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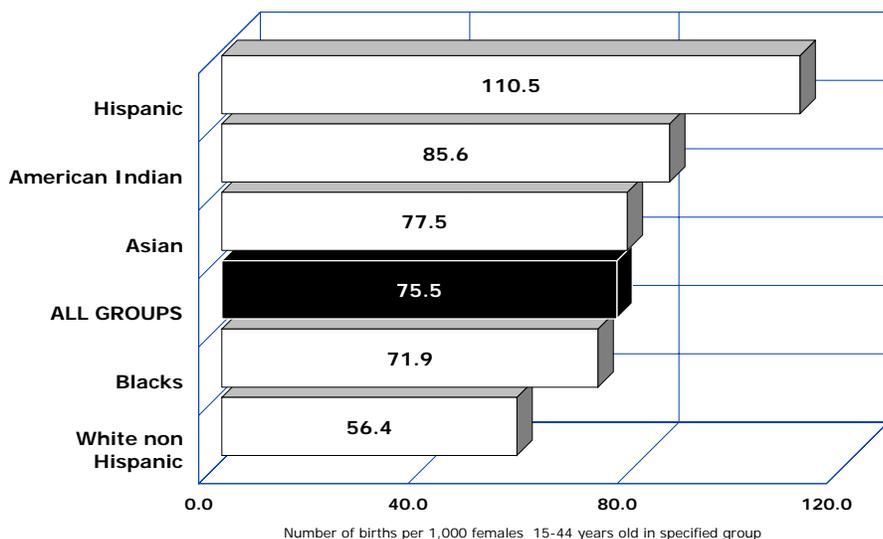
**NATALITY:
MATERNAL CHARACTERISTICS AND NEWBORN'S HEALTH**

The number of babies born in Arizona increased for the eleventh consecutive year from 68,675 in 1992 to 87,379 in 2002 (**Table 1B-2**). However, the growth of the population was even larger and the 2002 birth rate of 16.0 births per 1,000 population was the lowest rate of the eleven-year period from 1992 to 2002 (**Table 1B-1**). In 1992, one baby was born for every 53 Arizonans; while one birth per approximately 63 residents of the State occurred in 2002.

White non-Hispanic, Black and American Indian mothers each experienced decreased shares of all births in 2002 than in 1992 (**Table 1B-2**). Compared to 1992, Hispanic women accounted for a 31.4 percent larger share of all births in 2002. Among every 100 babies born in Arizona in 2002, 45 were White non-Hispanics, 41 Hispanics, 6 American Indians, 3 Blacks, and 3 Asians or Pacific Islanders. Another two percent of Arizona mothers giving birth in 2002 chose not to identify themselves with any of those racial/ethnic groups.

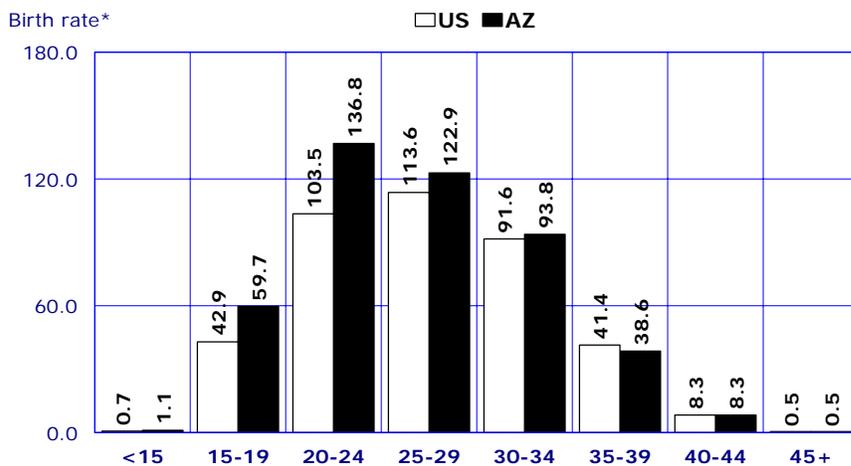
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Figure 1B-1
Fertility Rates by Race/Ethnic Group Among
Females of All Ages, Arizona, 2002



From among 1,157,232 women of childbearing age (15-44 years), 7.6 percent gave birth in 2002. The fertility rate (the number of births per 1,000 women 15-44 years old) was the highest for Hispanic women (110.5 births per 1,000) followed by rates for American Indian (85.6/1,000), and Asian women (77.5/1,000). Fertility rates for Black and White non-Hispanic women were lower than the average for all groups of 75.5/1,000 (Figure 1B-1).

Figure 1B-2
Birth Rates by Age of Mother, Arizona
and United States, 2002



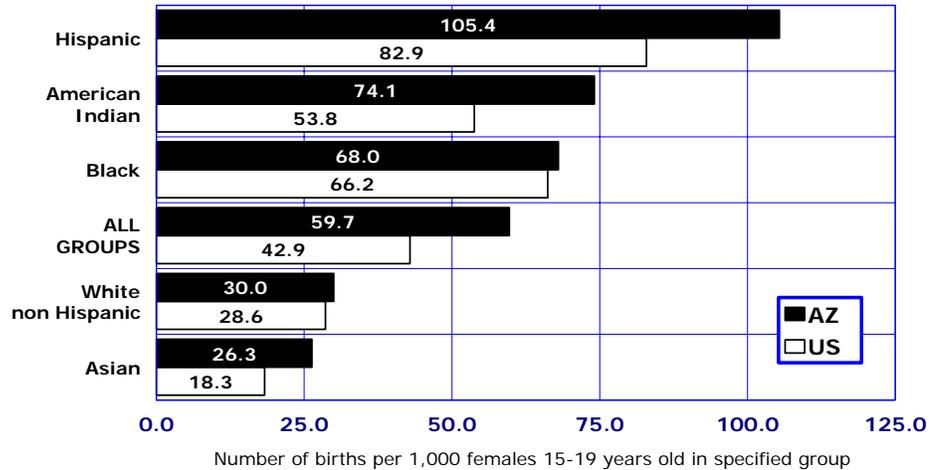
* Number of births per 1,000 females in specified group.

In 2002, birth rates for women in age groups up to 35 years were higher in Arizona than they were nationally (Figure 1B-2, Table 1B-1). In contrast, the birth rates for women aged 35-39 in Arizona were lower than the birth rates of their age peers in the nation. The birth rate for Arizona women age 40-44 decreased from 8.5/1,000 in 2001 to 8.3/1,000 in 2002 and was the same as the rate for their age group nationally.

The birth rate for teenagers 15-19 years old in 2002 was 59.7 births per 1,000 women in this age group, 5.7 percent lower than in 2001 and 27.9 percent lower than in 1994 when it reached its highest peak of 82.8/1,000 for the eleven-year period from 1992 to 2002 (Table 1B-1).

Arizona birth rates for every race/ethnic group among teens aged 15-19 in 2002 decreased from 2001 but they remained greater than the birth rates among their respective national peers (Figure 1B-3).

