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Monthly Vital Statistics Report

Final Data From the National Center for Health Statistics

Advance Report of New Data From the 1989 Birth Certificate

Contents

Introduction

The 1989 revision of the U.S. Standard Certificate of Live Birth includes a number of new items on medical and life-style risk factors of pregnancy and birth, obstetric procedures performed, method of delivery, abnormal conditions and congenital anomalies of the infant, expanded information on birth attendant and place of delivery, and questions on the Hispanic origin of the parents. This major enhancement of medical and health data available for mothers and babies greatly expands the scope of information on pregnancy outcome in the United States (1).

New information relating to the attendant at birth, place of delivery, and the Hispanic origin of the mother was published in an earlier report (2). This report includes summary and analytic tabulations of the other new items mentioned.

The 1989 revision represents a significant departure from previous versions of the birth certificate in content and in format. The most noteworthy change in format is the use of checkboxes to obtain the detailed medical and health information about the mother and child. Previous versions included a number of open-ended questions on these topics that were poorly completed and difficult to compile. Checkboxes are believed to encourage better reporting of the specific factors, conditions, and procedures listed.

Although some States revised their certificates in 1988, the new certificates were implemented effective with the 1989 data year. Since much of this information is being reported for the first time, reporting completeness may not be at the same high level as for items on previous revisions of the certificates. An indication of reporting completeness is given in the text and in each table, showing the number of births for which the requested information was not stated. Another factor contributing to the incidence of incomplete reporting is that the revised certificates for four States were not implemented until March or April 1989. The District of Columbia and Rhode Island revised their certificates as of March 1, and Texas and Virginia, as of April 1. As a consequence, data on the new topics are not available for births occurring in the first few months of 1989 in those States.

Acknowledgments

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CENTERS FOR DISEASE CONTROL

Except for maternal weight gain, the percent of records not reporting any given item did not exceed 8 percent in 1989. The four States implementing revised certificates in March or April 1989 accounted for about half the records with missing information. That is, for those States with revised certificates in effect the entire data year, the proportion of records with missing information was 4 percent or less in most cases.

There are five specific items that provide detailed medical and health information on the mother and child in the form of checkbox entries—medical risk factors for this pregnancy, obstetric procedures, complications of labor and/or delivery, abnormal conditions of the newborn, and congenital anomalies of the child. In 1989, 47 States and the District of Columbia reported the first four items; and as indicated in the tables, 45 States and the District of Columbia reported congenital anomalies. However, some States reporting a given item did not include every checkbox in their list for that item. As a consequence, the total number of births in the areas reporting each factor or condition and the number of births for which the information is not stated will vary to reflect the differing number of States reporting the specific factor or condition.

The format is identical for each table presenting data for these five specific items. The total number of births occurring in the areas reporting the specific factor is shown, followed by the number of births with the specified factor or condition; then rates of occurrence of each factor are shown by age of mother. Except for congenital anomalies, rates are expressed as the number of births with the specified factor per 1,000 total live births in the specified group; rates for congenital anomalies are expressed per 100,000 total live births. The last column shows the number of births for which the information was not reported. Brief medical definitions for each of the factors are presented in the "Technical notes."

The items are discussed in this report in the order in which they are presented on the birth certificate (figure 1). All data are shown by race of mother. For ease in writing, the terms "mothers" and "women" are used interchangeably for "births" or "infants," for example, "births to black mothers" or "black infants."

Medical risk factors

Analysis of certain medical risk factors can help account for poor pregnancy outcome, in particular, low birth weight (weight of less than 2,500 grams or 5 lb 8 oz). Also, the presence of certain conditions can influence obstetric and delivery procedures; for example, hypertension and anemia are known to be related to an elevated cesarean delivery rate (3). Data on 16 selected medical risk factors reported for births occurring in 47 States and the District of Columbia in 1989 are shown in table 1. Data were not available for Louisiana, Nebraska, and Oklahoma. The presence or absence of medical risk factors was not reported for about 6 percent of births in the reporting areas.

Anemia, diabetes, and pregnancy-associated hypertension were the most frequently reported medical risk factors, with rates ranging from 19.1 to 28.2 per 1,000 live births. Anemia rates were highest for mothers under 25 years of age, and pregnancy-associated hypertension rates were highest for teenagers and for mothers in their forties. Rates for pregnancy-associated hypertension were lowest for women aged 25–34 years. Acute or chronic lung disease, hydramnios, hemoglobinopathy, eclampsia, and renal disease were other factors with similar patterns of occurrence by age.

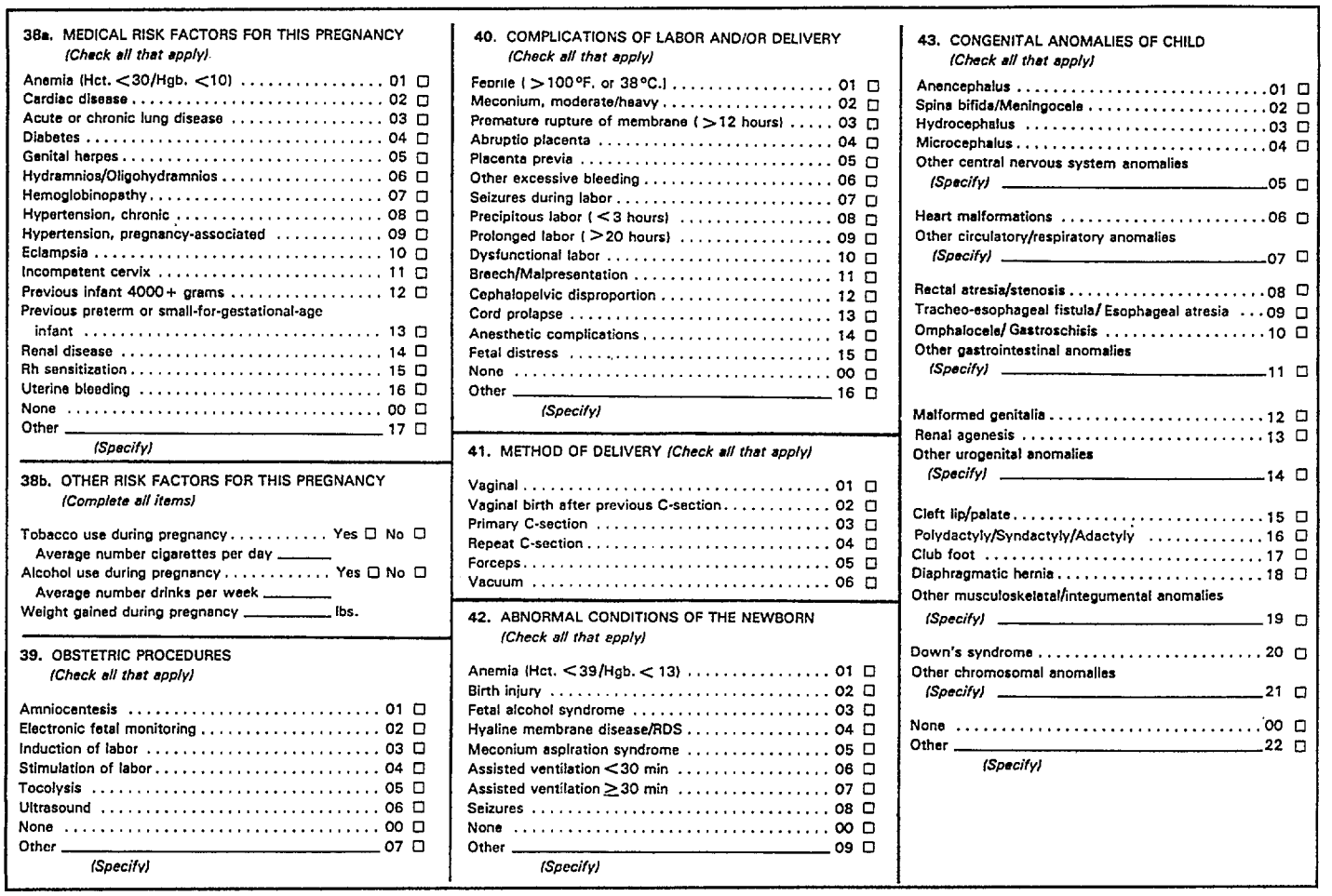
The incidence of diabetes was directly associated with age of mother, with rates rising sharply from the youngest to the oldest mothers, from 7.4 to 64.5 per 1,000. Cardiac disease, chronic hypertension, incompetent cervix, previous infant weighing 4,000 grams (8 lb 14 oz) or more, previous small-for-gestational age (SGA) infant, and uterine bleeding had a pattern of occurrence by age of mother that was similar to that of diabetes.

