

About the Data – Infant Mortality

Indicator Description

Infant mortality is defined as the number of deaths among infants under one year of age per 1,000 live births.

Data Sources

California Department of Public Health, Birth Cohort File, 2007–2020: Compiled from both birth and death certificates. Each file consists of all live births that occurred in a calendar year and death information for those infants who were born in that year but subsequently died within 12 months of birth. Includes demographic information related to the infant and parents, as well as medical data related to the birth and death.

National Comparisons

Ely DM, Driscoll AK. [Infant mortality in the United States, 2018: Data from the period linked birth/infant death file](#). National Vital Statistics Reports, vol 69 no 7. Hyattsville, MD: National Center for Health Statistics. 2020.

Ely DM, Driscoll AK. [Infant mortality in the United States, 2019: Data from the period linked birth/infant death file](#). National Vital Statistics Reports; vol 70 no 14. Hyattsville, MD: National Center for Health Statistics. 2021.

Ely DM, Driscoll AK. [Infant mortality in the United States, 2020: Data from the period linked birth/infant death file](#). National Vital Statistics Reports; vol 71 no 5. Hyattsville, MD: National Center for Health Statistics. 2022.

Healthy People 2030: National 10-year plan addressing public health priorities, developed by the U.S. Department of Health and Human Services Office of Disease Prevention and Health Promotion. Available from: [Healthy People 2030: Reduce infant deaths](#)

Data Analysis

The infant mortality rate shown in these dashboards is the number of deaths among infants under one year of age per 1,000 live births, stratified by selected birth and maternal characteristics. Rates are presented to the second decimal point to better identify smaller changes and differences. The 95% confidence interval presented in the tooltips indicates there is a 95% chance that the range contains the true prevalence or rate in the population. Rates or

percentages with wide confidence intervals should be interpreted with caution. The state dashboard uses single year data; the county dashboard uses three-year aggregated data.

Denominators include all live births to California resident mothers/parents giving birth. See Category and Subcategory Definitions below for additional inclusion/exclusion criteria.

Data Suppression

The numerator, rate and confidence interval are not shown when the numerator is less than 10.

Category and Subcategory Definitions

Age: Age of mother/parent giving birth at time of delivery. Excludes records with unknown age.

Age at death: Age of infant at time of death. Excludes records with unknown age of decedent.

Birthweight: Weight of the infant at time of delivery, reported in grams. Excludes birthweights less than 227 grams, greater than 8165 grams and records with unknown birthweight.

Delivery method: Final route of delivery. Cesarean delivery includes primary and repeat cesarean births. Vaginal delivery includes vaginal birth after previous cesarean birth. Excludes records with unknown delivery method.

Delivery payment source: Expected principal source of payment for delivery. Other includes Indian Health Service, CHAMPUS/TRICARE, other non-Medi-Cal government programs (federal, state or local), self-insured/self-funded plans or payments from local organized charities. Excludes records with unknown payment source and medically unattended births.

Education: Highest level of education attained by the mother/parent giving birth at time of delivery. High school graduate includes GED; some college includes college credit either without a degree or with an associate's degree; and college graduate includes bachelor's degree or higher. Excludes records with unknown education level.

Geography: State or county of maternal residence at time of delivery.

Gestational age: Obstetric estimate of gestation at time of delivery, in completed weeks. Excludes records with unknown gestational age or values less than 17 weeks or greater than 47 weeks.

Leading causes of infant death: The leading causes of infant death are defined based on International Classification of Diseases, 10th Revision (ICD-10) coding provided in the National Center for Health Statistics' List of 130 Selected Causes of Infant Death (Heron M. [Deaths: Leading causes for 2019](#). National Vital Statistics Reports; vol 70 no 9. Hyattsville, MD: National Center for Health Statistics. 2021.). The following causes are shown in this dashboard:

Congenital malformations, deformations and chromosomal abnormalities (Birth Defects) (ICD-10 Q00-Q99); Disorders related to short gestation and low birth weight, not elsewhere classified (Preterm-LBW) (ICD-10 P07); Newborn affected by maternal complications of pregnancy (Maternal complications) (ICD-10 P01); and Sudden unexpected infant death (SUID) (ICD-10 R95, R99, W75). According to the Centers for Disease Control and Prevention (CDC) (<https://www.cdc.gov/sids/about/index.htm>), SUID is a term used to describe the sudden and unexpected death of a baby less than one year old in which the cause was not obvious before investigation. A SUID death often happens during sleep or in the baby's sleep area. Thorough investigations are necessary to learn what causes SUID deaths. SUID deaths include sudden infant death syndrome (SIDS), accidental suffocation in a sleeping environment and other deaths from unknown causes.