Figure 1B-3
Birth Rates by Race/Ethnic Group Among Females 15-19 Years Old, Arizona and United States, 2002



Unmarried mothers have accounted for an increasing annual proportion of births throughout the 1980s and 1990s, with 40.2 percent in 2002 marking a new historical high (Table 1B-2). Fewer than 11,000 infants were born to unmarried mothers in 1982 compared to 35,116 in 2002.

Two decades ago, the proportion of births among unmarried teenagers aged 15-19 years was slightly above 50 percent (Figure 1B-4). This proportion rose to 76.4 percent between 1982 and 1992. In 2002, eight out of ten (81.8 percent) mothers 15-19 years old were unmarried.

Figure 1B-4
Percent Births to Unmarried Mothers by Age Group, Arizona, 1982, 1992 and 2002

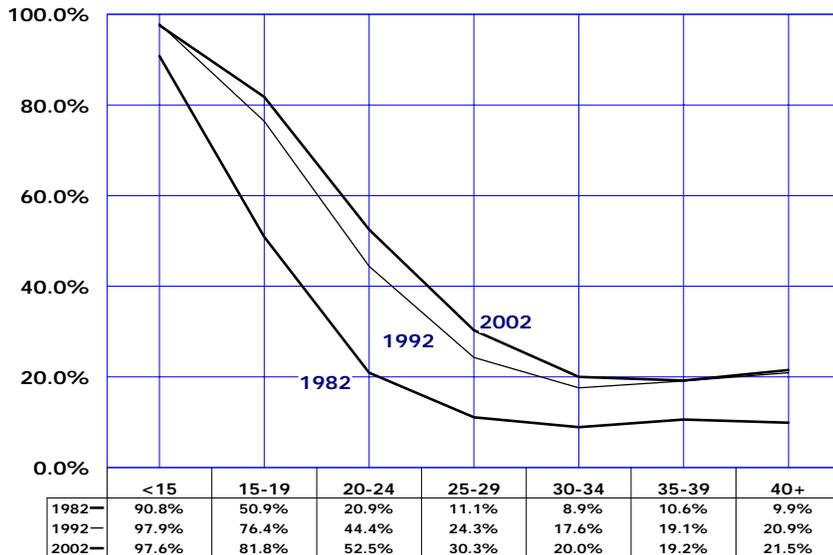
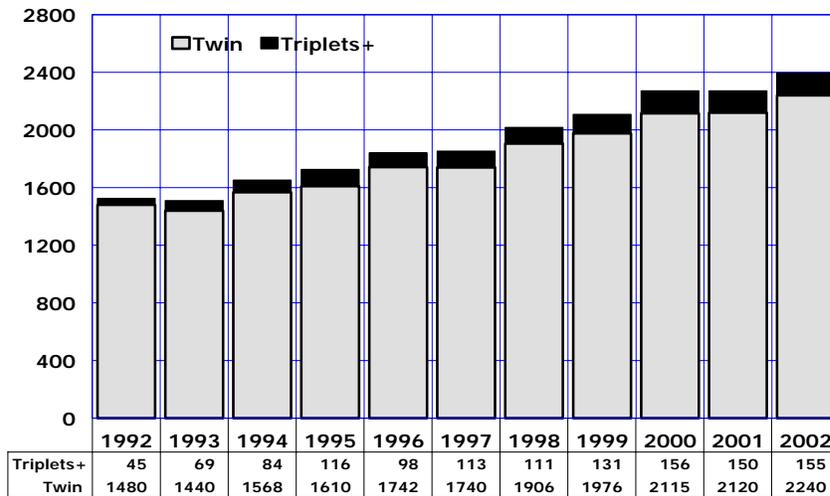
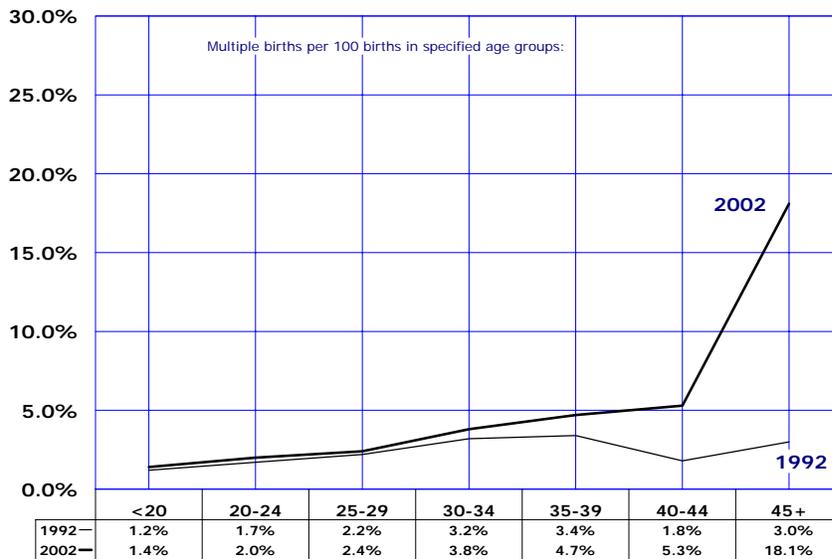


Figure 1B-5
Number of Births in Twin and Triplet Deliveries by Year, Arizona, 1992-2002



There were 2,395 multiple birth events in Arizona in 2002, the highest number ever recorded in the State. (Figure 1B-5). The number of babies born in twin deliveries increased by 55.6 percent from 1,440 in 1993 to 2,240 in 2002 (Figure 1B-5). More profound was the 3.4 times (or 244 percent) increase in the number of triplet and higher order multiple birth events from 45 in 1992 to 155 in 2002. In contrast, the number of singleton births increased by 27.2 percent over this period. The number of multiple birth events, as a proportion of total births, has increased from 2.2 percent in 1992 to 2.7 percent in 2002 (Table 1B-1).

Figure 1B-6
Risk for Multiple Births by Mother's Age Group, Arizona, 1992 and 2002

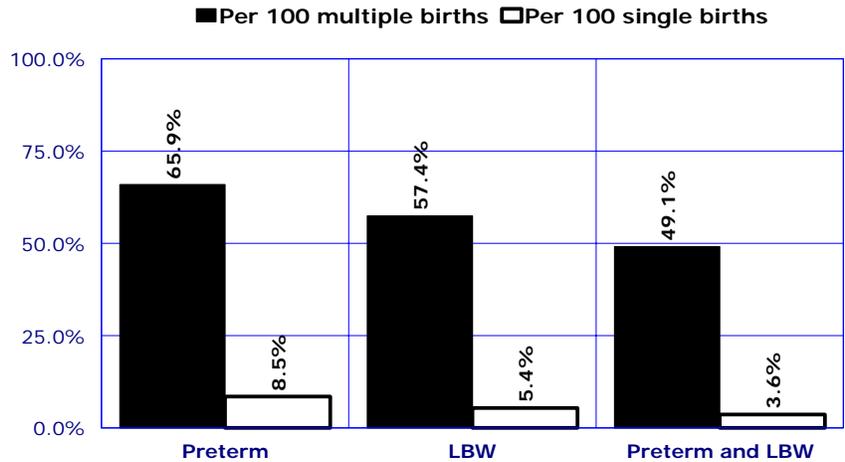


The rise in multiple births has been associated with two related trends: 1) advances in, and greater access to, assisted reproductive technology, and 2) the older age of childbearing (women in their thirties are more likely to have a multiple birth than younger women even without the use of fertility therapies).