The rates of occurrence of many risk factors were relatively similar for white and for black mothers, but there were some important variations. Anemia was reported at more than twice the rate for black mothers as for white mothers (36.3 compared with 15.4), and the rate of chronic hypertension was nearly twice as high for black women as for white women (12.0 compared with 6.5). Acute or chronic lung disease, hemoglobinopathy, eclampsia, and previous SGA infant were also reported more frequently for black women than for white women. In contrast, white mothers were much more likely than were black mothers to have had a previous infant weighing 4,000 grams or more (13.1 compared with 4.8) and to have had Rh sensitization and uterine bleeding. Although anemia rates varied in a U-shaped pattern for white mothers, they declined with age for black mothers.

Several of the medical risk factors are associated with a sharply elevated risk of low birth weight (20 percent or more), including hydramnios, eclampsia, incompetent cervix, previous SGA infant, and uterine bleeding. (Data are not shown in this report.) Rates of preterm birth (gestation of less than 37 completed weeks) are also very high for mothers with anemia, pregnancy-associated hypertension, and previous SGA infant. Diabetes, in contrast, is often associated with a higher-than-average birth weight. In 1989, 18 percent of infants born to diabetic mothers weighed 4,000 grams or more compared with 11 percent of all infants born in that year.

Tobacco use during pregnancy

Tobacco use during pregnancy has long been associated with an elevated risk of a low-birth-weight outcome (4,5), intrauterine growth retardation, and preterm birth. Low birth weight is one of the major predictors of infant morbidity and infant and childhood mortality. One recent study focusing on low-income women found that infants born to mothers who smoked during pregnancy were 74 percent more likely to be of low birth weight than were infants born to mothers who did not smoke (6). An earlier study estimated that fetal and infant deaths could be reduced by 10 percent if preg-



38a. MEDICAL RISK FACTORS FOR THIS PREGNANCY
(Check all that apply)

Anemia (Hct. <30/Hgb. <10) ..... 01 ☐
Cardiac disease ..... 02 ☐
Acute or chronic lung disease ..... 03 ☐
Diabetes ..... 04 ☐
Genital herpes ..... 05 ☐
Hydramnios/Oligohydramnios ..... 06 ☐
Hemoglobinopathy ..... 07 ☐
Hypertension, chronic ..... 08 ☐
Hypertension, pregnancy-associated ..... 09 ☐
Eclampsia ..... 10 ☐
Incompetent cervix ..... 11 ☐
Previous infant 4000+ grams ..... 12 ☐
Previous preterm or small-for-gestational-age infant ..... 13 ☐
Renal disease ..... 14 ☐
Rh sensitization ..... 15 ☐
Uterine bleeding ..... 16 ☐
None ..... 00 ☐
Other _____ 17 ☐
(Specify)

38b. OTHER RISK FACTORS FOR THIS PREGNANCY
(Complete all items)

Tobacco use during pregnancy ..... Yes ☐ No ☐
Average number cigarettes per day _____
Alcohol use during pregnancy ..... Yes ☐ No ☐
Average number drinks per week _____
Weight gained during pregnancy _____ lbs.

39. OBSTETRIC PROCEDURES
(Check all that apply)

Amniocentesis ..... 01 ☐
Electronic fetal monitoring ..... 02 ☐
Induction of labor ..... 03 ☐
Stimulation of labor ..... 04 ☐
Tocolysis ..... 05 ☐
Ultrasound ..... 06 ☐
None ..... 00 ☐
Other _____ 07 ☐
(Specify)

40. COMPLICATIONS OF LABOR AND/OR DELIVERY
(Check all that apply)

Febrile (>100°F. or 38°C.) ..... 01 ☐
Meconium, moderate/heavy ..... 02 ☐
Premature rupture of membrane (>12 hours) ..... 03 ☐
Abruptio placenta ..... 04 ☐
Placenta previa ..... 05 ☐
Other excessive bleeding ..... 06 ☐
Seizures during labor ..... 07 ☐
Precipitous labor (<3 hours) ..... 08 ☐
Prolonged labor (>20 hours) ..... 09 ☐
Dysfunctional labor ..... 10 ☐
Breech/Malpresentation ..... 11 ☐
Cephalopelvic disproportion ..... 12 ☐
Cord prolapse ..... 13 ☐
Anesthetic complications ..... 14 ☐
Fetal distress ..... 15 ☐
None ..... 00 ☐
Other _____ 16 ☐
(Specify)

41. METHOD OF DELIVERY *(Check all that apply)*

Vaginal ..... 01 ☐
Vaginal birth after previous C-section ..... 02 ☐
Primary C-section ..... 03 ☐
Repeat C-section ..... 04 ☐
Forceps ..... 05 ☐
Vacuum ..... 06 ☐

42. ABNORMAL CONDITIONS OF THE NEWBORN
(Check all that apply)

Anemia (Hct. <39/Hgb. <13) ..... 01 ☐
Birth injury ..... 02 ☐
Fetal alcohol syndrome ..... 03 ☐
Hyaline membrane disease/RDS ..... 04 ☐
Meconium aspiration syndrome ..... 05 ☐
Assisted ventilation <30 min ..... 06 ☐
Assisted ventilation ≥30 min ..... 07 ☐
Seizures ..... 08 ☐
None ..... 00 ☐
Other _____ 09 ☐
(Specify)

43. CONGENITAL ANOMALIES OF CHILD
(Check all that apply)

Anencephalus ..... 01 ☐
Spina bifida/Meningocele ..... 02 ☐
Hydrocephalus ..... 03 ☐
Microcephalus ..... 04 ☐
Other central nervous system anomalies
(Specify) _____ 05 ☐

Heart malformations ..... 06 ☐
Other circulatory/respiratory anomalies
(Specify) _____ 07 ☐

Rectal atresia/stenosis ..... 08 ☐
Tracheo-esophageal fistula/ Esophageal atresia ... 09 ☐
Omphalocele/ Gastroschisis ..... 10 ☐
Other gastrointestinal anomalies
(Specify) _____ 11 ☐

Malformed genitalia ..... 12 ☐
Renal agenesis ..... 13 ☐
Other urogenital anomalies
(Specify) _____ 14 ☐

Cleft lip/palate ..... 15 ☐
Polydactyly/Syndactyly/Adactyly ..... 16 ☐
Club foot ..... 17 ☐
Diaphragmatic hernia ..... 18 ☐
Other musculoskeletal/integumental anomalies
(Specify) _____ 19 ☐

Down's syndrome ..... 20 ☐
Other chromosomal anomalies
(Specify) _____ 21 ☐

None ..... 00 ☐
Other _____ 22 ☐
(Specify)

Figure 1. New maternal and infant health items from the 1989 revision of the U.S. Standard Certificate of Live Birth

nant women did not smoke (7). Other studies have indicated that 21–39 percent of all low weight births occur as a consequence of maternal smoking (4). The mechanisms through which tobacco usage adversely affects pregnancy outcome have been described elsewhere (4,8).

Tobacco use during pregnancy was reported on the birth certificates of 43 States and the District of Columbia in 1989. This information was not available for California, Indiana, Louisiana, Nebraska, New York, Oklahoma, and South Dakota. Eight percent of the births in the reporting States lacked information on the mother's smoking status (table 2).

