | 7.0±4.1 | 9.7±4.9 | 8.3±4.5 |
| Saginaw County | 6.1±1.8 | 7.1±2.0 | 7.7±2.1 | 8.7±2.2 | 10.0±2.4 | 8.4±2.2 | 8.4±2.2 | 7.2±2.0 | 10.0±2.5 | 8.8±2.3 |
| Sanilac County | * | 4.6±3.6 | 6.8±4.4 | 6.8±4.4 | 8.4±4.9 | 8.4±4.9 | 6.4±4.4 | * | * | 5.7±4.2 |
| Shiawassee County | 3.8±2.6 | 3.2±2.4 | 4.2±2.7 | 4.7±2.9 | 6.1±3.3 | 7.2±3.6 | 6.7±3.5 | 5.9±3.3 | 3.9±2.7 | 5.4±3.2 |
| St Clair County | 6.2±2.2 | 6.3±2.2 | 6.0±2.2 | 5.1±2.1 | 6.2±2.2 | 5.9±2.2 | 5.4±2.1 | 5.1±2.1 | 6.8±2.4 | 7.0±2.4 |
| Tuscola County | 6.8±4.0 | 4.9±3.4 | 4.7±3.3 | 4.7±3.3 | 4.2±3.1 | 4.2±3.1 | 4.2±3.1 | 6.7±4.0 | 8.2±4.4 | 6.5±4.0 |
| Van Buren-Cass County | 6.0±2.3 | 6.8±2.5 | 7.0±2.5 | 6.2±2.4 | 6.6±2.5 | 6.2±2.4 | 7.4±2.7 | 6.0±2.4 | 5.4±2.3 | 4.6±2.1 |
| Washtenaw County | 4.7±1.3 | 4.6±1.3 | 5.9±1.4 | 5.5±1.4 | 5.9±1.4 | 4.7±1.3 | 5.2±1.4 | 5.2±1.4 | 5.1±1.4 | 5.6±1.5 |
| Wayne County | 6.9±0.8 | 6.8±0.8 | 6.5±0.8 | 6.3±0.8 | 6.1±0.8 | 6.6±0.8 | 6.8±0.8 | 7.7±0.9 | 7.2±0.8 | 7.0±0.8 |
| Western Upper Peninsula District | 4.1±2.8 | 4.3±2.9 | 6.0±3.5 | 5.4±3.4 | 7.1±3.8 | 8.1±4.1 | 8.1±4.1 | 5.1±3.3 | * | 3.5±2.8 |

Notes: Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*: A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

-: A dash indicates that there were either no births or no infant deaths from this category.

Source: 2010-2019 Geocoded Michigan Death Records; 2020-2021 Michigan Death Records. 2010-2021 Geocoded Michigan Birth Records. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 18-B
White Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2010–2021

| Health Department | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|--|----------|----------|----------|---------|----------|---------|---------|---------|----------|----------|
| Michigan | 5.3±0.3 | 5.3±0.3 | 5.5±0.3 | 5.4±0.3 | 5.1±0.3 | 4.9±0.3 | 4.7±0.3 | 4.7±0.3 | 4.7±0.3 | 4.6±0.3 |
| Allegan County | 4.1±2.0 | 5.0±2.2 | 5.4±2.3 | 6.8±2.6 | 5.4±2.3 | 4.5±2.1 | 3.3±1.8 | 4.1±2.0 | 4.8±2.2 | 3.9±2.0 |
| Barry-Eaton District | 5.6±2.1 | 4.9±2.0 | 4.9±2.0 | 4.4±1.9 | 3.9±1.8 | 4.2±1.8 | 4.0±1.8 | 4.4±1.9 | 5.8±2.2 | 6.1±2.3 |
| Bay County | 7.6±3.0 | 5.3±2.6 | 5.5±2.7 | 5.9±2.8 | 5.1±2.6 | 4.8±2.5 | 3.9±2.3 | 4.8±2.6 | 3.8±2.4 | 4.2±2.5 |
| Benzie-Leelanau District | * | * | * | 6.8±5.4 | 6.7±5.3 | * | * | * | * | * |
| Berrien County | 4.6±2.1 | 4.9±2.2 | 4.9±2.2 | 4.7±2.1 | 5.1±2.3 | 4.4±2.2 | 4.9±2.3 | 4.5±2.3 | 5.3±2.5 | 3.8±2.1 |
| Branch-Hillsdale-St. Joseph | 6.0±2.1 | 5.5±2.0 | 5.2±1.9 | 5.1±1.9 | 6.4±2.1 | 7.4±2.3 | 7.1±2.3 | 6.0±2.1 | 5.8±2.1 | 6.3±2.2 |
| Calhoun County | 6.4±2.5 | 5.9±2.4 | 5.1±2.2 | 5.2±2.3 | 4.4±2.1 | 6.2±2.5 | 5.8±2.5 | 5.8±2.5 | 4.6±2.3 | 4.3±2.2 |
| Central Michigan District | 5.3±2.0 | 5.4±2.0 | 4.5±1.9 | 5.5±2.0 | 5.3±2.0 | 6.0±2.1 | 7.0±2.3 | 7.1±2.3 | 7.1±2.4 | 5.5±2.1 |
| Chippewa County | * | * | * | * | * | * | * | * | * | * |
| City Of Detroit | 10.3±3.9 | 10.1±4.0 | 11.3±4.2 | 9.5±3.8 | 9.2±3.7 | 8.4±3.4 | 7.1±3.0 | 5.8±2.7 | 5.3±2.5 | 7.0±3.0 |
| Dickinson-Iron District | * | * | 5.9±4.7 | 6.1±4.9 | * | * | 6.8±5.0 | 6.2±4.9 | 7.6±5.6 | 7.8±5.7 |
| District #10 | 7.7±1.9 | 6.8±1.8 | 8.2±2.0 | 7.0±1.8 | 6.9±1.8 | 5.1±1.6 | 5.1±1.6 | 5.7±1.7 | 6.2±1.8 | 5.7±1.7 |
| District #2 | 9.2±4.6 | 6.7±3.9 | 7.2±4.0 | 4.2±3.1 | 4.7±3.2 | 3.6±2.9 | 6.4±3.7 | 8.3±4.3 | 8.5±4.4 | 7.0±4.1 |
| District #4 | 6.2±3.7 | 4.5±3.1 | 4.4±3.1 | 3.8±2.8 | 4.3±3.0 | 6.3±3.6 | 7.6±4.0 | 9.2±4.3 | 9.2±4.5 | 7.3±3.9 |
| Genesee County | 4.8±1.3 | 5.2±1.4 | 5.3±1.4 | 5.7±1.5 | 6.3±1.6 | 6.4±1.6 | 5.4±1.5 | 4.1±1.3 | 3.5±1.2 | 4.3±1.3 |
| Grand Traverse County | 3.1±2.2 | * | 3.7±2.3 | 5.6±2.8 | 7.8±3.3 | 6.8±3.1 | 5.0±2.7 | 4.4±2.6 | 5.7±3.0 | 4.9±2.7 |
| Huron County | 6.7±5.3 | * | * | - | * | * | 6.8±5.4 | 7.2±5.7 | * | * |
| Ingham County | 5.3±1.7 | 7.5±2.1 | 7.1±2.0 | 6.4±1.9 | 4.6±1.6 | 4.3±1.6 | 4.7±1.7 | 5.4±1.9 | 5.9±2.0 | 5.6±1.9 |
| Ionia County | 3.7±2.6 | 3.7±2.6 | 4.2±2.8 | 5.1±3.0 | 4.8±2.9 | 4.3±2.8 | 5.9±3.3 | 4.5±2.9 | 4.2±2.9 | * |
| Jackson County | 4.1±1.8 | 4.6±2.0 | 3.9±1.8 | 5.1±2.1 | 5.0±2.0 | 5.8±2.2 | 4.7±2.0 | 3.2±1.7 | 3.5±1.8 | 5.6±2.2 |
| Kalamazoo County | 3.9±1.4 | 3.9±1.4 | 4.7±1.6 | 4.7±1.6 | 3.2±1.3 | 4.7±1.6 | 4.6±1.6 | 5.5±1.8 | 3.2±1.3 | 2.9±1.3 |
| Kent County | 4.4±0.9 | 4.1±0.9 | 4.5±0.9 | 4.9±0.9 | 5.1±1.0 | 4.8±0.9 | 4.4±0.9 | 4.1±0.9 | 4.3±1.0 | 4.0±0.9 |
| Lapeer County | 3.0±2.2 | 2.6±2.1 | 4.7±2.8 | 5.6±3.0 | 5.6±3.0 | 4.8±2.9 | 3.9±2.5 | 5.2±2.9 | 4.8±2.8 | 7.9±3.7 |
| Lenawee County | 9.6±3.6 | 7.6±3.2 | 8.4±3.3 | 7.6±3.2 | 7.0±3.1 | 6.5±3.0 | 5.1±2.6 | 4.1±2.4 | 3.3±2.2 | 3.9±2.4 |
| Livingston County | 5.8±2.1 | 5.0±2.0 | 5.1±2.0 | 4.7±1.9 | 4.2±1.7 | 3.0±1.5 | 3.1±1.5 | 3.1±1.5 | 2.6±1.4 | 2.4±1.3 |
| Luce-Mackinac-Alger-Schoolcraft | - | - | * | * | 11.0±8.1 | * | * | * | 10.7±7.9 | 10.4±7.7 |
| Macomb County | 4.8±0.9 | 5.5±1.0 | 5.3±1.0 | 5.4±1.0 | 4.6±0.9 | 5.2±1.0 | 4.7±0.9 | 4.6±0.9 | 3.6±0.8 | 3.7±0.9 |
| Marquette County | 4.2±2.9 | 4.3±3.0 | * | 4.5±3.1 | 4.4±3.0 | 4.5±3.1 | * | * | 3.8±3.0 | 4.4±3.3 |
| Midland County | 4.9±2.8 | 5.8±3.0 | 6.3±3.2 | 4.9±2.8 | 3.7±2.4 | 2.5±2.0 | * | * | 3.0±2.2 | 3.0±2.2 |

