
MICHIGAN DEPARTMENT OF COMMUNITY HEALTH

Division for Vital Records and Health Statistics

MICHIGAN INFANT DEATH STATISTICS

January 1 through December 31, 2013

*Michigan Department
of Community Health*



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Nick Lyon, Director

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SUMMARY OF 2013 INFANT DEATH STATISTICS

INFANT MORTALITY: For every 1,000 Michigan live births, seven infants die before reaching their first birthday. In 2013, 799 infants under the age of one year died, resulting in an infant mortality rate of 7 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 2013 rate indicates a drop of the mortality rates to about 7.0 since 2010, from the 7.9 average in the previous decade. (See Table 1.)

Short range forecasts predict within an 80% probability that the mortality rate will gradually decline to about 6.2 by 2020. (See Table 1.)

Both the white and black infant mortality rates have stayed about the same in recent years, with a persistent racial disparity of about 2.3 black deaths for every 1 white death. In 2005, the white infant death rate was 5.5, and was comparable to the previous ten-year 1996-2005 average of 6.0 deaths per 1,000 white births. The black infant death rate was 17.9 in 2005, and was also comparable to the previous decade average of 17.6 deaths per 1,000 black births. In 2013 the white infant mortality rate was 5.7 per 1,000 live births while the black rate was 13.1 per 1,000 live births. Between 2005-2013 the white infant mortality rate has remained about the same, while the black rate has declined by 26.8% due to a steady reduction of infant deaths since 2005. The decline in the Michigan infant mortality rate is largely due to a reduction in black infant deaths. (See Table 2.)

The Michigan infant mortality rate continues to be higher than the last reported national rate. The 2012 infant death rate for the United States is 6.0. (See Table 7.)

LIVE BIRTHS: In 2013, the number of live births increased to 113,732, from last year's historic low 112,708. The 2013 number is similar to the number of births reported in 1944. Nationally, there were 3,932,181 births in the U.S. in 2013, a decline of 8.9% from the record number reported for 2007.

CHARACTERISTICS OF NEWBORN: Certain newborns are at higher risk of dying. In 2013 infants born with very low birth weight (less than 1,500 grams) experienced an infant death rate of 224.4 per 1,000 live births compared to a rate of 2.5 for those infants weighing 2,500 grams or more. Multiple birth infants had an infant mortality rate of 31.6 per 1,000 live births compared to the rate of 6.1 for single birth infants. The excess male infant mortality normally reported in other years was present in 2013, with the infant mortality for male infants at 7.9 per 1,000 male live births and females at 6.1 per 1,000 female live births. (See Table 6.)

CHARACTERISTICS OF MOTHER: Infant death rates were the lowest for mothers aged 30-39 years old and highest for mothers 40 and older. Unmarried mothers had infant mortality rates nearly twice those of married mothers. Women receiving inadequate prenatal care experienced infant mortality rates more than twice as high as those women receiving adequate prenatal care. Mothers exposed to secondhand smoking while pregnant had an infant death rate of 8.9 per 1,000 live births compared to a rate of 6.1 for mothers who were not exposed to secondhand smoking during pregnancy. (See Table 6.)

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 "Infant Mortality" in the left menu. 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 2012. 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 2012 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, 1970 - 2013

| Year | Infant Deaths | Live Births | Infant Death Rate |
|------|---------------|-------------|-------------------|
| 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 |
| 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 |

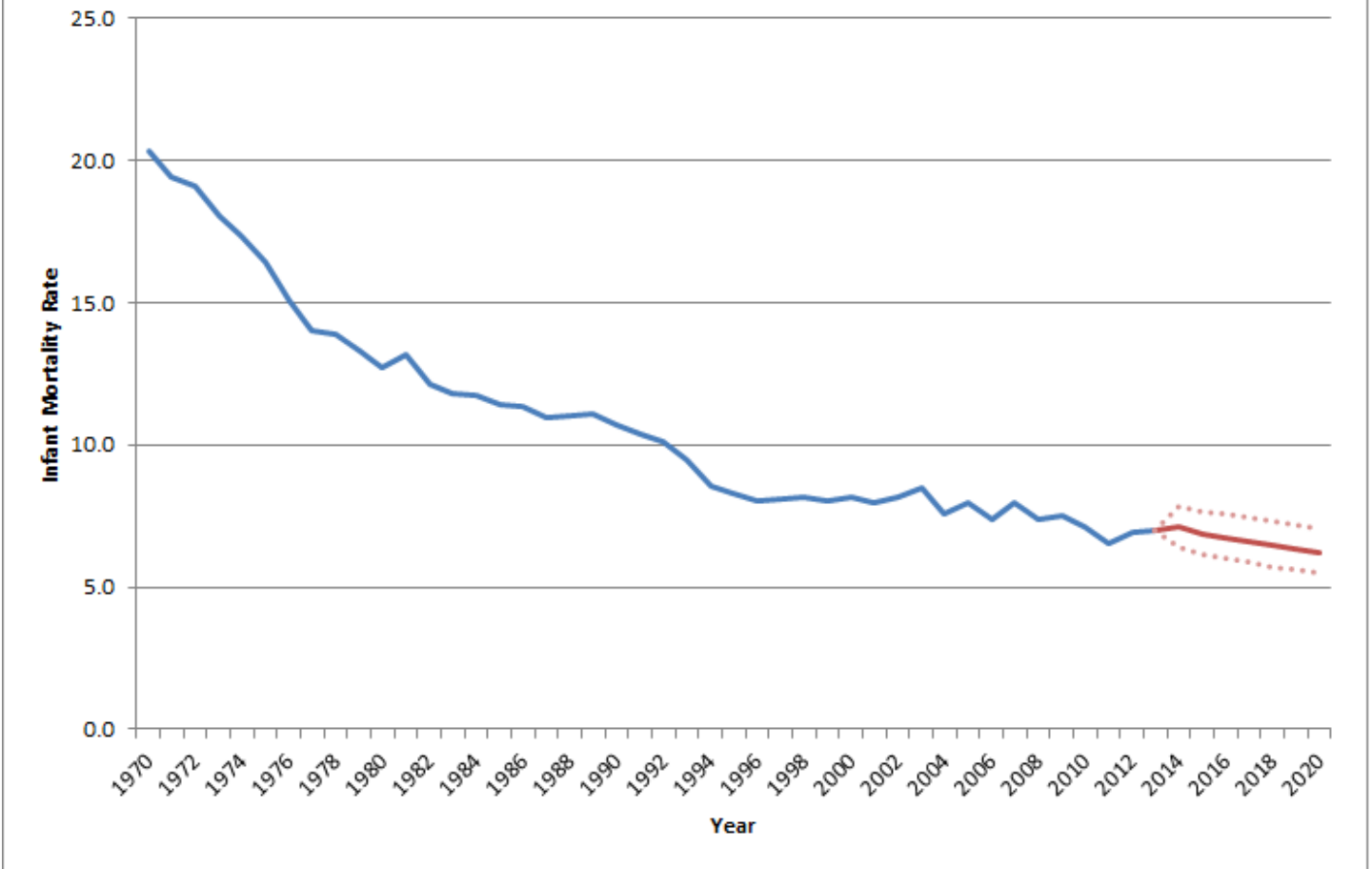
Table 1
Number of Infant Deaths
Live Births and Infant Death Rates
Michigan Residents, 1970 - 2013
(Continued)

| Year | Infant Deaths | Live Births | Infant Death Rate |
|------|---------------|-------------|-------------------|
| 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 |

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: 1970 - 2013 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Community Health

Figure 1
Infant Mortality Rates & Forecasts, Michigan 1970-2020



Note: Rates are per 1,000 live births. Rates after 2013 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- 2013 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Community Health

**Table 2
Number of Infant Deaths, Live Births and Infant Death Rates By Race
Michigan Residents, 1970 - 2013**

| 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 - 2013
(Continued)

| Year | White | | | Black | | | Other | | |
|------|---------------|-------------|-------------------|---------------|-------------|-------------------|---------------|-------------|-------------------|
| | 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 |

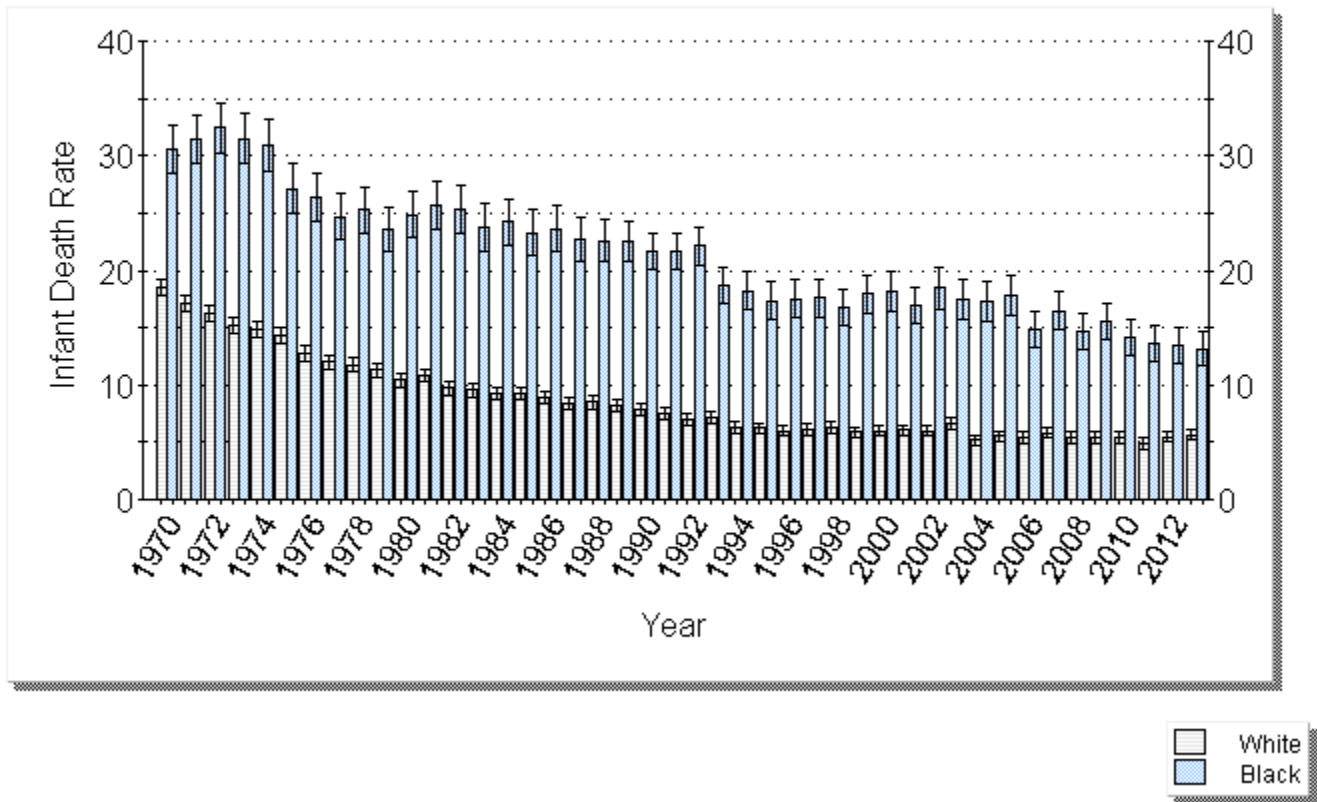
Note: Infant deaths by race of infant; live births used in calculating infant death rates are by race of mother. Rates are per 1,000 live births. Adding and subtracting the number shown after the ± symbol from the rate creates a confidence interval indicating that the true rate lies between the lower 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 - 2013 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Community Health

Figure 2
Comparison of White and Black Infant Death Rates for
Michigan Residents, 1970-2013



Note: Rates are per 1,000 live births. The range indicated on each bar 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- 2013 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Community Health

Table 3
Number of Infant Deaths, Live Births and Infant Death Rates by
Michigan and Michigan County of Residence,
2013 and 2009 - 2013 Average

| County of Residence | 2013 | | | 2009 - 2013 | | |
|---------------------|---------------|-------------|-------------------|-----------------------|---------------------|---------------------------|
| | Infant Deaths | Live Births | Infant Death Rate | Average Infant Deaths | Average Live Births | Average Infant Death Rate |
| MICHIGAN | 799 | 113,732 | 7.0 ±0.5 | 805.8 | 114,525.0 | 7.0 ±0.2 |
| Alcona | - | 59 | - | 0.6 | 63.0 | * |
| Alger | - | 71 | - | 0.2 | 60.8 | * |
| Allegan | 9 | 1,299 | 6.9 ±4.5 | 6.4 | 1,369.6 | 4.7 ±1.6 |
| Alpena | 1 | 263 | * | 1.4 | 268.4 | 5.2 ±3.9 |
| Antrim | 3 | 197 | * | 2.0 | 202.2 | 9.9 ±6.1 |
| Arenac | 4 | 110 | * | 2.0 | 124.0 | 16.1 ±9.9 |
| Baraga | 1 | 79 | * | 0.2 | 79.8 | * |
| Barry | 4 | 580 | * | 4.4 | 625.2 | 7.0 ±2.9 |
| Bay | 2 | 1,042 | * | 7.2 | 1,117.0 | 6.4 ±2.1 |
| Benzie | 2 | 156 | * | 0.6 | 152.8 | * |
| Berrien | 14 | 1,896 | 7.4 ±3.9 | 15.4 | 1,917.0 | 8.0 ±1.8 |
| Branch | 3 | 567 | * | 3.4 | 527.4 | 6.4 ±3.1 |
| Calhoun | 11 | 1,697 | 6.5 ±3.8 | 14.8 | 1,667.8 | 8.9 ±2.0 |
| Cass | 3 | 470 | * | 3.6 | 474.6 | 7.6 ±3.5 |
| Charlevoix | - | 227 | - | 0.6 | 244.4 | * |
| Cheboygan | - | 192 | - | 0.4 | 199.2 | * |
| Chippewa | 2 | 339 | * | 2.0 | 363.2 | 5.5 ±3.4 |
| Clare | 1 | 300 | * | 1.4 | 325.8 | 4.3 ±3.2 |
| Clinton | 2 | 803 | * | 2.6 | 778.8 | 3.3 ±1.8 |
| Crawford | 1 | 110 | * | 0.6 | 119.2 | * |
| Delta | 1 | 354 | * | 2.2 | 369.4 | 6.0 ±3.5 |
| Dickinson | 4 | 276 | * | 1.6 | 246.2 | 6.5 ±4.5 |
| Eaton | 10 | 1,119 | 8.9 ±5.5 | 7.0 | 1,161.6 | 6.0 ±2.0 |
| Emmet | 2 | 297 | * | 1.6 | 309.2 | 5.2 ±3.6 |
| Genesee | 40 | 5,019 | 8.0 ±2.5 | 39.8 | 5,110.8 | 7.8 ±1.1 |
| Gladwin | 2 | 249 | * | 1.4 | 238.0 | 5.9 ±4.3 |
| Gogebic | - | 118 | - | 0.4 | 128.0 | * |
| Gd. Traverse | - | 960 | - | 2.6 | 925.4 | 2.8 ±1.5 |
| Gratiot | 3 | 401 | * | 2.8 | 432.4 | 6.5 ±3.4 |
| Hillsdale | 3 | 580 | * | 2.0 | 543.6 | 3.7 ±2.3 |

Table 3
Number of Infant Deaths, Live Births and Infant Death Rates by
Michigan and Michigan County of Residence,
2013 and 2009 - 2013 Average
(Continued)

| County of Residence | 2013 | | | 2009 - 2013 | | |
|---------------------|---------------|-------------|-------------------|-----------------------|---------------------|---------------------------|
| | Infant Deaths | Live Births | Infant Death Rate | Average Infant Deaths | Average Live Births | Average Infant Death Rate |
| Houghton | 3 | 369 | * | 2.0 | 391.4 | 5.1 ±3.2 |
| Huron | - | 303 | - | 1.8 | 307.6 | 5.9 ±3.8 |
| Ingham | 28 | 3,272 | 8.6 ±3.2 | 21.0 | 3,275.4 | 6.4 ±1.2 |
| Ionia | 5 | 747 | * | 3.0 | 746.8 | 4.0 ±2.0 |
| Iosco | 1 | 236 | * | 2.0 | 218.8 | 9.1 ±5.6 |
| Iron | - | 88 | - | 0.8 | 96.2 | * |
| Isabella | 2 | 659 | * | 4.0 | 668.6 | 6.0 ±2.6 |
| Jackson | 15 | 1,725 | 8.7 ±4.4 | 11.2 | 1,811.2 | 6.2 ±1.6 |
| Kalamazoo | 26 | 3,176 | 8.2 ±3.1 | 23.0 | 3,113.8 | 7.4 ±1.3 |
| Kalkaska | 2 | 164 | * | 1.8 | 178.4 | 10.1 ±6.6 |
| Kent | 39 | 8,839 | 4.4 ±1.4 | 51.6 | 8,815.4 | 5.9 ±0.7 |
| Keweenaw | - | 16 | - | - | 18.2 | - |
| Lake | - | 98 | - | 0.8 | 96.2 | * |
| Lapeer | 4 | 802 | * | 4.8 | 829.0 | 5.8 ±2.3 |
| Leelanau | 1 | 178 | * | 1.0 | 171.8 | * |
| Lenawee | 9 | 1,084 | 8.3 ±5.4 | 9.4 | 1,058.2 | 8.9 ±2.5 |
| Livingston | 7 | 1,676 | 4.2 ±3.1 | 10.0 | 1,725.2 | 5.8 ±1.6 |
| Luce | - | 43 | - | - | 56.0 | - |
| Mackinac | - | 96 | - | 0.2 | 83.6 | * |
| Macomb | 67 | 9,386 | 7.1 ±1.7 | 59.6 | 9,188.0 | 6.5 ±0.7 |
| Manistee | - | 175 | - | 1.0 | 188.4 | * |
| Marquette | 2 | 599 | * | 2.8 | 653.4 | 4.3 ±2.2 |
| Mason | - | 270 | - | 1.0 | 289.4 | * |
| Mecosta | 5 | 413 | * | 3.6 | 430.6 | 8.4 ±3.8 |
| Menominee | - | 220 | - | 0.6 | 203.8 | * |
| Midland | 7 | 835 | 8.4 ±6.2 | 4.8 | 858.8 | 5.6 ±2.2 |
| Missaukee | - | 162 | - | 0.4 | 173.4 | * |
| Monroe | 15 | 1,520 | 9.9 ±5.0 | 9.0 | 1,594.8 | 5.6 ±1.6 |
| Montcalm | 5 | 755 | * | 4.8 | 733.4 | 6.5 ±2.6 |
| Montmorency | - | 58 | - | 0.6 | 65.0 | * |

Table 3
Number of Infant Deaths, Live Births and Infant Death Rates by
Michigan and Michigan County of Residence,
2013 and 2009 - 2013 Average
(Continued)

| County of Residence | 2013 | | | 2009 - 2013 | | |
|---------------------|---------------|-------------|-------------------|-----------------------|---------------------|---------------------------|
| | Infant Deaths | Live Births | Infant Death Rate | Average Infant Deaths | Average Live Births | Average Infant Death Rate |
| Muskegon | 19 | 2,132 | 8.9 ±4.0 | 18.0 | 2,164.6 | 8.3 ±1.7 |
| Newaygo | 3 | 535 | * | 3.6 | 548.8 | 6.6 ±3.0 |
| Oakland | 90 | 13,501 | 6.7 ±1.4 | 82.8 | 13,311.2 | 6.2 ±0.6 |
| Oceana | 1 | 274 | * | 2.4 | 321.2 | 7.5 ±4.2 |
| Ogemaw | - | 176 | - | 1.2 | 193.0 | 6.2 ±5.0 |
| Ontonagon | 1 | 28 | * | 0.2 | 36.0 | * |
| Osceola | 1 | 261 | * | 1.2 | 277.2 | 4.3 ±3.5 |
| Oscoda | - | 66 | - | 0.6 | 80.2 | * |
| Otsego | 3 | 229 | * | 2.6 | 247.6 | 10.5 ±5.7 |
| Ottawa | 26 | 3,377 | 7.7 ±2.9 | 20.0 | 3,338.4 | 6.0 ±1.2 |
| Presque Isle | - | 88 | - | 1.4 | 92.0 | 15.2 ±11.2 |
| Roscommon | - | 171 | - | 0.4 | 174.6 | * |
| Saginaw | 19 | 2,278 | 8.3 ±3.7 | 17.4 | 2,323.4 | 7.5 ±1.6 |
| St. Clair | 6 | 1,550 | 3.9 ±3.1 | 10.2 | 1,636.6 | 6.2 ±1.7 |
| St. Joseph | 7 | 860 | 8.1 ±6.0 | 7.0 | 822.2 | 8.5 ±2.8 |
| Sanilac | 2 | 445 | * | 2.0 | 455.8 | 4.4 ±2.7 |
| Schoolcraft | - | 66 | - | - | 69.0 | - |
| Shiawasee | 3 | 744 | * | 2.6 | 716.6 | 3.6 ±2.0 |
| Tuscola | 2 | 549 | * | 3.4 | 546.0 | 6.2 ±3.0 |
| Van Buren | 6 | 906 | 6.6 ±5.3 | 5.4 | 948.2 | 5.7 ±2.1 |
| Washtenaw | 18 | 3,662 | 4.9 ±2.3 | 18.8 | 3,774.4 | 5.0 ±1.0 |
| Wayne | 217 | 23,608 | 9.2 ±1.2 | 233.2 | 23,851.8 | 9.8 ±0.6 |
| Wexford | 3 | 431 | * | 3.4 | 410.4 | 8.3 ±3.9 |
| Unknown | - | 1 | - | - | 0.2 | - |