According to data from the birth certificates, 20 percent of mothers giving birth in 1989 were reported to have smoked during pregnancy, the same level as reported in the 1988 National Maternal and Infant Health Survey (9). White mothers were slightly more likely to smoke than were black mothers, 20 percent compared with 17 percent. Overall, the smoking rate was highest for mothers aged 18–19 years (24 percent) and lowest for young teenagers under 15 years (8 percent) and for mothers in their forties (13 percent). This pattern by age is generally observed for white mothers, but for black mothers, smoking is most prevalent for mothers aged 25–34 years (23 percent). Among mothers who smoked, nearly three in five were reported to have smoked less than half a pack of cigarettes (10 or fewer) per day; about one in five smoked five cigarettes or less per day. More than a third, however, smoked 16 cigarettes or more per day.

The number of cigarettes smoked generally increases as maternal age advances. Of mothers aged 15–17 years who smoked, 25 percent smoked 16 cigarettes or more daily compared with 45 percent of mothers aged 40 years and over.

Black mothers were not only less likely to smoke than were white mothers, but those who were smokers smoked much less. On the average, 75 percent of black women compared with 54 percent of white women smoked 10 cigarettes or fewer per day. Conversely, 38 percent of white mothers compared with 21 percent of black mothers smoked 16 cigarettes or more per day. The relationships between age and tobacco use were similar for white and for black mothers.

Previous studies have indicated a much lower level of smoking among Hispanic women than among non-Hispanic women (6,10,11). Data from the 1989 birth file for 42 reporting States and the District of Columbia confirm these findings (table 3). On the average, 8 percent of Hispanic mothers smoked during pregnancy compared with 22 percent of white non-Hispanic mothers and 17 percent of black non-Hispanic mothers. Tobacco

use is especially low for Mexican (6 percent), Cuban (7 percent), and Central and South American mothers (4 percent), while 15 percent of Puerto Rican mothers were reported to have smoked during pregnancy.

There is a distinctive pattern in tobacco use according to the mother's educational attainment (table 4). Women with 9–11 years of schooling were most likely to be smokers (35 percent). The proportion of smokers declined thereafter with advancing educational attainment; college graduates were least likely to smoke (5 percent). Women with a grade school education or less and women who are high school graduates were about equally likely to smoke, 21–22 percent. These relationships between tobacco use and educational attainment were observed for white and for black mothers. A racial differential was observed only for women with a high school education or less. For women with some college or who were college graduates, there was little difference in tobacco use between white and black mothers.

The number of cigarettes smoked was greatest on the average for women with 8 years or less of schooling: 48 percent smoked at least 11 cigarettes a day compared with 30 percent who were college graduates. These relationships were observed for white and for black mothers, but within each educational attainment group, black mothers smoked less than white mothers.

Maternal smoking has been linked with an elevated risk of a low-birthweight outcome. Data from the 1989 birth file confirm that babies born to mothers who smoke during pregnancy are much more likely to be underweight, 11.4 percent compared with 6.0 percent (table 5). The differential by smoking status tends to increase as maternal age advances. For example, among teenage mothers, the proportions of low-birth-weight infants were 11.0 percent for smokers and 9.0 percent for nonsmokers. For mothers aged 30 years and older, the disparity in low birth weight was more than double, a range of 12.6–15.7 percent for smokers compared with 5.2–7.4 percent for nonsmokers.

When the data are examined by race, it is evident that smoking is an important factor in low-birth-weight levels for infants born to white and to black mothers. Among white mothers, 9.5 percent of smokers compared with 4.7 percent of nonsmokers had a low-birth-weight baby. Among black mothers, the incidence of a low-birth-weight outcome was 21.6 percent for smokers compared with 11.7 percent for nonsmokers. The impact of smoking on low-birth-weight levels was considerable for white and for black mothers in all age groups.

Previous studies have shown that the chance of a low-birth-weight outcome increases steadily as the level of smoking increases (5). In 1989 white women who smoked 1½–2 packs of cigarettes per day were 47 percent more likely than white women who smoked half a pack of cigarettes or less and 172 percent more likely than white women who did not smoke to have a low-birth-weight infant. Similarly among black mothers, those smoking 1½–2 packs per day were 51 percent more likely than those smoking half a pack or less per day and 160 percent more likely than nonsmokers to have a low-birth-weight baby.

Alcohol use during pregnancy

Alcohol use during pregnancy is also a risk factor for poor birth outcome. Studies have shown that heavy alcohol use causes a series of adverse effects. Fetal alcohol syndrome in particular is characterized by growth retardation, facial malformations, and dysfunctions of the central nervous system, including mental retardation (12). Alcohol consumption has also been shown to affect birth weight independently of tobacco use and other maternal and infant characteristics (13).

Alcohol use was reported on the birth certificates of 44 States and the District of Columbia in 1989. This information was not available for California, Louisiana, Nebraska, New York, Oklahoma, and South Dakota. The specific questions on alcohol use asked if the mother used alcohol during pregnancy and the average number of drinks per week. This information was not reported for 8 percent of the births in the reporting areas.

Four percent of mothers giving birth in 1989 reported alcohol use during pregnancy (table 6). The proportions were the same for white and for black mothers. Hispanic mothers were only about half as likely to report alcohol use during pregnancy, 2 percent overall, according to data from 43 reporting States and the District of Columbia. The proportions ranged from 1 percent for Cuban mothers to 3 percent for Puerto Rican mothers (table 7).

There is likely a substantial underreporting of alcohol use, considering the proportion of births for which alcohol use was not stated and the possible stigma associated with drinking, especially during pregnancy. In addition, other recent studies based on personal interviews and written questionnaires suggest levels of alcohol use during pregnancy of 20 percent or more (14, 15). It may be that women who consumed less than one drink per week or only one or two drinks per month considered themselves nondrinkers. One recent study showed a declining level of alcohol use during pregnancy between 1985 and 1988, from 32 percent to 20 percent, but no decline in the number of drinks consumed (15).

The proportion of mothers reported on the birth certificate to have consumed alcohol during pregnancy increased steadily with age, from 1 percent of mothers under 15 years of age to 6 percent of mothers aged 35–39 years, and fell slightly to 5 percent for mothers aged 40 years and over (table 6). Although white teenagers and white women in their forties were more likely than their black counterparts to drink, among mothers aged 20–34 years the reverse was true.

Among mothers who drank during pregnancy, 61 percent reported consuming one drink or less per week; 18 percent, two drinks; and 21 percent reported consuming three drinks or more per week. Although there was no difference in the proportion of drinkers between white women and black women, there were considerable differences in the number of drinks consumed per week. Sixty-five percent

of white mothers compared with 42 percent of black mothers had one drink or less per week. Conversely, black mothers who drank were twice as likely as white mothers to have consumed three or more drinks per week, 37 percent compared with 18 percent. In all age groups, black mothers who drank consumed more drinks per week than did white mothers who drank.

Other data from the 1989 birth certificate file show that maternal alcohol use, although it is underreported, has a detrimental effect on pregnancy outcome. The effect of alcohol use on low birth weight is highly dependent on the amount of alcohol consumed. (Detailed data not included in this report.) Of the mothers reporting three drinks or more per week, 15–20 percent of births were of low birth weight compared with 8–12 percent of births to mothers reporting up to two drinks per week and 7 percent of births to mothers who did not drink. Similar patterns were observed for births to white and to black mothers, but at every level of drinking, births to black mothers were at double to triple the risk of a low-birth-weight outcome.

Maternal weight gain

According to guidelines in effect in 1989, a weight gain during pregnancy of 22–27 pounds was recommended (16). (Guidelines issued in 1990 by the National Academy of Sciences, Institute of Medicine, advise an optimum weight gain of 25–35 pounds for a normal-weight woman (17).) These guidelines are recommended to produce the best pregnancy outcome, particularly in terms of infant birth weight. National data on the distribution of births by maternal weight gain and on the relationship of weight gain to pregnancy outcome were published for the first time in the mid-1980's (18,19). Those data were derived from the 1980 National Natality Survey and from the 1980 National Fetal Mortality Survey, both sample surveys. The data in this report are derived from an item on the 1989 birth certificates asking the mother's weight gain during pregnancy. Forty-six States and the District of Columbia reported this information; it was not available for California, Louisiana, Nebraska, and Oklahoma. Maternal weight gain was not stated on 17 percent of the birth certificates in the reporting areas.