Table 18-B
White Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2010–2021 (Continued)

| County | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| Mid-Michigan District | 5.4±1.9 | 4.3±1.7 | 4.9±1.8 | 5.5±2.0 | 5.4±1.9 | 4.4±1.8 | 3.5±1.6 | 3.5±1.6 | 4.0±1.7 | 4.3±1.8 |
| Monroe County | 3.6±1.8 | 5.1±2.1 | 5.3±2.2 | 6.0±2.3 | 4.1±1.9 | 6.1±2.4 | 5.0±2.1 | 6.7±2.5 | 7.6±2.6 | 9.5±2.9 |
| Muskegon County | 7.1±2.4 | 6.6±2.3 | 5.8±2.2 | 4.6±1.9 | 4.1±1.8 | 4.2±1.8 | 3.8±1.8 | 3.7±1.8 | 3.5±1.7 | 3.7±1.8 |
| Northwest Michigan Community Health | 6.9±3.0 | 6.8±3.0 | 5.8±2.8 | 5.7±2.8 | 3.5±2.2 | 2.6±1.9 | 3.0±2.1 | 3.8±2.4 | 5.0±2.7 | 3.5±2.3 |
| Oakland County | 5.7±0.9 | 5.6±0.9 | 5.4±0.8 | 4.5±0.8 | 4.0±0.7 | 3.8±0.7 | 4.3±0.8 | 4.0±0.7 | 3.9±0.7 | 3.2±0.7 |
| Ottawa County | 5.6±1.5 | 6.3±1.6 | 5.3±1.5 | 5.6±1.5 | 4.7±1.4 | 4.6±1.4 | 4.2±1.3 | 3.7±1.3 | 3.9±1.3 | 3.5±1.2 |
| Delta & Menominee | 4.5±3.3 | 3.8±3.0 | 4.9±3.4 | * | * | * | 4.8±3.5 | 7.5±4.4 | 10.4±5.2 | 8.3±4.7 |
| Saginaw County | 2.9±1.5 | 4.2±1.8 | 6.2±2.2 | 6.3±2.2 | 7.5±2.5 | 5.5±2.1 | 6.3±2.3 | 5.2±2.1 | 7.0±2.5 | 5.8±2.3 |
| Sanilac County | * | 4.6±3.7 | 6.9±4.5 | 6.1±4.2 | 7.7±4.8 | 7.8±4.8 | 6.5±4.5 | * | * | 5.9±4.4 |
| Shiawassee County | 3.9±2.7 | 3.3±2.5 | 4.3±2.8 | 4.3±2.8 | 5.8±3.3 | 6.9±3.6 | 6.9±3.6 | 6.0±3.4 | 4.1±2.8 | 5.6±3.3 |
| St Clair County | 6.2±2.3 | 6.3±2.3 | 5.9±2.3 | 4.3±1.9 | 5.0±2.1 | 4.7±2.1 | 5.1±2.1 | 5.0±2.1 | 6.1±2.3 | 5.5±2.2 |
| Tuscola County | 7.0±4.1 | 5.0±3.5 | 4.9±3.4 | 4.8±3.3 | 4.3±3.2 | 4.4±3.2 | 4.4±3.3 | 7.0±4.1 | 8.5±4.6 | 6.7±4.2 |
| Van Buren-Cass County | 5.8±2.5 | 6.7±2.7 | 7.1±2.7 | 6.3±2.5 | 6.9±2.6 | 6.2±2.5 | 7.1±2.8 | 5.7±2.5 | 4.9±2.3 | 4.0±2.1 |
| Washtenaw County | 3.9±1.4 | 4.2±1.5 | 5.4±1.7 | 5.0±1.6 | 4.3±1.5 | 3.2±1.3 | 3.0±1.3 | 3.3±1.3 | 3.3±1.3 | 3.3±1.4 |
| Wayne County | 5.5±0.9 | 6.0±0.9 | 6.0±0.9 | 6.1±0.9 | 5.8±0.9 | 5.4±0.8 | 4.8±0.8 | 5.3±0.8 | 5.4±0.9 | 5.6±0.9 |
| Western Upper Peninsula District | 4.4±3.1 | 4.1±3.0 | 5.3±3.5 | 4.8±3.3 | 5.9±3.7 | 6.6±3.9 | 6.6±3.9 | 4.4±3.2 | * | * |

Notes: Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*: A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

-: A dash indicates that there were either no births or no infant deaths from this category.

Source: 2010-2019 Geocoded Michigan Death Records; 2020-2021 Michigan Death Records. 2010-2021 Geocoded Michigan Birth Records. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 18-C
Black Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2010–2021

| Health Department | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Michigan | 13.8±0.9 | 13.4±0.9 | 13.3±0.9 | 13.7±0.9 | 13.8±0.9 | 14.3±0.9 | 14.4±0.9 | 14.3±0.9 | 14.1±0.9 | 14.1±0.9 |
| Barry-Eaton District | * | 22.7±16.6 | 22.4±16.4 | 29.0±17.7 | 24.0±15.5 | 22.0±15.1 | * | * | * | * |
| Berrien County | 18.6±6.9 | 17.3±6.7 | 16.5±6.7 | 13.3±6.1 | 10.4±5.6 | 7.4±4.8 | 13.3±6.5 | 15.5±6.9 | 17.1±7.4 | 17.3±7.7 |
| Calhoun County | 20.2±10.1 | 13.8±8.1 | 9.9±6.8 | 14.6±8.2 | 11.3±7.3 | 12.6±7.8 | 11.7±7.6 | 10.4±7.2 | 10.6±7.3 | 8.0±6.4 |
| City Of Detroit | 14.7±1.5 | 14.8±1.5 | 15.0±1.5 | 14.8±1.5 | 14.6±1.5 | 14.8±1.5 | 16.0±1.6 | 15.6±1.6 | 15.9±1.6 | 15.5±1.7 |
| District #10 | * | * | * | * | - | * | * | * | * | - |
| Genesee County | 12.4±3.3 | 14.2±3.5 | 14.6±3.6 | 15.6±3.7 | 16.5±3.9 | 15.2±3.7 | 13.6±3.5 | 12.6±3.4 | 13.2±3.6 | 13.4±3.7 |
| Ingham County | 11.4±5.0 | 10.1±4.7 | 10.1±4.7 | 12.9±5.2 | 14.2±5.5 | 14.5±5.6 | 12.1±5.0 | 13.8±5.3 | 16.4±5.8 | 16.1±5.9 |
| Jackson County | 13.0±9.0 | 18.5±10.8 | 16.2±10.0 | 15.0±9.7 | 20.2±11.3 | 26.5±12.8 | 28.7±13.1 | 20.9±11.2 | 16.3±10.0 | 17.6±10.8 |
| Kalamazoo County | 17.6±6.3 | 15.5±5.9 | 14.2±5.7 | 15.3±5.9 | 11.0±4.9 | 15.3±5.6 | 12.8±5.0 | 16.4±5.6 | 12.4±5.0 | 14.6±5.7 |
| Kent County | 14.6±3.9 | 12.9±3.6 | 9.9±3.2 | 10.7±3.3 | 13.0±3.7 | 12.8±3.6 | 9.7±3.1 | 10.4±3.1 | 11.8±3.3 | 14.5±3.8 |
| Macomb County | 11.4±3.2 | 11.1±3.1 | 9.9±2.9 | 10.7±2.9 | 10.6±2.9 | 12.8±3.1 | 12.7±3.0 | 13.6±3.1 | 11.1±2.8 | 10.1±2.7 |
| Mid-Michigan District | * | * | - | * | * | * | - | - | - | - |
| Muskegon County | 16.4±6.8 | 12.8±6.0 | 14.9±6.7 | 19.7±7.7 | 23.1±8.3 | 23.2±8.1 | 18.7±7.1 | 13.2±6.0 | 12.7±6.0 | 15.5±7.1 |
| Oakland County | 10.6±2.4 | 11.1±2.5 | 13.7±2.8 | 14.7±2.9 | 14.3±2.9 | 13.5±2.8 | 12.2±2.7 | 11.3±2.6 | 10.7±2.6 | 12.3±2.8 |
| Ottawa County | * | * | * | * | * | * | - | * | 22.4±17.7 | 22.8±18.0 |
| Saginaw County | 13.4±5.1 | 14.3±5.2 | 12.2±5.0 | 15.9±5.7 | 17.3±5.9 | 16.2±5.6 | 14.1±5.2 | 11.7±4.8 | 15.4±5.5 | 14.5±5.5 |
| St Clair County | * | * | * | * | 34.3±25.0 | 33.7±24.5 | * | * | * | 36.6±26.7 |
| Van Buren-Cass County | * | * | * | * | * | * | * | * | * | * |
| Washtenaw County | 8.9±4.1 | 8.3±4.1 | 10.9±4.7 | 12.1±5.2 | 16.4±5.9 | 14.4±5.5 | 16.7±5.9 | 14.1±5.5 | 13.4±5.4 | 14.1±5.6 |
| Wayne County | 13.6±2.6 | 11.3±2.4 | 9.6±2.2 | 8.1±2.0 | 9.0±2.1 | 12.1±2.4 | 15.0±2.6 | 16.8±2.8 | 14.5±2.6 | 13.7±2.5 |