Historically, multiple birth rates have been highest among women aged 35-39 years (Figure 1B-6). For recent years, multiple birth rates have risen steadily with maternal age, with a precipitous rise at age 45 years and over. In 2002, 18.1 percent of all births to women aged 45 years and over were twins or triplets (Figure 1B-6).

Figure 1B-7
Infants Born Too Early (Preterm) and Infants Born Too Small (LBW) Among Multiple and Single Births, Arizona, 2002

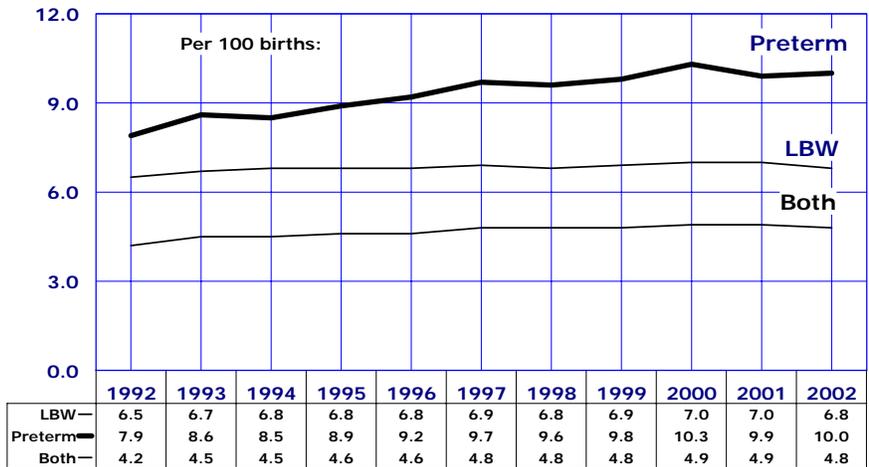
Infants born in multiple deliveries tend to be born at shorter gestations and smaller than those born in singleton deliveries (**Figure 1B-7**). In 2002, infants born in multiple deliveries were 13.6 times more likely (49.1 vs. 3.6 percent) to be born earlier than expected (at less than 37 completed weeks of gestation) and smaller (at less than 2,500 grams) than singleton births.



Preterm = < 37 weeks of gestation;
 LBW = low birthweight (less than 2,500 grams or 5 pounds 8 ounces)

The proportion of preterm births increased slightly from 9.9 to 10.0 percent for 2002. The percent of preterm births (at less than 37 completed weeks of gestation) has risen fairly steadily over the last decade, from 7.9 percent in 1992. The proportion of infants born earlier than expected and smaller (at less than 2,500 grams) decreased from 4.9 percent both in 2000 and 2001 to 4.8 percent in 2002 (**Figure 1B-8**). Since 1993, all of the annual proportions of infants born too early and too small substantially exceeded the ratio of 4.2 percent recorded in 1992.

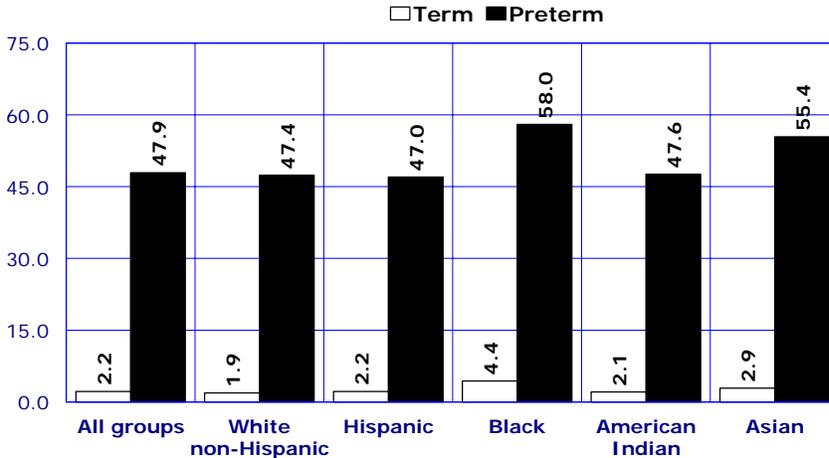
Figure 1B-8
Preterm and Low Birthweight (LBW) Births by Year, Arizona, 1992-2002



Preterm is less than 37 weeks of gestation;
 Low birthweight (LBW) is less than 2,500 grams (less than 5 pounds 8 ounces).

Figure 1B-9
Low-Birthweight (LBW) Births by Length of Gestation and
Mother's Race/Ethnicity, Arizona, 2002

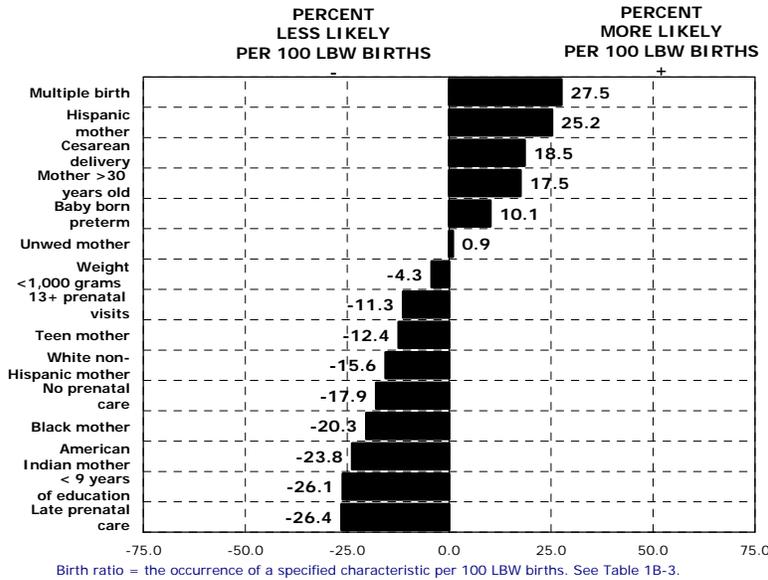
Number of LBW babies per 100 births in specified group:



Preterm is less than 37 weeks of gestation;
 Low birthweight (LBW) is less than 2,500 grams (less than 5 pounds 8 ounces).

In 2002, 6.8 percent of all babies were born of low birthweight (LBW), or at less than 2,500 grams (5 pounds 8 ounces). Preterm delivery is the strongest risk factor for LBW. Infants born at less than 37 completed weeks of gestation are nearly 22 times (47.9 vs. 2.2 percent) more likely to be LBW than infants born at term (**Figure 1B-9**).

