

Infant Mortality

Infant mortality is a particularly useful measure of health status because it both indicates current health status of the population and predicts the health of the next generation (NCHS, 2001). Infant mortality in the U.S. is defined as the death of an infant before his or her first birthday. It does not include still births. Infant mortality is composed of neonatal (less than 28 days after birth) and postneonatal (28 to 364 days after birth) deaths.

This indicator presents infant mortality for the U.S. based on death certificate data and linked birth and death certificate data recorded in the National Vital Statistics System (NVSS). The NVSS registers virtually all deaths and births nationwide, with linked birth and death data coverage in this indicator from 1940 to 2015 and from all 50 states and the District of Columbia.

What the Data Show

In 2015, a total of 23,458 deaths occurred in children under 1 year of age, 247 more deaths than were recorded in 2014 (CDC, 2017). Exhibit 1 presents the national trends in infant mortality between 1940 and 2015 for all infant deaths as well as infant deaths by sex, race, and ethnicity. A striking decline has occurred during this time period, with total infant mortality rates dropping from nearly 50 deaths per 1,000 live births in 1940 to under six deaths per 1,000 live births in 2015. Beginning around 1960, the infant mortality rate has decreased or remained generally level each successive year through 2015.

Exhibit 1 presents infant mortality rates in the U.S. by sex and some races (whites and blacks) for the entire period of record, and ethnicity and other races (American Indians or Alaska Natives, Asians or Pacific Islanders) since first reported in 1995. Infant mortality rates continue to be highest among males and highest among blacks. Though declining overall, the infant mortality rate for blacks (11.4 per 1,000 live births in 2015) is still twice the rate compared to white infants (4.9 per 1,000 live births in 2015).

In 2015, the infant mortality rate was 5.0 per 1,000 live births for Hispanic infants, which is the same as the rate observed in 2013 and 2014. The infant mortality rate for non-Hispanic white infants remained the same in 2014 and 2015 (4.9 per 1,000 live births), while the mortality rate increased for non-Hispanic black infants (10.9 per 1,000 live births in 2014 compared to 11.3 in 2015) (Exhibit 1).

Exhibit 2 presents leading causes of infant death in the U.S. for the most recent reporting year. In 2015, the 10 leading causes of infant mortality in the U.S. accounted for 69 percent of all infant deaths (Exhibit 2), with the subgroup consisting of congenital anomalies (i.e., congenital malformations, deformations, and chromosomal abnormalities) having the highest rate at 1.2 per 1,000 live births (CDC, 2017). This category alone accounts for 21 percent of all infant deaths in 2015 (Exhibit 2). In 2015, the top 10 leading causes and their ranks remained the same as those in 2014 except that sudden infant death syndrome surpassed newborn affected by maternal complications of pregnancy to become the third leading cause, and diseases of the circulatory system surpassed neonatal hemorrhage to become the ninth leading cause (CDC, 2017).

In 2015, congenital anomalies were ranked highest, followed by disorders related to short gestation and low birthweight, among the different racial and ethnic groups except for non-Hispanic blacks

and American Indians or Alaska Natives. The leading causes of infant mortality among non-Hispanic blacks were short gestation and low birthweight, followed by congenital anomalies. The leading causes of infant mortality among American Indians or Alaska Natives were congenital anomalies, followed by sudden infant death syndrome. There were small differences in some of the other leading causes of infant mortality between racial and ethnic groups. For example, placenta cord membrane complications was the sixth leading cause of infant death among non-Hispanic white and black infants; whereas this cause of infant death was ranked fifth among Hispanic infants (Exhibit 2).

In addition, the Centers for Disease Control and Prevention (CDC) reports a substantial difference in the leading causes of death during the neonatal versus the postneonatal periods. Disorders related to short gestation and low birthweight and congenital anomalies were the leading causes of death for neonates and sudden infant death syndrome and congenital anomalies were the leading causes of death for postneonates, based on 2015 data (NCHS, 2017b).

Limitations

- Cause of death rankings denote the most frequently occurring causes of death among those eligible to be ranked. The rankings do not necessarily denote the causes of death of greatest public health importance. Further, rankings of cause-specific mortality could change depending on the defined list of causes that are considered and, more specifically, the types of categories and subcategories that are used for such rankings.
- Mortality rates are based on the underlying cause of death as entered on a death certificate by a physician. Incorrect coding and low rates of autopsies that confirm the cause of death may occur. Additionally, some individuals may have had competing causes of death. When more than one cause or condition is entered by the physician, the underlying cause is determined by the sequence of conditions on the certificate, provisions of the International Classification of Diseases, and associated selection rules and modifications. Consequently, some misclassification of reported mortality might occur as a result of these uncertainties, as well as the underreporting of some causes of death.