Nativity: Birthplace of mother/parent giving birth. Born outside U.S. includes U.S. territories, Canadian provinces and foreign countries. Excludes records with unknown birthplace.

Neighborhood poverty: Percentage of residents of a census tract who are living below the federal poverty threshold. Census tracts with a poverty rate of 30% or higher are considered high poverty neighborhoods. Data are based on geocoded maternal addresses beginning with 2013 and exclude records that did not geocode. Available from: [US Census Bureau American Community Survey 5-year estimates: Poverty status in the past 12 months](#)

Plurality: Single birth, twin birth, or triplet and higher-order birth.

Population density: Based on Medical Service Study Areas (MSSAs) where maternal residence is located. Data are based on geocoded maternal addresses beginning with 2013 and exclude records that did not geocode. MSSAs are sub-county geographical units with population, demographic and physician data. Available from: [California Department of Health Care Access and Information: Healthcare Workforce](#)

- An Urban MSSA has a population range of 75,000 to 125,000 and is homogeneous with respect to demographic and socio-economic characteristics.
- A Rural MSSA has a population density of less than 250 persons per square mile, and no population center exceeds 50,000 persons.
- A Frontier MSSA has a population density of less than 11 persons per square mile.

Prenatal care (trimester of initiation): Trimester of pregnancy in which the mother/parent giving birth first received prenatal care. Excludes records with unknown prenatal care initiation.

Prenatal care (adequacy of initiation): Often referred to as the Kotelchuck Index, adequacy of prenatal care utilization is based on the month prenatal care began and the number of visits adjusted for gestational age. The number of visits is assessed by comparing the number of reported visits with the number of expected visits for a particular gestational age, based on recommendations from ACOG. Inadequate care is defined as all prenatal care that began after

the fourth month of pregnancy, as well as prenatal care that included less than 50% of the recommended number of visits. Intermediate care includes 50%–79% of the recommended visits, adequate care includes 80%–109%, and adequate plus care is 110% or more of the recommended visits. The Kotelchuck Index uses recommendations from ACOG for low-risk pregnancies and may not measure the adequacy of care for high-risk women. The Kotelchuck Index does not measure the quality of the care provided.

Prepregnancy weight: Body Mass Index (BMI) was calculated from self-reported weight and height, classified as underweight (<18.5), normal weight (18.5–24.99), overweight (25–29.99) or obese (30+). BMI was calculated only for women reporting height within 48–83 inches and weight within 75–399 pounds. BMI values outside 13–69.99 were excluded. BMI should not be used as the sole criterion for making health recommendations. It is a screening tool as part of an assessment for determining weight classifications. BMI may overestimate or underestimate body fatness in some individuals since it does not take into consideration an individual’s muscle or bone mass.

Race/ethnicity: Hispanic includes all persons of Hispanic origin of any race, including Other and Unknown race. Multi-Race includes those of non-Hispanic origin who reported more than one race. The remaining groups are of non-Hispanic origin who reported a single race: American Indian or Alaska Native (AIAN), Asian, Black, Native Hawaiian or Other Pacific Islander (Pacific Islander), White, Other or Unknown. Other and Unknown race are not shown on the dashboards but are available in the downloadable data table.

Sex: Sex of infant at birth is defined as either male or female. Excludes records with unknown and nonbinary sex.

Total live births: Total number of live births the mother/parent giving birth delivered. Twins, triplets and higher-order births are considered one birth. Excludes records with unknown number of live births.

Suggested Citation

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