



1C.

FETAL, PERINATAL, AND MATERNAL DEATHS

In Arizona, reportable fetal deaths are those after 20 completed weeks of gestation or, if the gestational period is unknown, the fetal death certificate should be filed if the fetus weighs more than 350 grams (*ARS 36-329; Arizona Administrative Code, R9-19-302*). In addition to spontaneous stillbirths, any induced termination of pregnancy at 20 or more weeks of gestation (or, if the gestation period is unknown, when the weight of the product of human conception is more than 350 grams) also requires the filing of a fetal death certificate.

The National Center for Health Statistics (NCHS) in *The Revision of Model State Vital Statistics Act and Regulations** recommended adding clarifiers to the original definition promulgated by the World Health Organization in 1950. In this document, NCHS recommends the following definition: "fetal death" means death prior to the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy and which is not an

* <http://www.cdc.gov/nchs/data/misc/mvsact92b.pdf>

induced termination of pregnancy. The death is indicated by the fact that after such expulsion or extraction, the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. Heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps."

The Revision of Model State Vital Statistics Act also recommended that all induced terminations of pregnancy should be excluded from the fetal death file, except when the fetus was known to be dead before the procedure and when the induction was performed for the sole purpose of removing an already-dead fetus. The term "induced termination" implies a pregnancy in progress, not one in which fetal death has already occurred.

The implementation of a new certificate of fetal death in Arizona in the future is likely to improve the integrity of the fetal death database; excluding those induced terminations where the fetus died during the induction procedure (these will continue to be included in the abortion database but no longer double-counted among both abortions and fetal deaths). Until then, the fetal death data reported in the *Arizona Health Status and Vital Statistics* annual report will be focused on a subset of all records collected, that is **reportable spontaneous fetal losses**: including spontaneous terminations of pregnancy at 20 or more weeks of gestation (or if gestational age is unknown, the death of fetuses of at least 350 grams in weight), and excluding induced terminations of pregnancy performed with the intention other than to remove a dead fetus.

It is only beginning with the year 2000 that information about the gestational age of a fetus became available in the electronic database of fetal deaths in Arizona. For the first time the users of the health statistical information about fetal deaths realized that a rather surprising number of records in the fetal death database also include some stillbirths prior to 20 weeks and of any weight, i.e., events not required to be reported in the State (**Table 1C-3**). In this report, those early stillbirths are excluded from the count of reportable fetal losses.

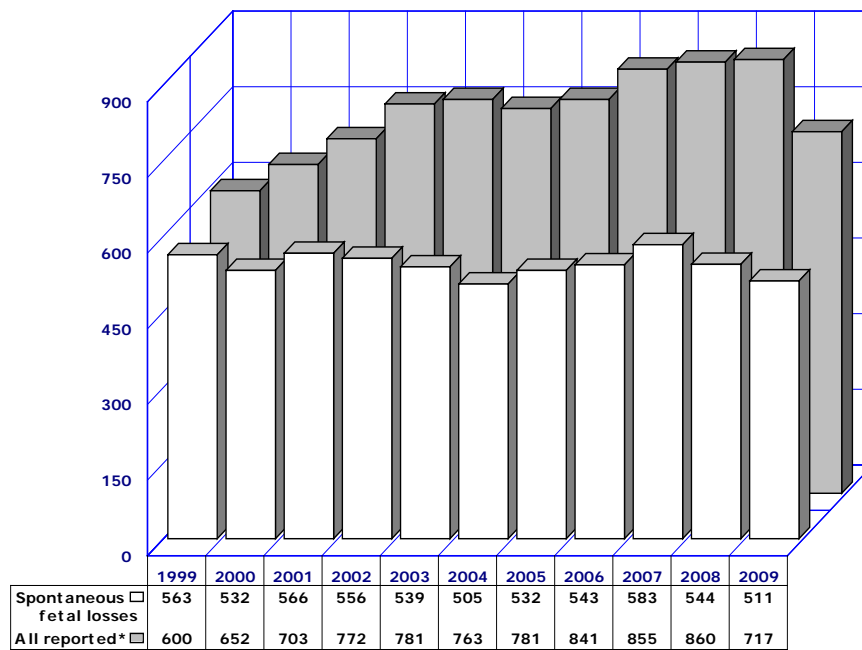
Beginning in 2003, the data tables in Section 1C and 5C have been revised to include only reportable spontaneous fetal losses.