Data Sources

Infant mortality rates for total, males, females, whites, and blacks in Exhibit 1 were obtained from detailed tables published by CDC's National Center for Health Statistics (NCHS, 2017a), which provide annual natality data from 1975 to 2015 and decadal data for 1940, 1950, 1960, and 1970. The infant mortality rates for 1995 to 2013 in Exhibit 1 for American Indians or Alaska Natives, Asians or Pacific Islanders, non-Hispanic whites, non-Hispanic blacks, and Hispanics were obtained from NCHS's reports on infant mortality statistics from the period linked birth/infant death data set (NCHS, 2004, 2013, 2015), and for 2014 and 2015 from the Linked Birth/Infant Death Records on CDC's Wide-ranging Online Data for Epidemiologic Research (WONDER) Online Database (<https://wonder.cdc.gov/lbd.html>) (CDC, 2017). For leading cause of infant death data shown in Exhibit 2, numbers for the 10 leading causes and the total number of infant deaths for each population group (used to calculate percentages) were extracted from CDC's WONDER Linked Birth/Infant Death Records Online Database (CDC, 2017) (<https://wonder.cdc.gov/lbd.html>). Supporting documentation for leading cause of infant death data came from available NVSS documentation (NCHS, 2017b).

References

CDC (Centers for Disease Control and Prevention). 2017. Linked birth/infant death records for 2007-2015 on CDC WONDER online database. Accessed June 29, 2018.

<https://wonder.cdc.gov/lbd.html>.

NCHS (National Center for Health Statistics). 2017a. Detailed tables for the National Vital Statistics Report, deaths: Final data for 2015. Table I-31. National Vital Statistics Reports 66(6).

https://www.cdc.gov/nchs/data/nvsr/nvsr66/nvsr66_06_tables.pdf (PDF) (112 pp, 3.0MB).

NCHS. 2017b. Mortality table, LCWK7. Infant, neonatal, and postneonatal deaths, percent of total deaths, and mortality rates for the 15 leading causes of infant death by race and sex: United States, 2015. https://www.cdc.gov/nchs/data/dvs/LCWK7_2015.pdf (PDF) (23 pp, 455K).

NCHS. 2015. Infant mortality statistics from the 2013 period linked birth/infant death data set. Table B. National Vital Statistics Reports 64(9).

https://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_09.pdf (PDF) (30 pp, 993K).

NCHS. 2013. Infant mortality statistics from the 2010 period linked birth/infant death data set. National Vital Statistics Reports, 62(8). Table B.

https://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62_08.pdf (PDF) (27 pp, 571K).

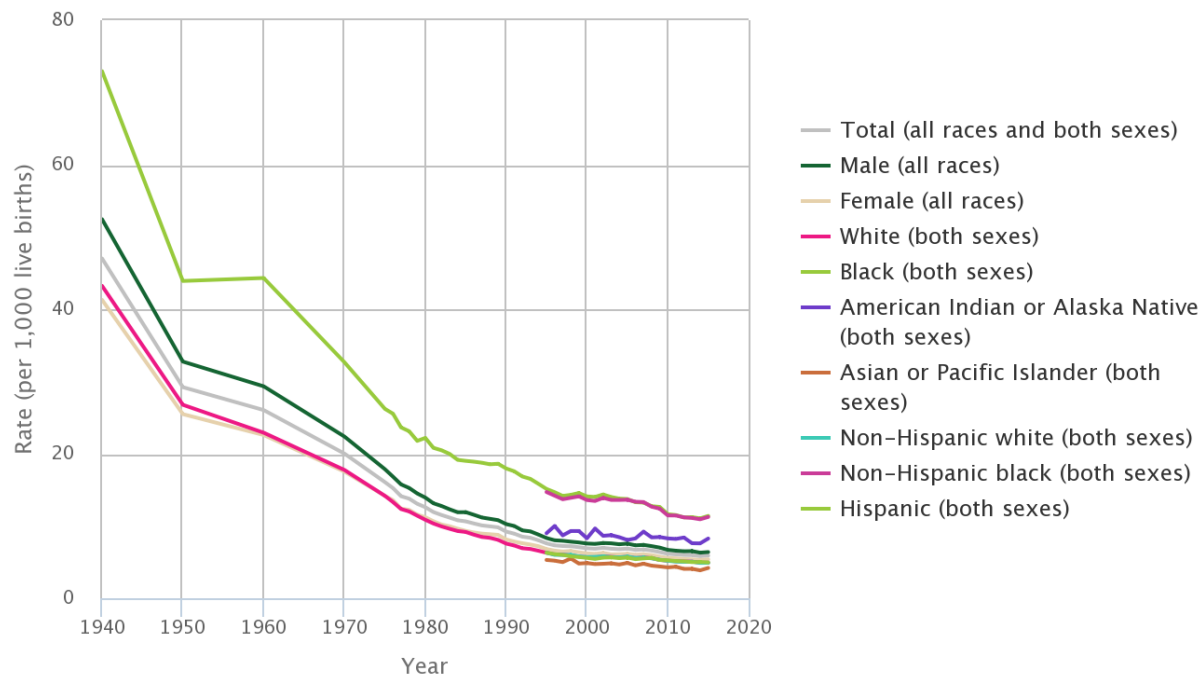
NCHS. 2004. Infant mortality statistics from the 2002 period linked birth/infant death data set. National Vital Statistics Report, 53(10). Table D.

https://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_10.pdf (PDF) (30 pp, 1.8MB).