Notes: Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*: A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

-: A dash indicates that there were either no births or no infant deaths from this category.

Source: 2010-2019 Geocoded Michigan Death Records; 2020-2021 Michigan Death Records. 2010-2021 Geocoded Michigan Birth Records. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 19-A
All Three-Year Moving Average Infant Death Rates by City
Michigan Residents, 2010–2021

| City | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|-------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Michigan | 6.9±0.3 | 6.8±0.3 | 6.9±0.3 | 6.9±0.3 | 6.7±0.3 | 6.7±0.3 | 6.7±0.3 | 6.6±0.3 | 6.6±0.3 | 6.5±0.3 |
| Ann Arbor | 2.7±1.8 | 3.6±2.0 | 5.1±2.4 | 4.3±2.2 | 3.7±2.1 | 3.2±2.0 | 4.5±2.4 | 4.3±2.3 | 3.5±2.2 | 5.4±2.7 |
| Battle Creek | 11.0±4.3 | 9.9±3.8 | 7.9±3.4 | 8.4±3.5 | 7.0±3.4 | 9.6±4.1 | 8.0±3.8 | 6.1±3.2 | 5.2±3.0 | 6.1±3.2 |
| Dearborn | 7.4±2.4 | 7.5±2.4 | 6.4±2.2 | 6.0±2.1 | 4.9±1.9 | 5.5±2.0 | 4.9±1.9 | 4.5±1.9 | 4.4±1.9 | 4.7±2.0 |
| Dearborn Heights | 5.7±3.1 | 6.9±3.4 | 5.5±3.0 | 5.2±2.8 | 6.7±3.2 | 5.5±2.9 | 5.2±2.8 | 7.0±3.3 | 7.1±3.4 | 6.2±3.1 |
| Detroit | 13.6±1.3 | 13.6±1.3 | 13.9±1.3 | 13.6±1.3 | 13.6±1.3 | 14.0±1.4 | 14.7±1.4 | 14.0±1.4 | 14.1±1.4 | 13.7±1.4 |
| Farmington Hills | 6.9±3.3 | 6.7±3.2 | 6.7±3.2 | 6.1±3.0 | 4.5±2.5 | 6.2±2.9 | 5.8±2.8 | 6.3±3.0 | 4.5±2.6 | 3.8±2.4 |
| Flint | 11.6±3.0 | 11.0±2.8 | 10.9±2.8 | 10.7±2.9 | 13.1±3.4 | 13.9±3.5 | 13.2±3.5 | 11.4±3.2 | 13.1±3.5 | 14.3±3.8 |
| Grand Rapids | 9.4±1.9 | 8.0±1.7 | 6.6±1.6 | 5.9±1.5 | 6.8±1.7 | 7.3±1.7 | 6.4±1.6 | 6.0±1.6 | 6.2±1.6 | 6.5±1.7 |
| Kalamazoo | 9.7±3.5 | 6.0±2.5 | 6.0±2.5 | 7.6±2.8 | 7.3±3.0 | 8.4±3.3 | 5.9±2.7 | 7.9±2.8 | 6.5±2.6 | 7.4±2.8 |
| Kentwood | 4.5±2.7 | 5.2±2.9 | 5.1±2.9 | 6.0±3.1 | 8.1±3.5 | 8.9±3.7 | 7.7±3.5 | 7.1±3.5 | 5.9±3.2 | 6.2±3.3 |
| Lansing | 6.5±2.1 | 7.4±2.2 | 8.5±2.4 | 8.8±2.4 | 9.2±2.5 | 8.7±2.5 | 7.6±2.4 | 8.0±2.5 | 9.4±2.7 | 10.8±3.0 |
| Livonia | 2.8±2.1 | 5.5±2.9 | 5.4±2.8 | 4.8±2.6 | 4.0±2.4 | 5.2±2.7 | 5.6±2.8 | 5.6±2.8 | 4.4±2.5 | 4.1±2.4 |
| Midland | * | 6.3±4.1 | 7.7±4.5 | 7.7±4.5 | 4.2±3.4 | * | * | * | * | * |
| Muskegon | 10.5±4.8 | 12.6±5.0 | 12.6±5.0 | 13.4±5.2 | 14.9±5.9 | 13.9±5.8 | 10.7±5.1 | 4.7±3.3 | 4.8±3.3 | 5.7±3.7 |
| Novi | 3.8±2.8 | 4.3±3.0 | 6.1±3.5 | 5.0±3.1 | 4.5±2.9 | 3.7±2.7 | 7.9±4.0 | 6.9±3.7 | 7.6±4.0 | 4.5±3.1 |
| Pontiac | 8.5±3.2 | 9.4±3.3 | 11.4±3.6 | 14.0±4.0 | 12.6±3.8 | 11.8±3.7 | 9.4±3.4 | 9.5±3.4 | 9.9±3.6 | 10.8±3.9 |
| Portage | 4.1±3.0 | 5.8±3.6 | 5.8±3.6 | 5.2±3.4 | * | 7.7±4.2 | 6.7±4.0 | 6.7±4.0 | * | * |
| Rochester Hills | 4.0±2.6 | 5.2±3.0 | 4.4±2.7 | 4.0±2.6 | 2.7±2.1 | 2.7±2.1 | 3.1±2.3 | 2.8±2.2 | * | * |
| Roseville | 7.4±4.0 | 7.8±4.1 | 7.8±4.0 | 7.7±4.0 | 10.1±4.7 | 10.2±4.7 | 8.7±4.4 | 7.2±4.1 | 8.0±4.3 | 5.1±3.5 |
| Royal Oak | 8.2±3.7 | 7.1±3.5 | 7.6±3.6 | 4.0±2.6 | 2.6±2.1 | * | 2.7±2.2 | 4.6±2.8 | 4.5±2.8 | 4.8±2.9 |
| Saginaw | 9.6±3.7 | 12.1±4.2 | 12.7±4.3 | 15.1±4.8 | 15.8±5.0 | 13.4±4.6 | 13.1±4.6 | 10.8±4.2 | 14.0±4.9 | 13.2±4.9 |
| Southfield | 10.9±4.3 | 8.5±3.7 | 11.7±4.4 | 9.0±3.8 | 9.8±4.0 | 7.6±3.5 | 9.0±3.8 | 8.2±3.7 | 8.1±3.7 | 8.7±3.9 |
| St Clair Shores | * | 4.7±3.2 | 4.6±3.2 | 5.6±3.5 | 6.3±3.7 | 5.8±3.6 | 4.5±3.1 | 4.9±3.2 | 4.3±3.0 | 6.8±3.8 |
| Sterling Heights | 6.6±2.4 | 5.7±2.3 | 6.7±2.4 | 6.4±2.4 | 6.9±2.5 | 6.7±2.4 | 7.6±2.6 | 6.2±2.4 | 4.4±2.0 | 2.8±1.7 |
| Taylor | 11.8±4.2 | 10.8±4.0 | 7.4±3.3 | 6.2±3.0 | 6.5±3.1 | 7.8±3.4 | 7.5±3.4 | 10.1±3.9 | 9.7±3.9 | 12.8±4.6 |
| Troy | 3.8±2.5 | 3.3±2.3 | 3.8±2.4 | 4.1±2.5 | 4.1±2.5 | 4.5±2.6 | 5.8±3.1 | 5.6±3.0 | 6.7±3.4 | 5.0±3.0 |
| Warren | 7.6±2.4 | 8.7±2.6 | 6.6±2.2 | 5.4±2.0 | 5.3±2.0 | 6.5±2.2 | 7.4±2.3 | 7.0±2.3 | 6.1±2.1 | 7.1±2.4 |
| Westland | 10.4±3.5 | 9.3±3.3 | 8.3±3.1 | 7.4±2.9 | 7.3±2.9 | 6.5±2.8 | 7.6±3.0 | 8.9±3.4 | 9.5±3.5 | 8.3±3.3 |
| Wyoming | 4.6±2.2 | 4.1±2.1 | 4.4±2.1 | 6.0±2.5 | 6.6±2.6 | 5.9±2.5 | 5.2±2.4 | 5.0±2.4 | 6.8±2.8 | 7.0±2.9 |