It is evident that the weight gain for many pregnant women is less than adequate. In 1989, 18 percent of women whose pregnancies lasted at least 40 weeks gained less than 21 pounds. Black mothers with pregnancies of 40 weeks or more were 59 percent more likely than comparable white mothers to gain less than 21 pounds (27 percent compared with 17 percent) and 86 percent more likely to gain less than 16 pounds (13 percent compared with 7 percent) (table 8). Regardless of length of pregnancy, black women were more likely than white women to gain less than 21 pounds, with the racial disparity increasing as period of gestation lengthened.

Weight gain of less than 21 pounds was also much more common among teenage mothers, mothers in their forties, unmarried mothers, or mothers with less than a high school education. (Data not shown in this report.) However, large racial differences persist, even after age, marital status, or educational attainment is taken into account.

Data on weight gain for Hispanic women from 45 States and the District of Columbia (although not presented in detail in this report) show that 23 percent with pregnancies of 40 weeks or more gained less than 21 pounds. Mexican mothers were most likely to be in the low-weight-gain group (25 percent), followed by Puerto Rican and Central and South American mothers (22 percent each), and Cuban mothers (15 percent).

The median weight gain for mothers giving birth in 1989 was 30.3 pounds; for white mothers it was 30.5 pounds, and for black mothers it was 27.8 pounds (table 8). Mothers whose pregnancies ended in preterm birth (less than 37 weeks gestation) had a median weight gain of 25.9 pounds. The median weight gain for women with pregnancies lasting 37–39 weeks was 30.2 pounds, and for women with pregnancies of 40 weeks and over it was 30.6 pounds. There were disparities in median weight gain among white, black, and Hispanic women, but the gap narrowed as period of gestation lengthened. For mothers whose pregnancies lasted at least 40 weeks, the median weight gains were 30.7 pounds for white women, 30.1 pounds for black women, and 30.2 pounds for Hispanic women.

Maternal weight gain has its most visible impact on pregnancy outcome in the infant's birth weight. Babies born to mothers who gain 31 pounds or more are at considerably reduced risk of low birth weight compared with babies born to mothers gaining less than 21 pounds, 3.9–4.1 percent compared with 10.4–15.7 percent (table 9). The advantage conferred by additional maternal weight gain is observed for white and for black mothers and remains even after the gestational period is taken into account. White infants born after pregnancies of 40 weeks or more to mothers who gained 31 pounds or more had a low-birthweight rate of just 1 percent, and comparable black infants had a low-birthweight rate of 2 percent.

The incidence of low birth weight for babies born to Hispanic mothers (12.3 percent) who gained less than 16 pounds was lower than that for babies born to white non-Hispanic mothers (12.7 percent) or to black non-Hispanic mothers (24.0 percent) (table 10). Low-birth-weight levels were relatively low for births to Mexican and Central and South American mothers in this weight-gain category, 10.7–10.8 percent. Apparently, Hispanic women whose weight gain is minimal are at lower risk of a low-birth-weight outcome. Other studies have shown that smaller weight gains are appropriate for optimum birth outcome if the mother is overweight (17); Mexican women are disproportionately overweight (20). Also, Hispanic women are less likely to smoke during pregnancy, another factor associated with low-birth-weight outcomes (4,5,6).

Obstetric procedures

Obstetric technology has become increasingly sophisticated in recent years as more and more women undergo amniocentesis, ultrasound, and

other obstetric procedures. Data on six specific obstetric procedures were reported on the birth certificates of 47 States and the District of Columbia in 1989. Data were not available for Louisiana, Nebraska, and Oklahoma. These data can be used to identify the groups of women for whom these procedures are most likely and the relationships of the procedures to various maternal and infant characteristics and to birth outcome. This information was not reported for 5–6 percent of the births in the reporting areas in 1989.

Electronic fetal monitoring was reported more frequently than any other procedure—for more than two-thirds of the births in 1989 (table 11). Ultrasound was also used extensively—for nearly half of the births. Labor was induced for 90 of every 1,000 live births, and stimulation of labor was used for 109 per 1,000 live births. Amniocentesis was reported at a rate of 32 per 1,000 live births. Electronic fetal monitoring was widely used for births to mothers in all age groups. The greatest use was for births to teenagers, 703 per 1,000. The rates of use of this technology declined somewhat as maternal age advanced, to 642 per 1,000 for mothers in their forties.

The use of ultrasound varied directly with age, increasing from 458 per 1,000 births for teenagers to 497 per 1,000 for mothers aged 35 years and over. Induction of labor also generally varied directly with age.

The most distinctive relationship of obstetric procedure and maternal age was observed for amniocentesis, a prenatal diagnostic test for genetic disorders. Although the rate for teenagers was only 12 per 1,000 births, it rose to 32 per 1,000 for mothers aged 30–34, to 162 per 1,000 for mothers aged 35–39 years, and to 200 per 1,000 births for mothers in their forties. Amniocentesis is especially recommended for older women whose pregnancies are at an elevated risk for certain genetic disorders.

White women were more likely than black women to undergo amniocentesis (35 compared with 20 per 1,000), induction of labor (97 compared with 67), and stimulation of labor (111 compared with 101). The rates for other procedures were similar for white and for black women. The racial differential in the use of amniocentesis is observed primarily for mothers aged 30 years and over, with white mothers 55 to 89 percent more likely to have this procedure.

There are distinctive patterns of use of the selected medical procedures according to other maternal and infant characteristics. The rates for all the procedures were higher for mothers beginning prenatal care in the first trimester. Mothers with some college had higher rates for amniocentesis, for induction and stimulation of labor, and for ultrasound. Mothers with low-birthweight infants were much more likely than mothers with normal-weight infants to have undergone amniocentesis, tocolysis, and ultrasound. Similarly, rates for amniocentesis and tocolysis were higher for mothers with preterm births than they were for mothers with pregnancies of longer gestation. Rates for stimulation and induction of labor were higher for term and postterm births.

Complications of labor and/or delivery

Assessment of complications of labor and/or delivery can help account for poor birth outcome as well as the use of certain obstetric and delivery procedures. For example, maternal complications of pregnancy and complications associated with the placenta and umbilical cord are among the 10 leading causes of infant death (21). In addition, abnormal labor, breech/malpresentation, cephalopelvic disproportion, and fetal distress are all associated with very high rates of cesarean delivery (3); these relationships are discussed later in the text.

Data on 15 specific complications of labor and/or delivery for births occurring in 47 States and the District of Columbia in 1989 are shown in table 12. Data are not available for Louisiana, Nebraska, and Oklahoma. Information on complications was not provided on 4–6 percent of the birth certificates in the reporting areas.

Meconium, moderate/heavy, was reported at a rate of 63 per 1,000 live births, more frequently than any other complication. Other complications reported relatively often were dysfunctional labor (30 per 1,000), premature rupture of membrane (36 per 1,000), breech/malpresentation (39 per 1,000), cephalopelvic disproportion (40 per 1,000), and fetal distress (46 per 1,000).

Rates for meconium and fetal distress tended to be highest for teenage mothers and for mothers in their forties. Rates for dysfunctional labor and breech/malpresentation generally rose with age.

Rates of occurrence of the various complications differed for white and for black mothers. Black mothers had substantially higher rates for meconium, premature rupture of membrane, and fetal distress; white mothers had higher rates for dysfunctional labor, breech/malpresentation, and cephalopelvic disproportion.

Many of the reported complications occurred with much greater frequency among mothers with low-birthweight infants and preterm infants than among mothers with normal weight births and births of longer gestation. (Detailed data are not shown in this report.) These included premature rupture of membrane, abruptio placenta, placenta previa, other excessive bleeding, seizures during labor, precipitous labor, breech/malpresentation, cord prolapse, and fetal distress.

Method of delivery

Using information from the National Hospital Discharge Survey (NHDS), a sample survey (3), trends in cesarean section—a surgical procedure performed in nearly one in every four deliveries in the United States—have been tracked for more than 20 years. Beginning with the 1989 data year, information from the birth certificate can be used to monitor trends in method of delivery and to compare demographic, socioeconomic, and health characteristics of the mother and child.