NCHS. 2001. Healthy people 2000 final review. Hyattsville, MD: Public Health Service.

<https://www.cdc.gov/nchs/data/hp2000/hp2k01-acc.pdf> (PDF) (382 pp, 7.2MB).

Exhibit 1. Infant mortality rates in the U.S. by sex, race, and ethnicity, 1940–2015



Race was reported based on the race of the child (1940–1979) or the race of the mother (since 1980).

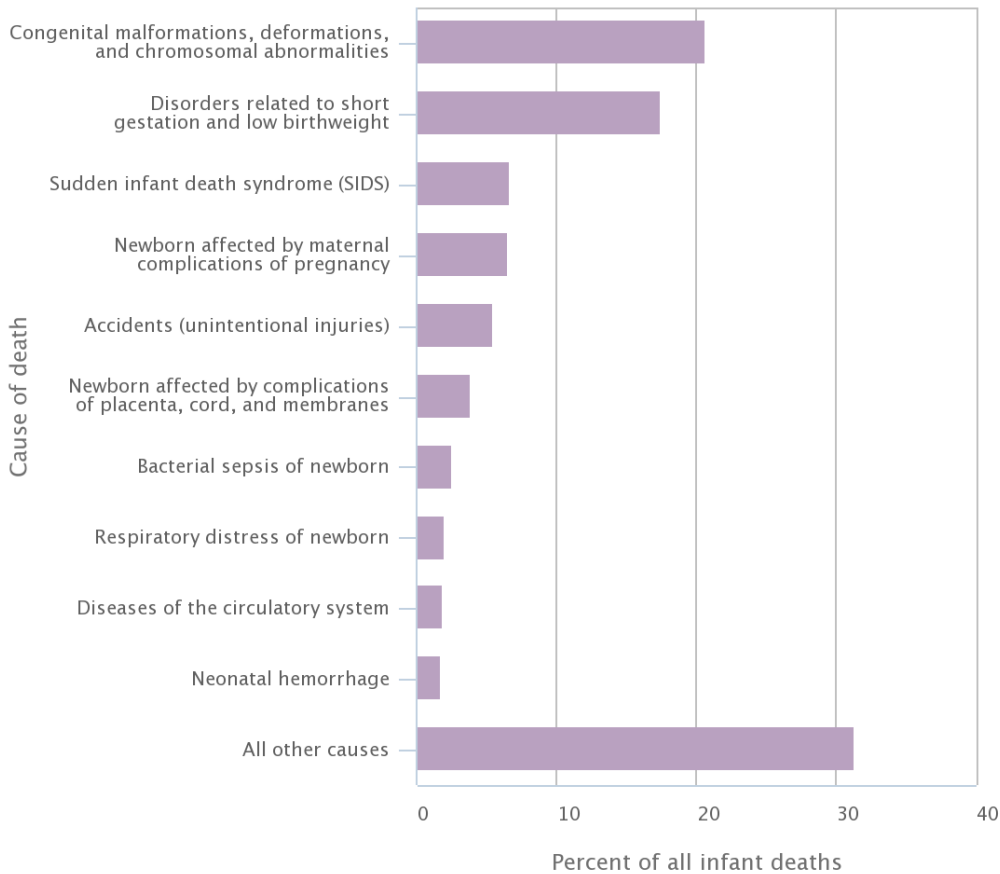
Annual infant mortality rates were not available prior to 1975. Data are presented in 10-year intervals between 1940 and 1970.

Data beginning in 1940 for total, males, females, whites, and blacks are from NCHS, 2017a. Data for the other groups from 1995 onward are from CDC, 2017, and NCHS, 2004, 2013, and 2015.

Information on the statistical significance of the trends in this exhibit is not presented here. For more information about uncertainty, variability, and statistical analysis, view the technical documentation for this indicator.

Data source: CDC, 2017; NCHS, 2004, 2013, 2015, 2017a

Exhibit 2. Leading causes of infant death in the U.S., 2015 All races



"Infant deaths" are those occurring before the age of 1.

Trend analysis has not been conducted because these data represent a single snapshot in time. For more information about uncertainty, variability, and statistical analysis, view the technical documentation for this indicator.

Data source: CDC, 2017

Visit <https://www.epa.gov/roe> to see the full exhibit.