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: 2009 - 2013 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Community Health

Table 4
Number of Infant Deaths, Live Births and Infant Death Rates for
Selected Cities of Residence, 2013 and 2009 - 2013 Average

| City of Residence | 2013 | | | 2009 - 2013 | | |
|-------------------|---------------|-------------|-------------------|-----------------------|---------------------|---------------------------|
| | Infant Deaths | Live Births | Infant Death Rate | Average Infant Deaths | Average Live Births | Average Infant Death Rate |
| Ann Arbor | 5 | 1,160 | * | 4.0 | 1,103.0 | 3.6 ±1.6 |
| Battle Creek | 10 | 1,085 | 9.2 ±5.7 | 8.6 | 833.8 | 10.3 ±3.1 |
| Dearborn | 13 | 1,636 | 7.9 ±4.3 | 11.4 | 1,638.8 | 7.0 ±1.8 |
| Dearborn Heights | 3 | 791 | * | 4.0 | 769.8 | 5.2 ±2.3 |
| Detroit | 134 | 10,055 | 13.3 ±2.2 | 145.4 | 10,519.0 | 13.8 ±1.0 |
| East Lansing | - | - | - | - | 93.4 | - |
| Farmington Hills | 7 | 872 | 8.0 ±5.9 | 5.6 | 837.2 | 6.7 ±2.5 |
| Flint | 19 | 2,063 | 9.2 ±4.1 | 20.6 | 1,744.6 | 11.8 ±2.3 |
| Grand Rapids | 19 | 3,606 | 5.3 ±2.4 | 26.8 | 3,360.6 | 8.0 ±1.3 |
| Kalamazoo | 9 | 1,672 | 5.4 ±3.5 | 9.6 | 1,150.8 | 8.3 ±2.4 |
| Kentwood | 2 | 689 | * | 3.2 | 772.0 | 4.1 ±2.0 |
| Lansing | 18 | 1,948 | 9.2 ±4.2 | 14.2 | 1,884.0 | 7.5 ±1.7 |
| Livonia | 9 | 876 | 10.3 ±6.7 | 3.6 | 837.4 | 4.3 ±2.0 |
| Midland | 6 | 452 | 13.3 ±10.6 | 2.4 | 471.8 | 5.1 ±2.9 |
| Muskegon | 12 | 798 | 15.0 ±8.4 | 6.6 | 630.6 | 10.5 ±3.6 |
| Novi | 5 | 610 | * | 2.8 | 608.8 | 4.6 ±2.4 |
| Pontiac | 15 | 1,128 | 13.3 ±6.7 | 12.4 | 1,078.8 | 11.5 ±2.8 |
| Portage | 6 | 600 | 10.0 ±8.0 | 4.6 | 581.4 | 7.9 ±3.2 |
| Rochester Hills | 4 | 771 | * | 3.0 | 757.0 | 4.0 ±2.0 |
| Roseville | 3 | 648 | * | 4.2 | 595.6 | 7.1 ±3.0 |
| Royal Oak | 4 | 712 | * | 5.6 | 767.2 | 7.3 ±2.7 |
| Saginaw | 14 | 913 | 15.3 ±8.0 | 11.6 | 901.2 | 12.9 ±3.3 |
| Southfield | 6 | 801 | 7.5 ±6.0 | 8.0 | 766.6 | 10.4 ±3.2 |
| St Clair Shores | 3 | 591 | * | 2.6 | 567.2 | 4.6 ±2.5 |
| Sterling Heights | 9 | 1,427 | 6.3 ±4.1 | 9.0 | 1,420.0 | 6.3 ±1.8 |
| Taylor | 4 | 858 | * | 7.6 | 844.2 | 9.0 ±2.8 |
| Troy | 4 | 788 | * | 3.2 | 776.2 | 4.1 ±2.0 |
| Warren | 13 | 1,650 | 7.9 ±4.3 | 13.8 | 1,628.0 | 8.5 ±2.0 |
| Westland | 7 | 1,072 | 6.5 ±4.8 | 9.4 | 1,076.2 | 8.7 ±2.5 |
| Wyoming | 6 | 1,225 | 4.9 ±3.9 | 6.6 | 1,234.6 | 5.3 ±1.8 |

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: 2009-2011 Geocoded Michigan Death Certificate Registries; 2012-2013 Michigan Death Certificate Registries. 2009-2013 Geocoded Michigan Birth Certificate Registries Division for Vital Records & Health Statistics, Michigan Department of Community Health

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- 2013

| 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 |
| 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 |

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- 2013
(Continued)

| Year | Race | Michigan | | Detroit City | | Wayne County (excluding Detroit) | | Michigan (excluding Wayne County) | |
|------|-------|----------|-----------|--------------|-----------|----------------------------------|-----------|-----------------------------------|-----------|
| | | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| 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 |
| 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 |

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- 2013
(Continued)

| Year | Race | Michigan | | Detroit City | | Wayne County (excluding Detroit) | | Michigan (excluding Wayne County) | |
|------|-------|----------|-----------|--------------|-----------|----------------------------------|-----------|-----------------------------------|-----------|
| | | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| 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 | 134 | 13.3 ±2.2 | 83 | 6.1 ±1.3 | 582 | 6.5 ±0.5 |
| | White | 473 | 5.7 ±0.5 | 8 | 10.0 ±6.9 | 56 | 5.9 ±1.5 | 409 | 5.6 ±0.5 |
| | Black | 290 | 13.1 ±1.5 | 120 | 14.5 ±2.6 | 22 | 8.2 ±3.4 | 148 | 13.4 ±2.1 |

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- 2013 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Community Health.

Table 6
Number of Infant Deaths, Live Births and Infant Death Rates
by Selected Characteristics of Newborn and of Mother
for Michigan Residents, 2013

| Characteristics of Newborn | Infant Deaths | Live Births | Infant Death Rate |
|-----------------------------------|----------------------|--------------------|--------------------------|
| Sex of Infant | 799 | 113,732 | 7.0 ±0.5 |
| Male | 460 | 58,102 | 7.9 ±0.7 |
| Female | 337 | 55,630 | 6.1 ±0.6 |
| Birthweight | 799 | 113,732 | 7.0 ±0.5 |
| 1,499 Grams or Less | 416 | 1,854 | 224.4 ±19.3 |
| 1,500 - 2,499 Grams | 112 | 7,543 | 14.8 ±2.7 |
| 2,500 Grams or More | 263 | 104,284 | 2.5 ±0.3 |
| Plurality | 799 | 113,732 | 7.0 ±0.5 |
| Single Birth | 663 | 109,488 | 6.1 ±0.5 |
| Multiple Birth | 134 | 4,235 | 31.6 ±5.3 |
| <hr/> | | | |
| Characteristics of Mother | Infant Deaths | Live Births | Infant Death Rate |
| Age of Mother | 799 | 113,732 | 7.0 ±0.5 |
| < 20 | 85 | 7,944 | 10.7 ±2.3 |
| 20 - 29 | 437 | 61,548 | 7.1 ±0.7 |
| 30 - 39 | 241 | 41,415 | 5.8 ±0.7 |
| 40 + | 34 | 2,820 | 12.1 ±4.0 |
| Marital Status | 799 | 113,732 | 7.0 ±0.5 |
| Married | 339 | 65,206 | 5.2 ±0.6 |
| Unmarried | 459 | 48,526 | 9.5 ±0.9 |
| Level of Prenatal Care | 799 | 113,732 | 7.0 ±0.5 |
| Adequate | 412 | 76,037 | 5.4 ±0.5 |
| Intermediate | 203 | 24,766 | 8.2 ±1.1 |
| Inadequate | 146 | 10,843 | 13.5 ±2.2 |

Table 6
Number of Infant Deaths, Live Births and Infant Death Rates
by Selected Characteristics of Newborn and of Mother
for Michigan Residents, 2009
(Continued)

| Exposure to Tobacco | Infant Deaths | Live Births | Infant Death Rate |
|--|---------------|-------------|-------------------|
| Smoked During Pregnancy | 799 | 113,732 | 7.0 ±0.5 |
| No | 650 | 92,124 | 7.1 ±0.5 |
| Yes | 148 | 21,608 | 6.8 ±1.1 |
| Secondhand Smoke During Pregnancy | 799 | 113,732 | 7.0 ±0.5 |
| No | 546 | 88,939 | 6.1 ±0.5 |
| Yes | 176 | 19,740 | 8.9 ±1.3 |
| Smoked or Secondhand Smoke During Pregnancy | 799 | 113,732 | 7.0 ±0.5 |
| No | 494 | 79,643 | 6.2 ±0.5 |
| Yes | 238 | 29,775 | 8.0 ±1.0 |
| History of smoking | 799 | 113,732 | 7.0 ±0.5 |
| No | 565 | 88,291 | 6.4 ±0.5 |
| Yes | 217 | 25,033 | 8.7 ±1.1 |

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.)

Source: 2013 Michigan Resident Birth-Death Matched File, Division for Vital Records & Health Statistics, Michigan Department of Community Health

Table 7
Number and Rate of Infant Deaths by Race,
Michigan and United States Residents, 1989 - 2013

| 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 | --- | --- | --- | --- | --- | --- | 799 | 7.0 | 473 | 5.7 | 290 | 13.1 |

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.

---: Data not available.

Source: 1989 - 2013 Michigan Resident Birth and Death Files, Division for Vital Records & Health Statistics, Michigan Department of Community Health.
 2007-2012 NCHS, Linked Birth / Infant Death Records 2007-2012 on CDC WONDER On-line Database. Accessed at <http://wonder.cdc.gov/lbd-current.html> on Jan 13, 2015. "Deaths: Final Data for 2006", Vol 57, No. 14, April 2009; and [National Center for Health Statistics, historical data](#).

Table 8-A
Number of Hispanic and Arabic Infant Deaths by Selected County and Michigan
Michigan Residents, 2003 - 2013

Hispanic Infant Deaths

| County | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Michigan | 73 | 76 | 92 | 94 | 90 | 74 | 74 | 57 | 44 | 74 | 80 |
| Hispanic Infant Death Rates | 9.6 | 9.8 | 11.0 | 11.0 | 10.3 | 8.5 | 9.0 | 7.0 | 5.6 | 9.7 | 10.3 |
| Allegan | 2 | 1 | 2 | 2 | - | 2 | 1 | - | 1 | - | 3 |
| Genesee | 3 | 4 | 3 | 5 | 5 | 1 | 1 | 1 | 2 | - | - |
| Ingham | 5 | 4 | 4 | 2 | 3 | 2 | 8 | 1 | 1 | 2 | 4 |
| Kalamazoo | 1 | - | 4 | 2 | 4 | 3 | - | 4 | - | 2 | 2 |
| Kent | 13 | 13 | 14 | 27 | 13 | 16 | 6 | 8 | 12 | 10 | 6 |
| Lenawee | - | 1 | - | 1 | 2 | - | 2 | 1 | 1 | 2 | 5 |
| Macomb | 3 | 1 | 1 | 3 | 6 | 2 | 4 | - | - | 1 | 3 |
| Muskegon | 1 | 3 | 1 | 1 | 2 | 2 | 3 | - | 1 | 1 | 5 |
| Oakland | 5 | 7 | 13 | 7 | 5 | 9 | 9 | 6 | 7 | 8 | 8 |
| Ottawa | 2 | 3 | 4 | 4 | 3 | 3 | 4 | 1 | 2 | 4 | 8 |
| Saginaw | 2 | 1 | 3 | 3 | 8 | 4 | 5 | 2 | 2 | 5 | 4 |
| Van Buren | 1 | 2 | 7 | - | 2 | 2 | - | 1 | - | 2 | 1 |
| Washtenaw | 1 | 1 | 2 | 2 | - | 3 | 4 | 2 | - | 2 | 1 |
| Wayne | 22 | 17 | 12 | 15 | 19 | 15 | 13 | 15 | 8 | 16 | 17 |
| All Other Counties | 12 | 18 | 22 | 20 | 18 | 10 | 14 | 15 | 7 | 19 | 13 |

Table 8-A
Number of Hispanic and Arabic Infant Deaths by Selected County and Michigan
Michigan Residents, 2003 - 2013 (Continued)

Arabic Infant Deaths

| County | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Michigan | 19 | 12 | 24 | 31 | 32 | 34 | 22 | 24 | 24 | 26 | 36 |
| Arabic Infant Death Rates | 5.1 | 3.3 | 6.3 | 7.6 | 8.0 | 8.5 | 5.8 | 5.7 | 5.9 | 6.2 | 7.8 |
| Macomb | 3 | 2 | 2 | 5 | 3 | 7 | 6 | 5 | 2 | 5 | 6 |
| Oakland | 2 | 1 | 5 | 3 | 4 | 8 | 2 | 6 | 3 | 5 | 7 |
| Wayne | 13 | 5 | 13 | 22 | 23 | 16 | 10 | 10 | 15 | 14 | 17 |
| All Other Counties | 1 | 4 | 4 | 1 | 2 | 3 | 4 | 3 | 4 | 2 | 6 |

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: 2013 Michigan Resident Infant Death File, Division for Vital Records & Health Statistics, Michigan Department of Community Health.

Table 9
Infant, Hebdomadal, Fetal and Perinatal Death Rates
by Specified Race and Ancestry
Michigan Residents, 2013

| Race/Ancestry | Live Births | Infant Deaths | | Hebdomadal Deaths | | Fetal Deaths | | Perinatal Deaths | |
|----------------------------|-------------|---------------|-----------|-------------------|----------|--------------|----------|------------------|----------|
| | | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| All Races | 113,732 | 799 | 7.0 ±0.5 | 431 | 3.8 ±0.4 | 536 | 4.7 ±0.4 | 967 | 8.5 ±0.5 |
| White | 83,339 | 473 | 5.7 ±0.5 | 250 | 3.0 ±0.4 | 129 | 1.5 ±0.3 | 379 | 4.5 ±0.5 |
| Black | 22,055 | 290 | 13.1 ±1.5 | 154 | 7.0 ±1.1 | 57 | 2.6 ±0.7 | 211 | 9.5 ±1.3 |
| American Indian | 625 | 4 | * | 2 | * | 0 | - | 2 | * |
| Asian and Pacific Islander | 3,933 | 16 | 4.1 ±2.0 | 12 | 3.1 ±1.7 | 5 | * | 17 | 4.3 ±2.0 |
| Arabic | 4,589 | 36 | 7.8 ±2.6 | 19 | 4.1 ±1.9 | 21 | 4.6 ±1.9 | 40 | 8.7 ±2.7 |
| Hispanic | 7,763 | 80 | 10.3 ±2.2 | 46 | 5.9 ±1.7 | 27 | 3.5 ±1.3 | 73 | 9.4 ±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: 2013 Michigan Resident Infant Death File, 2013 Michigan Fetal Death Registry Division for Vital Records & Health Statistics, Michigan Department of Community Health.

Table 10
Number of Infant Deaths by Cause of Death,
1980-2013, Michigan Residents

| Causes of Death | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| All Causes | 2,280 | 1,575 | 1,638 | 1,110 | 1,112 | 1,013 | 940 | 997 | 894 | 881 | 817 | 749 | 783 | 799 |
| Certain gastrointestinal diseases | 7 | 6 | 6 | 6 | 10 | 12 | 11 | 12 | 11 | 12 | 9 | 13 | 7 | 5 |
| Septicemia | 8 | 6 | 17 | 2 | 5 | 10 | 3 | 9 | 9 | 8 | 4 | 1 | 8 | 2 |
| Remainder of infectious and parasitic diseases | 5 | 11 | 18 | 12 | 7 | 6 | 10 | 3 | 6 | 2 | 3 | 2 | 2 | 3 |
| Meningitis | 13 | 7 | 11 | 2 | 3 | 3 | 4 | 3 | 1 | 1 | 5 | 1 | 2 | 1 |
| Pneumonia and Influenza | 27 | 11 | 26 | 20 | 20 | 6 | 8 | 4 | 9 | 6 | 8 | 6 | 5 | 7 |
| Congenital anomalies | 321 | 330 | 300 | 204 | 192 | 197 | 185 | 194 | 172 | 181 | 184 | 125 | 127 | 160 |
| Newborn affected by maternal complications of pregnancy | 72 | 52 | 108 | 47 | 45 | 67 | 72 | 67 | 54 | 62 | 40 | 49 | 68 | 52 |
| Newborn affected by complications of placenta, cord and membranes | 50 | 34 | 24 | 33 | 36 | 28 | 26 | 25 | 26 | 24 | 26 | 18 | 28 | 30 |
| Disorders relating to short gestation and unspecified low birthweight | 145 | 150 | 251 | 219 | 262 | 219 | 201 | 234 | 209 | 183 | 198 | 188 | 188 | 176 |
| Birth trauma | 45 | 14 | 16 | 8 | 2 | 1 | - | - | - | - | - | 1 | - | - |
| Intrauterine hypoxia and birth asphyxia | 69 | 43 | 25 | 11 | 24 | 19 | 7 | 7 | 15 | 7 | 20 | 7 | 14 | 8 |
| Respiratory distress syndrome | 206 | 176 | 164 | 82 | 65 | 57 | 36 | 42 | 41 | 23 | 23 | 14 | 26 | 20 |
| Other respiratory conditions | 199 | 132 | 120 | 63 | 65 | 52 | 28 | 52 | 29 | 42 | 27 | 28 | 27 | 20 |
| Infections specific to the perinatal period | 35 | 32 | 33 | 23 | 35 | 42 | 29 | 40 | 39 | 26 | 27 | 22 | 21 | 22 |
| Neonatal hemorrhage | 38 | 10 | 8 | 13 | 28 | 23 | 16 | 9 | 9 | 17 | 12 | 11 | 12 | 9 |
| All other and ill-define conditions originating in the perinatal period | 169 | 168 | 73 | 47 | 39 | 46 | 67 | 50 | 46 | 62 | 27 | 39 | 34 | 47 |
| Sudden infant death syndrome | 260 | 228 | 257 | 148 | 99 | 47 | 51 | 46 | 48 | 45 | 44 | 33 | 15 | 31 |
| Accidents and adverse effects | 39 | 35 | 38 | 40 | 55 | 68 | 71 | 77 | 62 | 74 | 66 | 83 | 93 | 90 |
| Homicides | 7 | 8 | 17 | 12 | 13 | 15 | 9 | 7 | 10 | 10 | 13 | 11 | 14 | 5 |
| All other causes | 136 | 122 | 126 | 118 | 107 | 95 | 106 | 116 | 98 | 96 | 81 | 97 | 92 | 111 |

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: 1980-2013 Michigan Resident Infant Death File, Division for Vital Records & Health Statistics, Michigan Department of Community Health.

