



# TECHNICAL NOTES



## Sources of Data

The tables in Sections I and II are based on rates and ratios published in the *Arizona Health Status and Vital Statistics* annual report.

Information on live births and deaths in Sections III and IV is compiled from the original documents filed with the Arizona Department of Health Services' Office of Vital Records, and from transcripts of original certificates filed in other states but affecting Arizona residents (copies of certificates for births and deaths occurring to Arizona residents outside the United States are not sent to Arizona).

## Definitions

### Rates

Rate is a measure of the frequency of some event in relation to a unit of population during a specified time period such as a year; events in the numerator of the year occur to individuals in the denominator. Rates express the likelihood (or risk) of the event in the specified population during a particular time and are generally expressed as units of population in the denominator (per 1,000, per 100,000, and so forth).

### Terms Related to Reproductive Health

**Birth or Live Birth** - The complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy which, after such expulsion or extraction, breaths or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

**Birth weight** - The weight of a neonate determined immediately after delivery or as soon thereafter as possible.

**Infant death** - Any death at any time from birth up to, but not including, the first year of age (364 days, 23 hours, 59 minutes from the moment of birth).

**Infant mortality rate** - Number of infant deaths per 1,000 live births.

**Low-birthweight** - Any neonate weighing less than 2,500 grams at birth (less than 5 pounds 8 ounces).

**Neonatal death** - Death of a live-born neonate before the neonate becomes 28 days old (up to and including 27 days, 23 hours, 59 minutes from the moment of birth).

**Neonatal mortality rate** - Number of neonatal deaths per 1,000 live births.

**Postneonatal death** - Any death of a live-born infant at least 28 days of age but less than one year of age.

**Postneonatal mortality rate** - Number of postneonatal deaths per 1,000 live births.

**Very low-birthweight** - Any neonate whose weight at birth is 1,500 grams or less (less than 3 pounds 5 ounces).

## Medical Terms Used on the Birth Certificate

### Births with medical risk factors

**Pre-existing diabetes** - Metabolic disorder characterized by excessive discharge of urine and persistent thirst diagnosed prior to onset of pregnancy.

**Gestational diabetes** - The occurrence of diabetes during pregnancy.

**Pre-existing hypertension** - Blood pressure persistently greater than 140/90, diagnosed prior to onset of pregnancy or before the 20th week of gestation.

**Gestational hypertension** - An increase in blood pressure of at least 30 mm hg systolic or 15 mm hg diastolic on two measurements taken 6 hours apart after the 20th week of gestation.

**Eclampsia** - The occurrence of convulsions and/or coma unrelated to other cerebral conditions in women with signs and symptoms of preeclampsia.

**Previous preterm** - Previous birth of an infant prior to term, before 37 completed weeks of gestation.

**Other previous poor pregnancy outcome** - History of pregnancies continuing into the 20<sup>th</sup> week of gestation and resulting in perinatal death, small-for-gestational age or intrauterine growth restricted birth.

**Gonorrhea** - A highly contagious sexually transmissible disease that is caused by bacterium *Neisseria gonorrhoea*.

**Syphilis** - A sexually transmitted infection that can cause serious health problems if it is not treated. Syphilis is divided into stages (primary, secondary, latent, and tertiary), and there are different signs and symptoms associated with each stage.

**Chlamydia** - A wide-spread sexually transmissible disease caused by the bacterium *Chlamydia trachomatis*. Chlamydia during pregnancy can increase the risk of stillbirth or premature birth.

**Hepatitis B** - A potentially serious form of liver inflammation due to infection by the hepatitis B virus.

**Hepatitis C** - Type of liver inflammation that causes primarily a long-lasting disease.

### Births with complications of labor and/or delivery

**Premature rupture of membranes (more than 12 hours)** - Rupture of membranes at any time during pregnancy and 12 hours before the onset of labor.

**Precipitous labor** - Extremely rapid labor and delivery lasting less than 3 hours.

**Prolonged labor** - Abnormally slow progress of labor lasting for 20 hours or more.

**Breech presentation** - At birth, presentation of the fetus in which the buttocks or feet appear first as opposed to head.