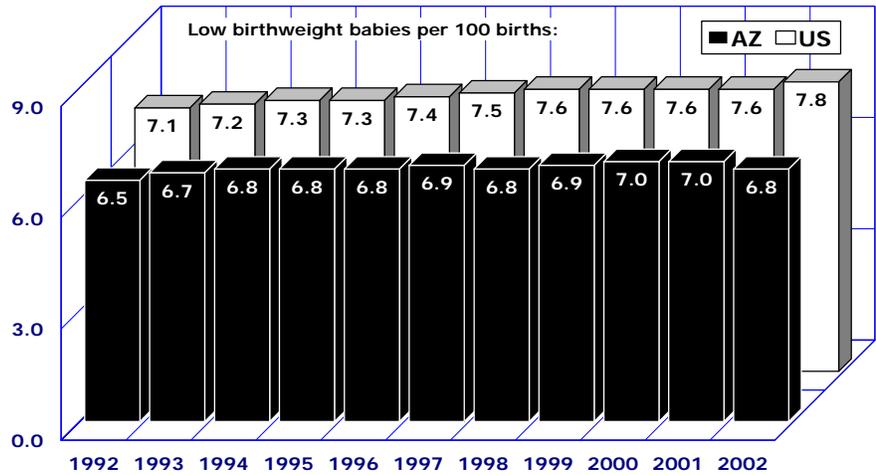
Figure 1B-10
Percent Change from 1992 to 2002 in Birth Ratios*
for Selected Characteristics of Women Giving Birth to and of
Low Birthweight Newborns in Arizona



The low birthweight (LBW) infants were 27.5 percent more likely to be born in a multiple delivery in 2002 than in 1992 (**Figure 1B-10**). Compared to 1992, the LBW infants in 2002 were also more likely to be born at less than 37 weeks of gestation, to older, Hispanic mothers. The proportion of LBW infants born to mothers who received late or no prenatal care declined by 26.4 percent from 1992 to 2002 (**Table 1B-3**).

In 2002, 6.8 percent of all Arizona infants were born at a low birthweight (LBW), or at less than 2,500 grams (5 pounds 8 ounces), a slight decrease from 2000 and 2001. In each year from 1992 to 2002, the annual incidence of LBW infants was lower in Arizona compared to the nation (Figure 1B-11). The LBW ratio of 7.8 percent of all births nationally was the highest reported in more than three decades.

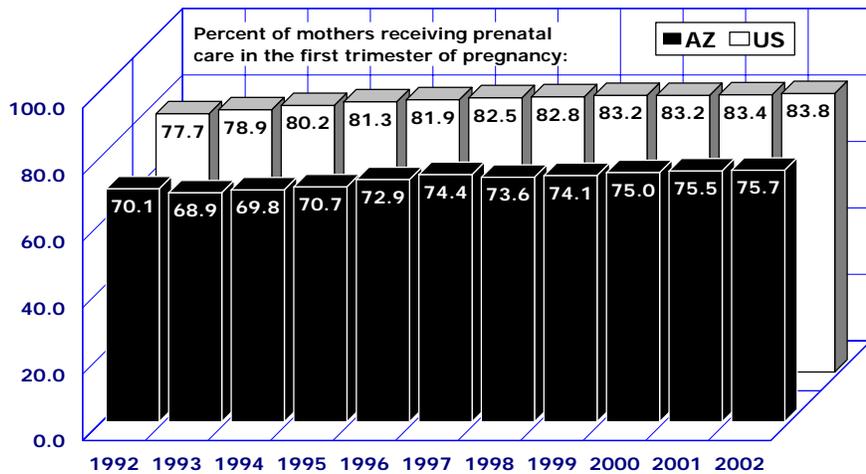
Figure 1B-11
Percent Low Birthweight,* Arizona and United States, 1992-2002



*Low birthweight is less than 2,500 grams (less than 5 pounds 8 ounces).

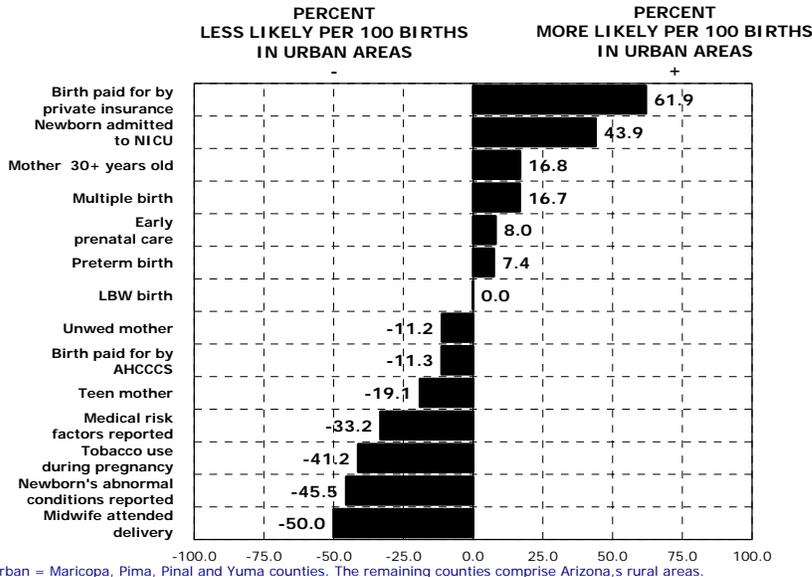
The percent of Arizona mothers giving birth who received early prenatal care (i.e., in the first trimester of pregnancy) increased from 70.1 percent in 1992 to 75.7 percent in 2002. In each year from 1992 to 2002, the percent of women giving birth who received prenatal care in the first trimester was lower in Arizona when compared to the nation (Figure 1B-12).

Figure 1B-12
First Trimester Prenatal Care, Arizona and United States, 1992-2002



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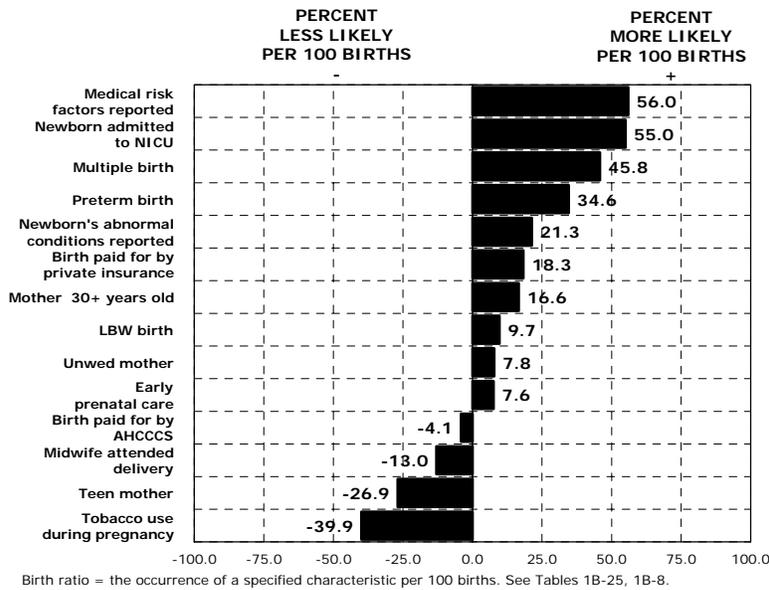
Figure 1B-13
Percent Difference in Birth Ratios* for Selected Characteristics of Mothers Giving Birth and Newborns in Urban* and Rural Areas, Arizona, 2002



Urban = Maricopa, Pima, Pinal and Yuma counties. The remaining counties comprise Arizona's rural areas.
 Birth ratio = the occurrence of a specified characteristic per 100 births. See Tables 1B-4, 1B-5, 1B-25, and 1B-26.