The revision of the U.S. Standard, as well as Arizona Report of Fetal Death certification format introduces substantial changes in how cause of fetal death is collected. The new format has two parts: A) Initiating cause/condition and B) Other significant causes or conditions. The instructions direct the physician to report an initiating condition in part A and all remaining causes in part B. Compared with the previous U.S. Standard Report of Fetal Death (1989 revision), the new format eliminates the reported sequence of conditions resulting in death and assumes that physicians will be able to provide an "initiating cause/condition," which is equivalent to the "reported underlying cause of death." A list of checkboxes and "Specify" lines replace the previous open-ended format. The list is neither inclusive nor as detailed as possible. The "Specify" lines allow physicians to report other causes or provide more detail.

A comparison of the current with the proposed Arizona Certificate of Fetal Death is available online at <http://www.azdhs.gov/plan/cert/pdf/fetal.pdf>.

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Figure 1C-1
Trends in Fetal Deaths, Arizona, 1999-2009

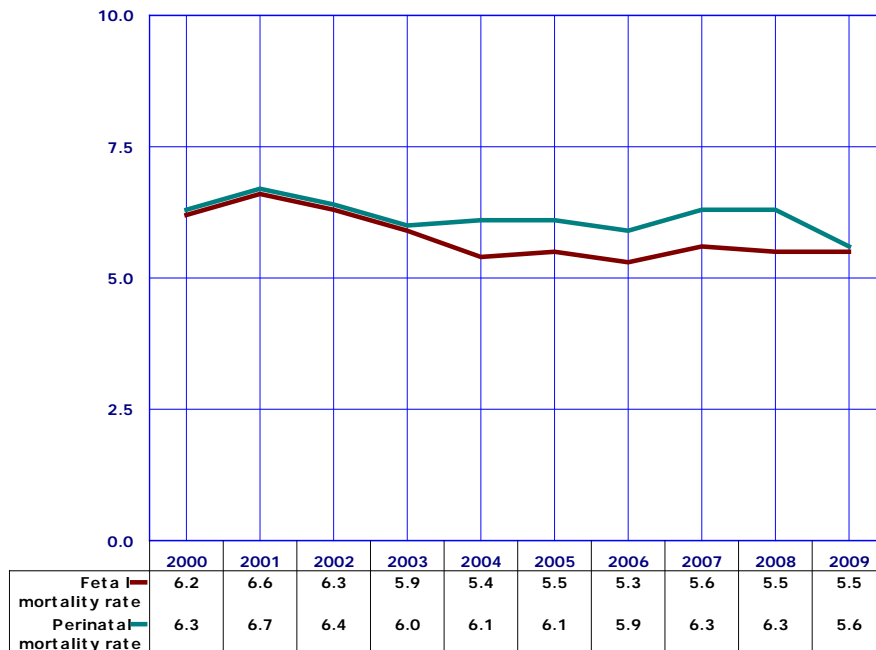


*Includes spontaneous and induced termination of pregnancy at 20 or more weeks of gestation (or if gestational age unknown, the deaths of fetuses of at least 350 grams or more) and some stillbirths prior to 20 weeks and of any weight).

It is not possible to identify the gestational age of fetal deaths prior to 2000. However, the practice of including spontaneous or induced terminations of pregnancy prior to 20 weeks of gestation and/or of any weight had begun in 1997 effecting a rather substantial increase in the number of annually reported fetal deaths in Arizona from 483 in 1996 to 637 in 1997.

The number of all reported fetal deaths in Arizona (including late term abortions) in 2009 was 717 compared to 860 in 2008 (**Figure 1C-1, Table 1C-3**). The annual number of reportable spontaneous fetal losses also decreased by 6.1 percent from 544 in 2008 to 511 in 2009 (**Figure 1C-1, Table 1C-3**).

Figure 1C-2
Fetal* and Perinatal Mortality** Rates, Arizona, 2000-2009



Rate is the number of fetal deaths per 1,000 live births and fetal deaths.

**Infant deaths of less than 7 days and fetal deaths with a period of gestation of 28 weeks or more, per 1,000 live births and fetal deaths.

Perinatal mortality refers here to death of a fetus of at least 28 weeks gestational age or of an infant less than 7 days old. The perinatal death rate per 1,000 live births and fetal deaths decreased from 6.3 in 2008 to 5.6 in 2009 (**Figure 1C-2, Table 1C-3**).

Early infant deaths accounted for 281 or 53.6 percent of the 524 perinatal deaths in 2009; the same ratio as in 2008 (**Figure 1C-2, Table 1C-3**).

In contrast, the fetal mortality of 5.5 fetal deaths at 20 or more weeks of gestation per 1,000 live births and fetal deaths remained unchanged in 2009.