Data on method of delivery were reported on the birth certificates of 45 States and the District of Columbia in 1989. Information was not available for Louisiana, Maryland, Nebraska,

Nevada, and Oklahoma. Five percent of the birth records in the reporting areas did not indicate the method of delivery. The following discussion does not include information on forceps and vacuum procedures that are included in the method of delivery question on the birth certificates. Information on those procedures will be presented in a forthcoming annual report (22).

According to birth certificate data, 22.8 percent of births were by C-section in 1989 (table 13). This rate is comparable to that derived from the 1989 NHDS, 23.8 percent (3).

The rate for primary C-sections was 16.1 per 100 births to women who have not had a previous cesarean delivery. Data from the 1989 NHDS show a similar rate (17.1 percent). The proportion of all cesarean deliveries that were repeat, that is, for mothers who have had a previous C-section, was 36.9 percent in 1989. The comparable NHDS-based rate was 35.6.

The rate for vaginal birth after previous cesarean delivery (VBAC) was 18.9 per 100 births to women with a previous cesarean delivery. The comparable rate from the NHDS was 18.5 percent.

Cesarean delivery rates increased directly with advancing maternal age. The rates in 1989 rose from 16.9 percent for women under 20 years of age to 31.9 percent for women in their forties. This pattern is identical to that found in the NHDS (3).

Rates for primary C-section also rose directly with age of mother, from 15.0 percent (mothers under 20 years of age) to 23.2 percent (for mothers in their forties). Rates for repeat cesarean ranged from 32.2 to 44.9 for mothers aged 20 years and over. The rate for teenage mothers was quite low, 14.1 percent. VBAC rates were highest for teenage mothers, 24.0 percent, but declined to 14.0 percent for mothers in their forties.

C-section rates by race of mother were remarkably similar, 23.2 percent for white women and 22.0 percent for black women. Rates for primary and repeat C-sections and VBAC were also very similar for white and for black women, and the patterns by age for each were comparable as well.

Cesarean (including total, primary, and repeat) and VBAC rates for women with selected medical risk factors, complications of labor and/or delivery, and obstetric procedures are shown in table 14. Certain medical risk factors are associated with elevated overall C-section rates (35–52 percent) and primary C-section rates (27–48 percent), including diabetes, genital herpes, hydramnios/oligohydramnios, chronic hypertension, eclampsia, and uterine bleeding. VBAC rates for women with many of these risk factors were low.

C-section rates for mothers with most complications of labor and/or delivery are very high (table 14). This would be expected, particularly as these complications impact immediately on the delivery process. Rates exceeding 50 percent were reported for women with abruptio placenta, placenta previa, dysfunctional labor, breech/malpresentation, cephalopelvic disproportion, cord prolapse, anesthetic complications, and fetal distress.

There was no particular pattern for C-section rates associated with women undergoing various obstetric procedures, except that the rate for women undergoing tocolysis was elevated, 30.5 percent. Tocolysis is used to inhibit preterm uterine contractions to extend the length of the pregnancy.

Throughout the 1980's, birth data in the United States have shown a distinctive pattern in the occurrence of births by day of week. Deliveries are increasingly concentrated on Tuesdays through Fridays, with correspondingly fewer on Saturdays, Sundays, and major holidays. In accounting for this weekend deficit, most attention has focused on the high level of C-section deliveries and the continued high proportion of them that are repeat cesareans. The index of occurrence can be used to examine the daily pattern of occurrence of births by method of delivery. This index is defined as the ratio of the average number of births occurring on a given day of the week to the average daily number of births for the year multiplied by 100.

There is a weekend deficit regardless of method of delivery, but it is substantially greater for C-sections, especially repeat C-sections, than for vaginal deliveries (table 15). Tuesday is the most popular birth day for vaginal deliveries, with an index of occurrence of 106.3 compared with an index of 87.3 for Sunday births, a disparity of 22 percent. Since some vaginal deliveries are induced (9 percent in 1989) a weekend deficit for vaginal births is not unexpected.

C-sections, both primary and repeat, are more likely to occur on Fridays. The difference between Friday and Sunday births for C-sections was 50 percent. For primary C-sections the differential was 36 percent, and for repeat C-sections it was 70 percent.

Cesarean delivery rates tend to be highest for very small babies (under 2,500 grams or 5 lb 8 oz) and for babies weighing 4,000 grams or more. Rates are also elevated for preterm deliveries (less than 37 weeks of gestation). (Detailed data are not included in this report.)

Abnormal conditions of the newborn

Information on abnormal conditions of the newborn is another measure of the extent to which babies experience medical problems beginning at birth. Some of these conditions are associated with very high rates of infant morbidity, and hyaline membrane disease/respiratory distress syndrome (RDS) in particular is associated with high infant mortality rates. Data on 8 specific abnormal conditions were reported on the birth certificates of 47 States and the District of Columbia in 1989. These data were not available for Louisiana, Nebraska, and Oklahoma. Four to 7 percent of the birth certificates in the reporting areas lacked any information on the presence or absence of abnormal conditions.

The condition reported with greatest frequency was assisted ventilation of less than 30 minutes, with a rate of 11 per 1,000 live births (table 16). Hyaline membrane disease/RDS and assisted ventilation of 30 minutes or longer, both indicative that the infant's survival chances are seriously compromised, were reported at rates of 6 and 7 per 1,000, respectively.

Birth injuries and fetal alcohol syndrome are believed to be substantially underreported on the birth certificate. The rate of reporting for birth injuries was 2 per 1,000, the same level as measured from birth certificate data for 1973–74, the last time national rates were compiled (23). The rate for fetal alcohol syndrome was 0.2 per 1,000 births. Underreporting is no doubt substantial for this condition, because of both the stigma involved and the possible delay in recognizing the condition in the limited time before the birth certificate is filed (12).

Rates for most of the conditions were higher for births to teenagers and to mothers in their forties. Rates for birth injury were higher for white births than for black births, while rates for anemia, hyaline membrane disease/RDS, meconium aspiration syndrome, assisted ventilation of 30 minutes or longer, and seizures were higher for black births than for white births.

Babies reported to have anemia, fetal alcohol syndrome, hyaline membrane disease/RDS, or assisted ventilation of 30 minutes or longer had very high rates of low birth weight, 24–65 percent. Low-birth-weight levels for black infants with these conditions were even higher, 32–81 percent. The risk of preterm delivery was also substantial for infants with these conditions. Rates for birth injury, hyaline membrane disease/RDS, and assisted ventilation of less than 30 minutes and of 30 minutes or longer were higher for male babies than for female babies.

Congenital anomalies of child

Information on 21 selected congenital anomalies or groups of anomalies was reported on the birth certificates of 45 States and the District of Columbia in 1989. Data were not available for Louisiana, Nebraska, New Mexico, New York, and Oklahoma. The certificates for 7 percent of the births in the reporting areas did not indicate the presence or absence of any anomalies.

It has long been recognized that the birth certificate is not the best source of data on many congenital anomalies. Except for the most visible and most severe anomalies, they are incompletely reported on the birth record. Because birth registration must be carried out within a very short interval after the birth, the reporting of specific anomalies often depends heavily on how easily they are recognized. Hopefully, reporting completeness will improve with the change from an open-ended to a checkbox format listing primarily anomalies that are likely to be recognized before the birth certificate is filed.

Rates of occurrence of the selected anomalies are computed per 100,000 total live births and are shown in table 17. Anomalies occurring in 1 percent or more of all births (a rate of 100 per 100,000 or more) included heart malformations, other circulatory/respiratory anomalies, other urogenital anomalies, cleft lip/palate, polydactyly/syndactyly/adactyly, and other musculoskeletal anomalies.

For several of the anomalies, there are distinctive patterns of occurrence by maternal age. Rates declined with age for hydrocephalus, omphalocele, and polydactyly/syndactyly/adactyly. Rates generally rose with age for heart malformations, other circulatory anomalies, Down's syndrome, and other chromosomal anomalies. The age differentials for Down's syndrome and other chromosomal anomalies were particularly striking with births to mothers in their forties at 4 to 10 times the risk as births to mothers in their teens. These relationships between rates of occurrence and maternal age were very similar to those found in an earlier report on congenital anomalies from birth certificate data (23).