Notes: This table shows cities with (1) populations greater than 40,000 according to 2007 estimates and (2) three-year average births of greater than 200. City birth and mortality statistics have changed from pre-2011 reports due to geocoding. See Data Quality Considerations for further details. Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*: A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

Source: 2010-2019 Geocoded Michigan Death Records; 2020-2021 Michigan Death Records. 2010-2021 Geocoded Michigan Birth Records. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 19-B
White Three-Year Moving Average Infant Death Rates by City
Michigan Residents, 2010–2021

| City | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|-------------------------|----------|----------|----------|----------|----------|---------|---------|---------|----------|----------|
| Michigan | 5.3±0.3 | 5.3±0.3 | 5.5±0.3 | 5.4±0.3 | 5.1±0.3 | 4.9±0.3 | 4.7±0.3 | 4.7±0.3 | 4.7±0.3 | 4.6±0.3 |
| Ann Arbor | * | 3.2±2.3 | 4.5±2.8 | 4.0±2.6 | 2.8±2.2 | * | 3.0±2.4 | 3.5±2.6 | * | 3.7±2.7 |
| Battle Creek | 8.1±4.4 | 8.1±4.1 | 7.0±3.8 | 5.5±3.4 | 4.6±3.4 | 9.0±4.9 | 8.6±4.8 | 7.1±4.2 | 5.2±3.6 | 6.4±3.9 |
| Dearborn | 6.5±2.4 | 7.0±2.5 | 5.9±2.4 | 7.0±2.6 | 5.6±2.3 | 5.4±2.1 | 4.0±1.8 | 3.5±1.7 | 4.2±1.9 | 5.5±2.4 |
| Dearborn Heights | 3.7±2.7 | 5.3±3.2 | 6.0±3.5 | 6.9±3.8 | 8.7±4.1 | 6.3±3.4 | 5.8±3.3 | 6.6±3.6 | 6.8±3.7 | 5.8±3.6 |
| Detroit | 9.9±3.8 | 10.1±4.0 | 11.3±4.2 | 9.9±3.9 | 9.2±3.7 | 8.4±3.4 | 7.1±3.0 | 5.8±2.7 | 5.3±2.5 | 7.0±3.0 |
| Farmington Hills | 8.0±4.7 | 6.5±4.2 | 5.0±3.7 | 4.9±3.6 | 4.1±3.3 | 4.1±3.3 | * | * | 4.2±3.4 | 4.4±3.5 |
| Flint | 7.6±4.1 | 5.5±3.4 | 5.9±3.5 | 4.5±3.1 | 7.1±4.2 | 7.7±4.5 | 8.7±4.9 | 6.2±4.0 | 9.6±5.2 | 10.6±5.5 |
| Grand Rapids | 5.7±1.8 | 5.3±1.7 | 4.6±1.6 | 4.4±1.6 | 4.5±1.7 | 5.0±1.8 | 4.3±1.7 | 3.6±1.6 | 3.4±1.6 | 2.8±1.4 |
| Kalamazoo | 6.1±3.6 | 3.5±2.4 | 2.6±2.0 | 3.0±2.2 | * | 3.4±2.7 | 3.5±2.8 | 5.2±2.9 | 4.4±2.7 | 3.6±2.5 |
| Kentwood | * | 4.5±3.3 | 5.2±3.6 | 5.4±3.7 | 7.0±4.1 | 7.9±4.4 | 8.2±4.6 | 6.3±4.4 | * | * |
| Lansing | 5.3±2.5 | 7.4±2.9 | 7.9±3.1 | 7.6±3.1 | 6.3±2.9 | 5.2±2.7 | 3.8±2.4 | 4.3±2.5 | 5.3±2.9 | 5.7±3.0 |
| Livonia | * | 4.9±2.9 | 5.3±3.0 | 5.1±2.9 | 3.8±2.5 | 4.2±2.6 | 4.7±2.8 | 4.7±2.8 | 4.2±2.6 | 3.8±2.5 |
| Midland | * | 4.7±3.7 | 6.1±4.2 | 6.1±4.2 | 4.6±3.6 | * | * | * | * | * |
| Muskegon | 7.1±5.2 | 8.6±5.3 | 6.0±4.4 | 5.3±4.2 | * | * | - | * | * | * |
| Novi | * | * | 5.1±4.1 | * | * | * | 8.8±5.7 | 8.9±5.8 | 10.4±6.4 | * |
| Pontiac | * | 4.9±3.9 | 4.8±3.8 | 6.2±4.3 | 6.4±4.4 | 6.8±4.7 | 6.2±4.6 | 6.3±4.6 | 7.3±5.0 | 5.6±4.5 |
| Portage | 4.1±3.3 | 5.4±3.7 | 5.4±3.7 | 4.7±3.5 | * | 6.2±4.0 | 5.7±3.9 | 6.4±4.2 | * | * |
| Rochester Hills | 3.4±2.7 | 3.9±2.9 | * | 3.5±2.8 | * | * | * | * | * | * |
| Roseville | 5.6±4.1 | 4.7±3.8 | 6.3±4.3 | 5.5±4.1 | 9.0±5.3 | 8.5±5.2 | 7.9±5.1 | * | * | * |
| Royal Oak | 8.3±3.9 | 6.5±3.5 | 6.9±3.6 | 3.9±2.7 | 2.9±2.3 | * | * | 3.6±2.7 | 3.6±2.6 | 4.0±2.8 |
| Saginaw | * | 5.7±4.2 | 9.7±5.4 | 11.4±5.9 | 13.0±6.5 | 8.2±5.4 | 9.6±5.9 | 7.8±5.4 | 10.6±6.5 | 7.9±5.8 |
| Southfield | 12.0±9.5 | * | * | - | * | * | * | * | * | * |
| St Clair Shores | * | * | * | 4.9±3.4 | 6.3±3.9 | 5.2±3.6 | * | * | * | 5.1±3.5 |
| Sterling Heights | 7.6±3.0 | 6.0±2.6 | 6.5±2.7 | 5.4±2.4 | 5.7±2.5 | 5.7±2.5 | 6.2±2.6 | 5.1±2.4 | 3.1±1.9 | 2.4±1.8 |
| Taylor | 8.2±4.4 | 8.0±4.3 | 6.8±4.0 | 6.1±3.8 | 6.2±3.8 | 5.2±3.6 | 4.0±3.2 | 5.5±3.8 | 5.5±3.8 | 6.4±4.2 |
| Troy | 5.9±3.9 | 4.6±3.4 | 4.7±3.4 | 3.9±3.1 | * | 4.1±3.3 | 5.8±4.0 | 4.4±3.5 | 5.3±4.0 | 4.6±3.7 |
| Warren | 5.9±2.7 | 8.0±3.2 | 6.7±2.9 | 5.7±2.7 | 4.7±2.5 | 5.5±2.7 | 6.6±3.0 | 6.1±2.9 | 5.3±2.7 | 4.1±2.6 |
| Westland | 8.6±3.9 | 8.5±3.9 | 9.0±4.0 | 8.0±3.8 | 7.2±3.6 | 4.5±2.9 | 4.2±2.9 | 3.8±2.8 | 4.0±3.0 | * |
| Wyoming | 3.8±2.1 | 3.2±2.0 | 4.2±2.3 | 5.7±2.7 | 5.5±2.7 | 4.3±2.4 | 3.0±2.1 | 3.3±2.3 | 4.1±2.7 | 5.3±3.1 |

Notes: This table shows cities with (1) populations greater than 40,000 according to 2007 estimates and (2) three-year average births of greater than 200. City birth and mortality statistics have changed from pre-2011 reports due to geocoding. See Data Quality Considerations for further details. Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*: A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