Table 11
Three-year Moving Average Infant Deaths Rates per 10,000 Live Births, by Cause of Death,
1980-2013, Michigan Residents

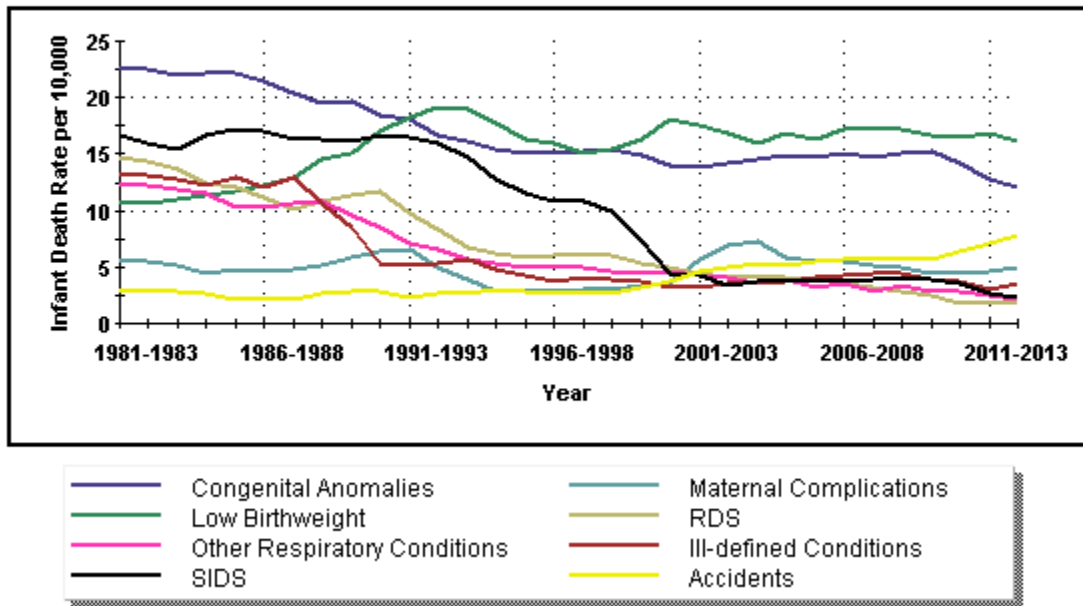
| Causes of Death | 1980 to 1982 | 1985 to 1987 | 1990 to 1992 | 1995 to 1997 | 2000 to 2002 | 2001 to 2003 | 2002 to 2004 | 2003 to 2005 | 2004 to 2006 | 2005 to 2007 | 2006 to 2008 | 2007 to 2009 | 2008 to 2010 | 2009 to 2011 | 2010 to 2012 | 2011 to 2013 |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Total Infant Deaths | 126.8 | 112.4 | 104.2 | 81.5 | 81.0 | 82.1 | 80.8 | 80.1 | 76.3 | 77.6 | 75.7 | 76.2 | 73.4 | 70.7 | 68.8 | 68.4 |
| Certain gastrointestinal diseases | .6 | .6 | .6 | .6 | .6 | .8 | .9 | 1.0 | .9 | .9 | .9 | 1.0 | .9 | 1.0 | .8 | .7 |
| Septicemia | .4 | .5 | .9 | .4 | .5 | .6 | .5 | .6 | .4 | .6 | .6 | .7 | .6 | .4 | .4 | .3 |
| Remainder of infectious and parasitic diseases | .4 | .8 | 1.1 | .6 | .5 | .5 | .4 | .4 | .5 | .5 | .5 | .3 | .3 | .2 | .2 | .2 |
| Meningitis | .9 | .4 | .4 | * | * | .2 | .2 | .2 | .2 | .3 | .2 | * | .2 | .2 | .2 | * |
| Pneumonia and Influenza | 1.4 | 1.1 | 1.8 | 1.1 | 1.1 | .8 | .7 | .7 | .6 | .5 | .6 | .5 | .6 | .6 | .6 | .5 |
| Congenital anomalies | 22.7 | 21.4 | 18.1 | 15.1 | 13.8 | 14.2 | 14.6 | 15.0 | 14.7 | 15.1 | 14.7 | 15.0 | 15.2 | 14.2 | 12.8 | 12.1 |
| Newborn affected by maternal complications of pregnancy | 5.8 | 4.6 | 6.6 | 2.9 | 5.7 | 6.9 | 7.2 | 5.9 | 5.5 | 5.4 | 5.2 | 5.0 | 4.4 | 4.4 | 4.6 | 5.0 |
| Newborn affected by complications of placenta, cord and membranes | 3.2 | 2.6 | 2.1 | 2.9 | 2.4 | 2.2 | 1.8 | 2.0 | 1.9 | 2.1 | 2.1 | 2.1 | 2.2 | 2.0 | 2.1 | 2.2 |
| Disorders relating to short gestation and unspecified low birthweight | 10.6 | 12.2 | 18.2 | 16.0 | 17.6 | 16.8 | 16.0 | 16.8 | 16.3 | 17.2 | 17.2 | 17.2 | 16.7 | 16.4 | 16.8 | 16.2 |
| Birth trauma | 2.5 | .7 | .7 | .4 | .2 | .2 | * | * | * | * | - | - | - | * | * | * |
| Intrauterine hypoxia and birth asphyxia | 4.5 | 2.4 | 1.6 | 1.2 | 1.6 | 1.7 | 1.8 | 1.8 | 1.2 | .9 | .8 | .8 | 1.2 | 1.0 | 1.2 | .9 |
| Respiratory distress syndrome | 14.8 | 11.2 | 9.7 | 6.1 | 4.5 | 4.1 | 4.1 | 4.1 | 3.9 | 3.6 | 3.2 | 2.9 | 2.5 | 1.7 | 1.8 | 1.8 |
| Other respiratory conditions | 12.2 | 10.2 | 7.1 | 5.1 | 4.3 | 4.1 | 3.6 | 3.8 | 3.2 | 3.5 | 2.9 | 3.4 | 2.8 | 2.8 | 2.4 | 2.2 |
| Infections specific to the perinatal period | 2.2 | 2.3 | 2.2 | 2.1 | 3.0 | 3.0 | 3.0 | 3.1 | 3.0 | 2.9 | 2.9 | 2.9 | 2.6 | 2.2 | 2.0 | 1.9 |
| Neonatal hemorrhage | 2.0 | .7 | .6 | .8 | 1.3 | 1.3 | 1.6 | 2.0 | 1.7 | 1.3 | .9 | 1.0 | 1.1 | 1.2 | 1.0 | .9 |
| All other and ill-define conditions originating in the perinatal period | 13.3 | 12.1 | 5.1 | 3.7 | 3.1 | 3.6 | 3.6 | 3.8 | 4.1 | 4.3 | 4.4 | 4.3 | 3.8 | 3.7 | 2.9 | 3.5 |
| Sudden infant death syndrome | 16.6 | 17.1 | 16.6 | 10.8 | 4.3 | 3.4 | 3.7 | 3.8 | 3.7 | 3.8 | 3.9 | 3.8 | 3.9 | 3.5 | 2.7 | 2.3 |
| Accidents and adverse effects | 2.8 | 2.1 | 2.4 | 2.7 | 4.6 | 4.9 | 5.3 | 5.2 | 5.4 | 5.7 | 5.6 | 5.9 | 5.7 | 6.4 | 7.1 | 7.8 |
| Homicides | .4 | .9 | .9 | .9 | .8 | .7 | .6 | .8 | .8 | .8 | .7 | .7 | .9 | 1.0 | 1.1 | .9 |
| All other causes | 9.7 | 8.6 | 7.6 | 7.9 | 8.3 | 9.8 | 9.9 | 9.3 | 7.9 | 8.3 | 8.6 | 8.5 | 7.8 | 7.9 | 7.9 | 8.8 |

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: 1980-2013 Michigan Resident Infant Death File, Division for Vital Records & Health Statistics, Michigan Department of Community Health.

Figure 3
Three-year Average Infant Death Rates by Cause,
Michigan Residents, 1980-2013



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: 1980-2013 Michigan Resident Infant Death File, Division for Vital Records & Health Statistics, Michigan Department of Community Health.

Table 12-A
Sudden Infant Death Syndrome (SIDS), Accidental Suffocation & Strangulation in Bed (ASSB) and
Sudden Unexpected Infant Deaths (SUID),
Michigan Residents 1989-2013

| 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 |

**Table 12-B
Accidental Suffocation & Strangulation in Bed and Total Accidents,
Michigan Residents, 1989-2013**

| 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% |

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.

Source: 1989 - 2013 Michigan Resident Death Files and Michigan Resident Birth Files, Division for Vital Records & Health Statistics, Michigan Department of Community Health

Last Updated: 3/11/2015

Table 13
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 1989-2013

| 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 |

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.

Source: 1989 - 2013 Michigan Resident Death Files and Michigan Resident Birth Files, Division for Vital Records & Health Statistics, Michigan Department of Community Health

Last Updated: 3/2/2015

**Table 14-A
Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2002-2013**

| County | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|-----------------------|----------|----------|----------|-----------|-----------|-----------|----------|----------|----------|-----------|
| Michigan | 8.1±0.3 | 8.0±0.3 | 7.6±0.3 | 7.8±0.3 | 7.6±0.3 | 7.6±0.3 | 7.3±0.3 | 7.1±0.3 | 6.9±0.3 | 6.8±0.3 |
| Alcona | * | * | * | * | * | * | * | * | * | * |
| Alger | * | * | - | - | * | * | * | * | - | - |
| Allegan | 6.9±2.4 | 7.8±2.6 | 6.3±2.3 | 8.4±2.6 | 6.9±2.4 | 6.7±2.4 | 4.2±1.9 | 4.5±2.0 | 4.2±2.0 | 5.0±2.2 |
| Alpena | * | * | * | * | 6.7±5.3 | * | * | 7.3±5.8 | * | * |
| Antrim | * | * | * | * | 8.7±6.9 | * | 11.1±8.2 | 10.9±8.0 | 10.0±8.0 | * |
| Arenac | * | * | * | * | * | * | * | * | * | 18.9±13.9 |
| Baraga | * | * | * | * | * | * | * | - | - | * |
| Barry | 4.1±2.7 | 4.6±2.8 | 5.9±3.2 | 6.5±3.4 | 7.8±3.7 | 7.4±3.7 | 8.9±4.1 | 7.9±4.0 | 6.8±3.7 | 4.9±3.2 |
| Bay | 4.8±2.2 | 5.6±2.4 | 6.6±2.6 | 8.0±2.8 | 7.5±2.8 | 6.6±2.6 | 7.9±2.9 | 8.3±3.0 | 7.7±3.0 | 4.9±2.4 |
| Benzie | * | 10.4±8.3 | * | 11.7±8.6 | * | * | * | * | * | * |
| Berrien | 7.1±2.1 | 7.6±2.2 | 7.3±2.1 | 9.4±2.4 | 8.8±2.3 | 8.9±2.4 | 7.8±2.2 | 8.3±2.3 | 8.1±2.3 | 8.3±2.4 |
| Branch | 10.1±4.6 | 10.9±4.7 | 8.7±4.2 | 5.3±3.3 | 3.3±2.6 | 3.5±2.8 | 4.9±3.4 | 6.3±3.9 | 7.8±4.4 | 7.0±4.1 |
| Calhoun | 8.9±2.5 | 9.3±2.5 | 9.6±2.6 | 11.2±2.8 | 10.8±2.7 | 11.5±2.9 | 10.2±2.8 | 10.7±2.9 | 8.7±2.6 | 7.2±2.3 |
| Cass | 8.9±4.5 | 9.1±4.6 | 8.6±4.5 | 8.3±4.3 | 5.9±3.6 | 7.8±4.2 | 7.8±4.4 | 7.3±4.3 | 6.6±4.3 | 7.4±4.6 |
| Charlevoix | * | * | * | * | * | * | * | * | * | * |
| Cheboygan | * | * | * | * | * | * | * | * | - | - |
| Chippewa | * | 6.8±4.7 | 7.4±4.8 | 8.6±5.3 | 5.4±4.3 | * | * | 5.3±4.2 | 7.5±5.2 | 7.5±5.2 |
| Clare | 13.0±7.0 | 12.1±6.8 | 7.8±5.4 | 5.6±4.5 | 6.6±4.9 | 5.8±4.7 | * | * | * | * |
| Clinton | 6.1±3.0 | 5.4±2.8 | 3.4±2.2 | 4.7±2.7 | 4.8±2.7 | 4.7±2.8 | 4.4±2.7 | 4.0±2.6 | 3.8±2.5 | 2.5±2.0 |
| Crawford | * | * | * | 16.8±12.3 | 19.1±13.1 | 17.5±12.9 | * | * | * | * |
| Delta | 9.1±5.4 | 9.9±5.5 | 4.9±3.9 | 4.9±3.9 | * | 6.1±4.5 | * | 5.3±4.2 | 6.4±4.7 | 5.4±4.3 |
| Dickinson | * | * | 7.3±5.9 | 7.6±6.0 | 7.6±6.0 | * | 8.3±6.6 | * | * | * |
| Eaton | 5.8±2.4 | 4.3±2.1 | 4.4±2.2 | 4.4±2.2 | 5.3±2.4 | 5.3±2.4 | 5.9±2.5 | 5.6±2.5 | 5.4±2.4 | 6.1±2.6 |
| Emmet | 5.3±4.2 | 5.5±4.4 | * | * | * | * | 6.3±5.0 | * | * | * |
| Genesee | 12.5±1.6 | 11.0±1.5 | 10.5±1.5 | 9.5±1.4 | 9.3±1.4 | 9.0±1.4 | 7.8±1.4 | 7.8±1.4 | 7.1±1.3 | 7.9±1.4 |
| Gladwin | 10.2±7.0 | 11.4±7.4 | 9.0±6.7 | * | * | * | * | * | * | * |
| Gogebic | * | - | * | * | * | * | * | * | * | - |
| Grand Traverse | 5.9±2.8 | 5.5±2.7 | 5.8±2.7 | 6.1±2.8 | 7.0±3.0 | 6.9±3.0 | 5.6±2.8 | 3.3±2.1 | 2.9±2.0 | * |
| Gratiot | 7.0±4.3 | 5.4±3.7 | 7.4±4.4 | 7.0±4.3 | 8.7±4.9 | 7.1±4.4 | 8.1±4.7 | 8.1±4.8 | 6.3±4.3 | 4.8±3.8 |
| Hillsdale | 3.4±2.7 | * | 4.0±2.9 | 6.8±3.8 | 9.2±4.5 | 5.9±3.6 | 4.2±3.1 | * | 3.7±3.0 | 4.3±3.2 |

Table 14-A
All Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2002-2013
(Continued)

| County | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|-------------|----------|-----------|---------|---------|---------|---------|----------|----------|----------|----------|
| Houghton | 8.7±5.4 | 5.9±4.4 | 5.1±4.1 | 5.0±4.0 | 7.3±4.8 | 6.6±4.5 | 6.5±4.5 | * | 5.1±4.0 | 5.3±4.3 |
| Huron | * | * | * | * | * | * | * | 6.3±5.1 | 6.5±5.2 | * |
| Ingham | 7.2±1.6 | 7.7±1.7 | 7.2±1.6 | 7.0±1.6 | 6.6±1.6 | 7.0±1.6 | 5.9±1.5 | 5.6±1.5 | 5.8±1.5 | 7.2±1.7 |
| Ionia | 4.7±2.7 | 4.4±2.6 | 3.5±2.3 | 4.8±2.7 | 3.9±2.4 | 3.3±2.3 | 3.0±2.2 | 4.0±2.6 | 4.0±2.6 | 4.1±2.6 |
| Iosco | * | * | * | * | * | * | 11.7±8.6 | 12.6±8.6 | 9.2±7.4 | * |
| Iron | * | * | * | * | * | * | * | * | * | * |
| Isabella | 7.4±3.6 | 8.7±3.9 | 8.1±3.7 | 9.9±4.1 | 6.2±3.2 | 5.4±3.1 | 4.2±2.7 | 6.8±3.5 | 7.1±3.7 | 6.2±3.5 |
| Jackson | 7.0±2.1 | 9.3±2.4 | 9.0±2.3 | 9.4±2.4 | 7.7±2.2 | 7.1±2.2 | 6.5±2.1 | 6.1±2.1 | 5.3±1.9 | 6.2±2.1 |
| Kalamazoo | 8.8±1.9 | 7.3±1.7 | 6.4±1.6 | 7.2±1.7 | 7.1±1.7 | 8.4±1.8 | 8.6±1.9 | 7.6±1.8 | 6.4±1.6 | 6.0±1.6 |
| Kalkaska | * | 8.6±6.9 | * | * | - | * | * | * | 11.3±9.0 | 11.6±9.2 |
| Kent | 8.6±1.1 | 8.2±1.1 | 8.0±1.0 | 7.6±1.0 | 7.8±1.0 | 6.9±1.0 | 6.8±1.0 | 6.4±1.0 | 6.2±0.9 | 5.6±0.9 |
| Keweenaw | - | - | * | * | * | - | - | - | - | - |
| Lake | * | 20.9±15.3 | * | * | * | * | * | * | * | * |
| Lapeer | 4.1±2.2 | 3.2±2.0 | 3.3±2.1 | 4.8±2.5 | 5.4±2.7 | 7.4±3.2 | 8.6±3.6 | 7.1±3.3 | 3.6±2.4 | 2.4±1.9 |
| Leelanau | 14.1±9.7 | 11.7±8.6 | * | * | * | * | * | * | * | * |
| Lenawee | 3.5±1.9 | 4.3±2.1 | 5.6±2.4 | 6.7±2.6 | 8.3±3.0 | 8.5±3.1 | 10.8±3.5 | 9.4±3.3 | 9.2±3.3 | 7.2±2.9 |
| Livingston | 4.6±1.7 | 5.2±1.8 | 3.8±1.5 | 5.3±1.9 | 5.5±1.9 | 6.7±2.2 | 6.3±2.1 | 6.7±2.2 | 5.9±2.1 | 5.2±2.0 |
| Luce | * | * | * | * | * | * | * | - | - | - |
| Mackinac | * | * | * | * | * | * | * | * | - | - |
| Macomb | 5.6±0.8 | 5.9±0.9 | 5.6±0.8 | 6.0±0.9 | 6.1±0.9 | 7.3±1.0 | 6.7±1.0 | 6.5±1.0 | 5.6±0.9 | 6.2±0.9 |
| Manistee | 13.3±8.2 | 15.5±8.7 | 9.8±7.2 | * | * | * | * | * | * | * |
| Marquette | * | * | 3.8±2.8 | 4.6±3.0 | 4.0±2.8 | 3.9±2.7 | 4.1±2.8 | 5.1±3.1 | 4.1±2.8 | 4.1±2.9 |
| Mason | * | * | * | 6.1±4.8 | 7.0±5.2 | * | 6.4±5.1 | * | * | * |
| Mecosta | 8.6±4.8 | 7.3±4.5 | 6.5±4.2 | 4.4±3.5 | 9.7±5.2 | 8.2±4.8 | 9.0±5.1 | 7.0±4.5 | 10.2±5.5 | 11.8±6.0 |
| Menominee | * | * | * | * | * | * | * | * | * | * |
| Midland | 6.8±3.0 | 7.1±3.1 | 8.7±3.5 | 7.0±3.1 | 5.3±2.8 | 4.2±2.5 | 3.9±2.4 | 4.2±2.5 | 4.6±2.6 | 6.6±3.1 |
| Missaukee | * | * | * | * | - | * | * | * | * | * |
| Monroe | 6.2±2.1 | 5.2±1.9 | 7.3±2.3 | 6.8±2.2 | 6.7±2.2 | 5.7±2.0 | 5.7±2.1 | 4.3±1.8 | 4.4±1.9 | 5.8±2.2 |
| Montcalm | 8.2±3.6 | 6.1±3.1 | 3.7±2.4 | 2.9±2.1 | 3.7±2.4 | 3.9±2.6 | 5.8±3.1 | 6.4±3.3 | 6.8±3.4 | 6.4±3.3 |
| Montmorency | - | - | * | * | * | - | * | * | * | * |

**Table 14-A
All Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2002-2013
(Continued)**

| County | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|--------------|----------|----------|----------|----------|----------|----------|----------|---------|-----------|----------|
| Muskegon | 8.6±2.2 | 8.4±2.1 | 6.7±1.9 | 6.3±1.8 | 6.7±1.9 | 7.1±2.0 | 7.9±2.1 | 8.0±2.1 | 8.7±2.3 | 8.2±2.2 |
| Newaygo | 4.3±3.0 | 5.9±3.5 | 6.8±3.7 | 9.7±4.4 | 8.4±4.1 | 8.2±4.1 | 5.3±3.5 | 7.8±4.2 | 7.3±4.1 | 7.3±4.1 |
| Oakland | 6.4±0.7 | 6.7±0.8 | 6.6±0.8 | 6.6±0.8 | 6.4±0.8 | 6.2±0.8 | 6.2±0.8 | 5.8±0.7 | 6.2±0.8 | 6.3±0.8 |
| Oceana | 8.9±5.5 | 10.5±5.9 | 10.3±5.8 | 8.7±5.4 | 6.0±4.5 | 6.3±4.6 | 8.3±5.4 | 5.9±4.7 | 9.0±5.9 | 6.5±5.2 |
| Ogemaw | * | * | * | * | * | * | * | * | * | * |
| Ontonagon | - | - | * | * | * | * | - | - | - | * |
| Osceola | 6.3±5.0 | 8.6±6.0 | 8.8±6.1 | 9.4±6.5 | * | * | * | * | * | * |
| Oscoda | * | * | - | - | * | * | * | * | * | * |
| Otsego | * | * | * | 8.2±6.1 | 9.3±6.4 | 8.6±6.3 | * | 9.0±6.6 | 11.9±7.7 | 13.9±8.6 |
| Ottawa | 6.0±1.5 | 5.3±1.4 | 5.3±1.4 | 5.2±1.4 | 5.9±1.5 | 5.4±1.4 | 5.7±1.5 | 5.6±1.5 | 5.9±1.5 | 6.5±1.6 |
| Presque Isle | * | * | * | * | * | * | * | * | 21.7±17.1 | * |
| Roscommon | 11.8±8.7 | 9.9±7.9 | * | * | * | 10.9±8.7 | * | * | * | * |
| Saginaw | 8.7±2.0 | 9.2±2.1 | 8.7±2.0 | 9.5±2.2 | 9.4±2.2 | 10.5±2.3 | 8.8±2.2 | 7.9±2.1 | 6.1±1.8 | 7.1±2.0 |
| St. Clair | 7.9±2.2 | 8.0±2.2 | 7.7±2.2 | 6.6±2.1 | 5.8±2.0 | 6.4±2.1 | 5.6±2.0 | 6.3±2.2 | 6.2±2.2 | 6.3±2.2 |
| St. Joseph | 7.6±3.2 | 7.0±3.0 | 8.1±3.3 | 8.6±3.4 | 10.3±3.7 | 11.2±4.0 | 10.6±4.0 | 8.3±3.5 | 7.4±3.4 | 7.3±3.4 |
| Sanilac | 3.8±3.0 | 4.3±3.2 | 5.8±3.8 | 7.7±4.3 | 7.5±4.4 | 6.8±4.2 | * | * | * | 4.6±3.6 |
| Schoolcraft | * | * | * | * | * | * | - | - | - | - |
| Shiawassee | 9.7±3.7 | 9.2±3.7 | 7.7±3.3 | 8.8±3.7 | 5.4±2.9 | 5.7±3.1 | 3.2±2.4 | 3.3±2.4 | 3.8±2.6 | 3.2±2.4 |
| Tuscola | 8.8±4.0 | 7.4±3.7 | 7.7±3.9 | 6.2±3.5 | 3.8±2.8 | 3.9±2.9 | 6.0±3.7 | 6.8±4.0 | 6.8±4.0 | 4.9±3.4 |
| Van Buren | 6.7±2.9 | 9.5±3.4 | 7.7±3.1 | 6.7±2.8 | 5.5±2.6 | 6.9±2.9 | 6.5±2.9 | 4.5±2.4 | 5.6±2.8 | 6.5±3.0 |
| Washtenaw | 6.3±1.4 | 6.3±1.4 | 6.0±1.3 | 5.7±1.3 | 5.2±1.3 | 5.3±1.3 | 5.1±1.3 | 4.9±1.3 | 4.7±1.3 | 4.6±1.3 |
| Wayne | 11.5±0.7 | 11.3±0.7 | 10.6±0.7 | 10.5±0.7 | 10.4±0.7 | 10.4±0.7 | 10.2±0.7 | 9.8±0.7 | 9.9±0.7 | 9.7±0.7 |
| Wexford | * | 6.5±4.5 | 6.3±4.4 | 9.2±5.2 | 6.8±4.4 | 7.7±4.8 | 6.3±4.3 | 6.4±4.4 | 9.8±5.5 | 9.8±5.5 |