For most anomalies with a racial disparity in rates of occurrence, the rates for births to white mothers were substantially higher than the rates for births to black mothers. These anomalies included spina bifida, heart malformations, other circulatory malformations, tracheo-esophageal fistula/esophageal atresia, malformed genitalia, other urogenital anomalies, cleft lip/palate, club foot, and Down's syndrome. The one anomaly with a much greater rate of occurrence among black infants was polydactyly/syndactyly/adactyly. These relationships are also very similar to those observed in the previous report on congenital anomalies (23).

Other data for 1989 births (not included in this report) show that male babies generally have a considerably higher incidence of congenital anomalies than female babies. This differential arises mainly from higher rates for congenital anomalies of the urogenital system. Male babies also had higher rates than female babies for other circulatory anomalies, polydactyly/syndactyly/adactyly, and club foot.

Infants with congenital anomalies are very likely to be underweight. Low-birth-weight levels of 18–44 percent were measured for infants with anomalies of the central nervous system, heart, and gastrointestinal system.

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List of tables

Symbols

- - -	Data not available
. . .	Category not applicable
-	Quantity zero
0.0	Quantity more than zero but less than 0.05
*	Figure does not meet standard of reliability or precision (estimate is based on fewer than 20 births in numerator or denominator)

Table 1. Live births with selected medical risk factors and rates for selected medical risk factors, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989

[Rates are number of live births with specified medical risk factor per 1,000 live births in specified group]

Medical risk factor and race of mother	All births[1]	Medical risk factor reported	All ages	Age of mother: Under 20 years	20–24 years	25–29 years	30–34 years	35–39 years	40–49 years	Not stated
All races[2]	Number			Rate						Number
Anemia	3,896,605	69,840	19.1	30.3	22.9	15.8	14.2	14.5	16.2	237,304
Cardiac disease	3,896,605	12,992	3.6	2.3	2.9	3.5	4.5	5.4	6.0	237,304
Acute or chronic lung disease	3,896,605	10,976	3.0	3.5	2.9	2.7	3.0	3.4	4.3	237,304
Diabetes	3,896,605	77,185	21.1	7.4	13.6	20.6	29.4	43.3	64.5	237,304
Genital herpes[3,4]	3,430,329	26,688	8.1	5.3	6.8	8.1	10.2	11.5	9.3	129,961
Hydramnios/Oligohydramnios[3]	3,737,993	20,013	5.7	5.6	5.6	5.4	5.6	7.1	9.7	232,043
Hemoglobinopathy[3]	3,737,993	1,723	0.5	0.6	0.5	0.4	0.4	0.5	0.6	232,043
Hypertension, chronic	3,896,605	26,806	7.3	3.1	4.7	6.4	9.8	17.4	30.5	237,304
Hypertension, pregnancy-associated	3,896,605	105,530	28.2	35.4	29.4	26.4	26.4	31.2	41.2	237,304
Eclampsia	3,896,605	16,050	4.4	7.3	4.6	3.6	3.4	4.4	6.3	237,304
Incompetent cervix[3]	3,737,993	9,156	2.6	1.2	1.8	2.6	3.7	4.7	3.9	232,043
Previous infant 4000+grams[3]	3,737,993	40,296	11.5	2.1	7.4	12.5	17.0	20.9	25.4	232,043
Previous preterm or small-for-gestational-age infant[3]	3,737,993	50,631	14.4	8.2	14.1	14.7	16.2	19.2	21.9	232,043
Renal disease	3,896,605	9,921	2.7	4.1	3.2	2.3	2.1	2.1	2.6	237,304
Rh sensitization[5]	3,857,868	21,776	6.0	4.8	5.8	6.2	6.4	6.5	7.1	238,112
Uterine bleeding[4]	3,588,941	31,349	9.1	6.7	8.1	9.2	10.4	11.8	11.6	135,240
White										
Anemia	3,090,834	44,624	15.4	24.4	18.3	13.0	12.1	12.5	14.3	184,242
Cardiac disease	3,090,834	10,699	3.7	2.3	2.9	3.6	4.6	5.5	6.0	184,242
Acute or chronic lung disease	3,090,834	8,227	2.8	3.3	2.7	2.6	2.9	3.3	4.5	184,242
Diabetes	3,090,834	61,681	21.2	8.3	14.1	20.3	28.2	40.8	61.2	184,242
Genital herpes[3,4]	2,693,792	22,161	8.5	4.5	6.6	8.5	11.2	12.9	10.8	95,000
Hydramnios/Oligohydramnios[3]	2,951,908	15,533	5.6	5.5	5.5	5.3	5.5	6.9	9.8	179,978
Hemoglobinopathy[3]	2,951,908	680	0.2	0.2	0.2	0.2	0.3	0.3	*	179,978
Hypertension, chronic	3,090,834	18,828	6.5	2.6	4.3	5.7	8.4	14.3	23.9	184,242
Hypertension, pregnancy-associated	3,090,834	84,742	29.2	36.3	30.6	26.8	26.4	30.5	40.1	184,242
Eclampsia	3,090,834	11,609	4.0	6.4	4.4	3.4	3.2	4.2	5.5	184,242
Incompetent cervix[3]	2,951,908	6,979	2.5	1.1	1.7	2.4	3.6	4.6	4.0	179,978
Previous infant 4000+grams[3]	2,951,908	36,225	13.1	2.5	8.4	13.7	18.7	23.0	28.4	179,978
Previous preterm or small-for-gestational-age infant[3]	2,951,908	38,106	13.7	7.2	13.2	13.7	15.5	18.7	21.6	179,978
Renal disease	3,090,834	8,040	2.8	4.5	3.3	2.4	2.1	2.1	2.6	184,242
Rh sensitization[5]	3,056,337	19,646	6.8	5.7	6.7	6.9	7.2	7.4	8.0	184,958
Uterine bleeding[4]	2,832,718	25,833	9.5	7.2	8.4	9.4	10.7	12.0	11.7	99,280
Black										
Anemia	636,865	21,452	36.3	42.2	39.7	32.2	29.8	28.1	26.8	46,261
Cardiac disease	636,865	1,888	3.2	2.4	3.0	3.3	4.1	4.8	7.1	46,261
Acute or chronic lung disease	636,865	2,406	4.1	4.2	3.9	3.8	4.4	5.2	5.4	46,261
Diabetes	636,865	10,826	18.3	5.2	11.2	21.1	34.3	56.1	78.7	46,261
Genital herpes[3,4]	577,460	3,840	7.0	7.0	7.8	6.9	6.2	5.3	4.9	30,547
Hydramnios/Oligohydramnios[3]	620,429	3,650	6.3	5.8	5.8	6.5	7.3	8.1	11.8	45,366
Hemoglobinopathy[3]	620,429	920	1.6	1.6	1.6	1.5	1.7	1.3	*	45,366
Hypertension, chronic	636,865	7,083	12.0	4.2	7.0	11.2	21.9	44.7	81.2	46,261
Hypertension, pregnancy-associated	636,865	17,329	29.3	33.9	25.7	26.4	29.9	40.4	52.5	46,261
Eclampsia	636,865	3,870	6.6	9.1	5.7	5.3	5.8	7.4	12.0	46,261
Incompetent cervix[3]	620,429	1,902	3.3	1.4	2.4	4.4	5.5	6.3	*	45,366
Previous infant 4000+grams[3]	620,429	2,753	4.8	1.3	3.4	6.3	8.0	11.4	14.0	45,366
Previous preterm or small-for-gestational-age infant[3]	620,429	10,315	17.9	10.2	17.8	21.4	22.2	23.8	27.5	45,366
Renal disease	636,865	1,487	2.5	3.0	2.8	2.1	2.1	1.9	*	46,261
Rh sensitization[5]	633,622	1,835	3.1	3.0	2.9	3.5	3.1	3.1	4.6	46,356
Uterine bleeding[4]	593,896	4,355	7.7	5.9	7.3	8.7	8.9	10.5	9.5	31,443

[1] Total number of births to residents of areas reporting specified medical risk factor.
[2] Includes races other than white and black.
[3] New York City (but not New York State) reports this risk factor.
[4] Texas does not report this risk factor.
[5] Kansas does not report this risk factor.