Source: 2010-2019 Geocoded Michigan Death Records; 2020-2021 Michigan Death Records. 2010-2021 Geocoded Michigan Birth Records. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 19-C
Black Three-Year Moving Average Infant Death Rates by City
Michigan Residents, 2010–2021

| City | 2010-12 | 2011-13 | 2012-14 | 2013-15 | 2014-16 | 2015-17 | 2016-18 | 2017-19 | 2018-20 | 2019-21 |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|
| Michigan | 13.8±0.9 | 13.4±0.9 | 13.3±0.9 | 13.7±0.9 | 13.8±0.9 | 14.3±0.9 | 14.4±0.9 | 14.3±0.9 | 14.1±0.9 | 14.1±0.9 |
| Battle Creek | 11.9±9.5 | 12.1±8.9 | 11.6±8.5 | 16.0±9.9 | 10.2±8.1 | * | * | * | * | * |
| Detroit | 14.7±1.5 | 14.8±1.5 | 15.0±1.5 | 14.8±1.5 | 14.5±1.5 | 14.7±1.5 | 15.9±1.6 | 15.5±1.6 | 15.8±1.6 | 15.4±1.7 |
| Flint | 14.1±4.2 | 14.7±4.2 | 14.4±4.2 | 14.8±4.3 | 16.4±4.8 | 16.8±4.9 | 15.0±4.7 | 14.3±4.5 | 15.2±4.8 | 15.0±5.0 |
| Grand Rapids | 16.7±5.1 | 14.9±4.8 | 11.5±4.2 | 12.0±4.4 | 13.9±4.9 | 13.1±4.6 | 10.3±4.1 | 9.8±3.9 | 10.8±4.1 | 13.9±4.9 |
| Kalamazoo | 12.7±6.9 | 9.7±5.7 | 11.5±6.2 | 17.0±7.6 | 14.6±7.3 | 14.6±7.1 | 9.3±5.4 | 12.6±5.9 | 10.8±5.6 | 15.3±7.0 |
| Lansing | 11.0±5.2 | 8.9±4.7 | 10.7±5.1 | 13.6±5.6 | 16.2±6.2 | 16.0±6.1 | 13.4±5.5 | 14.9±5.8 | 17.6±6.3 | 18.7±6.7 |
| Muskegon | 17.4±10.2 | 18.1±10.1 | 20.1±10.8 | 21.6±11.2 | 29.1±13.3 | 26.5±12.4 | 20.9±10.8 | * | * | * |
| Pontiac | 12.5±5.3 | 12.6±5.2 | 16.4±5.9 | 19.4±6.5 | 17.9±6.2 | 16.1±5.9 | 11.7±5.1 | 11.5±5.1 | 11.3±5.2 | 14.3±6.2 |
| Saginaw | 14.1±6.3 | 15.8±6.5 | 14.2±6.3 | 17.5±7.2 | 18.1±7.5 | 17.5±7.2 | 14.8±6.6 | 11.9±6.0 | 13.8±6.5 | 15.1±7.1 |
| Southfield | 11.2±5.0 | 10.3±4.7 | 14.9±5.8 | 12.4±5.3 | 13.2±5.5 | 10.2±4.8 | 12.4±5.4 | 10.0±4.9 | 9.9±5.0 | 11.0±5.4 |
| Taylor | 21.6±10.2 | 18.7±9.4 | 10.2±7.0 | 7.6±6.0 | 7.2±5.7 | 9.6±6.6 | 10.6±6.9 | 16.2±8.4 | 17.5±8.8 | 24.8±11.0 |
| Warren | 11.9±6.0 | 9.4±5.1 | 7.8±4.6 | 5.6±3.9 | 6.8±4.2 | 9.4±4.9 | 10.5±5.1 | 12.6±5.6 | 9.5±4.8 | 11.7±5.4 |
| Westland | 14.7±8.3 | 11.7±7.2 | 9.1±6.3 | 6.6±5.3 | 8.6±5.9 | 9.4±6.1 | 14.5±7.5 | 17.2±8.4 | 20.0±9.1 | 16.9±8.5 |

Notes: This table shows cities with (1) populations greater than 40,000 according to 2007 estimates and (2) three-year average births of greater than 200. City birth and mortality statistics have changed from pre-2011 reports due to geocoding. See Data Quality Considerations for further details. Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower and upper bounds of this interval with 95 % statistical confidence.

*: A rate is not calculated when there are fewer than 6 events, because the width of the confidence interval would negate any usefulness for comparative purposes.

Source: 2010-2019 Geocoded Michigan Death Records; 2020-2021 Michigan Death Records. 2010-2021 Geocoded Michigan Birth Records. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 20-A
Number of Neonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2011-2021

| County | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------|------|------|------|------|------|------|------|------|------|------|------|
| Michigan | 501 | 540 | 544 | 513 | 498 | 491 | 507 | 482 | 467 | 465 | 433 |
| Alcona | - | 1 | - | 1 | - | - | 1 | - | 1 | 1 | - |
| Alger | - | - | - | - | - | - | - | - | 1 | - | - |
| Allegan | 5 | 3 | 3 | 4 | 9 | 3 | 3 | 5 | 8 | 4 | - |
| Alpena | 1 | - | 1 | 1 | 1 | - | 1 | 1 | 2 | 1 | - |
| Antrim | 2 | - | 3 | - | - | - | - | 1 | - | - | 1 |
| Arenac | 1 | 1 | 4 | 2 | - | - | - | - | - | 1 | - |
| Baraga | - | - | 1 | 1 | 1 | - | 1 | - | - | - | - |
| Barry | 2 | 2 | 3 | 1 | - | 2 | 4 | 1 | 3 | 6 | 3 |
| Bay | 6 | 4 | - | 5 | 4 | 1 | 5 | 2 | 4 | 3 | 3 |
| Benzie | - | - | 2 | - | 1 | 2 | 1 | - | - | 3 | - |
| Berrien | 8 | 11 | 8 | 9 | 6 | 2 | 2 | 9 | 7 | 7 | 5 |
| Branch | 3 | 3 | 2 | 3 | 2 | 4 | 4 | 4 | 1 | 3 | 2 |
| Calhoun | 9 | 7 | 8 | 5 | 8 | 4 | 12 | 7 | 3 | 4 | 6 |
| Cass | 2 | 2 | - | 5 | - | 3 | 3 | 5 | 1 | 2 | 2 |
| Charlevoix | - | - | - | - | 2 | - | 1 | - | - | 2 | - |
| Cheboygan | - | - | - | - | - | - | 2 | 1 | 2 | - | 3 |
| Chippewa | 3 | 2 | 1 | 1 | - | 1 | 1 | 2 | 2 | - | 2 |
| Clare | 1 | 2 | 1 | 1 | - | 1 | 1 | 3 | - | 1 | 2 |
| Clinton | 2 | 2 | 1 | 3 | 5 | 1 | 2 | 1 | 2 | 3 | 2 |
| Crawford | - | - | 1 | - | - | 3 | - | - | 1 | - | - |
| Delta | - | 4 | 1 | 3 | - | - | 1 | 3 | 4 | 2 | 1 |
| Dickinson | - | - | 4 | 1 | - | - | - | 1 | - | 1 | 3 |
| Eaton | 5 | 2 | 6 | 3 | 7 | 7 | 2 | 1 | 6 | 5 | 1 |
| Emmet | - | 1 | 2 | 1 | - | 1 | - | 1 | 1 | - | 2 |
| Genesee | 22 | 19 | 25 | 23 | 29 | 31 | 15 | 19 | 14 | 16 | 18 |

**Table 20-A
Number of Neonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2011-2021 (Continued)**

| County | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Gladwin | 1 | - | 1 | 1 | 2 | 1 | - | 1 | 1 | 1 | 1 |
| Gogebic | - | - | - | 1 | - | 3 | - | - | - | 1 | - |
| Grand Traverse | - | 3 | - | 1 | 7 | 4 | 3 | 2 | 4 | 6 | 2 |
| Gratiot | 3 | - | 3 | 2 | - | - | 2 | - | - | 1 | - |
| Hillsdale | 2 | 1 | 3 | - | 3 | 4 | 5 | - | 1 | 3 | 3 |
| Houghton | 1 | 2 | 2 | - | - | 2 | 3 | 1 | 1 | - | 1 |
| Huron | 1 | - | - | - | - | 1 | 1 | 2 | 1 | 2 | - |
| Ingham | 16 | 16 | 20 | 15 | 11 | 5 | 8 | 14 | 15 | 14 | 8 |
| Ionia | 1 | - | 2 | 2 | 2 | 2 | 1 | 3 | 1 | 1 | 2 |
| Iosco | 1 | - | - | 2 | 1 | - | 2 | 2 | 2 | 1 | 1 |
| Iron | - | - | - | - | - | - | 1 | 2 | - | - | 1 |
| Isabella | 6 | 2 | - | 2 | 4 | - | 6 | 5 | 3 | 3 | 2 |
| Jackson | 8 | 3 | 10 | 5 | 7 | 12 | 7 | 4 | 3 | 8 | 12 |
| Kalamazoo | 8 | 17 | 11 | 11 | 11 | 5 | 25 | 11 | 12 | 3 | 11 |
| Kalkaska | - | 3 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| Kent | 40 | 38 | 28 | 37 | 38 | 45 | 31 | 29 | 32 | 43 | 24 |
| Keweenaw | - | - | - | - | - | - | - | - | - | - | - |
| Lake | - | 1 | - | - | 1 | - | 1 | 1 | - | - | - |
| Lapeer | - | 1 | 4 | 3 | 1 | 4 | 3 | 2 | 6 | 2 | 6 |
| Leelanau | - | - | - | 1 | - | 1 | - | - | - | 2 | - |
| Lenawee | 3 | 6 | 4 | 5 | 4 | 5 | 3 | 1 | 1 | 3 | 4 |
| Livingston | 9 | 7 | 3 | 9 | 5 | 3 | 7 | 3 | 2 | 2 | 5 |
| Luce | - | - | - | 1 | - | - | - | - | 3 | 1 | - |
| Mackinac | - | - | - | - | 2 | 3 | - | - | - | - | - |
| Macomb | 43 | 40 | 52 | 34 | 43 | 38 | 52 | 33 | 41 | 27 | 33 |