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Figure 1C-3
Average Annual Maternal Mortality Rates by Mother's Age Group, Arizona, 1999-2009

In 2009, as in 2000, seven women were reported to have died from maternal causes (Table 1C-1). The number of maternal deaths does not include all deaths occurring to pregnant women, but only those deaths assigned to causes related to or aggravated by pregnancy or pregnancy management.

Based on the total number of 74 maternal deaths from 1999 to 2009 and 904,291 live births during that period, the average annual maternal mortality rate was 8.2 deaths per 100,000 live births. The average annual maternal mortality rate of 10.8 per 100,000 live births to women age 30 years or older during 1999-2009 was 2.3 times greater than the rate of 4.6/100,00 among women aged 19 years or younger (Figure 1C-3).

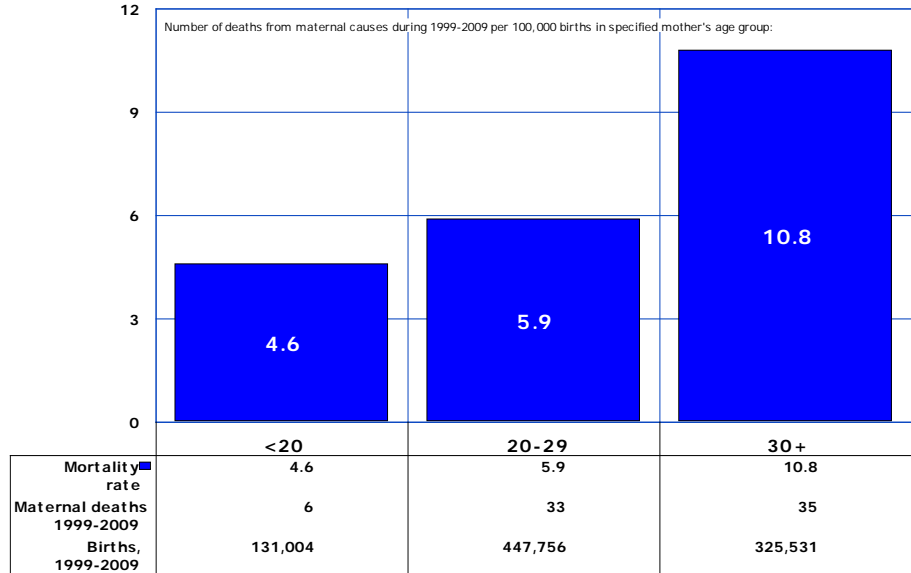
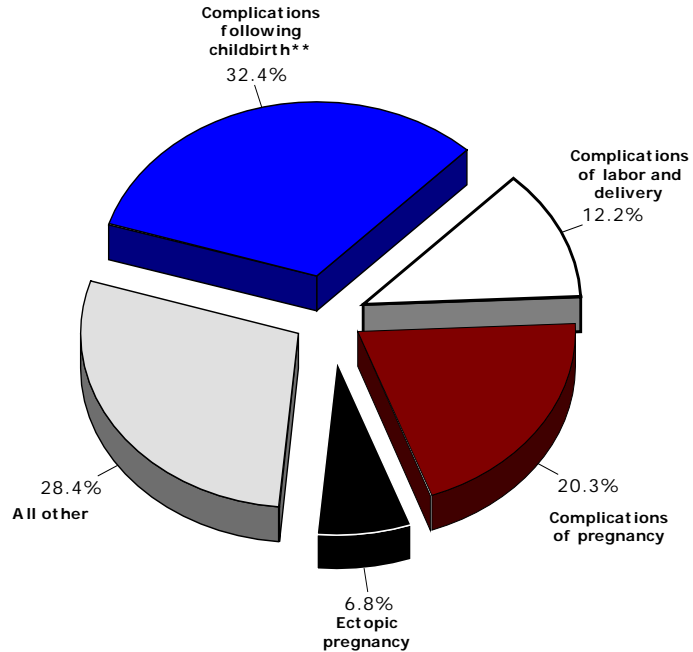


Figure 1C-4
Causes of Maternal Mortality*, Arizona, 1999-2009

In the eleven-year period from 1999 to 2009, the causes of maternal deaths in the State have included complications following childbirth (i.e. complications of the puerperium, 32.4 percent), complications mainly related to pregnancy (20.3 percent of all maternal deaths) and complications occurring in the course of labor and delivery (12.2 percent). Ectopic pregnancy accounted for 6.8 percent of maternal deaths in 1999-2009 (Figure 1C-4, Table 1C-2).