**Chorioamnionitis** - Acute inflammation of the membranes and chorion of the placenta, typically due to ascending infectious organisms in the setting of membrane rupture. Clinical signs of chorioamnionitis include fundal tenderness, maternal tachycardia (>100/min), fetal tachycardia (>160/min) and purulent or foul amniotic fluid.

**Meconium staining of the amniotic fluid** – Fetal defecation of meconium while in utero resulting in amniotic fluid with greenish discoloration. Moderate to heavy amounts of meconium in the amniotic fluid noted during labor and/or delivery indicate fetal distress.

**Fetal intolerance** - Fetal intolerance of fetus to labor such that one or more of the following actions, that is, in utero resuscitation measures, further fetal assessment, or operative delivery are taken to relieve fetal distress. In utero resuscitative measures include any of the following: maternal position change, oxygen administration to the mother, intravenous fluid administered to the mother, amnioinfusion, support of maternal blood pressure, and administration of uterine relaxing agents.

**Maternal transfusion** – Infusion of blood or blood components occurring 24 hours prior delivery or within 24 hours of delivery.

**Third or fourth degree perineal laceration** – Serious types of perineal injury that can be sustained during childbirth. A third-degree perineal laceration is a severe tear in the vaginal tissue, perineal skin, and perineal muscles that extends into the anal sphincter. A fourth-degree laceration is the most severe type of perineal injury; the tear goes completely into the anal sphincter through the rectal mucosa.

**Ruptured uterus** – Tearing of the uterus wall during labor and delivery.

**Unplanned hysterectomy** – Surgical removal of the uterus that was not planned prior to admission for delivery.

**Admission to intensive care unit** – Any admission, planned or unplanned, of the mother to a facility/unit designated as providing intensive care.

**Unplanned surgery following delivery** – Any unplanned operative procedure, excluding postpartum tubal ligations, prior to the admission for delivery.

## Abnormal conditions of the newborn

**Assisted ventilation immediately after delivery** - A mechanical method of assisting respiration for newborns with respiratory failure, required immediately following delivery.

**Assisted ventilation for more than 6 hours** - Newborn placed on assisted ventilation for more than 6 hours.

**Surfactant replacement therapy** – Endotracheal instillation of a surfaceactive suspension for the treatment of surfactant deficiency resulting in decreased lung compliance. The treatment is administered immediately after birth for extremely premature babies or later once respiratory problems have manifested themselves.

**Suspected neonatal sepsis** – Neonates presenting signs of sepsis-an invasive infection, commonly bacterial-occurring during the neonatal period. Treatment is with antibacterial drug given systemically (intravenous or intramuscular).

**Seizure or serious neurologic dysfunction** – A seizure of any etiology; neurologic impairment such as obtundation, stupor, or coma.

**Significant birth injury** - Impairment of the infant's body function or structure due to adverse influences that occurred at birth. Injuries include skeletal fracture(s), peripheral nerve injury and/or soft tissue/solid organ hemorrhage which require intervention. Skeletal fracture includes any bony fracture or weakness or loss of sensation, but excludes fractured clavicles and transient facial nerve palsy. Soft tissue hemorrhage includes sub-galeal

(progressive extravasation within the scalp) hemorrhage, giant cephalohematoma, extensive truncal, facial and/or extremity ecchymosis accompanied by evidence of anemia and/or hypovolemia and/or hypotension. Solid organ, hemorrhage includes sub-capsular hematoma of the liver, fractures of the spleen, or adrenal hematoma.

## Congenital anomalies of the newborn

**Anencephalus** – Absence of the cerebral hemispheres.

**Spina bifida/meningocele** – Developmental anomaly characterized by defective closure of the bony encasement of the spinal cord, through which the cord and meninges may or may not protrude.

**Cyanotic congenital heart disease** – Congenital anomalies of heart.

**Congenital diaphragmatic hernia** – Defect in the diaphragm, characterized by an abnormal opening that allows abdominal organs to move into the chest, usually resulting in respiratory distress.

**Omphalocele/Gastroschisis** – An omphalocele is a protrusion of variable amounts of abdominal viscera from a midline defect at the base of the umbilicus. In gastroschisis, the abdominal viscera protrude through an abdominal wall defect, usually on the right side of the umbilical cord insertion.

**Limb reduction defect** – Complete or partial absence of any part of a limb or limbs, excluding congenital amputation and dwarfing syndromes.