Table 20-A
Number of Neonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2011-2021 (Continued)

| County | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Manistee | – | – | – | 1 | – | – | 1 | – | – | – | 1 |
| Marquette | 3 | – | 2 | – | 1 | 1 | – | 1 | – | 2 | 3 |
| Mason | 1 | – | – | 1 | 2 | – | – | 1 | – | – | 1 |
| Mecosta | 4 | 4 | 4 | 2 | 3 | – | 1 | 2 | 2 | 2 | 1 |
| Menominee | 1 | – | – | 1 | 1 | – | – | 1 | 2 | – | – |
| Midland | 2 | 3 | 4 | 3 | – | 1 | 2 | 1 | 1 | 3 | 1 |
| Missaukee | – | 1 | – | 2 | – | – | – | – | 1 | – | – |
| Monroe | 2 | 6 | 10 | 2 | 8 | 3 | 10 | 3 | 8 | 10 | 9 |
| Montcalm | 3 | 3 | 4 | 1 | 2 | 3 | – | – | 4 | 1 | 1 |
| Montmorency | – | – | – | – | – | – | – | – | – | 1 | – |
| Muskegon | 11 | 11 | 14 | 9 | 7 | 15 | 11 | 9 | 5 | 6 | 8 |
| Newaygo | 6 | 2 | 2 | 3 | – | 3 | 3 | 1 | 1 | 4 | – |
| Oakland | 45 | 61 | 69 | 66 | 53 | 55 | 55 | 64 | 40 | 42 | 49 |
| Oceana | – | 2 | 1 | 3 | 1 | 3 | 1 | – | – | 1 | 2 |
| Ogemaw | 1 | 1 | – | – | – | – | – | – | 1 | 1 | – |
| Ontonagon | – | – | 1 | 1 | – | – | – | – | – | – | – |
| Osceola | – | – | 1 | – | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| Oscoda | – | 1 | – | 1 | – | – | – | 1 | – | – | 1 |
| Otsego | 3 | 1 | – | 1 | 1 | 1 | – | – | 3 | 2 | – |
| Ottawa | 17 | 14 | 20 | 10 | 12 | 9 | 9 | 10 | 9 | 11 | 8 |
| Presque Isle | 1 | 3 | – | 1 | 2 | 1 | 2 | 2 | – | – | 1 |
| Roscommon | 1 | – | – | 1 | 1 | – | – | – | 1 | 2 | 1 |
| Saginaw | 8 | 8 | 13 | 11 | 12 | 16 | 4 | 12 | 10 | 13 | 7 |
| St. Clair | 6 | 10 | 2 | 3 | 6 | 7 | 4 | 5 | 6 | 9 | 2 |
| St. Joseph | 3 | 1 | 5 | 3 | 1 | 5 | 4 | 2 | 4 | 4 | 2 |

Table 20-A
Number of Neonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2011-2021 (Continued)

| County | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|------|------|------|------|------|------|------|------|------|------|------|
| Sanilac | - | 1 | 1 | 3 | 3 | 4 | 3 | 1 | 1 | 3 | 3 |
| Schoolcraft | - | - | - | - | - | - | - | - | - | 2 | - |
| Shiawassee | 1 | 2 | 2 | 1 | 1 | 2 | 4 | 2 | 4 | 1 | 4 |
| Tuscola | 1 | 4 | 1 | - | 3 | - | 1 | 2 | 3 | 3 | - |
| Van Buren | 3 | 4 | 4 | 3 | 3 | 5 | 1 | 2 | 2 | - | 4 |
| Washtenaw | 10 | 14 | 12 | 23 | 10 | 15 | 10 | 14 | 12 | 9 | 14 |
| Wayne | 151 | 172 | 147 | 147 | 144 | 129 | 155 | 159 | 148 | 138 | 136 |
| Detroit City | 80 | 104 | 87 | 80 | 81 | 76 | 86 | 99 | 76 | 77 | 84 |
| Wayne County Excluding Detroit City | 71 | 68 | 60 | 67 | 63 | 53 | 69 | 60 | 72 | 61 | 52 |
| Wexford | 2 | 5 | 3 | 2 | 1 | 1 | 2 | 1 | 1 | 5 | 1 |
| Unknown | - | - | 1 | - | 1 | 4 | - | 1 | 4 | - | - |

Notes: **Neonatal Death:** Deaths occurring to individuals less than 28 days of age.
 -: A dash indicates quantity zero.

Source: 2011-2021 Michigan Resident Death Files,
 Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 20-B
Number of Postneonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2011-2021

| County | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------|------|------|------|------|------|------|------|------|------|------|------|
| Michigan | 248 | 243 | 255 | 260 | 267 | 256 | 256 | 241 | 227 | 241 | 223 |
| Alcona | 1 | - | - | - | - | - | - | - | - | - | - |
| Alger | - | - | - | - | - | - | - | - | - | - | - |
| Allegan | 2 | 1 | 6 | 5 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| Alpena | 1 | - | - | 1 | - | - | 1 | - | - | - | - |
| Antrim | - | - | - | - | - | - | - | - | - | - | - |
| Arenac | 1 | - | - | - | - | 1 | - | - | - | - | - |
| Baraga | - | - | - | - | - | 1 | - | - | - | - | 1 |
| Barry | - | 1 | 1 | 1 | - | - | 1 | 1 | - | 1 | - |
| Bay | 3 | 1 | 2 | 5 | 2 | - | 2 | 2 | 1 | 2 | 2 |
| Benzie | - | - | - | - | - | - | - | - | - | - | - |
| Berrien | 10 | 3 | 6 | 6 | 3 | 8 | 6 | 7 | 6 | 4 | 5 |
| Branch | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | - | 1 |
| Calhoun | 6 | 3 | 3 | 4 | 6 | 2 | 3 | 4 | - | 9 | 1 |
| Cass | 1 | 2 | 3 | - | 3 | - | - | 3 | 2 | 1 | 2 |
| Charlevoix | 1 | - | - | 1 | 1 | - | 1 | 1 | - | - | - |
| Cheboygan | - | - | - | - | 1 | 1 | - | 2 | 1 | 2 | - |
| Chippewa | 1 | - | 1 | 1 | - | - | - | - | 2 | 1 | 1 |
| Clare | - | - | - | - | 1 | 1 | 2 | 2 | - | - | 1 |
| Clinton | - | - | 1 | 2 | 3 | 2 | - | - | - | 2 | - |
| Crawford | 1 | - | - | - | 2 | - | 1 | 1 | - | 1 | - |
| Delta | 1 | - | - | - | 1 | 2 | - | - | - | 2 | - |
| Dickinson | - | - | - | - | - | 2 | - | 2 | - | - | - |
| Eaton | 1 | 3 | 4 | 3 | 2 | 2 | 1 | 2 | 1 | 2 | 3 |
| Emmet | - | 1 | - | - | - | - | 1 | 1 | - | - | - |
| Genesee | 18 | 19 | 15 | 18 | 14 | 17 | 22 | 8 | 15 | 14 | 16 |

**Table 20-B
Number of Postneonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2011-2021 (Continued)**

| County | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|
| Gladwin | - | - | 1 | 2 | 2 | - | - | - | 1 | 1 | - |
| Gogebic | - | - | - | - | - | 2 | - | - | - | - | - |
| Grand Traverse | 1 | 1 | - | 5 | 2 | 2 | - | 3 | - | 1 | - |
| Gratiot | - | - | - | 2 | 1 | 1 | - | 1 | - | - | 2 |
| Hillsdale | - | 1 | - | - | 2 | 3 | 1 | - | 1 | 1 | 1 |
| Houghton | - | - | 1 | 1 | - | - | 2 | - | - | - | - |
| Huron | 1 | 3 | - | - | - | - | 2 | - | - | - | - |
| Ingham | 5 | 6 | 8 | 6 | 10 | 16 | 8 | 5 | 9 | 10 | 11 |
| Ionia | 2 | 1 | 3 | 1 | 1 | 2 | 1 | 3 | 1 | 1 | 1 |
| Iosco | 1 | 1 | 1 | - | - | 1 | 2 | 1 | 1 | - | 1 |
| Iron | 1 | - | - | 1 | - | - | - | - | 1 | 1 | - |
| Isabella | - | 2 | 2 | - | 1 | 1 | 2 | - | 2 | 2 | - |
| Jackson | 3 | 4 | 5 | 3 | 3 | 5 | 7 | 3 | 3 | 6 | 5 |
| Kalamazoo | 3 | 2 | 15 | 5 | 9 | 3 | 10 | 4 | 8 | 6 | 4 |
| Kalkaska | - | 1 | 1 | - | - | - | - | - | - | - | - |
| Kent | 19 | 12 | 11 | 15 | 18 | 11 | 15 | 12 | 19 | 12 | 16 |
| Keweenaw | - | - | - | - | - | - | - | - | 1 | - | - |
| Lake | - | - | - | - | - | - | 1 | - | 1 | 1 | - |
| Lapeer | - | 1 | - | 2 | 3 | - | - | - | 1 | - | 4 |
| Leelanau | 1 | - | 1 | 2 | 1 | - | - | - | - | - | - |
| Lenawee | 3 | 2 | 5 | 4 | 2 | 3 | 2 | 1 | 3 | - | 1 |
| Livingston | 3 | 1 | 4 | 4 | 2 | 1 | 1 | 3 | 2 | 1 | 1 |
| Luce | - | - | - | 1 | 1 | 1 | - | - | - | - | - |
| Mackinac | - | - | - | - | - | - | - | - | - | - | - |
| Macomb | 10 | 12 | 15 | 14 | 17 | 15 | 16 | 17 | 11 | 11 | 13 |