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: 2002-2011 Geocoded Michigan Death Certificate Registries; 2012-2013 Michigan Death Certificate Registries. 2002-2013 Geocoded Michigan Birth Certificate Registries **Created:** 2/9/2015
Division for Vital Records & Health Statistics, Michigan Department of Community Health

Table 14-B
White Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2002-2013

| County | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|----------------|----------|----------|---------|-----------|-----------|-----------|----------|----------|----------|-----------|
| Michigan | 6.0±0.3 | 5.8±0.3 | 5.4±0.3 | 5.6±0.3 | 5.6±0.3 | 5.6±0.3 | 5.4±0.3 | 5.2±0.3 | 5.3±0.3 | 5.3±0.3 |
| Alcona | * | * | * | * | * | * | * | * | * | * |
| Alger | * | * | - | - | * | * | * | * | - | - |
| Allegan | 6.7±2.4 | 7.3±2.5 | 5.6±2.2 | 7.6±2.5 | 5.9±2.3 | 5.6±2.2 | 3.4±1.8 | 4.0±2.0 | 4.1±2.0 | 5.0±2.2 |
| Alpena | * | * | * | * | 6.9±5.5 | * | * | * | * | * |
| Antrim | * | * | * | * | 8.9±7.1 | * | 11.7±8.6 | 11.7±8.6 | 10.7±8.5 | * |
| Arenac | * | * | * | * | * | * | * | * | * | 19.3±14.2 |
| Baraga | * | * | * | * | - | - | - | - | - | - |
| Barry | 4.1±2.7 | 4.2±2.7 | 5.5±3.1 | 6.1±3.3 | 8.0±3.8 | 7.5±3.8 | 9.1±4.2 | 8.0±4.0 | 6.9±3.7 | 5.0±3.3 |
| Bay | 4.9±2.3 | 5.6±2.4 | 6.4±2.6 | 7.5±2.8 | 7.1±2.8 | 6.1±2.6 | 7.4±2.9 | 7.9±3.0 | 7.6±3.0 | 5.0±2.5 |
| Benzie | * | * | * | 10.3±8.2 | * | * | * | * | * | * |
| Berrien | 6.1±2.3 | 6.0±2.2 | 5.3±2.1 | 5.9±2.3 | 5.9±2.3 | 4.8±2.1 | 4.0±1.9 | 3.6±1.8 | 4.6±2.1 | 4.9±2.2 |
| Branch | 9.7±4.6 | 9.9±4.6 | 8.2±4.2 | 4.9±3.2 | 3.4±2.7 | 3.6±2.9 | 5.0±3.5 | 6.5±4.0 | 6.7±4.1 | 5.2±3.6 |
| Calhoun | 8.4±2.6 | 7.9±2.5 | 7.3±2.5 | 8.5±2.6 | 7.9±2.6 | 9.3±2.9 | 7.4±2.6 | 7.9±2.8 | 6.4±2.5 | 5.9±2.4 |
| Cass | 9.6±4.8 | 7.3±4.3 | 6.6±4.1 | 6.1±4.0 | 5.5±3.8 | 5.6±3.9 | 5.9±4.1 | 5.3±3.9 | 6.8±4.7 | 7.6±5.0 |
| Charlevoix | * | * | * | * | * | * | * | * | * | * |
| Cheboygan | * | * | * | * | * | * | * | * | - | - |
| Chippewa | * | * | 6.8±5.4 | 8.4±6.2 | * | * | * | * | * | * |
| Clare | 12.2±6.9 | 11.2±6.6 | 6.9±5.1 | 5.7±4.6 | 6.8±5.0 | 6.0±4.8 | * | * | * | * |
| Clinton | 5.9±3.0 | 4.4±2.6 | 2.8±2.1 | 3.8±2.4 | 4.7±2.8 | 4.5±2.8 | 4.6±2.8 | 4.2±2.7 | 4.1±2.7 | 2.7±2.2 |
| Crawford | * | * | * | 14.7±11.7 | 17.0±12.5 | 15.7±12.5 | * | * | * | * |
| Delta | 8.7±5.3 | 9.4±5.6 | 5.1±4.1 | * | * | * | * | * | 5.8±4.7 | * |
| Dickinson | * | * | 7.5±6.0 | 7.9±6.3 | 8.0±6.4 | * | * | * | * | * |
| Eaton | 5.3±2.5 | 3.7±2.1 | 4.4±2.3 | 4.8±2.4 | 5.1±2.5 | 3.8±2.1 | 4.2±2.3 | 3.9±2.2 | 4.8±2.5 | 4.8±2.5 |
| Emmet | 5.6±4.5 | 5.9±4.7 | * | * | * | * | 6.8±5.4 | * | * | * |
| Genesee | 8.8±1.6 | 7.6±1.5 | 7.3±1.5 | 6.4±1.4 | 6.0±1.4 | 5.4±1.3 | 5.1±1.3 | 5.1±1.4 | 4.8±1.3 | 5.1±1.4 |
| Gladwin | 10.3±7.1 | 11.5±7.5 | 9.1±6.7 | * | * | * | * | * | * | * |
| Gogebic | * | - | * | * | * | * | * | * | * | - |
| Grand Traverse | 5.0±2.6 | 5.0±2.6 | 5.3±2.7 | 6.4±2.9 | 7.4±3.2 | 7.3±3.2 | 6.0±3.0 | 3.5±2.3 | 3.1±2.2 | * |
| Gratiot | 5.9±4.1 | 4.3±3.4 | 7.1±4.4 | 6.7±4.3 | 7.7±4.8 | 6.0±4.2 | 7.0±4.5 | 7.8±4.8 | 5.8±4.3 | * |
| Hillsdale | 3.4±2.7 | * | 4.0±3.0 | 7.0±4.0 | 9.6±4.7 | 6.2±3.8 | 4.3±3.2 | * | 3.8±3.1 | 4.4±3.2 |

Table 14-B
White Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2002-2013
(Continued)

| County | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|-------------|-----------|-----------|----------|---------|---------|---------|----------|----------|----------|----------|
| Houghton | 8.2±5.4 | 6.3±4.6 | 5.4±4.3 | 5.3±4.2 | 7.0±4.8 | 6.1±4.5 | 6.0±4.4 | * | 5.4±4.3 | 5.7±4.6 |
| Huron | * | * | * | * | * | * | * | 6.5±5.2 | 6.7±5.3 | * |
| Ingham | 5.4±1.6 | 5.4±1.6 | 4.4±1.4 | 4.6±1.5 | 4.1±1.4 | 4.7±1.5 | 3.6±1.4 | 4.6±1.6 | 5.3±1.7 | 7.5±2.1 |
| Ionia | 4.8±2.7 | 4.5±2.7 | 3.6±2.3 | 4.9±2.8 | 4.1±2.5 | 3.4±2.4 | 3.1±2.3 | 3.6±2.5 | 3.7±2.6 | 3.7±2.6 |
| Iosco | * | * | * | * | * | * | 12.2±9.0 | 13.1±9.0 | 9.6±7.6 | * |
| Iron | * | * | * | * | * | * | * | * | * | * |
| Isabella | 7.3±3.8 | 8.4±4.1 | 8.2±4.0 | 8.3±4.0 | 5.0±3.1 | 3.1±2.5 | * | 5.6±3.4 | 6.5±3.8 | 5.9±3.7 |
| Jackson | 5.9±2.0 | 6.5±2.1 | 6.2±2.1 | 6.8±2.2 | 6.4±2.2 | 6.2±2.2 | 5.7±2.1 | 5.5±2.1 | 4.1±1.8 | 4.6±2.0 |
| Kalamazoo | 6.4±1.8 | 5.2±1.6 | 4.6±1.5 | 5.0±1.6 | 4.8±1.6 | 5.5±1.7 | 5.7±1.7 | 4.8±1.6 | 3.9±1.4 | 3.9±1.4 |
| Kalkaska | * | * | * | * | - | * | * | * | 11.7±9.3 | 11.9±9.5 |
| Kent | 6.6±1.0 | 6.2±1.0 | 5.4±0.9 | 5.2±0.9 | 5.6±1.0 | 5.0±0.9 | 5.0±0.9 | 4.4±0.9 | 4.4±0.9 | 4.1±0.9 |
| Keweenaw | - | - | * | * | * | - | - | - | - | - |
| Lake | * | 23.6±17.3 | * | * | * | * | * | * | * | * |
| Lapeer | 3.8±2.1 | 2.9±1.9 | 3.4±2.1 | 4.9±2.6 | 5.5±2.8 | 7.3±3.3 | 7.8±3.5 | 6.3±3.2 | 3.0±2.2 | 2.6±2.1 |
| Leelanau | 15.5±10.7 | 12.9±9.5 | * | * | * | * | * | * | * | * |
| Lenawee | 3.7±2.0 | 4.2±2.1 | 5.6±2.4 | 6.8±2.8 | 9.0±3.3 | 8.4±3.3 | 10.6±3.7 | 8.7±3.4 | 9.6±3.6 | 7.6±3.2 |
| Livingston | 4.4±1.7 | 5.0±1.8 | 3.7±1.6 | 5.1±1.8 | 5.3±1.9 | 6.6±2.2 | 6.1±2.2 | 6.6±2.2 | 5.8±2.1 | 5.0±2.0 |
| Luce | * | * | * | * | * | * | * | - | - | - |
| Mackinac | * | * | * | * | * | * | * | * | - | - |
| Macomb | 5.0±0.8 | 5.1±0.9 | 4.8±0.8 | 5.1±0.9 | 5.2±0.9 | 6.2±1.0 | 5.9±1.0 | 5.6±1.0 | 4.8±0.9 | 5.5±1.0 |
| Manistee | 12.5±8.1 | 14.9±8.7 | 10.3±7.6 | * | * | * | * | * | * | * |
| Marquette | * | * | 4.0±2.9 | 4.9±3.2 | 4.2±2.9 | 3.6±2.7 | 3.7±2.8 | 4.8±3.1 | 4.2±2.9 | 4.3±3.0 |
| Mason | * | * | * | * | 6.2±4.9 | * | 6.6±5.3 | * | * | * |
| Mecosta | 9.0±5.1 | 6.9±4.5 | 6.1±4.2 | * | 9.4±5.3 | 7.9±4.9 | 8.8±5.2 | 6.6±4.5 | 10.0±5.6 | 11.7±6.1 |
| Menominee | * | * | * | * | * | * | * | * | * | * |
| Midland | 6.0±2.9 | 6.7±3.1 | 8.3±3.5 | 7.3±3.3 | 5.6±2.9 | 4.0±2.5 | 3.7±2.4 | 4.0±2.5 | 4.9±2.8 | 5.8±3.0 |
| Missaukee | * | * | * | * | - | * | * | * | * | * |
| Monroe | 5.8±2.1 | 4.8±1.9 | 6.9±2.3 | 6.8±2.4 | 6.4±2.3 | 4.8±2.0 | 4.7±1.9 | 3.5±1.7 | 3.6±1.8 | 5.1±2.1 |
| Montcalm | 8.3±3.6 | 6.2±3.1 | 3.7±2.4 | 3.0±2.2 | 3.8±2.5 | 4.0±2.6 | 5.9±3.2 | 6.1±3.3 | 6.5±3.4 | 6.0±3.3 |
| Montmorency | - | - | * | * | * | - | * | * | * | * |

**Table 14-B
White Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2002-2013
(Continued)**

| County | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|--------------|----------|----------|---------|---------|---------|----------|---------|---------|-----------|----------|
| Muskegon | 6.1±2.0 | 5.9±2.0 | 4.5±1.8 | 5.0±1.9 | 5.7±2.0 | 6.4±2.2 | 6.5±2.2 | 6.3±2.2 | 7.1±2.4 | 6.9±2.3 |
| Newaygo | 4.4±3.0 | 5.5±3.4 | 5.9±3.5 | 8.9±4.2 | 8.0±4.0 | 8.4±4.2 | 5.4±3.5 | 7.4±4.2 | 6.9±4.1 | 7.0±4.1 |
| Oakland | 5.0±0.7 | 5.5±0.8 | 4.9±0.7 | 4.9±0.8 | 4.9±0.8 | 4.8±0.8 | 5.3±0.8 | 5.1±0.8 | 5.7±0.9 | 5.6±0.9 |
| Oceana | 8.9±5.5 | 9.7±5.7 | 9.6±5.6 | 7.4±5.1 | * | * | 5.9±4.7 | * | 9.6±6.3 | 7.1±5.6 |
| Ogemaw | * | * | * | * | * | * | * | * | * | * |
| Ontonagon | - | - | * | * | * | * | - | - | - | * |
| Osceola | 6.4±5.1 | 8.8±6.1 | 8.9±6.2 | 9.5±6.6 | * | * | * | * | * | * |
| Oscoda | * | * | - | - | * | * | * | * | * | * |
| Otsego | * | * | * | 8.3±6.1 | 9.4±6.5 | 8.6±6.4 | * | 9.2±6.8 | 12.2±7.9 | 14.4±8.9 |
| Ottawa | 5.7±1.5 | 5.1±1.4 | 5.0±1.4 | 5.0±1.4 | 5.3±1.4 | 4.6±1.4 | 4.9±1.4 | 5.3±1.5 | 5.6±1.5 | 6.2±1.6 |
| Presque Isle | * | * | * | * | * | * | * | * | 22.1±17.5 | * |
| Roscommon | 12.1±8.9 | 10.1±8.0 | * | * | * | 11.2±8.9 | * | * | * | * |
| Saginaw | 5.3±1.9 | 5.4±1.9 | 5.0±1.8 | 5.7±2.0 | 6.6±2.2 | 6.4±2.2 | 4.7±1.9 | 2.9±1.5 | 2.9±1.5 | 4.2±1.8 |
| St. Clair | 7.2±2.1 | 7.5±2.2 | 7.0±2.1 | 5.8±2.0 | 5.0±1.9 | 6.2±2.1 | 5.4±2.1 | 6.3±2.3 | 6.2±2.3 | 6.3±2.3 |
| St. Joseph | 7.2±3.2 | 6.2±2.9 | 7.0±3.1 | 7.6±3.2 | 9.3±3.6 | 10.2±3.9 | 9.9±3.9 | 7.9±3.6 | 6.9±3.4 | 6.4±3.2 |
| Sanilac | 3.8±3.1 | 4.4±3.2 | 5.8±3.8 | 7.2±4.2 | 7.0±4.3 | 6.3±4.1 | * | * | * | 4.6±3.7 |
| Schoolcraft | - | * | * | * | * | * | - | - | - | - |
| Shiawassee | 9.9±3.8 | 9.4±3.7 | 7.8±3.4 | 9.0±3.8 | 5.5±3.0 | 5.9±3.2 | 3.3±2.4 | 3.4±2.5 | 3.9±2.7 | 3.3±2.5 |
| Tuscola | 9.0±4.1 | 7.5±3.8 | 7.8±3.9 | 6.3±3.6 | 3.9±2.9 | 4.0±3.0 | 6.1±3.8 | 6.9±4.1 | 7.0±4.1 | 5.0±3.5 |
| Van Buren | 5.8±2.8 | 6.5±3.0 | 4.9±2.6 | 3.6±2.2 | 4.8±2.6 | 6.1±3.0 | 6.0±3.0 | 4.1±2.5 | 5.4±2.9 | 6.2±3.1 |
| Washtenaw | 5.1±1.5 | 4.3±1.3 | 4.5±1.4 | 3.5±1.2 | 3.5±1.3 | 4.3±1.4 | 4.4±1.5 | 4.5±1.5 | 3.9±1.4 | 4.2±1.5 |
| Wayne | 6.2±0.7 | 5.9±0.7 | 5.0±0.7 | 5.4±0.7 | 5.6±0.7 | 5.6±0.8 | 5.4±0.8 | 5.5±0.8 | 5.9±0.9 | 6.3±0.9 |
| Wexford | * | 6.6±4.6 | 6.5±4.5 | 9.5±5.3 | 7.0±4.6 | 8.0±5.0 | 6.5±4.5 | 6.6±4.5 | 10.1±5.7 | 9.3±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: 2002-2011 Geocoded Michigan Death Certificate Registries; 2012-2013 Michigan Death Certificate Registries. 2002-2013 Geocoded Michigan Birth Certificate Registries **Created:** 2/9/2015
Division for Vital Records & Health Statistics, Michigan Department of Community Health

**Table 14-C
Black Three-Year Moving Average Infant Death Rates by County
Michigan Residents, 2002-2013**

| County | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Michigan | 17.7±1.0 | 17.5±1.0 | 16.6±1.0 | 16.4±1.0 | 15.3±0.9 | 15.5±0.9 | 14.8±0.9 | 14.5±0.9 | 13.8±0.9 | 13.4±0.9 |
| Berrien | 10.8±5.2 | 12.0±5.5 | 11.9±5.5 | 16.9±6.5 | 14.9±6.0 | 16.7±6.4 | 16.0±6.2 | 19.5±6.9 | 18.6±6.9 | 17.3±6.7 |
| Calhoun | 9.7±6.7 | 14.2±8.0 | 20.8±9.8 | 25.3±10.7 | 24.2±10.5 | 20.5±9.6 | 22.1±10.4 | 25.4±11.3 | 20.2±10.1 | 13.8±8.1 |
| Cass | - | * | * | * | * | * | * | * | * | * |
| Genesee | 22.9±4.2 | 20.3±4.0 | 18.6±3.8 | 17.1±3.6 | 17.1±3.6 | 17.9±3.7 | 14.6±3.4 | 14.2±3.4 | 12.4±3.3 | 14.2±3.5 |
| Ingham | 14.3±5.7 | 17.2±6.2 | 19.8±6.8 | 19.4±6.8 | 17.8±6.3 | 16.5±6.0 | 16.7±5.9 | 13.1±5.3 | 11.4±5.0 | 10.1±4.7 |
| Jackson | 14.6±10.1 | 31.9±14.5 | 28.9±13.5 | 28.7±13.4 | 16.8±10.3 | 15.6±10.1 | 13.2±9.1 | 11.6±8.6 | 13.0±9.0 | 18.5±10.8 |
| Kalamazoo | 20.8±7.1 | 17.9±6.4 | 16.0±6.1 | 16.8±6.2 | 16.8±6.2 | 19.2±6.5 | 19.5±6.5 | 18.3±6.4 | 17.6±6.3 | 15.5±5.9 |
| Kent | 19.2±4.7 | 17.7±4.4 | 18.0±4.4 | 16.8±4.2 | 14.4±3.8 | 13.4±3.7 | 13.9±3.8 | 16.6±4.2 | 14.6±3.9 | 12.9±3.6 |
| Macomb | 15.3±5.6 | 14.7±5.1 | 12.7±4.5 | 13.5±4.3 | 13.4±4.0 | 15.1±4.0 | 13.8±3.8 | 13.1±3.6 | 11.4±3.2 | 10.8±3.0 |
| Muskegon | 17.6±7.1 | 17.6±7.0 | 13.4±6.0 | 9.8±5.1 | 9.0±4.9 | 8.2±4.6 | 13.2±5.9 | 14.9±6.3 | 16.4±6.8 | 12.8±6.0 |
| Oakland | 16.8±3.4 | 15.5±3.2 | 16.7±3.3 | 17.4±3.4 | 15.4±3.1 | 14.7±3.0 | 11.9±2.7 | 10.8±2.5 | 10.6±2.4 | 11.1±2.5 |
| Saginaw | 17.8±5.6 | 18.9±5.8 | 18.4±5.7 | 19.0±5.8 | 15.3±5.2 | 19.2±5.8 | 17.4±5.6 | 19.2±6.1 | 13.4±5.1 | 14.3±5.2 |
| St. Clair | * | * | * | * | * | * | * | * | * | * |
| Van Buren | * | 37.0±29.1 | * | * | * | * | * | * | * | * |
| Washtenaw | 14.3±5.2 | 16.1±5.5 | 12.1±4.6 | 13.4±4.9 | 13.2±4.9 | 11.6±4.6 | 10.5±4.4 | 8.7±4.0 | 8.9±4.1 | 8.3±4.1 |
| Wayne | 18.1±1.3 | 17.7±1.3 | 16.7±1.3 | 15.9±1.3 | 15.3±1.3 | 15.3±1.3 | 15.1±1.3 | 14.5±1.3 | 14.5±1.3 | 14.0±1.3 |