NOTE: Excludes data for Louisiana, Nebraska, and Oklahoma, which did not require reporting of medical risk factors.

Table 2. Number of live births by smoking status of mother, percent smokers, and percent distribution by average number of cigarettes smoked by mothers per day, according to age and race of mother: Total of 43 reporting States and the District of Columbia, 1989

Smoking status, smoking measure, and race of mother	All ages	Age of mother								
		Under 15 years	15–19 years			20–24 years	25–29 years	30–34 years	35–39 years	40–49 years
			Total	15–17 years	18–19 years					
All races[1]					Number					
Total	2,940,609	8,778	381,104	137,136	243,968	791,366	920,536	604,632	204,020	30,173
Smoker	528,040	614	77,694	23,908	53,786	171,222	161,580	87,750	25,519	3,661
Nonsmoker	2,181,514	7,353	272,901	101,855	171,046	557,863	687,781	469,599	162,035	23,982
Not stated	231,055	811	30,509	11,373	19,136	62,281	71,175	47,283	16,466	2,530
White										
Total	2,327,837	3,232	250,064	81,779	168,285	600,634	765,076	512,704	171,437	24,690
Smoker	437,234	456	66,429	20,354	46,075	142,091	132,787	71,694	20,743	3,034
Nonsmoker	1,710,437	2,386	163,167	54,224	108,943	411,991	574,510	401,734	137,069	19,580
Not stated	180,166	390	20,468	7,201	13,267	46,552	57,779	39,276	13,625	2,076
Black										
Total	516,139	5,372	121,215	51,827	69,388	167,805	125,256	69,260	23,492	3,739
Smoker	80,994	137	9,602	2,974	6,628	25,989	26,109	14,445	4,180	532
Nonsmoker	392,009	4,824	102,164	44,907	57,257	127,747	88,235	48,787	17,337	2,915
Not stated	43,136	411	9,449	3,946	5,503	14,069	10,912	6,028	1,975	292
					Percent					
Smoker[1]	19.5	7.7	22.2	19.0	23.9	23.5	19.0	15.7	13.6	13.2
White	20.4	16.0	28.9	27.3	29.7	25.6	18.8	15.1	13.1	13.4
Black	17.1	2.8	8.6	6.2	10.4	16.9	22.8	22.8	19.4	15.4
All races[1]					Percent distribution					
Smoker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1–5 cigarettes	19.2	34.0	23.8	26.8	22.5	19.4	18.0	17.5	16.9	15.7
6–10 cigarettes	38.7	42.5	42.4	43.1	42.1	39.8	37.8	36.5	35.0	33.0
11–15 cigarettes	6.8	5.2	5.7	5.2	5.9	6.7	7.3	7.1	6.6	5.9
16–20 cigarettes	28.8	16.1	24.5	21.7	25.7	28.6	30.0	30.2	30.7	31.9
21–30 cigarettes	4.4	*	2.6	2.2	2.8	3.9	4.8	5.8	6.7	7.7
31–40 cigarettes	1.8	*	1.0	0.8	1.0	1.3	1.9	2.6	3.6	5.1
41 cigarettes or more	0.3	*	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.7
White										
Smoker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1–5 cigarettes	16.6	29.2	20.8	23.5	19.5	16.4	15.7	15.5	15.1	14.0
6–10 cigarettes	37.8	43.8	42.6	43.8	42.1	39.0	36.4	35.1	33.7	31.3
11–15 cigarettes	7.4	6.4	6.1	5.6	6.3	7.4	7.9	7.7	7.0	6.3
16–20 cigarettes	31.0	18.3	26.5	23.6	27.8	31.3	32.3	31.9	32.0	33.3
21–30 cigarettes	5.0	*	2.9	2.4	3.1	4.4	5.4	6.6	7.7	8.6
31–40 cigarettes	1.9	*	1.0	0.9	1.1	1.4	2.0	2.8	4.0	5.7
41 cigarettes or more	0.3	*	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.8
Black										
Smoker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1–5 cigarettes	31.6	48.7	42.7	47.0	40.8	34.6	28.7	26.2	24.2	23.8
6–10 cigarettes	43.5	38.7	41.1	38.9	42.1	44.1	44.7	42.7	41.5	42.8
11–15 cigarettes	3.9	*	2.7	2.5	2.7	3.4	4.3	4.5	4.6	*
16–20 cigarettes	17.9	*	11.8	10.1	12.5	15.4	18.9	22.6	24.9	24.2
21–30 cigarettes	1.7	*	0.9	0.8	0.9	1.3	1.8	2.1	2.6	*
31–40 cigarettes	1.2	*	0.7	*	0.7	0.9	1.3	1.5	1.8	*
41 cigarettes or more	0.3	*	*	*	*	0.3	0.3	0.4	*	*

[1]Includes races other than white and black.

NOTE: Excludes data for California, Indiana, Louisiana, Nebraska, New York, Oklahoma, and South Dakota, which did not require reporting of tobacco use during pregnancy.

Table 3. Number of live births by smoking status of mother and percent smokers, by age and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 42 reporting States and the District of Columbia, 1989

Smoking status and origin of mother	All ages	Age of mother								
		Under 15 years	15–19 years			20–24 years	25–29 years	30–34 years	35–39 years	40–49 years
			Total	15–17 years	18–19 years					
All origins[1]					Number					
Total	2,922,800	8,772	379,779	136,761	243,018	787,164	914,114	600,312	202,673	29,986
Smoker	524,095	614	77,177	23,763	53,414	169,922	160,301	87,104	25,344	3,633
Nonsmoker	2,167,715	7,347	272,101	101,627	170,474	554,977	682,654	465,940	160,871	23,825
Not stated	230,990	811	30,501	11,371	19,130	62,265	71,159	47,268	16,458	2,528
Hispanic										
Total	268,014	1,230	47,207	18,594	28,613	85,731	74,209	41,423	15,264	2,950
Smoker	18,216	59	3,270	1,160	2,110	6,106	4,972	2,738	904	167
Nonsmoker	209,260	944	36,410	14,347	22,063	66,504	58,266	32,690	12,102	2,344
Not stated	40,538	227	7,527	3,087	4,440	13,121	10,971	5,995	2,258	439
Mexican	159,130	786	29,363	11,551	17,812	52,490	42,703	23,496	8,635	1,657
Smoker	8,107	29	1,390	486	904	2,691	2,201	1,288	422	86
Nonsmoker	120,551	587	22,193	8,716	13,477	39,845	32,374	17,768	6,539	1,245
Not stated	30,472	170	5,780	2,349	3,431	9,954	8,128	4,440	1,674	326
Puerto Rican	32,100	210	7,363	3,050	4,313	11,405	7,868	3,793	1,232	229
Smoker	4,255	13	925	340	585	1,607	1,060	487	146	17
Nonsmoker	25,072	170	5,794	2,434	3,360	8,766	6,147	3,007	989	199
Not stated	2,773	27	644	276	368	1,032	661	299	97	13
Cuban	9,378	8	665	261	404	2,110	3,635	2,081	753	126
Smoker	632	–	57	18	39	162	230	132	44	7
Nonsmoker	8,505	8	598	241	357	1,911	3,299	1,890	683	116
Not stated	241	–	10	2	8	37	106	59	26	3
Central and South American	26,997	41	2,223	734	1,489	7,258	8,876	5,826	2,300	473
Smoker	897	–	63	17	46	210	283	239	89	13
Nonsmoker	23,814	37	1,967	655	1,312	6,423	7,814	5,108	2,039	426
Not stated	2,286	4	193	62	131	625	779	479	172	34
Other and unknown Hispanic	40,409	185	7,593	2,998	4,595	12,468	11,127	6,227	2,344	465
Smoker	4,325	17	835	299	536	1,436	1,198	592	203	44
Nonsmoker	31,318	142	5,858	2,301	3,557	9,559	8,632	4,917	1,852	358
Not stated	4,766	26	900	398	502	1,473	1,297	718	289	63
Non-Hispanic										
Total[2]	2,595,151	7,376	325,253	115,543	209,710	685,816	821,459	546,176	182,804	26,267
Smoker	499,811	545	72,906	22,296	50,610	161,787	153,535	83,482	24,144	3,412
Nonsmoker	1,936,212	6,335	233,117	86,307	146,810	483,188	617,538	428,087	146,807	21,140
Not stated	159,128	496	19,230	6,940	12,290	40,841	50,386	34,607	11,853	1,715
White	2,008,890	1,991	199,195	62,196	136,999	503,260	673,168	458,504	151,713	21,059
Smoker	411,160	392	61,997	18,863	43,134	133,353	125,379	67,780	19,460	2,799
Nonsmoker	1,480,747	1,461	126,306	39,856	86,450	342,071	508,455	362,765	122,767	16,922
Not stated	116,983	138	10,892	3,477	7,415	27,836	39,334	27,959	9,486	1,338
Black	497,009	5,231	117,311	50,206	67,105	161,683	120,270	66,383	22,541	3,590
Smoker	79,459	133	9,373	2,896	6,477	25,489	25,646	14,182	4,111	525
Nonsmoker	381,793	4,747	100,070	44,029	56,041	124,532	85,606	47,222	16,793	2,823
Not stated	35,757	351	7,868	3,281	4,587	11,662	9,018	4,979	1,637	242

See footnotes at end at table.