Table 20-B
Number of Postneonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2011-2021 (Continued)

| County | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--------------|------|------|------|------|------|------|------|------|------|------|------|
| Manistee | 1 | - | - | 1 | - | 1 | 2 | 1 | - | - | - |
| Marquette | 1 | 2 | - | 1 | 4 | 1 | 1 | 1 | 1 | 2 | - |
| Mason | - | - | - | 1 | - | - | - | 1 | 2 | - | - |
| Mecosta | 2 | - | 1 | 1 | - | 1 | - | 1 | 1 | 1 | - |
| Menominee | - | 1 | - | - | - | 1 | - | - | - | 1 | 1 |
| Midland | 2 | 3 | 3 | 2 | 3 | - | - | 1 | - | 1 | 1 |
| Missaukee | - | - | - | - | - | 1 | - | - | - | - | - |
| Monroe | 1 | 3 | 5 | 1 | 1 | 4 | 1 | 1 | 6 | 5 | 4 |
| Montcalm | 1 | 2 | 1 | 1 | 1 | 1 | 3 | 3 | 2 | 1 | 2 |
| Montmorency | - | 2 | - | - | - | - | - | - | - | 1 | - |
| Muskegon | 4 | 7 | 5 | 6 | 11 | 5 | 4 | 3 | 4 | 6 | 6 |
| Newaygo | 1 | - | 1 | 4 | 3 | - | 1 | - | 3 | 1 | 1 |
| Oakland | 25 | 32 | 21 | 17 | 18 | 17 | 16 | 15 | 13 | 20 | 13 |
| Oceana | - | 3 | - | 3 | 1 | - | - | 1 | 2 | - | - |
| Ogemaw | - | 1 | - | 1 | - | 1 | 1 | 1 | - | - | - |
| Ontonagon | - | - | - | - | - | - | - | - | - | - | 1 |
| Osceola | 2 | - | - | - | - | - | 1 | 1 | - | - | - |
| Oscoda | - | 1 | - | - | - | - | - | 1 | - | - | - |
| Otsego | 1 | 2 | 3 | 2 | - | - | 1 | 1 | - | - | - |
| Ottawa | 4 | 4 | 6 | 2 | 9 | 7 | 2 | 3 | 5 | 4 | 4 |
| Presque Isle | - | - | - | - | - | - | - | - | - | - | - |
| Roscommon | - | - | - | - | - | 1 | - | 3 | - | - | - |
| Saginaw | 9 | 5 | 6 | 10 | 7 | 11 | 6 | 7 | 8 | 13 | 3 |
| St. Clair | 5 | 3 | 4 | 6 | 3 | 4 | 3 | 2 | 3 | 6 | 5 |
| St. Joseph | 1 | 6 | 2 | 2 | - | 1 | - | 3 | 1 | 2 | 2 |

Table 20-B
Number of Postneonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2011-2021 (Continued)

| County | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|------|------|------|------|------|------|------|------|------|------|------|
| Sanilac | - | 3 | 1 | - | 1 | - | - | - | - | - | - |
| Schoolcraft | - | - | - | - | - | - | - | - | - | - | - |
| Shiawassee | - | 1 | 1 | 2 | 3 | 4 | 1 | 1 | - | - | 2 |
| Tuscola | 1 | - | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 1 |
| Van Buren | 1 | 4 | 2 | - | 3 | 2 | 2 | 3 | - | - | 2 |
| Washtenaw | 4 | 6 | 6 | 5 | 4 | 7 | 5 | 5 | 9 | 4 | 9 |
| Wayne | 79 | 66 | 70 | 71 | 78 | 76 | 90 | 86 | 68 | 75 | 71 |
| Detroit City | 50 | 47 | 47 | 50 | 58 | 49 | 51 | 59 | 27 | 52 | 43 |
| Wayne County Excluding Detroit City | 29 | 19 | 23 | 21 | 20 | 27 | 39 | 27 | 41 | 23 | 28 |
| Wexford | 1 | 1 | - | 2 | - | - | 2 | 2 | 1 | - | 1 |
| Unknown | - | - | - | 1 | - | - | - | - | - | - | - |

Notes: **Postneonatal Death:** Deaths occurring to individuals 28–364 days of age.
 -: A dash indicates quantity zero.

Source: 2011-2021 Michigan Resident Death Files,
 Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 21-A
Number of Neonatal Deaths by Local Health Department and
State of Michigan,
Michigan Residents, 2011-2021

| Health Department | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Michigan | 501 | 540 | 544 | 513 | 498 | 491 | 507 | 482 | 467 | 465 | 433 |
| Allegan County | 5 | 3 | 3 | 4 | 9 | 3 | 3 | 5 | 8 | 4 | – |
| Barry–Eaton District | 7 | 4 | 9 | 4 | 7 | 9 | 6 | 2 | 9 | 11 | 4 |
| Berrien County | 8 | 11 | 8 | 9 | 6 | 2 | 2 | 9 | 7 | 7 | 5 |
| Branch–Hillsdale–St. Joseph | 8 | 5 | 10 | 6 | 6 | 13 | 13 | 6 | 6 | 10 | 7 |
| Calhoun County | 9 | 7 | 8 | 5 | 8 | 4 | 12 | 7 | 3 | 4 | 6 |
| Central Michigan District | 10 | 5 | 7 | 7 | 9 | 4 | 8 | 10 | 6 | 9 | 7 |
| Chippewa County | 3 | 2 | 1 | 1 | – | 1 | 1 | 2 | 2 | – | 2 |
| City Of Detroit | 80 | 104 | 87 | 80 | 81 | 76 | 86 | 99 | 76 | 77 | 84 |
| Delta & Menominee | 1 | 4 | 1 | 4 | 1 | – | 1 | 4 | 6 | 2 | 1 |
| Dickinson–Iron District | – | – | 4 | 1 | – | – | 1 | 3 | – | 1 | 4 |
| District #10 | 13 | 18 | 12 | 17 | 8 | 12 | 9 | 7 | 7 | 12 | 6 |
| District #2 | 2 | 3 | – | 4 | 1 | – | 3 | 3 | 4 | 3 | 2 |
| District #4 | 2 | 3 | 1 | 2 | 3 | 1 | 5 | 4 | 4 | 2 | 4 |
| Genesee County | 22 | 19 | 25 | 23 | 29 | 31 | 15 | 19 | 14 | 16 | 18 |
| Grand Traverse County | – | 3 | – | 1 | 7 | 4 | 3 | 2 | 4 | 6 | 2 |
| Ingham County | 16 | 16 | 20 | 15 | 11 | 5 | 8 | 14 | 15 | 14 | 8 |
| Ionia County | 1 | – | 2 | 2 | 2 | 2 | 1 | 3 | 1 | 1 | 2 |
| Jackson County | 8 | 3 | 10 | 5 | 7 | 12 | 7 | 4 | 3 | 8 | 12 |
| Kalamazoo County | 8 | 17 | 11 | 11 | 11 | 5 | 25 | 11 | 12 | 3 | 11 |
| Kent County | 40 | 38 | 28 | 37 | 38 | 45 | 31 | 29 | 32 | 43 | 24 |
| Lapeer County | – | 1 | 4 | 3 | 1 | 4 | 3 | 2 | 6 | 2 | 6 |
| Lenawee County | 3 | 6 | 4 | 5 | 4 | 5 | 3 | 1 | 1 | 3 | 4 |
| Livingston County | 9 | 7 | 3 | 9 | 5 | 3 | 7 | 3 | 2 | 2 | 5 |
| Luce–Mackinac–Alger–Schoolcraft | – | – | – | 1 | 2 | 3 | – | – | 4 | 3 | – |
| Macomb County | 43 | 40 | 52 | 34 | 43 | 38 | 52 | 33 | 41 | 27 | 33 |