**Cleft lip/palate** – Cleft lip is a fissure or elongated opening of the lip; cleft palate is a fissure in the roof of the mouth. These are failures of embryonic development.

**Down syndrome** – The most common chromosomal defect with most cases resulting from an extra chromosome (trisomy 21).

**Suspected chromosomal disorder** – Any group of congenital malformations resulting from or compatible with known syndromes caused by noticeable defects in chromosome structure.

**Hypospadias** – Congenital anomaly of the male genitalia characterized by an incomplete closure of the urethra.

## Terms Related to Mortality

**Age-adjusted mortality rates** - Because mortality from most causes of death occurs predominately among the elderly, a population group with a larger proportion of older persons would have a higher mortality rate.

The "age-adjustment" removes the effect of the age differences among sub-populations (or in the same population over time) by placing them all in a population with a standard age distribution. All age-adjusted mortality rates in this report were computed by the direct method, that is by weighting the age-specific rates for a given year by the age distribution of a standard population. The weighted age-specific rates are then added to produce the summary rate for all ages combined.

Beginning with the 2000 data year, a new population standard for the age adjustment of mortality rates has replaced the standard based on the 1940 population and used since 1943.

The new standard uses the age composition of the 2000 U.S. projected population. The standard is expressed in terms of a "standard million": the relative distribution of the 2000 population of the United States totaling 1 million in 10-year age groups:

| Age group | 2021 population of American Indians | 2021 deaths among American Indians | Age-specific rates for American Indians in 2021 | 2000 standard | Age-adjusted rate for American Indians in 2021 |
|-----------|-------------------------------------|------------------------------------|---|---------------|--|
| A         | B                                   | C                                  | D<br>(C/B)*100000                               | E             | F<br>D*E                                       |
| <1        | 3,564                               | 22                                 | 617.3   | 0.013818      | 8.5  |
| 1-4       | 14,896                              | 12                                 | 80.6  | 0.055317      | 4.5  |
| 5-14      | 46,863                              | 19                                 | 40.5  | 0.145565      | 5.9  |
| 15-24     | 45,828                              | 128                                | 279.3   | 0.138646      | 38.7   |
| 25-34     | 48,922                              | 461                                | 942.3   | 0.135573      | 127.8  |
| 35-44     | 36,932                              | 556                                | 1505.5  | 0.162613      | 244.8  |
| 45-54     | 31,618                              | 634                                | 2005.2  | 0.134834      | 270.4  |
| 55-64     | 30,461                              | 808                                | 2652.6  | 0.087247      | 231.4  |
| 65-74     | 19,428                              | 756                                | 3891.3  | 0.066037      | 257.0  |
| 75-84     | 8,894                               | 569                                | 6397.6  | 0.044842      | 286.9  |
| 85+       | 2,812                               | 415                                | 14758.2   | 0.015508      | 228.9  |
|           | 290,218                             | 4,380                              |   | TOTAL         | 1704.7   |

**Firearm mortality** – Causes of death attributable to firearm mortality include accidental discharge of firearms, suicide by firearms, homicide by firearms, legal intervention involving discharge of firearms, terrorism involving firearms and discharge of firearms, undetermined intent.

**Age-specific mortality** - Number of deaths in a specific age group during a calendar year.

**Cause of death** - For the purpose of national mortality statistics, every death is attributed to one underlying condition, based on information reported on the death certificate and utilizing the international rules for selecting the underlying cause of death from the reported conditions.

**Cause-specific mortality** - Number of deaths from a specified cause during a calendar year.

**Classification of causes of death** - The cause of death used in this report is the underlying cause classified according to the *International Classification of Diseases (ICD)*. Beginning with the 2000 data year in Arizona (1999 nationally), a new revision of the International Classification of Diseases was implemented. The Tenth Revision (ICD-10) has replaced the Ninth Revision (ICD-9), which was in effect since 1979.

**Drug-induced deaths** – This category was expanded in 2003. Causes of death attributable to drug-related mortality include mental and behavioral disorders due to psychoactive substance use, accidental poisoning by and exposure to drugs, suicide by drugs, homicide by drugs and poisoning by drugs, undetermined intent.

**Opioid-induced deaths** – This sub-category was included in 2016. Opioids include drugs such as morphine, heroin, oxycodone, tramadol, and methadone.