Compared to infants born in rural Arizona, the deliveries of infants in urban Arizona in 2002 were nearly 62 percent more likely to be paid for by private insurance and less likely to be paid for by the Arizona Health Care Cost Containment Systems (AHCCCS), or the State's Medicaid program (Figure 1B-13).

Figure 1B-14
Percent Change from 1992 to 2002 in Birth Ratios* for Selected Characteristics of White non-Hispanic Mothers Giving Birth and Newborns in Arizona



Birth ratio = the occurrence of a specified characteristic per 100 births. See Tables 1B-25, 1B-8.

Compared to 1992, White non-Hispanic infants born in 2002 were more likely to be admitted to newborn intensive care units (NICU), and to be born in multiple deliveries (Figure 1B-14). The proportion of White non-Hispanic infants born to mothers who self-reported tobacco use during pregnancy declined from 16.3 percent in 1992 to 10.7 percent in 2002.

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Figure 1B-15
Percent Change from 1992 to 2002 in Birth Ratios
for Selected Characteristics of Hispanic Mothers
Giving Birth and Newborns in Arizona

The proportion of Hispanic infants admitted to newborn intensive care units (NICU) increased from 4.1 percent in 1992 to 5.0 percent in 2002. Compared to 1992, Hispanic infants in 2002 were less likely to be born to teen mothers or, to mothers who used tobacco during pregnancy (Figure 1B-15).

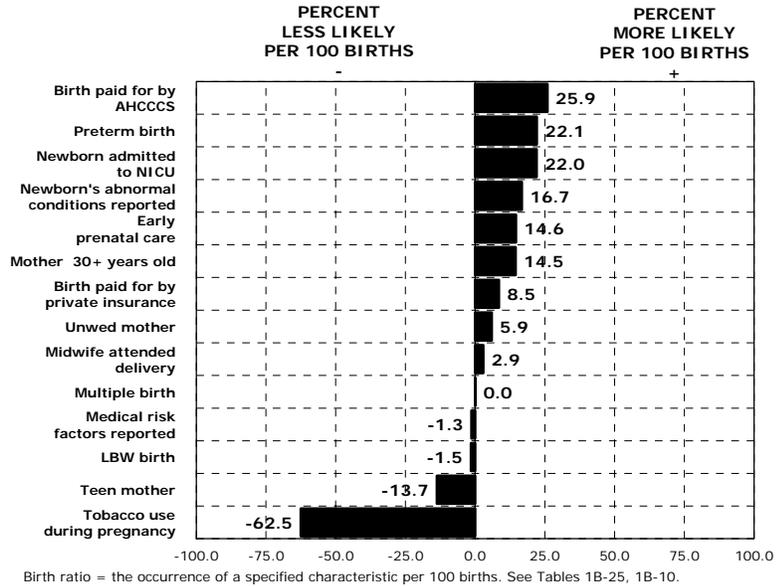
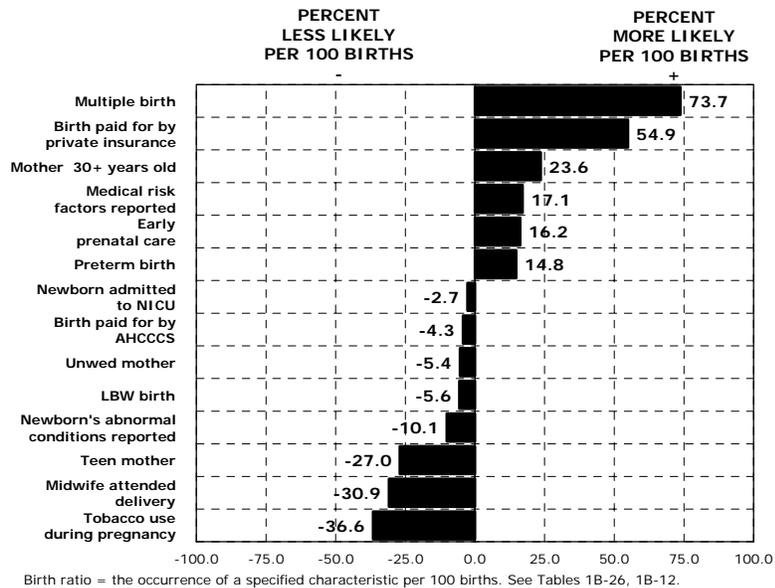


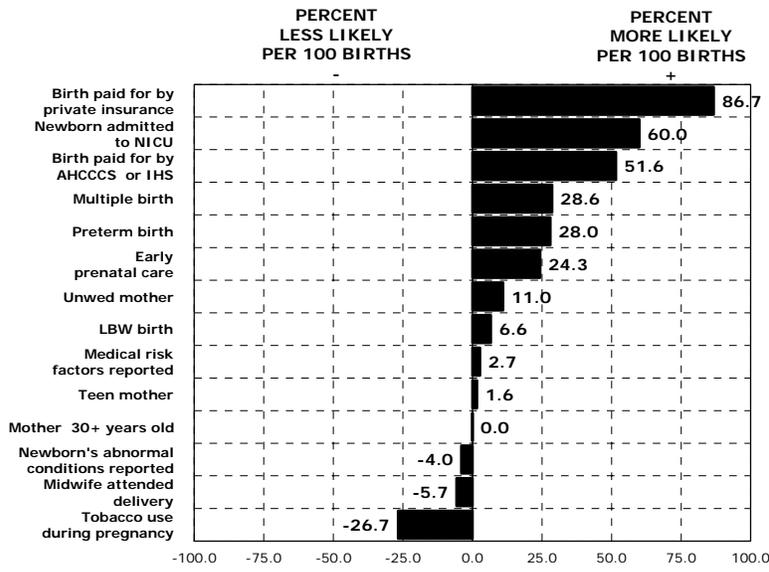
Figure 1B-16
Percent Change from 1992 to 2002 in Birth Ratios
for Selected Characteristics of Black Mothers
Giving Birth and Newborns in Arizona

The proportion of Black infants born in multiple deliveries increased from 1.9 percent in 1992 to 3.3 percent in 2002. The proportion of Black infants admitted to newborn intensive care units (NICU) decreased slightly from 7.4 percent in 2001 to 7.2 percent in 2002. Black mothers were less likely to be in their teens or, to use tobacco during pregnancy in 2002 than in 1992 (Figure 1B-16).