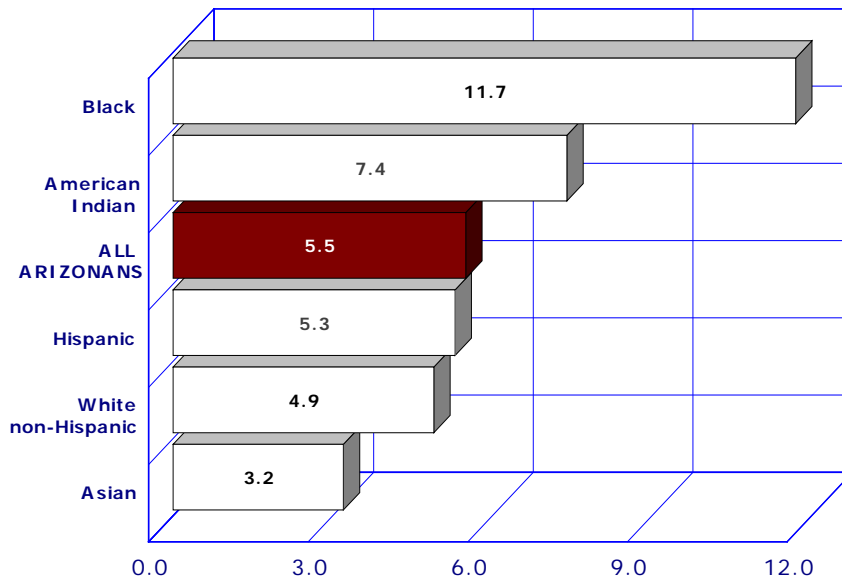


*Based on the total number of maternal deaths from 1997 to 2007.

** Complications of the puerperium.

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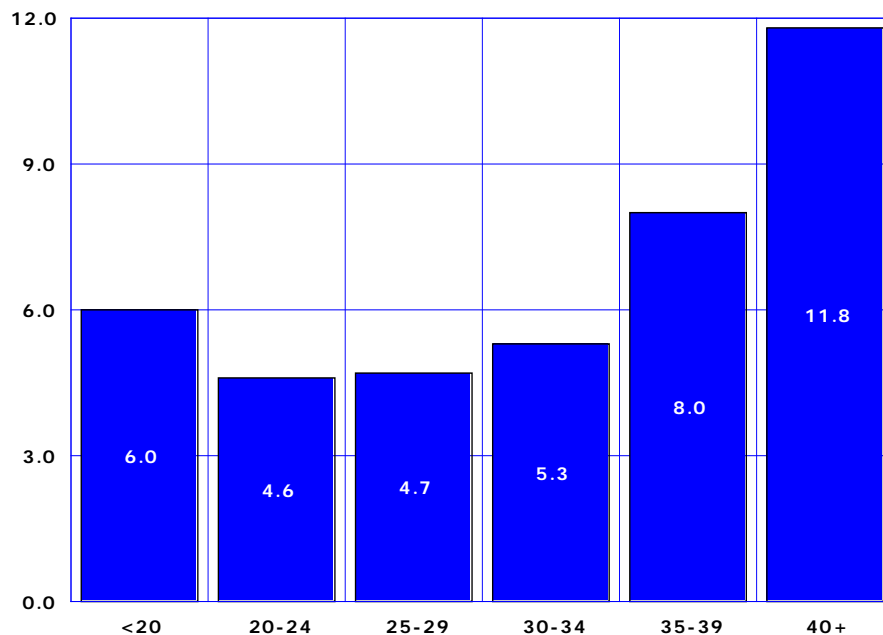
Figure 1C-5
Fetal Mortality Rates* by Race/Ethnicity, Arizona, 2009



Fetal mortality rates vary by the race/ethnicity of the mother (**Figure 1C-5**). The fetal mortality for Asian or Pacific Islander women was 3.2, the lowest rate among the groups. In contrast, the fetal mortality rate of 11.7 for Black or African American women was 3.7 times the rate for Asian or Pacific Islander women.

*Rate is the number of fetal deaths per 1,000 live births and fetal deaths.

Figure 1C-6
Fetal Mortality Rates* by Mother's Age Group, Arizona, 2009



Fetal mortality rates also vary considerably by maternal age (**Figure 1C-6**). In 2009, fetal mortality rates were lowest for women aged 20-34 years and higher for teenage mothers and those aged 35 years and older. The rate for mothers aged 40 years or older was 11.8/1,000, 2.6 times the rate of 4.6 for mothers 20-24 years old.

*Rate is the number of fetal deaths per 1,000 live births and fetal deaths.