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: 2002-2011 Geocoded Michigan Death Certificate Registries; 2012-2013 Michigan Death Certificate Registries. 2002-2013 Geocoded Michigan Birth Certificate Registries **Created:** 2/9/2015
Division for Vital Records & Health Statistics, Michigan Department of Community Health

**Table 15-A
Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2002-2013**

| District | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Michigan | 8.1±0.3 | 8.0±0.3 | 7.6±0.3 | 7.8±0.3 | 7.6±0.3 | 7.6±0.3 | 7.3±0.3 | 7.1±0.3 | 6.9±0.3 | 6.8±0.3 |
| Allegan County Health Department | 6.9±2.4 | 7.8±2.6 | 6.3±2.3 | 8.4±2.6 | 6.9±2.4 | 6.7±2.4 | 4.2±1.9 | 4.5±2.0 | 4.2±2.0 | 5.0±2.2 |
| Barry-Eaton District Health Department | 5.2±1.8 | 4.4±1.7 | 5.0±1.8 | 5.2±1.9 | 6.2±2.0 | 6.0±2.0 | 7.0±2.2 | 6.4±2.1 | 5.9±2.0 | 5.7±2.0 |
| Bay County Health Department | 4.8±2.2 | 5.6±2.4 | 6.6±2.6 | 8.0±2.8 | 7.5±2.8 | 6.6±2.6 | 7.9±2.9 | 8.3±3.0 | 7.7±3.0 | 4.9±2.4 |
| Benzie-Leelanau District Health Department | 9.5±5.6 | 11.1±6.0 | 7.0±4.8 | 7.7±5.0 | * | * | * | * | * | * |
| Berrien County Health Department | 7.1±2.1 | 7.6±2.2 | 7.3±2.1 | 9.4±2.4 | 8.8±2.3 | 8.9±2.4 | 7.8±2.2 | 8.3±2.3 | 8.1±2.3 | 8.3±2.4 |
| Branch-Hillsdale-St. Joseph Health Department | 7.1±2.1 | 6.8±2.0 | 7.1±2.0 | 7.2±2.1 | 8.0±2.2 | 7.5±2.2 | 7.2±2.2 | 6.3±2.0 | 6.4±2.1 | 6.3±2.1 |
| Calhoun County Health Department | 8.9±2.5 | 9.3±2.5 | 9.6±2.6 | 11.2±2.8 | 10.8±2.7 | 11.5±2.9 | 10.2±2.8 | 10.7±2.9 | 8.7±2.6 | 7.2±2.3 |
| Central Michigan District Health Department | 9.0±2.4 | 9.5±2.5 | 7.9±2.2 | 7.9±2.2 | 5.6±1.9 | 5.7±1.9 | 4.6±1.8 | 6.3±2.1 | 5.6±2.0 | 5.6±2.0 |
| Chippewa County Health Department | * | 6.8±4.7 | 7.4±4.8 | 8.6±5.3 | 5.4±4.3 | * | * | 5.3±4.2 | 7.5±5.2 | 7.5±5.2 |
| City Of Detroit Health Department | 16.2±1.2 | 15.9±1.2 | 15.0±1.2 | 14.7±1.2 | 14.3±1.2 | 14.8±1.3 | 14.4±1.3 | 13.6±1.3 | 13.6±1.3 | 13.6±1.3 |
| Dickinson-Iron District Health Department | * | * | 6.5±4.8 | 6.6±4.9 | 6.5±4.8 | 5.6±4.5 | 8.7±5.7 | 8.0±5.5 | * | * |
| District Health Department #10 | 7.0±1.7 | 8.3±1.8 | 7.1±1.7 | 7.8±1.8 | 6.8±1.7 | 6.7±1.7 | 6.7±1.7 | 6.6±1.7 | 7.6±1.9 | 7.0±1.8 |
| District Health Department #2 | 6.5±3.7 | 6.2±3.6 | 4.5±3.1 | 4.7±3.3 | 5.9±3.6 | 8.4±4.4 | 9.8±4.8 | 9.1±4.6 | 8.9±4.5 | 6.5±3.8 |
| District Health Department #4 | 3.9±2.6 | 2.7±2.1 | 4.4±2.8 | 5.3±3.0 | 6.3±3.3 | 6.1±3.3 | 6.1±3.4 | 6.8±3.7 | 6.5±3.7 | 4.9±3.2 |
| Genesee County Health Department | 12.5±1.6 | 11.0±1.5 | 10.5±1.5 | 9.5±1.4 | 9.3±1.4 | 9.0±1.4 | 7.8±1.4 | 7.8±1.4 | 7.1±1.3 | 7.9±1.4 |
| Grand Traverse County Health Department | 5.9±2.8 | 5.5±2.7 | 5.8±2.7 | 6.1±2.8 | 7.0±3.0 | 6.9±3.0 | 5.6±2.8 | 3.3±2.1 | 2.9±2.0 | * |
| Huron County Health Department | * | * | * | * | * | * | * | 6.3±5.1 | 6.5±5.2 | * |
| Ingham County Health Department | 7.2±1.6 | 7.7±1.7 | 7.2±1.6 | 7.0±1.6 | 6.6±1.6 | 7.0±1.6 | 5.9±1.5 | 5.6±1.5 | 5.8±1.5 | 7.2±1.7 |
| Ionia County Health Department | 4.7±2.7 | 4.4±2.6 | 3.5±2.3 | 4.8±2.7 | 3.9±2.4 | 3.3±2.3 | 3.0±2.2 | 4.0±2.6 | 4.0±2.6 | 4.1±2.6 |
| Jackson County Health Department | 7.0±2.1 | 9.3±2.4 | 9.0±2.3 | 9.4±2.4 | 7.7±2.2 | 7.1±2.2 | 6.5±2.1 | 6.1±2.1 | 5.3±1.9 | 6.2±2.1 |

Table 15-A
All Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2002-2013
(Continued)

| District | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|---|---------|---------|---------|---------|----------|----------|----------|---------|---------|---------|
| Kalamazoo County Human Services Department | 8.8±1.9 | 7.3±1.7 | 6.4±1.6 | 7.2±1.7 | 7.1±1.7 | 8.4±1.8 | 8.6±1.9 | 7.6±1.8 | 6.4±1.6 | 6.0±1.6 |
| Kent County Health Department | 8.6±1.1 | 8.2±1.1 | 8.0±1.0 | 7.6±1.0 | 7.8±1.0 | 6.9±1.0 | 6.8±1.0 | 6.4±1.0 | 6.2±0.9 | 5.6±0.9 |
| Lapeer County Health Department | 4.1±2.2 | 3.2±2.0 | 3.3±2.1 | 4.8±2.5 | 5.4±2.7 | 7.4±3.2 | 8.6±3.6 | 7.1±3.3 | 3.6±2.4 | 2.4±1.9 |
| Lenawee County Health Department | 3.5±1.9 | 4.3±2.1 | 5.6±2.4 | 6.7±2.6 | 8.3±3.0 | 8.5±3.1 | 10.8±3.5 | 9.4±3.3 | 9.2±3.3 | 7.2±2.9 |
| Livingston County Health Department | 4.6±1.7 | 5.2±1.8 | 3.8±1.5 | 5.3±1.9 | 5.5±1.9 | 6.7±2.2 | 6.3±2.1 | 6.7±2.2 | 5.9±2.1 | 5.2±2.0 |
| Luce-Mackinac-Alger-Schoolcraft Health Department | 7.3±5.4 | 9.5±6.2 | 9.6±6.2 | 8.5±5.9 | 13.2±7.4 | 11.2±6.9 | 10.4±6.8 | * | - | - |
| Macomb County Health Department | 5.6±0.8 | 5.9±0.9 | 5.6±0.8 | 6.0±0.9 | 6.1±0.9 | 7.3±1.0 | 6.7±1.0 | 6.5±1.0 | 5.6±0.9 | 6.2±0.9 |
| Marquette County Health Department | * | * | 3.8±2.8 | 4.6±3.0 | 4.0±2.8 | 3.9±2.7 | 4.1±2.8 | 5.1±3.1 | 4.1±2.8 | 4.1±2.9 |
| Midland County Health Department | 6.8±3.0 | 7.1±3.1 | 8.7±3.5 | 7.0±3.1 | 5.3±2.8 | 4.2±2.5 | 3.9±2.4 | 4.2±2.5 | 4.6±2.6 | 6.6±3.1 |
| Mid-Michigan District Health Department | 7.1±2.0 | 5.7±1.8 | 4.4±1.6 | 4.5±1.6 | 5.3±1.8 | 5.0±1.8 | 5.8±1.9 | 5.9±2.0 | 5.5±1.9 | 4.4±1.7 |
| Monroe County Health Department | 6.2±2.1 | 5.2±1.9 | 7.3±2.3 | 6.8±2.2 | 6.7±2.2 | 5.7±2.0 | 5.7±2.1 | 4.3±1.8 | 4.4±1.9 | 5.8±2.2 |
| Muskegon County Health Department | 8.6±2.2 | 8.4±2.1 | 6.7±1.9 | 6.3±1.8 | 6.7±1.9 | 7.1±2.0 | 7.9±2.1 | 8.0±2.1 | 8.7±2.3 | 8.2±2.2 |
| Northwest Michigan Community Health Agency | 4.7±2.2 | 4.0±2.1 | 4.6±2.2 | 5.4±2.4 | 6.1±2.6 | 6.5±2.8 | 6.4±2.8 | 6.8±2.9 | 6.9±2.9 | 6.7±2.9 |
| Oakland County Health Department | 6.4±0.7 | 6.7±0.8 | 6.6±0.8 | 6.6±0.8 | 6.4±0.8 | 6.2±0.8 | 6.2±0.8 | 5.8±0.7 | 6.2±0.8 | 6.3±0.8 |
| Ottawa County Health Department | 6.0±1.5 | 5.3±1.4 | 5.3±1.4 | 5.2±1.4 | 5.9±1.5 | 5.4±1.4 | 5.7±1.5 | 5.6±1.5 | 5.9±1.5 | 6.5±1.6 |
| Public Health Delta & Menominee Counties | 7.2±3.8 | 7.7±3.9 | 4.7±3.1 | 4.6±3.0 | 4.3±3.0 | 6.0±3.5 | 4.6±3.2 | 4.6±3.2 | 5.4±3.5 | 4.7±3.2 |
| Saginaw County Health Department | 8.7±2.0 | 9.2±2.1 | 8.7±2.0 | 9.5±2.2 | 9.4±2.2 | 10.5±2.3 | 8.8±2.2 | 7.9±2.1 | 6.1±1.8 | 7.1±2.0 |
| Sanilac County Health Department | 3.8±3.0 | 4.3±3.2 | 5.8±3.8 | 7.7±4.3 | 7.5±4.4 | 6.8±4.2 | * | * | * | 4.6±3.6 |
| Shiawassee County Health Department | 9.7±3.7 | 9.2±3.7 | 7.7±3.3 | 8.8±3.7 | 5.4±2.9 | 5.7±3.1 | 3.2±2.4 | 3.3±2.4 | 3.8±2.6 | 3.2±2.4 |
| St Clair County Health Department | 7.9±2.2 | 8.0±2.2 | 7.7±2.2 | 6.6±2.1 | 5.8±2.0 | 6.4±2.1 | 5.6±2.0 | 6.3±2.2 | 6.2±2.2 | 6.3±2.2 |
| Tuscola County Health Department | 8.8±4.0 | 7.4±3.7 | 7.7±3.9 | 6.2±3.5 | 3.8±2.8 | 3.9±2.9 | 6.0±3.7 | 6.8±4.0 | 6.8±4.0 | 4.9±3.4 |

Table 15-A
All Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2002-2013
(Continued)

| District | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Van Buren-Cass County Health Department | 7.5±2.5 | 9.4±2.8 | 8.0±2.5 | 7.2±2.4 | 5.6±2.1 | 7.2±2.4 | 6.9±2.4 | 5.5±2.2 | 6.0±2.3 | 6.8±2.5 |
| Washtenaw County Health Department | 6.3±1.4 | 6.3±1.4 | 6.0±1.3 | 5.7±1.3 | 5.2±1.3 | 5.3±1.3 | 5.1±1.3 | 4.9±1.3 | 4.7±1.3 | 4.6±1.3 |
| Wayne County Health Department | 7.0±0.8 | 6.9±0.8 | 6.5±0.8 | 6.7±0.8 | 6.9±0.8 | 6.7±0.8 | 6.6±0.8 | 6.7±0.8 | 6.9±0.8 | 6.8±0.8 |
| Western Upper Peninsula District Health Department | 6.9±3.6 | 4.3±2.8 | 5.7±3.2 | 6.6±3.4 | 7.5±3.7 | 5.2±3.1 | 5.3±3.1 | 3.5±2.6 | 4.1±2.8 | 4.3±2.9 |

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: 2002-2011 Geocoded Michigan Death Certificate Registries; 2012-2013 Michigan Death Certificate Registries. 2002-2013 Geocoded Michigan Birth Certificate Registries **Created:** 2/9/2015
 Division for Vital Records & Health Statistics, Michigan Department of Community Health

**Table 15-B
White Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2002-2013**

| District | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|--|----------|----------|---------|---------|---------|---------|----------|---------|----------|----------|
| Michigan | 6.0±0.3 | 5.8±0.3 | 5.4±0.3 | 5.6±0.3 | 5.6±0.3 | 5.6±0.3 | 5.4±0.3 | 5.2±0.3 | 5.3±0.3 | 5.3±0.3 |
| Allegan County Health Department | 6.7±2.4 | 7.3±2.5 | 5.6±2.2 | 7.6±2.5 | 5.9±2.3 | 5.6±2.2 | 3.4±1.8 | 4.0±2.0 | 4.1±2.0 | 5.0±2.2 |
| Barry-Eaton District Health Department | 4.9±1.8 | 3.9±1.7 | 4.8±1.9 | 5.3±2.0 | 6.3±2.1 | 5.2±2.0 | 6.1±2.1 | 5.5±2.1 | 5.6±2.1 | 4.9±2.0 |
| Bay County Health Department | 4.9±2.3 | 5.6±2.4 | 6.4±2.6 | 7.5±2.8 | 7.1±2.8 | 6.1±2.6 | 7.4±2.9 | 7.9±3.0 | 7.6±3.0 | 5.0±2.5 |
| Benzie-Leelanau District Health Department | 10.2±6.0 | 10.9±6.1 | 6.5±4.8 | 7.3±5.1 | * | * | * | * | * | * |
| Berrien County Health Department | 6.1±2.3 | 6.0±2.2 | 5.3±2.1 | 5.9±2.3 | 5.9±2.3 | 4.8±2.1 | 4.0±1.9 | 3.6±1.8 | 4.6±2.1 | 4.9±2.2 |
| Branch-Hillsdale-St. Joseph Health Department | 6.8±2.1 | 6.2±1.9 | 6.5±2.0 | 6.7±2.0 | 7.7±2.2 | 7.2±2.2 | 6.9±2.2 | 6.2±2.1 | 6.0±2.1 | 5.5±2.0 |
| Calhoun County Health Department | 8.4±2.6 | 7.9±2.5 | 7.3±2.5 | 8.5±2.6 | 7.9±2.6 | 9.3±2.9 | 7.4±2.6 | 7.9±2.8 | 6.4±2.5 | 5.9±2.4 |
| Central Michigan District Health Department | 9.0±2.4 | 9.3±2.5 | 7.9±2.3 | 7.3±2.2 | 5.2±1.9 | 4.8±1.8 | 4.0±1.7 | 5.8±2.1 | 5.3±2.0 | 5.6±2.1 |
| Chippewa County Health Department | * | * | 6.8±5.4 | 8.4±6.2 | * | * | * | * | * | * |
| City Of Detroit Health Department | 8.2±2.1 | 7.5±2.0 | 4.9±1.6 | 5.5±1.8 | 5.2±1.9 | 5.5±2.1 | 5.8±2.3 | 6.5±2.8 | 10.3±3.9 | 10.5±4.1 |
| Dickinson-Iron District Health Department | * | * | 6.6±4.9 | 6.9±5.1 | 6.9±5.1 | * | 8.2±5.6 | 7.2±5.3 | * | * |
| District Health Department #10 | 6.7±1.7 | 7.8±1.8 | 6.8±1.7 | 7.4±1.8 | 6.4±1.6 | 6.3±1.7 | 6.4±1.7 | 6.3±1.7 | 7.7±1.9 | 6.8±1.8 |
| District Health Department #2 | 6.7±3.8 | 6.4±3.8 | 4.7±3.2 | 4.2±3.1 | 5.5±3.6 | 8.0±4.3 | 10.1±4.9 | 9.3±4.7 | 9.2±4.6 | 6.7±3.9 |
| District Health Department #4 | 3.6±2.5 | * | 4.1±2.7 | 5.5±3.1 | 6.6±3.4 | 6.4±3.4 | 6.3±3.6 | 6.5±3.7 | 6.2±3.7 | 4.5±3.1 |
| Genesee County Health Department | 8.8±1.6 | 7.6±1.5 | 7.3±1.5 | 6.4±1.4 | 6.0±1.4 | 5.4±1.3 | 5.1±1.3 | 5.1±1.4 | 4.8±1.3 | 5.1±1.4 |
| Grand Traverse County Health Department | 5.0±2.6 | 5.0±2.6 | 5.3±2.7 | 6.4±2.9 | 7.4±3.2 | 7.3±3.2 | 6.0±3.0 | 3.5±2.3 | 3.1±2.2 | * |
| Huron County Health Department | * | * | * | * | * | * | * | 6.5±5.2 | 6.7±5.3 | * |
| Ingham County Health Department | 5.4±1.6 | 5.4±1.6 | 4.4±1.4 | 4.6±1.5 | 4.1±1.4 | 4.7±1.5 | 3.6±1.4 | 4.6±1.6 | 5.3±1.7 | 7.5±2.1 |
| Ionia County Health Department | 4.8±2.7 | 4.5±2.7 | 3.6±2.3 | 4.9±2.8 | 4.1±2.5 | 3.4±2.4 | 3.1±2.3 | 3.6±2.5 | 3.7±2.6 | 3.7±2.6 |
| Jackson County Health Department | 5.9±2.0 | 6.5±2.1 | 6.2±2.1 | 6.8±2.2 | 6.4±2.2 | 6.2±2.2 | 5.7±2.1 | 5.5±2.1 | 4.1±1.8 | 4.6±2.0 |