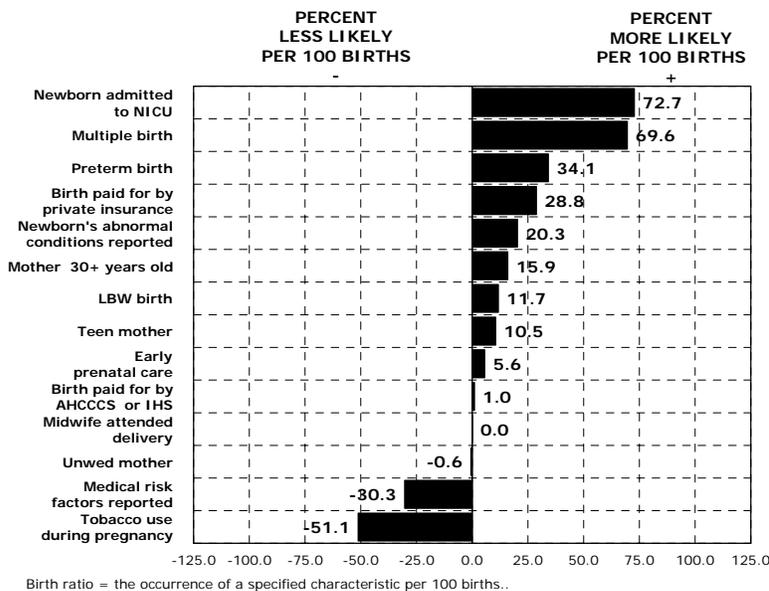
1B. NATALITY: MATERNAL CHARACTERISTICS AND NEWBORN'S HEALTH

Figure 1B-17
Percent Change from 1992 to 2002 in Birth Ratios for Selected Characteristics of American Indian Mothers Giving Birth and Newborns in Arizona



The proportion of American Indian births paid for by private insurance increased from 8.3 percent in 1992 to 15.5 percent in 2002. Compared to 1992, American Indian infants in 2002 were more likely to be admitted to newborn intensive care units (NICU), and to have mothers who received early prenatal care (Figure 1B-17). The proportion of American Indian infants born in multiple deliveries increased by 28.6 percent from 1992 to 2002.

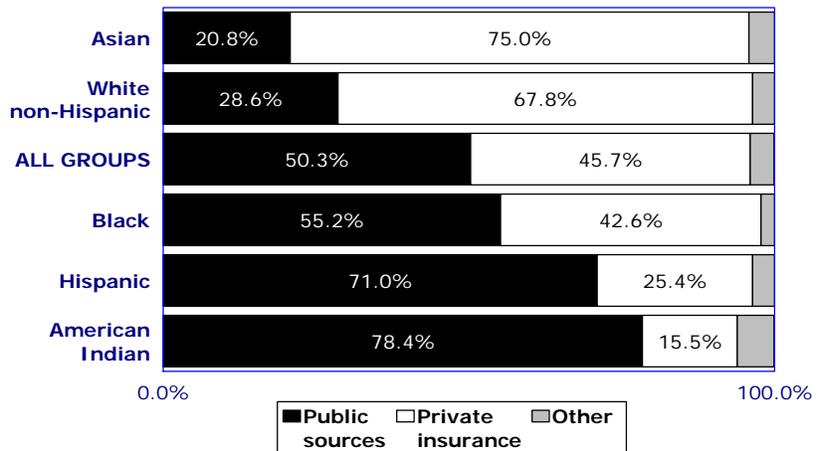
Figure 1B-18
Percent Change from 1992 to 2002 in Birth Ratios* for Selected Characteristics of Asian Mothers Giving Birth and Newborns in Arizona



The proportion of Asian infants admitted to newborn intensive care units (NICU) increased (Figure 1B-18) from 3.3 percent in 1992 to 5.7 percent in 2002. In contrast, the proportion of Asian mothers who reported tobacco use during pregnancy declined from 4.7 percent in 1992 to 2.3 percent in 2002.

In 2002, private insurance was the largest payor for deliveries of Asian (at 75.0 percent) and White non-Hispanic infants (at 67.8 percent). In contrast, the Arizona Health Care Cost Containment System (AHCCCS) was the largest payor for deliveries of Black and Hispanic women (55.2 and 71.0 percent respectively). The Indian Health Service or AHCCCS covered the largest share (78.4 percent) of American Indian births (Figure 1B-19).

Figure 1B-19
Payee for Delivery by Mother's Race/Ethnicity, Arizona, 2002



Public sources = AHCCCS or IHS. The Arizona Health Care Cost Containment System (AHCCCS) is the State's Medicaid program. IHS is the Indian Health Service.

Maternal medical risk factors can contribute to serious pregnancy complications and infant deaths, particularly if not treated properly. In 2002, American Indian women giving birth had the highest proportion of medical risk factors (38.4 percent, Figure 1B-20), followed by Black and White non-Hispanic women.

Figure 1B-20
Maternal Medical Risk Factors per 100 Births by Mother's Race/Ethnicity, Arizona, 2002

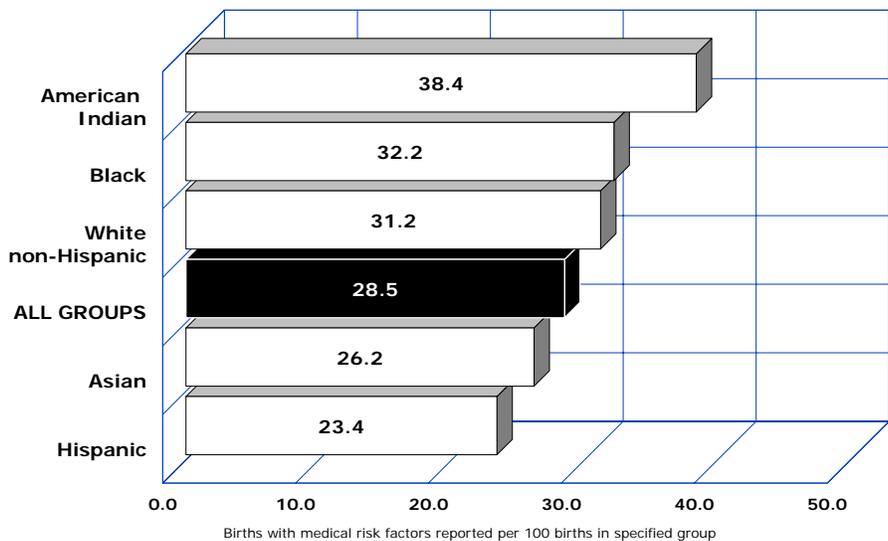
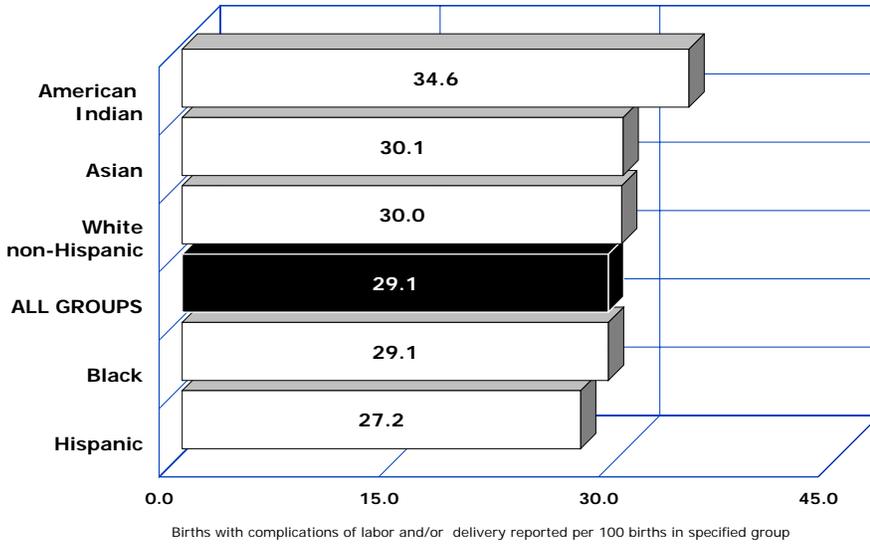
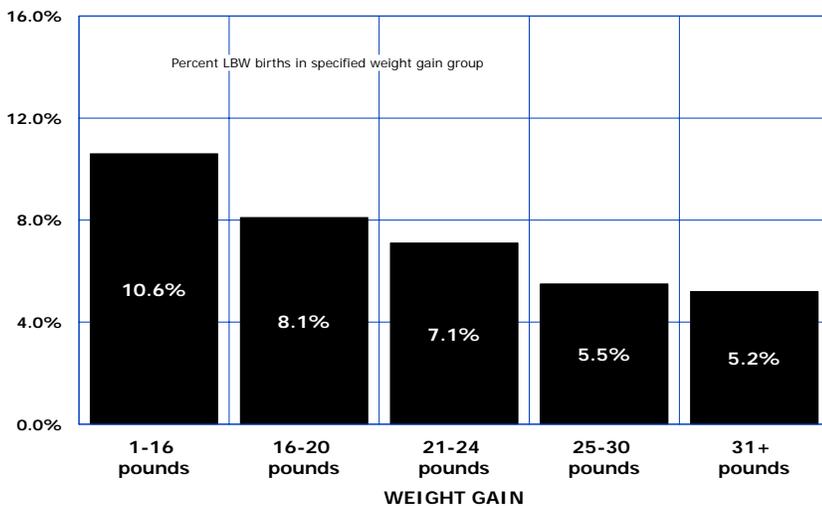