Table 21-A
Number of Neonatal Deaths by Local Health Department and
State of Michigan,
Michigan Residents, 2011-2021 (Continued)

| Health Department | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Marquette County | 3 | – | 2 | – | 1 | 1 | – | 1 | – | 2 | 3 |
| Mid-Michigan District | 8 | 5 | 8 | 6 | 7 | 4 | 4 | 1 | 6 | 5 | 3 |
| Midland County | 2 | 3 | 4 | 3 | – | 1 | 2 | 1 | 1 | 3 | 1 |
| Monroe County | 2 | 6 | 10 | 2 | 8 | 3 | 10 | 3 | 8 | 10 | 9 |
| Muskegon County | 11 | 11 | 14 | 9 | 7 | 15 | 11 | 9 | 5 | 6 | 8 |
| Oakland County | 45 | 61 | 69 | 66 | 53 | 55 | 55 | 64 | 40 | 42 | 49 |
| Ottawa County | 17 | 14 | 20 | 10 | 12 | 9 | 9 | 10 | 9 | 11 | 8 |
| Bay County | 6 | 4 | – | 5 | 4 | 1 | 5 | 2 | 4 | 3 | 3 |
| Saginaw County | 8 | 8 | 13 | 11 | 12 | 16 | 4 | 12 | 10 | 13 | 7 |
| Shiawassee County | 1 | 2 | 2 | 1 | 1 | 2 | 4 | 2 | 4 | 1 | 4 |
| St Clair County | 6 | 10 | 2 | 3 | 6 | 7 | 4 | 5 | 6 | 9 | 2 |
| Van Buren-Cass County | 5 | 6 | 4 | 8 | 3 | 8 | 4 | 7 | 3 | 2 | 6 |
| Washtenaw County | 10 | 14 | 12 | 23 | 10 | 15 | 10 | 14 | 12 | 9 | 14 |
| Wayne County | 71 | 68 | 60 | 67 | 63 | 53 | 69 | 60 | 72 | 61 | 52 |
| Benzie-Leelanau District | – | – | 2 | 1 | 1 | 3 | 1 | – | – | 5 | – |
| Northwest Michigan Community Health | 5 | 2 | 5 | 2 | 3 | 2 | 1 | 2 | 4 | 4 | 3 |
| Western Upper Peninsula District | 1 | 2 | 4 | 3 | 1 | 5 | 4 | 1 | 1 | 1 | 1 |
| Tuscola County | 1 | 4 | 1 | – | 3 | – | 1 | 2 | 3 | 3 | – |
| Huron County | 1 | – | – | – | – | 1 | 1 | 2 | 1 | 2 | – |
| Sanilac County | – | 1 | 1 | 3 | 3 | 4 | 3 | 1 | 1 | 3 | 3 |
| Unknown | – | – | 1 | – | 1 | 4 | – | 1 | 4 | – | – |

Notes: **Neonatal Death:** Deaths occurring to individuals less than 28 days of age.
 -: A dash indicates quantity zero.

Source: 2011-2021 Michigan Resident Death Files,
 Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

Table 21-B
Number of Postneonatal Deaths by Local Health Department and
State of Michigan,
Michigan Residents, 2011-2021

| Health Department | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Michigan | 248 | 243 | 255 | 260 | 267 | 256 | 256 | 241 | 227 | 241 | 223 |
| Allegan County | 2 | 1 | 6 | 5 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| Barry–Eaton District | 1 | 4 | 5 | 4 | 2 | 2 | 2 | 3 | 1 | 3 | 3 |
| Berrien County | 10 | 3 | 6 | 6 | 3 | 8 | 6 | 7 | 6 | 4 | 5 |
| Branch–Hillsdale–St. Joseph | 2 | 8 | 3 | 3 | 3 | 5 | 2 | 5 | 4 | 3 | 4 |
| Calhoun County | 6 | 3 | 3 | 4 | 6 | 2 | 3 | 4 | – | 9 | 1 |
| Central Michigan District | 3 | 2 | 3 | 2 | 4 | 4 | 5 | 6 | 3 | 3 | 1 |
| Chippewa County | 1 | – | 1 | 1 | – | – | – | – | 2 | 1 | 1 |
| City Of Detroit | 50 | 47 | 47 | 50 | 58 | 49 | 51 | 59 | 27 | 52 | 43 |
| Delta & Menominee | 1 | 1 | – | – | 1 | 3 | – | – | – | 3 | 1 |
| Dickinson–Iron District | 1 | – | – | 1 | – | 2 | – | 2 | 1 | 1 | – |
| District #10 | 6 | 5 | 3 | 12 | 6 | 3 | 7 | 7 | 10 | 4 | 2 |
| District #2 | 2 | 3 | 1 | 1 | – | 2 | 3 | 3 | 1 | – | 1 |
| District #4 | 1 | 2 | – | 1 | 1 | 1 | 1 | 2 | 1 | 3 | – |
| Genesee County | 18 | 19 | 15 | 18 | 14 | 17 | 22 | 8 | 15 | 14 | 16 |
| Grand Traverse County | 1 | 1 | – | 5 | 2 | 2 | – | 3 | – | 1 | – |
| Ingham County | 5 | 6 | 8 | 6 | 10 | 16 | 8 | 5 | 9 | 10 | 11 |
| Ionia County | 2 | 1 | 3 | 1 | 1 | 2 | 1 | 3 | 1 | 1 | 1 |
| Jackson County | 3 | 4 | 5 | 3 | 3 | 5 | 7 | 3 | 3 | 6 | 5 |
| Kalamazoo County | 3 | 2 | 15 | 5 | 9 | 3 | 10 | 4 | 8 | 6 | 4 |
| Kent County | 19 | 12 | 11 | 15 | 18 | 11 | 15 | 12 | 19 | 12 | 16 |
| Lapeer County | – | 1 | – | 2 | 3 | – | – | – | 1 | – | 4 |
| Lenawee County | 3 | 2 | 5 | 4 | 2 | 3 | 2 | 1 | 3 | – | 1 |
| Livingston County | 3 | 1 | 4 | 4 | 2 | 1 | 1 | 3 | 2 | 1 | 1 |
| Luce–Mackinac–Alger–Schoolcraft | – | – | – | 1 | 1 | 1 | – | – | – | – | – |
| Macomb County | 10 | 12 | 15 | 14 | 17 | 15 | 16 | 17 | 11 | 11 | 13 |

Table 21-B
Number of Postneonatal Deaths by Local Health Department and
State of Michigan,
Michigan Residents, 2011-2021 (Continued)

| Health Department | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Marquette County | 1 | 2 | - | 1 | 4 | 1 | 1 | 1 | 1 | 2 | - |
| Mid-Michigan District | 1 | 2 | 2 | 5 | 5 | 4 | 3 | 4 | 2 | 3 | 4 |
| Midland County | 2 | 3 | 3 | 2 | 3 | - | - | 1 | - | 1 | 1 |
| Monroe County | 1 | 3 | 5 | 1 | 1 | 4 | 1 | 1 | 6 | 5 | 4 |
| Muskegon County | 4 | 7 | 5 | 6 | 11 | 5 | 4 | 3 | 4 | 6 | 6 |
| Oakland County | 25 | 32 | 21 | 17 | 18 | 17 | 16 | 15 | 13 | 20 | 13 |
| Ottawa County | 4 | 4 | 6 | 2 | 9 | 7 | 2 | 3 | 5 | 4 | 4 |
| Bay County | 3 | 1 | 2 | 5 | 2 | - | 2 | 2 | 1 | 2 | 2 |
| Saginaw County | 9 | 5 | 6 | 10 | 7 | 11 | 6 | 7 | 8 | 13 | 3 |
| Shiawassee County | - | 1 | 1 | 2 | 3 | 4 | 1 | 1 | - | - | 2 |
| St Clair County | 5 | 3 | 4 | 6 | 3 | 4 | 3 | 2 | 3 | 6 | 5 |
| Van Buren-Cass County | 2 | 6 | 5 | - | 6 | 2 | 2 | 6 | 2 | 1 | 4 |
| Washtenaw County | 4 | 6 | 6 | 5 | 4 | 7 | 5 | 5 | 9 | 4 | 9 |
| Wayne County | 29 | 19 | 23 | 21 | 20 | 27 | 39 | 27 | 41 | 23 | 28 |
| Benzie-Leelanau District | 1 | - | 1 | 2 | 1 | - | - | - | - | - | - |
| Northwest Michigan Community Health | 2 | 3 | 3 | 3 | 1 | - | 3 | 3 | - | - | - |
| Western Upper Peninsula District | - | - | 1 | 1 | - | 3 | 2 | - | 1 | - | 2 |
| Tuscola County | 1 | - | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 1 |
| Huron County | 1 | 3 | - | - | - | - | 2 | - | - | - | - |
| Sanilac County | - | 3 | 1 | - | 1 | - | - | - | - | - | - |
| Unknown | - | - | - | 1 | - | - | - | - | - | - | - |

Notes: **Postneonatal Death:** Deaths occurring to individuals 28-364 days of age.
 -: A dash indicates quantity zero.

Source: 2011-2021 Michigan Resident Death Files,
 Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services