Table 15-B
White Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2002-2013
(Continued)

| District | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|---|---------|---------|---------|---------|----------|----------|----------|---------|---------|---------|
| Kalamazoo County Human Services Department | 6.4±1.8 | 5.2±1.6 | 4.6±1.5 | 5.0±1.6 | 4.8±1.6 | 5.5±1.7 | 5.7±1.7 | 4.8±1.6 | 3.9±1.4 | 3.9±1.4 |
| Kent County Health Department | 6.6±1.0 | 6.2±1.0 | 5.4±0.9 | 5.2±0.9 | 5.6±1.0 | 5.0±0.9 | 5.0±0.9 | 4.4±0.9 | 4.4±0.9 | 4.1±0.9 |
| Lapeer County Health Department | 3.8±2.1 | 2.9±1.9 | 3.4±2.1 | 4.9±2.6 | 5.5±2.8 | 7.3±3.3 | 7.8±3.5 | 6.3±3.2 | 3.0±2.2 | 2.6±2.1 |
| Lenawee County Health Department | 3.7±2.0 | 4.2±2.1 | 5.6±2.4 | 6.8±2.8 | 9.0±3.3 | 8.4±3.3 | 10.6±3.7 | 8.7±3.4 | 9.6±3.6 | 7.6±3.2 |
| Livingston County Health Department | 4.4±1.7 | 5.0±1.8 | 3.7±1.6 | 5.1±1.8 | 5.3±1.9 | 6.6±2.2 | 6.1±2.2 | 6.6±2.2 | 5.8±2.1 | 5.0±2.0 |
| Luce-Mackinac-Alger-Schoolcraft Health Department | * | 8.6±6.3 | 8.8±6.5 | 8.8±6.5 | 11.7±7.6 | 10.5±7.2 | 9.5±7.0 | * | - | - |
| Macomb County Health Department | 5.0±0.8 | 5.1±0.9 | 4.8±0.8 | 5.1±0.9 | 5.2±0.9 | 6.2±1.0 | 5.9±1.0 | 5.6±1.0 | 4.8±0.9 | 5.5±1.0 |
| Marquette County Health Department | * | * | 4.0±2.9 | 4.9±3.2 | 4.2±2.9 | 3.6±2.7 | 3.7±2.8 | 4.8±3.1 | 4.2±2.9 | 4.3±3.0 |
| Midland County Health Department | 6.0±2.9 | 6.7±3.1 | 8.3±3.5 | 7.3±3.3 | 5.6±2.9 | 4.0±2.5 | 3.7±2.4 | 4.0±2.5 | 4.9±2.8 | 5.8±3.0 |
| Mid-Michigan District Health Department | 6.8±2.0 | 5.1±1.8 | 4.1±1.6 | 4.1±1.6 | 5.0±1.8 | 4.7±1.8 | 5.6±1.9 | 5.8±2.0 | 5.4±1.9 | 4.3±1.7 |
| Monroe County Health Department | 5.8±2.1 | 4.8±1.9 | 6.9±2.3 | 6.8±2.4 | 6.4±2.3 | 4.8±2.0 | 4.7±1.9 | 3.5±1.7 | 3.6±1.8 | 5.1±2.1 |
| Muskegon County Health Department | 6.1±2.0 | 5.9±2.0 | 4.5±1.8 | 5.0±1.9 | 5.7±2.0 | 6.4±2.2 | 6.5±2.2 | 6.3±2.2 | 7.1±2.4 | 6.9±2.3 |
| Northwest Michigan Community Health Agency | 4.9±2.3 | 4.1±2.2 | 4.8±2.3 | 5.6±2.5 | 6.4±2.7 | 6.5±2.8 | 6.4±2.9 | 6.8±3.0 | 6.9±3.0 | 6.8±3.0 |
| Oakland County Health Department | 5.0±0.7 | 5.5±0.8 | 4.9±0.7 | 4.9±0.8 | 4.9±0.8 | 4.8±0.8 | 5.3±0.8 | 5.1±0.8 | 5.7±0.9 | 5.6±0.9 |
| Ottawa County Health Department | 5.7±1.5 | 5.1±1.4 | 5.0±1.4 | 5.0±1.4 | 5.3±1.4 | 4.6±1.4 | 4.9±1.4 | 5.3±1.5 | 5.6±1.5 | 6.2±1.6 |
| Public Health Delta & Menominee Counties | 7.1±3.8 | 7.6±4.0 | 4.9±3.2 | 4.8±3.3 | 3.8±3.0 | 4.3±3.4 | * | * | 4.5±3.3 | 3.8±3.0 |
| Saginaw County Health Department | 5.3±1.9 | 5.4±1.9 | 5.0±1.8 | 5.7±2.0 | 6.6±2.2 | 6.4±2.2 | 4.7±1.9 | 2.9±1.5 | 2.9±1.5 | 4.2±1.8 |
| Sanilac County Health Department | 3.8±3.1 | 4.4±3.2 | 5.8±3.8 | 7.2±4.2 | 7.0±4.3 | 6.3±4.1 | * | * | * | 4.6±3.7 |
| Shiawassee County Health Department | 9.9±3.8 | 9.4±3.7 | 7.8±3.4 | 9.0±3.8 | 5.5±3.0 | 5.9±3.2 | 3.3±2.4 | 3.4±2.5 | 3.9±2.7 | 3.3±2.5 |
| St Clair County Health Department | 7.2±2.1 | 7.5±2.2 | 7.0±2.1 | 5.8±2.0 | 5.0±1.9 | 6.2±2.1 | 5.4±2.1 | 6.3±2.3 | 6.2±2.3 | 6.3±2.3 |
| Tuscola County Health Department | 9.0±4.1 | 7.5±3.8 | 7.8±3.9 | 6.3±3.6 | 3.9±2.9 | 4.0±3.0 | 6.1±3.8 | 6.9±4.1 | 7.0±4.1 | 5.0±3.5 |

Table 15-B
White Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2002-2013
(Continued)

| District | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Van Buren-Cass County Health Department | 7.2±2.5 | 6.7±2.4 | 5.5±2.2 | 4.4±2.0 | 5.0±2.2 | 5.9±2.4 | 6.0±2.4 | 4.5±2.1 | 5.8±2.5 | 6.7±2.7 |
| Washtenaw County Health Department | 5.1±1.5 | 4.3±1.3 | 4.5±1.4 | 3.5±1.2 | 3.5±1.3 | 4.3±1.4 | 4.4±1.5 | 4.5±1.5 | 3.9±1.4 | 4.2±1.5 |
| Wayne County Health Department | 5.8±0.8 | 5.6±0.8 | 5.0±0.7 | 5.3±0.8 | 5.6±0.8 | 5.6±0.8 | 5.4±0.8 | 5.4±0.8 | 5.5±0.9 | 5.9±0.9 |
| Western Upper Peninsula District Health Department | 6.9±3.7 | 4.1±2.9 | 5.8±3.4 | 6.8±3.7 | 7.3±3.8 | 4.8±3.1 | 4.7±3.1 | 3.8±2.8 | 4.4±3.1 | 4.1±3.0 |

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: 2002-2011 Geocoded Michigan Death Certificate Registries; 2012-2013 Michigan Death Certificate Registries. 2002-2013 Geocoded Michigan Birth Certificate Registries **Created:** 2/9/2015
 Division for Vital Records & Health Statistics, Michigan Department of Community Health

**Table 15-C
Black Three-Year Moving Average Infant Death Rates by District
Michigan Residents, 2002-2013**

| District | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Michigan | 17.7±1.0 | 17.5±1.0 | 16.6±1.0 | 16.4±1.0 | 15.3±0.9 | 15.5±0.9 | 14.8±0.9 | 14.5±0.9 | 13.8±0.9 | 13.4±0.9 |
| Barry-Eaton District Health Department | * | * | * | * | * | 25.2±18.4 | 28.0±19.1 | 26.9±18.4 | * | 22.7±16.6 |
| Berrien County Health Department | 10.8±5.2 | 12.0±5.5 | 11.9±5.5 | 16.9±6.5 | 14.9±6.0 | 16.7±6.4 | 16.0±6.2 | 19.5±6.9 | 18.6±6.9 | 17.3±6.7 |
| Calhoun County Health Department | 9.7±6.7 | 14.2±8.0 | 20.8±9.8 | 25.3±10.7 | 24.2±10.5 | 20.5±9.6 | 22.1±10.4 | 25.4±11.3 | 20.2±10.1 | 13.8±8.1 |
| City Of Detroit Health Department | 18.3±1.4 | 17.9±1.4 | 16.8±1.4 | 16.2±1.4 | 15.8±1.4 | 16.5±1.5 | 16.0±1.5 | 15.0±1.5 | 14.7±1.5 | 14.8±1.5 |
| District Health Department #10 | - | - | - | * | * | * | * | * | * | * |
| Genesee County Health Department | 22.9±4.2 | 20.3±4.0 | 18.6±3.8 | 17.1±3.6 | 17.1±3.6 | 17.9±3.7 | 14.6±3.4 | 14.2±3.4 | 12.4±3.3 | 14.2±3.5 |
| Ingham County Health Department | 14.3±5.7 | 17.2±6.2 | 19.8±6.8 | 19.4±6.8 | 17.8±6.3 | 16.5±6.0 | 16.7±5.9 | 13.1±5.3 | 11.4±5.0 | 10.1±4.7 |
| Jackson County Health Department | 14.6±10.1 | 31.9±14.5 | 28.9±13.5 | 28.7±13.4 | 16.8±10.3 | 15.6±10.1 | 13.2±9.1 | 11.6±8.6 | 13.0±9.0 | 18.5±10.8 |
| Kalamazoo County Human Services Department | 20.8±7.1 | 17.9±6.4 | 16.0±6.1 | 16.8±6.2 | 16.8±6.2 | 19.2±6.5 | 19.5±6.5 | 18.3±6.4 | 17.6±6.3 | 15.5±5.9 |
| Kent County Health Department | 19.2±4.7 | 17.7±4.4 | 18.0±4.4 | 16.8±4.2 | 14.4±3.8 | 13.4±3.7 | 13.9±3.8 | 16.6±4.2 | 14.6±3.9 | 12.9±3.6 |
| Macomb County Health Department | 15.3±5.6 | 14.7±5.1 | 12.7±4.5 | 13.5±4.3 | 13.4±4.0 | 15.1±4.0 | 13.8±3.8 | 13.1±3.6 | 11.4±3.2 | 10.8±3.0 |
| Mid-Michigan District Health Department | * | * | * | * | - | - | - | * | * | * |
| Muskegon County Health Department | 17.6±7.1 | 17.6±7.0 | 13.4±6.0 | 9.8±5.1 | 9.0±4.9 | 8.2±4.6 | 13.2±5.9 | 14.9±6.3 | 16.4±6.8 | 12.8±6.0 |
| Oakland County Health Department | 16.8±3.4 | 15.5±3.2 | 16.7±3.3 | 17.4±3.4 | 15.4±3.1 | 14.7±3.0 | 11.9±2.7 | 10.8±2.5 | 10.6±2.4 | 11.1±2.5 |
| Ottawa County Health Department | * | * | - | - | * | * | * | * | * | * |
| Saginaw County Health Department | 17.8±5.6 | 18.9±5.8 | 18.4±5.7 | 19.0±5.8 | 15.3±5.2 | 19.2±5.8 | 17.4±5.6 | 19.2±6.1 | 13.4±5.1 | 14.3±5.2 |
| Van Buren-Cass County Health Department | * | 30.5±20.8 | 28.6±20.9 | 33.3±22.7 | * | * | * | * | * | * |
| Washtenaw County Health Department | 14.3±5.2 | 16.1±5.5 | 12.1±4.6 | 13.4±4.9 | 13.2±4.9 | 11.6±4.6 | 10.5±4.4 | 8.7±4.0 | 8.9±4.1 | 8.3±4.1 |
| Wayne County Health Department | 16.6±3.5 | 16.9±3.4 | 16.0±3.2 | 14.4±3.0 | 12.7±2.7 | 10.4±2.4 | 11.7±2.5 | 12.6±2.5 | 13.6±2.6 | 11.3±2.4 |

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: 2002-2011 Geocoded Michigan Death Certificate Registries; 2012-2013 Michigan Death Certificate Registries. 2002-2013 Geocoded Michigan Birth Certificate Registries **Created:** 2/9/2015
Division for Vital Records & Health Statistics, Michigan Department of Community Health

**Table 16-A
Three-Year Moving Average Infant Death Rates by City
Michigan Residents, 2002-2013**

| City | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Michigan | 8.1±0.3 | 8.0±0.3 | 7.6±0.3 | 7.8±0.3 | 7.6±0.3 | 7.6±0.3 | 7.3±0.3 | 7.1±0.3 | 6.9±0.3 | 6.8±0.3 |
| Ann Arbor | 5.0±2.3 | 5.7±2.5 | 5.3±2.4 | 5.4±2.5 | 3.9±2.1 | 4.3±2.2 | 3.7±2.1 | 3.1±1.9 | 2.7±1.8 | 3.6±2.0 |
| Battle Creek | 8.0±3.4 | 8.3±3.4 | 9.2±3.7 | 11.3±4.0 | 12.4±4.3 | 11.0±4.1 | 10.6±4.1 | 11.3±4.3 | 11.0±4.3 | 9.9±3.8 |
| Dearborn | 5.0±1.9 | 4.4±1.8 | 4.8±1.9 | 5.6±2.0 | 7.7±2.3 | 6.9±2.3 | 7.0±2.3 | 6.3±2.2 | 7.4±2.4 | 7.5±2.4 |
| Dearborn Heights | 3.1±2.3 | 5.1±2.9 | 6.0±3.1 | 7.6±3.5 | 5.8±3.0 | 5.8±3.0 | 3.8±2.5 | 5.2±2.9 | 5.7±3.1 | 6.9±3.4 |
| Detroit | 16.2±1.2 | 15.9±1.2 | 15.0±1.2 | 14.7±1.2 | 14.3±1.2 | 14.8±1.3 | 14.4±1.3 | 13.6±1.3 | 13.6±1.3 | 13.6±1.3 |
| Farmington Hills | 7.8±3.2 | 8.4±3.4 | 7.1±3.2 | 7.7±3.4 | 7.4±3.3 | 7.0±3.2 | 6.4±3.1 | 6.4±3.1 | 6.9±3.3 | 6.7±3.2 |
| Flint | 18.7±3.3 | 16.8±3.1 | 15.3±3.0 | 12.2±2.7 | 11.6±2.7 | 12.6±2.9 | 12.6±3.0 | 12.1±3.0 | 11.6±3.0 | 11.0±2.8 |
| Grand Rapids | 10.5±1.9 | 8.4±1.7 | 8.6±1.7 | 8.3±1.7 | 10.0±1.9 | 8.3±1.8 | 8.6±1.8 | 8.5±1.8 | 9.4±1.9 | 8.0±1.7 |
| Kalamazoo | 14.1±4.1 | 11.0±3.6 | 8.3±3.2 | 9.5±3.4 | 9.2±3.3 | 10.5±3.5 | 11.0±3.6 | 10.3±3.6 | 9.7±3.5 | 6.0±2.5 |
| Kentwood | 6.5±3.3 | 9.3±3.9 | 8.1±3.6 | 6.8±3.3 | 4.2±2.6 | 3.9±2.6 | 3.4±2.4 | 3.4±2.4 | 4.5±2.7 | 5.2±2.9 |
| Lansing | 8.2±2.2 | 8.2±2.2 | 8.0±2.2 | 8.0±2.3 | 8.5±2.3 | 8.9±2.4 | 8.7±2.4 | 7.1±2.2 | 6.5±2.1 | 7.4±2.2 |
| Livonia | 8.9±3.4 | 6.1±2.9 | 4.4±2.5 | 3.0±2.1 | 5.4±2.8 | 5.2±2.8 | 4.8±2.7 | 2.4±1.9 | 2.8±2.1 | 5.5±2.9 |
| Midland | 6.7±4.1 | 7.1±4.4 | 8.0±4.7 | 7.4±4.6 | 5.9±4.1 | 5.1±3.8 | * | * | * | 6.3±4.1 |
| Muskegon | 13.0±5.1 | 10.8±4.6 | 7.3±3.8 | 6.7±3.6 | 7.5±3.9 | 7.5±3.9 | 7.2±3.9 | 7.8±4.1 | 10.5±4.8 | 12.6±5.0 |
| Novi | 6.6±3.7 | 4.9±3.2 | * | * | 5.3±3.3 | 5.3±3.3 | 6.6±3.7 | 3.3±2.7 | 3.8±2.8 | 4.3±3.0 |
| Pontiac | 13.0±3.6 | 12.3±3.5 | 13.1±3.6 | 12.9±3.7 | 12.5±3.7 | 14.4±4.1 | 13.8±4.0 | 11.9±3.8 | 8.5±3.2 | 9.4±3.3 |
| Portage | * | 6.3±3.7 | 6.6±3.7 | 7.7±4.0 | 4.4±3.1 | 9.2±4.5 | 8.6±4.3 | 7.5±4.1 | 4.1±3.0 | 5.8±3.6 |
| Rochester Hills | 6.3±3.2 | 5.2±2.8 | 5.6±2.9 | 4.1±2.5 | 6.2±3.1 | 5.0±2.8 | 4.8±2.8 | 3.5±2.5 | 4.0±2.6 | 5.2±3.0 |
| Roseville | 5.1±3.2 | 3.7±2.8 | 5.3±3.3 | 9.9±4.6 | 9.7±4.4 | 10.0±4.6 | 5.5±3.4 | 5.7±3.5 | 7.4±4.0 | 7.8±4.1 |
| Royal Oak | 6.2±3.2 | 4.1±2.7 | 3.2±2.4 | 3.7±2.6 | 4.0±2.6 | 4.4±2.7 | 5.6±3.0 | 6.4±3.2 | 8.2±3.7 | 7.1±3.5 |
| Saginaw | 11.9±3.8 | 13.2±4.0 | 11.1±3.7 | 13.0±4.0 | 11.5±3.8 | 14.6±4.3 | 13.2±4.2 | 13.7±4.4 | 9.6±3.7 | 12.1±4.2 |
| Southfield | 12.3±4.2 | 12.3±4.3 | 10.7±4.1 | 13.5±4.6 | 12.4±4.5 | 13.1±4.6 | 11.2±4.4 | 10.0±4.1 | 10.9±4.3 | 8.5±3.7 |
| St Clair Shores | 6.0±3.6 | 6.1±3.6 | 6.0±3.5 | 4.2±2.9 | 3.7±2.7 | 5.4±3.4 | 4.0±3.0 | 4.7±3.3 | * | 4.7±3.2 |
| Sterling Heights | 5.7±2.1 | 4.1±1.8 | 3.7±1.8 | 6.2±2.3 | 7.0±2.4 | 7.5±2.5 | 7.0±2.5 | 6.2±2.4 | 6.6±2.4 | 5.7±2.3 |
| Taylor | 8.8±3.5 | 9.3±3.6 | 10.8±4.0 | 10.2±3.9 | 8.5±3.5 | 6.3±3.1 | 6.8±3.2 | 9.9±3.9 | 11.8±4.2 | 10.8±4.0 |
| Troy | 3.1±2.1 | 3.9±2.4 | 4.4±2.6 | 4.9±2.8 | 5.8±3.0 | 5.5±3.0 | 6.2±3.2 | 4.4±2.7 | 3.8±2.5 | 3.3±2.3 |
| Warren | 6.8±2.3 | 7.8±2.4 | 7.6±2.4 | 7.2±2.3 | 6.4±2.2 | 8.1±2.5 | 7.9±2.5 | 9.1±2.7 | 7.6±2.4 | 8.7±2.6 |
| Westland | 6.5±2.7 | 6.1±2.6 | 6.4±2.7 | 6.3±2.7 | 7.5±2.9 | 7.4±2.9 | 8.2±3.1 | 9.6±3.4 | 10.4±3.5 | 9.3±3.3 |
| Wyoming | 7.5±2.8 | 6.9±2.6 | 8.9±3.0 | 10.9±3.2 | 12.1±3.4 | 11.0±3.3 | 8.4±3.0 | 6.7±2.6 | 4.6±2.2 | 4.1±2.1 |

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

Source: 2002-2011 Geocoded Michigan Death Certificate Registries; 2012-2013 Michigan Death Certificate Registries. 2002-2013 Geocoded Michigan Birth Certificate Registries **Created:** 2/9/2015
 Division for Vital Records & Health Statistics, Michigan Department of Community Health