Figure 1B-21
Complications of Labor and/or Delivery per 100 Births
by Race/Ethnicity, Arizona, 2002



In 2002, of the 15 complications of labor and delivery reported on the birth certificate, the three most frequently reported were *meconium moderate/ heavy* (3.7 percent), *breech malpresentation* (3.2 percent), and *fetal distress* (2.7 percent). Complications rates vary among racial/ethnic groups, with the highest rates reported for American Indian, Asian, and White non-Hispanic women (Figure 1B-21).

Figure 1B-22
Risk for Low-Birthweight by Maternal Weight Gain
During Pregnancy, Arizona, 2002

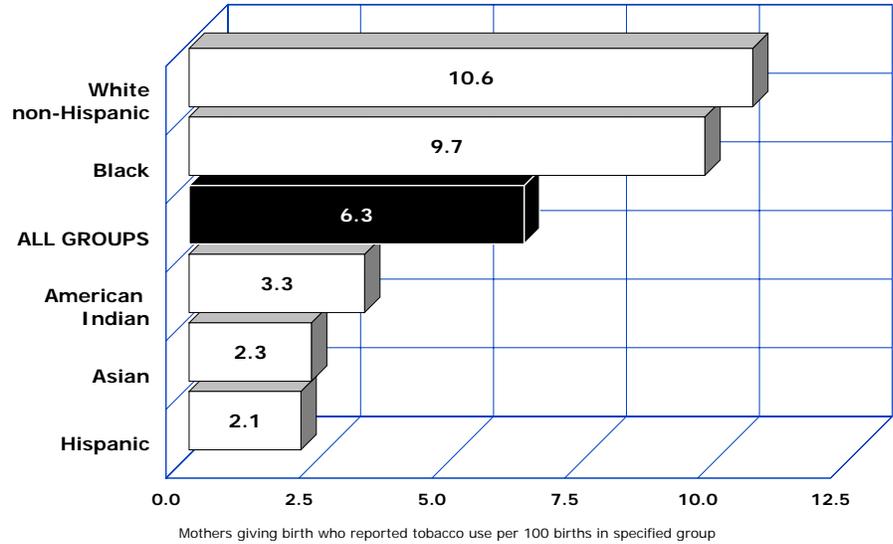


Maternal weight gain during pregnancy is an important determinant of both fetal growth and birthweight. Women who are of normal weight (average body mass index or BMI) should gain 21-35 pounds during a normal pregnancy. Women who are underweight should gain more (28-40 pounds), and women who are overweight should gain less (15 to 25 pounds). Unfortunately, it is not possible to determine whether the weight gain was within the recommendations for the mother's BMI, because information of the mother's pre-pregnancy weight and height is not collected on the birth certificate.

Maternal weight gain has been shown to have a positive correlation with infant birthweight. In 2002, as in previous years, the percent of infants with low birthweight decreased with increasing maternal weight gain (Figure 1B-22).

Cigarette smoking during pregnancy has been associated with reduced infant birthweight, intrauterine growth retardation and preterm births. Smoking during pregnancy was reported by 6.3 percent of women giving birth in 2002 (Table 1B-26, Table 5B-30), compared to 11.2 percent in 1992. As in the past, it is unclear, whether this decline means that women giving birth in Arizona are less likely to use tobacco during pregnancy or, perhaps, less likely to report it when they use. White non-Hispanic and Black mothers were more likely to report smoking than American Indian, Asian and Hispanic (Figure 1B-23).

Figure 1B-23
Self-reported Tobacco Use During Pregnancy
by Race/Ethnicity, Arizona, 2002



In 2002, 0.9 percent of all live births were to mothers who reported alcohol use (Table 1B-26, Table 5B-30). American Indian, Black, and White non-Hispanic mothers were more likely than Hispanic and Asian mothers to report the use of alcohol.

The stigma of maternal alcohol use likely contributes to the underreporting of this behavior.

Figure 1B-24
Self-reported Alcohol Use During Pregnancy
by Race/Ethnicity, Arizona, 2002