**Table 16-B
White Three-Year Moving Average Infant Death Rates by City
Michigan Residents, 2002-2013**

| City | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|-------------------------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|
| Michigan | 6.0±0.3 | 5.8±0.3 | 5.4±0.3 | 5.6±0.3 | 5.6±0.3 | 5.6±0.3 | 5.4±0.3 | 5.2±0.3 | 5.3±0.3 | 5.3±0.3 |
| Ann Arbor | 2.4±1.9 | 2.5±2.0 | 3.0±2.2 | 3.2±2.3 | * | 3.7±2.5 | 3.2±2.4 | 3.7±2.6 | * | 3.2±2.3 |
| Battle Creek | 6.5±3.5 | 5.5±3.2 | 6.0±3.4 | 9.1±4.2 | 9.5±4.4 | 7.2±3.9 | 4.8±3.3 | 5.5±3.6 | 8.1±4.4 | 8.1±4.1 |
| Dearborn | 3.7±1.6 | 3.2±1.6 | 3.6±1.7 | 5.4±2.1 | 7.4±2.4 | 6.4±2.3 | 6.2±2.3 | 6.0±2.3 | 6.5±2.4 | 7.0±2.5 |
| Dearborn Heights | 3.4±2.5 | 5.3±3.1 | 6.3±3.4 | 7.2±3.6 | 5.2±3.1 | 4.3±2.8 | 3.0±2.4 | 3.1±2.5 | 3.7±2.7 | 5.3±3.2 |
| Detroit | 8.2±2.1 | 7.5±2.0 | 4.9±1.6 | 5.5±1.8 | 5.2±1.9 | 5.5±2.1 | 5.8±2.3 | 6.5±2.8 | 9.9±3.8 | 10.1±4.0 |
| Farmington Hills | 7.4±3.7 | 7.3±3.8 | 6.9±3.9 | 6.8±4.0 | 7.2±4.3 | 6.1±4.0 | 5.6±3.9 | 6.5±4.2 | 8.0±4.7 | 6.5±4.2 |
| Flint | 9.2±3.5 | 9.3±3.6 | 8.0±3.4 | 6.5±3.2 | 5.7±3.1 | 6.7±3.5 | 9.6±4.3 | 7.1±3.8 | 7.6±4.1 | 5.5±3.4 |
| Grand Rapids | 6.6±1.8 | 4.7±1.5 | 3.4±1.3 | 3.4±1.3 | 5.5±1.7 | 4.7±1.6 | 5.1±1.7 | 4.4±1.6 | 5.7±1.8 | 5.3±1.7 |
| Kalamazoo | 8.0±3.9 | 7.0±3.6 | 5.5±3.3 | 4.6±3.0 | 3.6±2.7 | * | 3.6±2.7 | 4.8±3.1 | 6.1±3.6 | 3.5±2.4 |
| Kentwood | 6.6±3.9 | 7.6±4.1 | 5.8±3.6 | 4.7±3.2 | * | * | * | * | * | 4.5±3.3 |
| Lansing | 5.5±2.2 | 4.3±2.0 | 3.4±1.8 | 3.8±1.9 | 4.5±2.1 | 5.2±2.3 | 4.6±2.2 | 5.2±2.4 | 5.3±2.5 | 7.4±2.9 |
| Livonia | 8.9±3.5 | 6.2±3.0 | 4.8±2.7 | 3.3±2.3 | 5.6±3.0 | 5.4±3.0 | 5.0±2.9 | * | * | 4.9±2.9 |
| Midland | 5.0±3.7 | 6.0±4.2 | 7.0±4.6 | 7.9±4.9 | 6.4±4.4 | 5.5±4.1 | * | * | * | 4.7±3.7 |
| Muskegon | 7.8±4.8 | 6.5±4.5 | 4.9±3.9 | 6.8±4.7 | 7.2±4.9 | 6.7±4.9 | * | * | 7.1±5.2 | 8.6±5.3 |
| Novi | 5.8±4.0 | 5.9±4.0 | * | * | * | * | 5.1±4.1 | * | * | * |
| Pontiac | 7.8±3.9 | 7.6±3.8 | 5.0±3.1 | 5.4±3.3 | 5.7±3.5 | 8.5±4.6 | 7.7±4.6 | 6.3±4.4 | * | 4.9±3.9 |
| Portage | * | 4.6±3.4 | 5.1±3.5 | 5.6±3.7 | 3.8±3.0 | 6.8±4.2 | 7.4±4.4 | 6.1±4.0 | 4.1±3.3 | 5.4±3.7 |
| Rochester Hills | 4.6±3.0 | 4.0±2.8 | 4.1±2.8 | 3.1±2.5 | 7.0±3.8 | 5.5±3.4 | 5.6±3.5 | 3.4±2.7 | 3.4±2.7 | 3.9±2.9 |
| Roseville | 3.5±2.8 | * | 4.4±3.2 | 8.5±4.6 | 9.8±4.9 | 10.3±5.2 | 6.3±4.1 | 5.3±3.9 | 5.6±4.1 | 4.7±3.8 |
| Royal Oak | 5.3±3.1 | 3.9±2.7 | * | * | 3.0±2.4 | 3.4±2.5 | 5.8±3.3 | 6.8±3.5 | 8.3±3.9 | 6.5±3.5 |
| Saginaw | 6.3±3.9 | 6.2±3.8 | * | 5.3±3.6 | 6.2±4.0 | 6.3±4.1 | 4.3±3.5 | * | * | 5.7±4.2 |
| Southfield | * | * | * | * | * | * | 11.6±9.2 | 11.9±9.5 | 12.0±9.5 | * |
| St Clair Shores | 5.8±3.6 | 5.3±3.4 | 5.2±3.4 | 4.0±2.9 | 4.1±3.0 | 6.0±3.7 | 4.5±3.4 | 5.3±3.6 | * | * |
| Sterling Heights | 5.9±2.4 | 4.4±2.1 | 4.0±2.0 | 5.7±2.4 | 6.1±2.5 | 6.9±2.7 | 7.7±2.9 | 6.9±2.8 | 7.6±3.0 | 6.0±2.6 |
| Taylor | 9.4±4.1 | 9.6±4.2 | 9.7±4.3 | 7.9±4.0 | 7.0±3.8 | 5.6±3.5 | 5.3±3.5 | 6.7±4.0 | 8.2±4.4 | 8.0±4.3 |
| Troy | * | * | 3.5±2.8 | 4.9±3.4 | 5.1±3.5 | 5.3±3.6 | 6.1±4.0 | 5.4±3.7 | 5.9±3.9 | 4.6±3.4 |
| Warren | 4.9±2.1 | 5.6±2.3 | 6.5±2.5 | 7.1±2.6 | 5.9±2.5 | 6.8±2.7 | 6.3±2.7 | 6.9±2.9 | 5.9±2.7 | 8.0±3.2 |
| Westland | 4.0±2.3 | 3.7±2.3 | 3.4±2.2 | 4.4±2.6 | 4.9±2.8 | 5.9±3.1 | 5.7±3.1 | 7.8±3.7 | 8.6±3.9 | 8.5±3.9 |
| Wyoming | 6.1±2.6 | 6.0±2.6 | 7.4±2.9 | 9.1±3.2 | 9.3±3.2 | 8.6±3.2 | 6.7±2.8 | 5.3±2.5 | 3.8±2.1 | 3.2±2.0 |

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.

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

Source: 2002-2011 Geocoded Michigan Death Certificate Registries; 2012-2013 Michigan Death Certificate Registries. 2002-2013 Geocoded Michigan Birth Certificate Registries **Created:** 2/9/2015
Division for Vital Records & Health Statistics, Michigan Department of Community Health

**Table 16-C
Black Three-Year Moving Average Infant Death Rates by City
Michigan Residents, 2002-2013**

| City | 2002-04 | 2003-05 | 2004-06 | 2005-07 | 2006-08 | 2007-09 | 2008-10 | 2009-11 | 2010-12 | 2011-13 |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Michigan | 17.7±1.0 | 17.5±1.0 | 16.6±1.0 | 16.4±1.0 | 15.3±0.9 | 15.5±0.9 | 14.8±0.9 | 14.5±0.9 | 13.8±0.9 | 13.4±0.9 |
| Battle Creek | 11.0±8.8 | 14.4±9.9 | 18.2±11.2 | 19.1±11.2 | 20.9±11.7 | 21.0±11.7 | 23.0±12.9 | 21.5±12.6 | 11.9±9.5 | 12.1±8.9 |
| Detroit | 18.3±1.4 | 17.9±1.4 | 16.8±1.4 | 16.2±1.4 | 15.8±1.4 | 16.5±1.5 | 15.9±1.5 | 15.0±1.5 | 14.7±1.5 | 14.8±1.5 |
| Flint | 26.1±5.1 | 22.4±4.8 | 20.1±4.6 | 15.8±4.1 | 15.5±4.1 | 16.6±4.2 | 14.7±4.1 | 15.3±4.3 | 14.1±4.2 | 14.7±4.2 |
| Grand Rapids | 21.6±5.9 | 17.8±5.3 | 17.0±5.1 | 17.7±5.1 | 17.6±5.1 | 16.8±5.0 | 16.0±5.0 | 18.8±5.4 | 16.7±5.1 | 14.9±4.8 |
| Kalamazoo | 25.0±9.5 | 18.4±8.0 | 14.0±7.0 | 17.4±7.7 | 18.5±8.0 | 22.4±8.7 | 21.6±8.5 | 17.7±7.9 | 12.7±6.9 | 9.7±5.7 |
| Lansing | 14.9±6.0 | 17.3±6.5 | 20.9±7.3 | 20.0±7.1 | 19.0±6.7 | 17.9±6.4 | 18.3±6.5 | 13.5±5.7 | 11.0±5.2 | 8.9±4.7 |
| Muskegon | 23.9±12.0 | 19.3±10.4 | 11.8±8.1 | * | * | * | 12.0±8.3 | 13.1±8.5 | 17.4±10.2 | 18.1±10.1 |
| Pontiac | 20.3±6.8 | 18.5±6.6 | 22.6±7.1 | 21.6±7.1 | 19.6±6.7 | 19.9±6.8 | 19.1±6.7 | 16.5±6.2 | 12.5±5.3 | 12.6±5.2 |
| Saginaw | 17.8±6.5 | 20.0±7.0 | 18.6±6.7 | 20.2±7.0 | 16.0±6.2 | 20.1±7.0 | 18.4±6.9 | 20.5±7.5 | 14.1±6.3 | 15.8±6.5 |
| Southfield | 15.1±5.8 | 14.7±5.7 | 12.9±5.3 | 15.4±5.9 | 14.8±5.8 | 15.0±5.8 | 11.6±5.2 | 10.0±4.7 | 11.2±5.0 | 10.3±4.7 |
| Taylor | * | * | 17.0±11.0 | 19.9±11.6 | 14.9±9.7 | 9.3±7.4 | 11.9±8.2 | 18.8±9.8 | 21.6±10.2 | 18.7±9.4 |
| Warren | 20.5±13.2 | 19.5±12.0 | 13.1±9.0 | 9.8±7.3 | 11.8±7.2 | 14.8±7.7 | 14.6±7.3 | 14.1±6.9 | 11.9±6.0 | 9.4±5.1 |
| Westland | 29.1±16.9 | 23.9±14.6 | 19.5±12.0 | 10.6±8.5 | 12.3±8.5 | 11.0±7.6 | 14.0±8.2 | 12.1±7.5 | 14.7±8.3 | 11.7±7.2 |

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.

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

Source: 2002-2011 Geocoded Michigan Death Certificate Registries; 2012-2013 Michigan Death Certificate Registries. 2002-2013 Geocoded Michigan Birth Certificate Registries **Created:** 2/9/2015
Division for Vital Records & Health Statistics, Michigan Department of Community Health

Table 17-A
Number of Neonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2003-2013

| County | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|
| Michigan | 771 | 694 | 700 | 660 | 697 | 608 | 600 | 549 | 501 | 540 | 544 |
| Alcona | 3 | - | 1 | - | - | 1 | 1 | - | - | 1 | - |
| Alger | - | - | - | - | - | 3 | - | - | - | - | - |
| Allegan | 10 | 4 | 10 | 4 | 13 | 4 | 4 | 6 | 5 | 3 | 3 |
| Alpena | - | 1 | - | 3 | - | 1 | - | - | 1 | - | 1 |
| Antrim | - | 3 | - | 1 | - | 2 | - | 4 | 2 | - | 3 |
| Arenac | 2 | - | - | 1 | - | - | 2 | - | 1 | 1 | 4 |
| Baraga | - | - | 2 | - | - | 1 | - | - | - | - | 1 |
| Barry | 3 | 3 | 1 | 6 | 3 | 2 | 3 | 4 | 2 | 2 | 3 |
| Bay | 5 | 1 | 8 | 8 | 5 | 3 | 7 | 9 | 6 | 4 | - |
| Benzie | 2 | - | 1 | 2 | 2 | - | - | - | - | - | 2 |
| Berrien | 12 | 5 | 10 | 12 | 13 | 10 | 10 | 8 | 8 | 11 | 8 |
| Branch | 4 | 4 | 2 | 2 | 2 | 1 | 2 | 2 | 3 | 3 | 2 |
| Calhoun | 8 | 13 | 11 | 11 | 18 | 13 | 13 | 10 | 9 | 7 | 8 |
| Cass | 3 | 2 | 6 | 1 | 2 | 2 | 5 | 1 | 2 | 2 | - |
| Charlevoix | - | - | 1 | - | 2 | 1 | 2 | - | - | - | - |
| Cheboygan | 2 | - | - | - | 1 | - | - | - | - | - | - |
| Chippewa | 3 | - | 4 | 2 | - | 1 | - | - | 3 | 2 | 1 |
| Clare | 4 | 4 | - | 2 | 3 | - | 1 | - | 1 | 2 | 1 |
| Clinton | 7 | 2 | 2 | 2 | 6 | 1 | 1 | 3 | 2 | 2 | 1 |
| Crawford | 2 | - | - | 2 | 4 | 1 | 1 | - | - | - | 1 |
| Delta | 6 | 3 | - | - | 2 | - | 2 | 2 | - | 4 | 1 |
| Dickinson | 1 | - | - | 1 | - | 2 | 2 | 1 | - | - | 4 |
| Eaton | 5 | 3 | 3 | 4 | 4 | 3 | 3 | 7 | 5 | 2 | 6 |
| Emmet | 2 | - | 1 | - | 1 | 2 | - | 3 | - | 1 | 2 |
| Genesee | 51 | 51 | 33 | 44 | 40 | 27 | 34 | 19 | 22 | 19 | 25 |
| Gladwin | 1 | 1 | 4 | - | 1 | 1 | 1 | 1 | 1 | - | 1 |
| Gogebic | - | - | - | 1 | 1 | - | - | 2 | - | - | - |
| Grand Traverse | 4 | 6 | 2 | 4 | 5 | 7 | 3 | 3 | - | 3 | - |
| Gratiot | 1 | 4 | - | 4 | 4 | 2 | 3 | 3 | 3 | - | 3 |
| Hillsdale | 2 | - | - | 6 | 4 | 3 | 1 | 1 | 2 | 1 | 3 |

Table 17-A
Number of Neonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2003-2013
(Continued)

| County | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|
| Houghton | 2 | 3 | 1 | 2 | 2 | 3 | 1 | 3 | 1 | 2 | 2 |
| Huron | - | - | 2 | 2 | - | - | 3 | 1 | 1 | - | - |
| Ingham | 17 | 21 | 19 | 13 | 17 | 22 | 14 | 12 | 16 | 16 | 20 |
| Ionia | 4 | 2 | 2 | 3 | 2 | - | 1 | 2 | 1 | - | 2 |
| Iosco | - | - | 1 | 1 | - | - | 1 | 1 | 1 | - | - |
| Iron | - | 1 | - | - | 1 | - | - | 1 | - | - | - |
| Isabella | 5 | 1 | 7 | 3 | 5 | 1 | 1 | - | 6 | 2 | - |
| Jackson | 14 | 13 | 17 | 11 | 12 | 11 | 7 | 9 | 8 | 3 | 10 |
| Kalamazoo | 19 | 12 | 16 | 14 | 22 | 13 | 20 | 17 | 8 | 17 | 11 |
| Kalkaska | - | 1 | 3 | - | - | - | 1 | 1 | - | 3 | 1 |
| Kent | 60 | 49 | 45 | 59 | 47 | 48 | 42 | 32 | 40 | 38 | 28 |
| Keweenaw | - | - | - | 1 | - | - | - | - | - | - | - |
| Lake | 2 | - | 2 | - | - | - | 1 | - | - | 1 | - |
| Lapeer | 4 | - | - | 5 | 4 | 3 | 6 | 4 | - | 1 | 4 |
| Leelanau | 3 | 1 | 1 | - | - | - | - | 3 | - | - | - |
| Lenawee | 1 | 4 | 6 | 8 | 5 | 9 | 8 | 11 | 3 | 6 | 4 |
| Livingston | 10 | 6 | 8 | 5 | 11 | 6 | 9 | 6 | 9 | 7 | 3 |
| Luce | 1 | - | 1 | 1 | - | 1 | - | - | - | - | - |
| Mackinac | 1 | 1 | 1 | 1 | - | 1 | 1 | - | - | - | - |
| Macomb | 45 | 37 | 41 | 30 | 48 | 40 | 52 | 39 | 43 | 40 | 52 |
| Manistee | 6 | 2 | 1 | 1 | - | 1 | 1 | 1 | - | - | - |
| Marquette | 1 | - | 2 | 2 | 2 | 2 | 2 | 1 | 3 | - | 2 |
| Mason | 3 | - | 1 | 3 | - | 1 | 1 | 2 | 1 | - | - |
| Mecosta | 3 | 3 | 1 | 2 | 1 | 4 | - | 1 | 4 | 4 | 4 |
| Menominee | - | 1 | 2 | - | 1 | 1 | 1 | - | 1 | - | - |
| Midland | 3 | 6 | 7 | 7 | 3 | 1 | 3 | 2 | 2 | 3 | 4 |
| Missaukee | 3 | - | 1 | - | - | - | 1 | - | - | 1 | - |
| Monroe | 2 | 6 | 7 | 11 | 6 | 5 | 3 | 4 | 2 | 6 | 10 |
| Montcalm | 5 | 3 | - | 1 | 2 | 1 | 2 | 5 | 3 | 3 | 4 |
| Montmorency | - | - | - | 1 | - | - | - | 1 | - | - | - |

Table 17-A
Number of Neonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2003-2013
(Continued)

| County | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|------|------|------|------|------|------|------|------|------|------|------|
| Muskegon | 17 | 16 | 10 | 9 | 13 | 9 | 9 | 16 | 11 | 11 | 14 |
| Newaygo | 1 | 3 | 5 | 1 | 6 | 3 | 1 | 2 | 6 | 2 | 2 |
| Oakland | 73 | 83 | 73 | 72 | 71 | 62 | 60 | 63 | 45 | 61 | 69 |
| Oceana | 2 | 4 | 3 | 1 | 1 | 2 | 2 | 3 | - | 2 | 1 |
| Ogemaw | - | 1 | - | - | 1 | - | - | 1 | 1 | 1 | - |
| Ontonagon | - | - | - | 1 | 1 | - | - | - | - | - | 1 |
| Osceola | 2 | 1 | 3 | 2 | 1 | - | 1 | 1 | - | - | 1 |
| Oscoda | 1 | - | - | - | - | 1 | 1 | - | - | 1 | - |
| Otsego | - | - | - | - | 3 | 1 | - | 2 | 3 | 1 | - |
| Ottawa | 17 | 12 | 11 | 18 | 16 | 19 | 10 | 17 | 17 | 14 | 20 |
| Presque Isle | - | 1 | - | 1 | 2 | - | - | 1 | 1 | 3 | - |
| Roscommon | 1 | 2 | 1 | - | 3 | 1 | 1 | - | 1 | - | - |
| Saginaw | 11 | 13 | 18 | 9 | 16 | 10 | 15 | 10 | 8 | 8 | 13 |
| St. Clair | 12 | 16 | 10 | 9 | 10 | 4 | 6 | 4 | 6 | 10 | 2 |
| St. Joseph | 3 | 5 | 4 | 7 | 6 | 8 | 9 | 2 | 3 | 1 | 5 |
| Sanilac | 1 | 3 | 1 | 4 | 4 | 1 | 2 | - | - | 1 | 1 |
| Schoolcraft | - | 1 | 1 | - | 1 | - | - | - | - | - | - |
| Shiawassee | 5 | 6 | 4 | - | 8 | - | 2 | 2 | 1 | 2 | 2 |
| Tuscola | 1 | 3 | 3 | 3 | 1 | - | 2 | 4 | 1 | 4 | 1 |
| Van Buren | 4 | 6 | 9 | - | 5 | 6 | 4 | 2 | 3 | 4 | 4 |
| Washtenaw | 19 | 19 | 19 | 15 | 17 | 14 | 18 | 11 | 10 | 14 | 12 |
| Wayne | 244 | 215 | 225 | 198 | 180 | 197 | 172 | 158 | 151 | 172 | 147 |
| Detroit City | 160 | 149 | 161 | 121 | 120 | 123 | 114 | 98 | 80 | 104 | 87 |
| Wayne County Excluding Detroit City | 84 | 66 | 64 | 77 | 60 | 74 | 58 | 60 | 71 | 68 | 60 |
| Wexford | - | 1 | 2 | - | 4 | 2 | 2 | 2 | 2 | 5 | 3 |
| Unknown | - | - | 1 | - | - | - | - | - | - | - | 1 |

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.