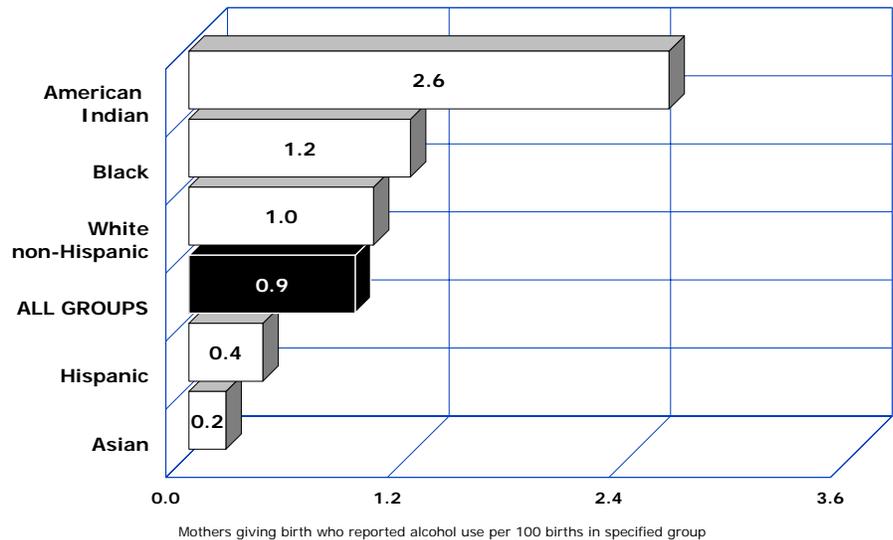
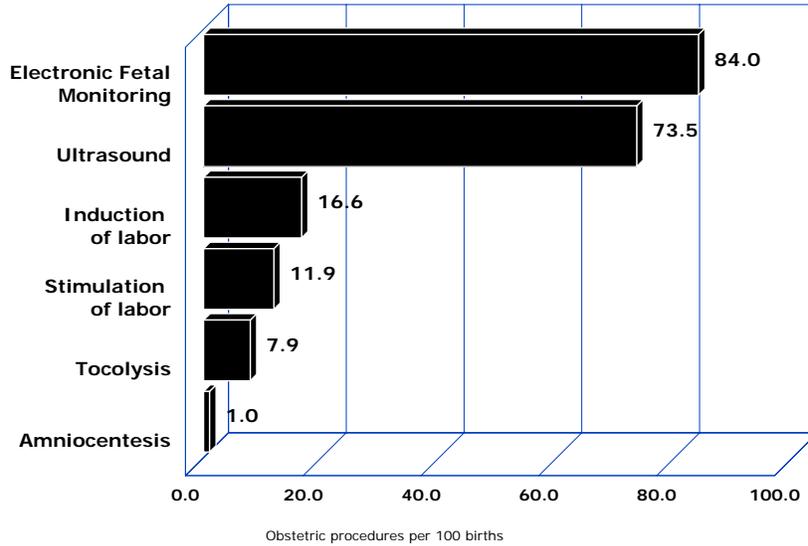
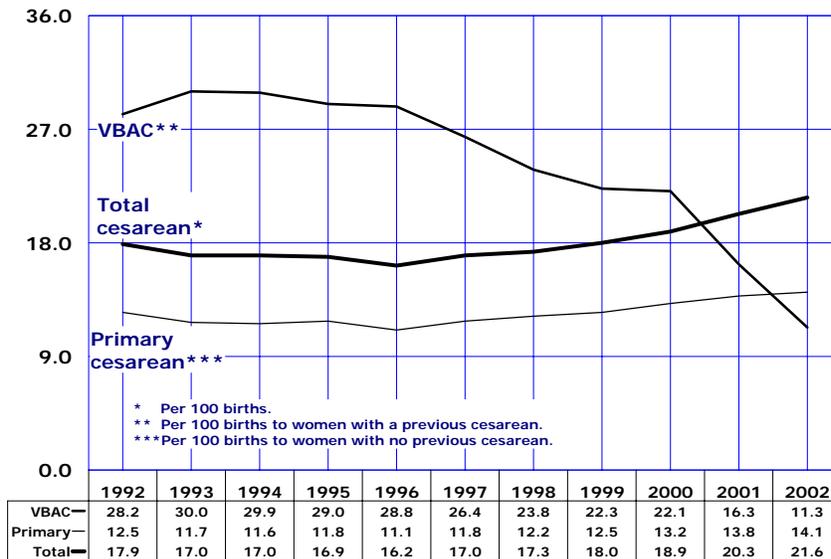


Figure 1B-25
Obstetric Procedures Reported per 100 Births,
Arizona, 2002



Of the six specific obstetric procedures listed on the birth certificate, *electronic fetal monitoring* and *ultrasound* are most frequently reported (**Figure 1B-25**). In 2002, *electronic fetal monitoring* was the most prevalent procedure, reported for 84.0 percent of all births to Arizona residents. The overall rate of *amniocentesis* decreased to 1.0 percent of births in 2002, from 2.6 percent in 1992. *Ultrasound* and other less invasive screening may be replacing the use of *amniocentesis*.

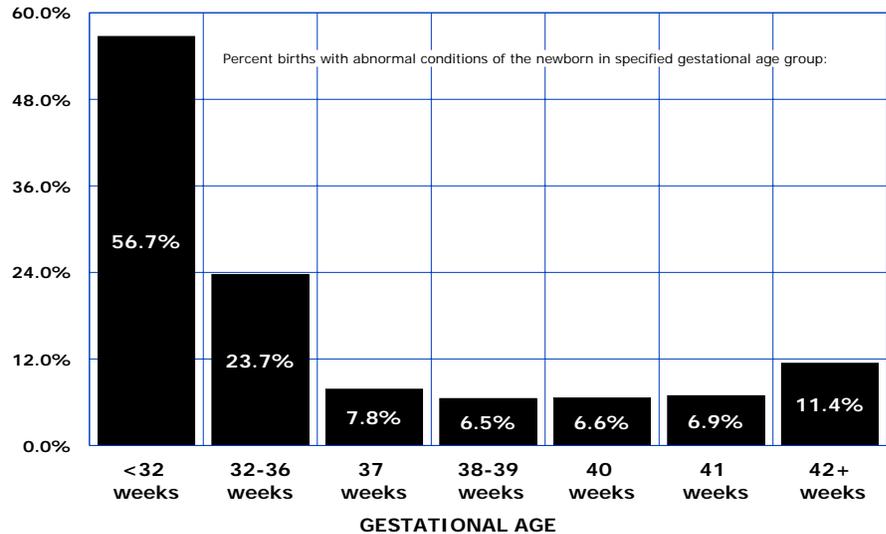
Figure 1B-26
Total and Primary Cesarean Deliveries and
Vaginal Births After Previous Cesarean (VBAC),
Arizona, 1992-2002



The rate of cesarean delivery increased to an all time high of 21.6 percent of all births (**Figure 1B-26, Table 1B-2**). The rise in the total rate is due to both an increase in the primary cesarean rate and a decrease in the rate of vaginal birth after cesarean delivery (VBAC). The primary cesarean rate in 2002 (14.1 per 100 live births to women who had no previous cesarean) was 2.2 percent higher than in 2001 (13.8), and 27 percent higher than the low reported in 1996 (11.1). The rate of vaginal birth after previous cesarean delivery (VBAC) declined 62.3 percent from a high of 30.0 in 1993 to 11.3 in 2002.

Figure 1B-27
Abnormal Conditions of the Newborn by Gestational Age, Arizona, 2002

Since the first year these data were collected, three of the eight specific abnormal conditions listed on the birth certificate have been reported most frequently: *assisted ventilation less than 30 minutes, assisted ventilation of 30 minutes or longer, and hyaline membrane disease/respiratory distress syndrome (RDS)*. *Hyaline membrane disease/RDS* is a common cause of morbidity in preterm infants. The rates of abnormal conditions are the highest among very preterm (less than 32 weeks of gestation) and moderately preterm (32-36 weeks of gestation) infants (**Figure 1B-27**).



Congenital anomalies (birth defects) are the leading cause of infant deaths in Arizona and nationally. They are also cause of physical defects and metabolic diseases. Many of the congenital anomalies tracked on birth certificates occur rarely and are not very well reported.

For various anomalies, rates vary widely with maternal age. For example, in 2002 as in 2001, the rate of Down's syndrome, the most frequently recognized cause of mental retardation, was substantially higher for births to mothers aged 35 years and over.

Figure 1B-28
The Incidence of Down's Syndrome by Mother's Age Group, Arizona, 2002