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

Source: 2003-2013 Michigan Resident Death Files,
 Division for Vital Records & Health Statistics, Michigan Department of Community Health

Created: 2/9/2015

**Table 17-B
Number of Postneonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2003-2013**

| County | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|
| Michigan | 341 | 290 | 313 | 280 | 300 | 286 | 281 | 268 | 248 | 243 | 255 |
| Alcona | 1 | - | - | 1 | - | - | - | - | 1 | - | - |
| Alger | 2 | - | - | - | - | - | 1 | - | - | - | - |
| Allegan | 4 | 4 | 3 | 4 | 5 | 2 | 2 | - | 2 | 1 | 6 |
| Alpena | - | - | - | 1 | 1 | - | 3 | 1 | 1 | - | - |
| Antrim | - | - | - | 1 | 2 | - | 1 | - | - | - | - |
| Arenac | - | 1 | - | - | - | - | - | 1 | 1 | - | - |
| Baraga | - | - | - | - | - | - | - | - | - | - | - |
| Barry | 1 | 1 | 1 | 1 | 2 | 3 | 2 | 4 | - | 1 | 1 |
| Bay | 3 | 2 | 2 | 4 | 3 | 5 | 1 | 3 | 3 | 1 | 2 |
| Benzie | 1 | - | 2 | - | - | - | - | 1 | - | - | - |
| Berrien | 7 | 3 | 10 | 5 | 8 | 6 | 7 | 6 | 10 | 3 | 6 |
| Branch | 2 | 4 | 4 | - | - | 1 | - | 2 | 1 | 1 | 1 |
| Calhoun | 9 | 5 | 7 | 6 | 10 | 1 | 7 | 8 | 6 | 3 | 3 |
| Cass | 1 | 1 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 3 |
| Charlevoix | 1 | - | - | 1 | - | - | - | - | 1 | - | - |
| Cheboygan | - | 1 | - | 1 | 1 | 1 | 2 | - | - | - | - |
| Chippewa | - | - | 1 | 2 | 1 | - | - | 2 | 1 | - | 1 |
| Clare | 3 | 1 | - | 1 | - | 1 | 1 | 1 | - | - | - |
| Clinton | 1 | 1 | 1 | 1 | - | 2 | 1 | 2 | - | - | 1 |
| Crawford | - | - | - | - | 1 | - | - | - | 1 | - | - |
| Delta | 1 | 1 | 1 | 1 | 2 | - | 1 | - | 1 | - | - |
| Dickinson | - | - | 2 | 3 | - | - | - | 1 | - | - | - |
| Eaton | 1 | 3 | 1 | 2 | 2 | 4 | 3 | 1 | 1 | 3 | 4 |
| Emmet | - | 1 | 2 | - | - | - | 1 | - | - | 1 | - |
| Genesee | 21 | 26 | 20 | 17 | 17 | 19 | 17 | 11 | 18 | 19 | 15 |
| Gladwin | 1 | 2 | - | - | - | - | 1 | 1 | - | - | 1 |
| Gogebic | - | - | - | 1 | - | - | - | - | - | - | - |
| Grand Traverse | 1 | - | 3 | 2 | 2 | 1 | 2 | - | 1 | 1 | - |
| Gratiot | 1 | 1 | 1 | 1 | - | 1 | - | 2 | - | - | - |
| Hillsdale | 2 | - | - | 1 | 1 | 1 | - | 1 | - | 1 | - |

Table 17-B
Number of Postneonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2003-2013
(Continued)

| County | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|
| Houghton | 1 | - | - | - | 1 | 1 | - | - | - | - | 1 |
| Huron | - | - | - | 1 | - | - | - | - | 1 | 3 | - |
| Ingham | 8 | 7 | 11 | 5 | 9 | 3 | 6 | 2 | 5 | 6 | 8 |
| Ionia | 1 | 1 | 1 | - | 4 | 1 | - | 3 | 2 | 1 | 3 |
| Iosco | - | 1 | - | - | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| Iron | - | - | - | - | - | - | 1 | 1 | 1 | - | - |
| Isabella | 2 | 2 | 2 | 3 | 2 | - | 3 | 4 | - | 2 | 2 |
| Jackson | 5 | 1 | 8 | 6 | 3 | 3 | 5 | 2 | 3 | 4 | 5 |
| Kalamazoo | 7 | 9 | 6 | 3 | 7 | 9 | 9 | 13 | 3 | 2 | 15 |
| Kalkaska | 2 | - | - | - | - | - | - | 1 | - | 1 | 1 |
| Kent | 28 | 26 | 21 | 26 | 18 | 21 | 14 | 22 | 19 | 12 | 11 |
| Keweenaw | - | - | - | - | - | - | - | - | - | - | - |
| Lake | 1 | 1 | 1 | 1 | - | - | 1 | 1 | - | - | - |
| Lapeer | 2 | 1 | 3 | 1 | 1 | 1 | 5 | 3 | - | 1 | - |
| Leelanau | 1 | 1 | - | - | 1 | - | - | - | 1 | - | 1 |
| Lenawee | 4 | 1 | - | 2 | 4 | 2 | 1 | 4 | 3 | 2 | 5 |
| Livingston | 6 | - | 2 | 2 | 3 | 4 | 3 | 5 | 3 | 1 | 4 |
| Luce | - | - | - | 1 | - | 1 | - | - | - | - | - |
| Mackinac | - | - | - | - | - | 1 | - | - | - | - | - |
| Macomb | 15 | 21 | 20 | 21 | 21 | 22 | 26 | 9 | 10 | 12 | 15 |
| Manistee | - | - | 3 | - | - | - | 1 | 1 | 1 | - | - |
| Marquette | - | - | 1 | 2 | - | - | 2 | 1 | 1 | 2 | - |
| Mason | - | - | - | 1 | 1 | 1 | - | 1 | - | - | - |
| Mecosta | - | 2 | 1 | - | 1 | 5 | - | 2 | 2 | - | 1 |
| Menominee | - | - | - | - | - | 1 | - | - | - | 1 | - |
| Midland | 1 | 2 | 1 | 1 | - | 2 | 2 | - | 2 | 3 | 3 |
| Missaukee | - | - | 1 | - | - | - | - | - | - | - | - |
| Monroe | 1 | 7 | 4 | 4 | 4 | 6 | 6 | 5 | 1 | 3 | 5 |
| Montcalm | 5 | 1 | 1 | 3 | - | 2 | 2 | 1 | 1 | 2 | 1 |
| Montmorency | - | - | - | - | - | - | - | - | - | 2 | - |

**Table 17-B
Number of Postneonatal Deaths by County of Residence,
State of Michigan, Michigan Counties and Detroit City
Michigan Residents, 2003-2013
(Continued)**

| County | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|------|------|------|------|------|------|------|------|------|------|------|
| Muskegon | 8 | 5 | 3 | 4 | 6 | 7 | 6 | 7 | 4 | 7 | 5 |
| Newaygo | 1 | - | 1 | 3 | 3 | - | 2 | 1 | 1 | - | 1 |
| Oakland | 33 | 13 | 30 | 19 | 21 | 26 | 17 | 21 | 25 | 32 | 21 |
| Oceana | - | - | 3 | 1 | 1 | 1 | - | 1 | - | 3 | - |
| Ogemaw | - | 1 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - |
| Ontonagon | - | - | - | - | - | - | - | - | - | - | - |
| Osceola | - | 1 | 1 | - | 1 | - | - | 1 | 2 | - | - |
| Oscoda | - | - | - | - | - | 1 | - | - | - | 1 | - |
| Otsego | - | 3 | - | 2 | 2 | - | 1 | - | 1 | 2 | 3 |
| Ottawa | 5 | 6 | 5 | 4 | 1 | 4 | 5 | 3 | 4 | 4 | 6 |
| Presque Isle | 1 | - | - | - | - | - | 1 | 1 | - | - | - |
| Roscommon | - | 2 | - | - | 1 | - | - | - | - | - | - |
| Saginaw | 13 | 8 | 10 | 10 | 10 | 15 | 11 | 2 | 9 | 5 | 6 |
| St. Clair | 4 | 4 | 4 | 4 | 2 | 4 | 9 | 2 | 5 | 3 | 4 |
| St. Joseph | 3 | 3 | 2 | 2 | 4 | 2 | 1 | 5 | 1 | 6 | 2 |
| Sanilac | 1 | - | 1 | - | 2 | - | 1 | 1 | - | 3 | 1 |
| Schoolcraft | - | - | - | 1 | - | - | - | - | - | - | - |
| Shiawassee | 1 | 2 | 6 | 2 | 2 | 1 | - | 2 | - | 1 | 1 |
| Tuscola | 3 | 2 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | - | 1 |
| Van Buren | 2 | 3 | 5 | 1 | 1 | 4 | 1 | 2 | 1 | 4 | 2 |
| Washtenaw | 8 | 10 | 6 | 8 | 6 | 3 | 4 | 9 | 4 | 6 | 6 |
| Wayne | 103 | 85 | 78 | 75 | 94 | 78 | 76 | 75 | 79 | 66 | 70 |
| Detroit City | 67 | 62 | 49 | 54 | 59 | 52 | 52 | 48 | 50 | 47 | 47 |
| Wayne County Excluding Detroit City | 36 | 23 | 29 | 21 | 35 | 26 | 24 | 27 | 29 | 19 | 23 |
| Wexford | 1 | - | 4 | 1 | 1 | 1 | - | 1 | 1 | 1 | - |
| Unknown | - | - | - | - | - | - | - | - | - | - | - |

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.

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

Source: 2003-2013 Michigan Resident Death Files,
Division for Vital Records & Health Statistics, Michigan Department of Community Health

Created: 2/9/2015

**Table 18-A
Number of Neonatal Deaths by Local Health Department and
State of Michigan,
Michigan Residents, 2003-2013**

| Health Department | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|--|------|------|------|------|------|------|------|------|------|------|------|
| Michigan | 771 | 694 | 700 | 660 | 697 | 608 | 600 | 549 | 501 | 540 | 544 |
| Allegan County Health Department | 10 | 4 | 10 | 4 | 13 | 4 | 4 | 6 | 5 | 3 | 3 |
| Barry-Eaton District Health Department | 8 | 6 | 4 | 10 | 7 | 5 | 6 | 11 | 7 | 4 | 9 |
| Berrien County Health Department | 12 | 5 | 10 | 12 | 13 | 10 | 10 | 8 | 8 | 11 | 8 |
| Branch-Hillsdale-St. Joseph Health Department | 9 | 9 | 6 | 15 | 12 | 12 | 12 | 5 | 8 | 5 | 10 |
| Calhoun County Health Department | 8 | 13 | 11 | 11 | 18 | 13 | 13 | 10 | 9 | 7 | 8 |
| Central Michigan District Health Department | 15 | 9 | 15 | 8 | 13 | 3 | 7 | 2 | 10 | 5 | 7 |
| Chippewa County Health Department | 3 | - | 4 | 2 | - | 1 | - | - | 3 | 2 | 1 |
| City Of Detroit Health Department | 160 | 149 | 161 | 121 | 120 | 123 | 114 | 98 | 80 | 104 | 87 |
| Public Health Delta & Menominee Counties | 6 | 4 | 2 | - | 3 | 1 | 3 | 2 | 1 | 4 | 1 |
| Dickinson-Iron District Health Department | 1 | 1 | - | 1 | 1 | 2 | 2 | 2 | - | - | 4 |
| District Health Department #10 | 22 | 14 | 19 | 10 | 16 | 14 | 11 | 12 | 13 | 18 | 12 |
| District Health Department #2 | 4 | 1 | 2 | 1 | 1 | 2 | 3 | 2 | 2 | 3 | - |
| District Health Department #4 | 2 | 2 | - | 5 | 3 | 1 | - | 2 | 2 | 3 | 1 |
| Genesee County Health Department | 51 | 51 | 33 | 44 | 40 | 27 | 34 | 19 | 22 | 19 | 25 |
| Grand Traverse County Health Department | 4 | 6 | 2 | 4 | 5 | 7 | 3 | 3 | - | 3 | - |
| Ingham County Health Department | 17 | 21 | 19 | 13 | 17 | 22 | 14 | 12 | 16 | 16 | 20 |
| Ionia County Health Department | 4 | 2 | 2 | 3 | 2 | - | 1 | 2 | 1 | - | 2 |
| Jackson County Health Department | 14 | 13 | 17 | 11 | 12 | 11 | 7 | 9 | 8 | 3 | 10 |
| Kalamazoo County Human Services Department | 19 | 12 | 16 | 14 | 22 | 13 | 20 | 17 | 8 | 17 | 11 |
| Kent County Health Department | 60 | 49 | 45 | 59 | 47 | 48 | 42 | 32 | 40 | 38 | 28 |
| Lapeer County Health Department | 4 | - | - | 5 | 4 | 3 | 6 | 4 | - | 1 | 4 |
| Lenawee County Health Department | 1 | 4 | 6 | 8 | 5 | 9 | 8 | 11 | 3 | 6 | 4 |
| Livingston County Health Department | 10 | 6 | 8 | 5 | 11 | 6 | 9 | 6 | 9 | 7 | 3 |
| Luce-Mackinac-Alger-Schoolcraft Health Department | 2 | 2 | 3 | 2 | 1 | 5 | 1 | - | - | - | - |
| Macomb County Health Department | 45 | 37 | 41 | 30 | 48 | 40 | 52 | 39 | 43 | 40 | 52 |

Table 18-A
Number of Neonatal Deaths by Local Health Department and
State of Michigan,
Michigan Residents, 2003-2013
(Continued)

| Health Department | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|--|------|------|------|------|------|------|------|------|------|------|------|
| Marquette County Health Department | 1 | - | 2 | 2 | 2 | 2 | 2 | 1 | 3 | - | 2 |
| Mid-Michigan District Health Department | 13 | 9 | 2 | 7 | 12 | 4 | 6 | 11 | 8 | 5 | 8 |
| Midland County Health Department | 3 | 6 | 7 | 7 | 3 | 1 | 3 | 2 | 2 | 3 | 4 |
| Monroe County Health Department | 2 | 6 | 7 | 11 | 6 | 5 | 3 | 4 | 2 | 6 | 10 |
| Muskegon County Health Department | 17 | 16 | 10 | 9 | 13 | 9 | 9 | 16 | 11 | 11 | 14 |
| Oakland County Health Department | 73 | 83 | 73 | 72 | 71 | 62 | 60 | 63 | 45 | 61 | 69 |
| Ottawa County Health Department | 17 | 12 | 11 | 18 | 16 | 19 | 10 | 17 | 17 | 14 | 20 |
| Bay County Health Department | 5 | 1 | 8 | 8 | 5 | 3 | 7 | 9 | 6 | 4 | - |
| Saginaw County Health Department | 11 | 13 | 18 | 9 | 16 | 10 | 15 | 10 | 8 | 8 | 13 |
| Shiawassee County Health Department | 5 | 6 | 4 | - | 8 | - | 2 | 2 | 1 | 2 | 2 |
| St Clair County Health Department | 12 | 16 | 10 | 9 | 10 | 4 | 6 | 4 | 6 | 10 | 2 |
| Van Buren-Cass County Health Department | 7 | 8 | 15 | 1 | 7 | 8 | 9 | 3 | 5 | 6 | 4 |
| Washtenaw County Health Department | 19 | 19 | 19 | 15 | 17 | 14 | 18 | 11 | 10 | 14 | 12 |
| Wayne County Health Department | 84 | 66 | 64 | 77 | 60 | 74 | 58 | 60 | 71 | 68 | 60 |
| Benzie-Leelanau District Health Department | 5 | 1 | 2 | 2 | 2 | - | - | 3 | - | - | 2 |
| Northwest Michigan Community Health Agency | 2 | 3 | 2 | 1 | 6 | 6 | 2 | 9 | 5 | 2 | 5 |
| Western Upper Peninsula District Health Department | 2 | 3 | 3 | 5 | 4 | 4 | 1 | 5 | 1 | 2 | 4 |
| Tuscola County Health Department | 1 | 3 | 3 | 3 | 1 | - | 2 | 4 | 1 | 4 | 1 |
| Huron County Health Department | - | - | 2 | 2 | - | - | 3 | 1 | 1 | - | - |
| Sanilac County Health Department | 1 | 3 | 1 | 4 | 4 | 1 | 2 | - | - | 1 | 1 |
| Unknown | - | - | 1 | - | - | - | - | - | - | - | 1 |

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.

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

Source: 2003-2013 Michigan Resident Death Files,
 Division for Vital Records & Health Statistics, Michigan Department of Community Health

Created: 2/9/2015

**Table 18-B
Number of Postneonatal Deaths by Local Health Department and
State of Michigan,
Michigan Residents, 2003-2013**

| Health Department | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|--|------|------|------|------|------|------|------|------|------|------|------|
| Michigan | 341 | 290 | 313 | 280 | 300 | 286 | 281 | 268 | 248 | 243 | 255 |
| Allegan County Health Department | 4 | 4 | 3 | 4 | 5 | 2 | 2 | - | 2 | 1 | 6 |
| Barry-Eaton District Health Department | 2 | 4 | 2 | 3 | 4 | 7 | 5 | 5 | 1 | 4 | 5 |
| Berrien County Health Department | 7 | 3 | 10 | 5 | 8 | 6 | 7 | 6 | 10 | 3 | 6 |
| Branch-Hillsdale-St. Joseph Health Department | 7 | 7 | 6 | 3 | 5 | 4 | 1 | 8 | 2 | 8 | 3 |
| Calhoun County Health Department | 9 | 5 | 7 | 6 | 10 | 1 | 7 | 8 | 6 | 3 | 3 |
| Central Michigan District Health Department | 6 | 9 | 3 | 4 | 4 | 1 | 5 | 8 | 3 | 2 | 3 |
| Chippewa County Health Department | - | - | 1 | 2 | 1 | - | - | 2 | 1 | - | 1 |
| City Of Detroit Health Department | 67 | 62 | 49 | 54 | 59 | 52 | 52 | 48 | 50 | 47 | 47 |
| Public Health Delta & Menominee Counties | 1 | 1 | 1 | 1 | 2 | 1 | 1 | - | 1 | 1 | - |
| Dickinson-Iron District Health Department | - | - | 2 | 3 | - | - | 1 | 2 | 1 | - | - |
| District Health Department #10 | 5 | 3 | 14 | 7 | 8 | 8 | 4 | 9 | 6 | 5 | 3 |
| District Health Department #2 | 1 | 2 | 1 | 1 | 2 | 3 | 3 | 3 | 2 | 3 | 1 |
| District Health Department #4 | 1 | 1 | - | 2 | 2 | 1 | 6 | 2 | 1 | 2 | - |
| Genesee County Health Department | 21 | 26 | 20 | 17 | 17 | 19 | 17 | 11 | 18 | 19 | 15 |
| Grand Traverse County Health Department | 1 | - | 3 | 2 | 2 | 1 | 2 | - | 1 | 1 | - |
| Ingham County Health Department | 8 | 7 | 11 | 5 | 9 | 3 | 6 | 2 | 5 | 6 | 8 |
| Ionia County Health Department | 1 | 1 | 1 | - | 4 | 1 | - | 3 | 2 | 1 | 3 |
| Jackson County Health Department | 5 | 1 | 8 | 6 | 3 | 3 | 5 | 2 | 3 | 4 | 5 |
| Kalamazoo County Human Services Department | 7 | 9 | 6 | 3 | 7 | 9 | 9 | 13 | 3 | 2 | 15 |
| Kent County Health Department | 28 | 26 | 21 | 26 | 18 | 21 | 14 | 22 | 19 | 12 | 11 |
| Lapeer County Health Department | 2 | 1 | 3 | 1 | 1 | 1 | 5 | 3 | - | 1 | - |
| Lenawee County Health Department | 4 | 1 | - | 2 | 4 | 2 | 1 | 4 | 3 | 2 | 5 |
| Livingston County Health Department | 6 | - | 2 | 2 | 3 | 4 | 3 | 5 | 3 | 1 | 4 |
| Luce-Mackinac-Alger-Schoolcraft Health Department | 2 | - | - | 2 | - | 2 | 1 | - | - | - | - |
| Macomb County Health Department | 15 | 21 | 20 | 21 | 21 | 22 | 26 | 9 | 10 | 12 | 15 |

Table 18-B
Number of Postneonatal Deaths by Local Health Department and
State of Michigan,
Michigan Residents, 2003-2013
(Continued)

| Health Department | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|--|------|------|------|------|------|------|------|------|------|------|------|
| Marquette County Health Department | - | - | 1 | 2 | - | - | 2 | 1 | 1 | 2 | - |
| Mid-Michigan District Health Department | 7 | 3 | 3 | 5 | - | 5 | 3 | 5 | 1 | 2 | 2 |
| Midland County Health Department | 1 | 2 | 1 | 1 | - | 2 | 2 | - | 2 | 3 | 3 |
| Monroe County Health Department | 1 | 7 | 4 | 4 | 4 | 6 | 6 | 5 | 1 | 3 | 5 |
| Muskegon County Health Department | 8 | 5 | 3 | 4 | 6 | 7 | 6 | 7 | 4 | 7 | 5 |
| Oakland County Health Department | 33 | 13 | 30 | 19 | 21 | 26 | 17 | 21 | 25 | 32 | 21 |
| Ottawa County Health Department | 5 | 6 | 5 | 4 | 1 | 4 | 5 | 3 | 4 | 4 | 6 |
| Bay County Health Department | 3 | 2 | 2 | 4 | 3 | 5 | 1 | 3 | 3 | 1 | 2 |
| Saginaw County Health Department | 13 | 8 | 10 | 10 | 10 | 15 | 11 | 2 | 9 | 5 | 6 |
| Shiawassee County Health Department | 1 | 2 | 6 | 2 | 2 | 1 | - | 2 | - | 1 | 1 |
| St Clair County Health Department | 4 | 4 | 4 | 4 | 2 | 4 | 9 | 2 | 5 | 3 | 4 |
| Van Buren-Cass County Health Department | 3 | 4 | 7 | 3 | 2 | 6 | 2 | 3 | 2 | 6 | 5 |
| Washtenaw County Health Department | 8 | 10 | 6 | 8 | 6 | 3 | 4 | 9 | 4 | 6 | 6 |
| Wayne County Health Department | 36 | 23 | 29 | 21 | 35 | 26 | 24 | 27 | 29 | 19 | 23 |
| Benzie-Leelanau District Health Department | 2 | 1 | 2 | - | 1 | - | - | 1 | 1 | - | 1 |
| Northwest Michigan Community Health Agency | 1 | 4 | 2 | 4 | 4 | - | 3 | - | 2 | 3 | 3 |
| Western Upper Peninsula District Health Department | 1 | - | - | 1 | 1 | 1 | - | - | - | - | 1 |
| Tuscola County Health Department | 3 | 2 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | - | 1 |
| Huron County Health Department | - | - | - | 1 | - | - | - | - | 1 | 3 | - |
| Sanilac County Health Department | 1 | - | 1 | - | 2 | - | 1 | 1 | - | 3 | 1 |
| Unknown | - | - | - | - | - | - | - | - | - | - | - |

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.

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

Source: 2003-2013 Michigan Resident Death Files,
 Division for Vital Records & Health Statistics, Michigan Department of Community Health

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