Table 3. Number of live births by smoking status of mother and percent smokers, by age and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 42 reporting States and the District of Columbia, 1989—Con.

Smoking status and origin of mother	All ages	Age of mother								
		Under 15 years	15–19 years			20–24 years	25–29 years	30–34 years	35–39 years	40–49 years
			Total	15–17 years	18–19 years					
Smokers					Percent					
All origins[1]	19.5	7.7	22.1	19.0	23.9	23.4	19.0	15.7	13.6	13.2
Hispanic	8.0	5.9	8.2	7.5	8.7	8.4	7.9	7.7	7.0	6.7
Mexican	6.3	4.7	5.9	5.3	6.3	6.3	6.4	6.8	6.1	6.5
Puerto Rican	14.5	*	13.8	12.3	14.8	15.5	14.7	13.9	12.9	*
Cuban	6.9	*	8.7	*	9.8	7.8	6.5	6.5	6.1	*
Central and South American	3.6	*	3.1	*	3.4	3.2	3.5	4.5	4.2	*
Other and unknown Hispanic	12.1	*	12.5	11.5	13.1	13.1	12.2	10.7	9.9	10.9
Non-Hispanic[2]	20.5	7.9	23.8	20.5	25.6	25.1	19.9	16.3	14.1	13.9
White	21.7	21.2	32.9	32.1	33.3	28.0	19.8	15.7	13.7	14.2
Black	17.2	2.7	8.6	6.2	10.4	17.0	23.1	23.1	19.7	15.7

[1]Includes origin not stated.

[2]Includes races other than white and black.

NOTE: Excludes data for California, Indiana, Louisiana, Nebraska, New Hampshire, New York, Oklahoma, and South Dakota, which did not require reporting of either Hispanic origin of mother or tobacco use during pregnancy.

Table 4. Number of live births, percent of mothers who smoked cigarettes during pregnancy, and percent distribution by average number of cigarettes smoked by mothers per day, according to educational attainment and race of mother: Total of 42 reporting States and the District of Columbia, 1989

Smoking measure and race of mother	Total	Years of school completed by mother					
		0–8 years	9–11 years	12 years	13–15 years	16 years or more	Not stated
				All births			
All races[1]	2,865,249	117,472	469,418	1,099,292	567,021	494,172	117,874
White	2,621,296	91,270	321,283	856,077	460,723	438,908	93,035
Black	513,230	19,098	134,192	213,590	91,164	34,864	20,322
				Percent			
Smoker[1]	19.4	20.8	35.0	22.2	13.6	5.0	18.0
White	20.3	23.5	40.6	23.7	13.8	5.0	18.2
Black	17.1	12.8	22.7	17.0	13.4	6.8	21.2
All races[1]				Percent distribution			
Smoker	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less	57.8	52.0	55.5	57.6	61.4	69.8	58.7
11–20 cigarettes	35.6	38.0	37.1	36.2	33.0	25.7	34.8
21 cigarettes or more	6.6	10.0	7.2	6.3	5.6	4.5	6.5
White							
Smoker	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less	54.3	49.2	51.0	54.1	58.6	68.7	54.5
11–20 cigarettes	38.5	40.0	40.8	39.1	35.2	26.4	38.0
21 cigarettes or more	7.2	10.8	8.2	6.9	6.2	4.8	7.5
Black							
Smoker	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less	75.1	71.3	74.0	76.0	76.0	78.3	70.3
11–20 cigarettes	21.8	24.3	22.2	21.4	21.5	19.8	26.1
21 cigarettes or more	3.1	4.3	3.9	2.6	2.5	1.9	3.6

[1] Includes races other than white and black.

NOTE: Excludes data for California, Indiana, Louisiana, Nebraska, New York, Oklahoma, South Dakota, and Washington, which did not require reporting of either tobacco use during pregnancy or educational attainment of mother.

Table 5. Percent low birth weight by smoking status, age, and race of mother: Total of 43 reporting States and the District of Columbia, 1989

[Low birth weight is defined as weight of less than 2,500 grams (5 lb 8 oz)]

Smoking status and race of mother	All ages	Age of mother								
		Under 15 years	15–19 years			20–24 years	25–29 years	30–34 years	35–39 years	40–49 years
			Total	15–17 years	18–19 years					
All races[1]	7.2	14.0	9.5	10.5	9.0	7.4	6.3	6.5	7.2	8.6
Smoker	11.4	15.6	11.0	11.6	10.7	10.6	11.1	12.6	14.3	15.7
Nonsmoker	6.0	13.8	9.0	10.1	8.3	6.3	5.0	5.2	6.0	7.4
Not stated	8.3	14.5	11.0	11.7	10.6	8.2	7.3	7.7	8.4	9.7
White	5.8	10.6	7.7	8.4	7.4	5.9	5.1	5.4	6.1	7.6
Smoker	9.5	14.0	10.1	10.8	9.7	8.9	9.0	10.2	11.8	14.0
Nonsmoker	4.7	9.8	6.6	7.4	6.2	4.7	4.2	4.4	5.2	6.5
Not stated	6.7	11.1	8.9	9.3	8.7	6.4	5.9	6.5	7.2	9.0
Black	13.5	16.1	13.4	13.8	13.1	12.9	13.5	14.4	14.8	15.1
Smoker	21.6	21.9	17.7	17.0	18.0	19.8	22.4	24.3	27.1	25.6
Nonsmoker	11.7	15.8	12.8	13.4	12.3	11.4	10.7	11.4	11.7	13.2
Not stated	15.1	17.8	15.6	16.1	15.2	14.2	15.0	15.8	16.7	15.1

[1] Includes races other than white and black.

NOTE: Excludes data for California, Indiana, Louisiana, Nebraska, New York, Oklahoma, and South Dakota, which did not require reporting of tobacco use during pregnancy.

Table 6. Number of live births by drinking status of mother, percent drinkers, and percent distribution by average number of drinks per week, according to age and race of mother: Total of 44 reporting States and the District of Columbia, 1989

Drinking status, drinking measure, and race of mother	All ages	Age of mother								
		Under 15 years	15–19 years			20–24 years	25–29 years	30–34 years	35–39 years	40–49 years
			Total	15–17 years	18–19 years					
All races[1]					Number					
Total	3,024,078	8,900	392,911	141,096	251,815	816,274	946,879	619,716	208,511	30,797
Drinker	114,923	98	8,057	2,345	5,712	25,724	38,263	30,276	10,979	1,526
Nondrinker	2,660,875	8,038	352,098	126,613	225,485	723,541	832,130	538,655	179,862	26,551
Not stated	248,280	854	32,756	12,138	20,618	67,009	76,486	50,785	17,670	2,720
White										
Total	2,401,537	3,340	259,463	84,728	174,735	622,341	789,130	526,473	175,538	25,252
Drinker	91,293	56	5,966	1,697	4,269	18,633	30,406	25,495	9,436	1,301
Nondrinker	2,115,254	2,858	231,189	75,227	155,962	553,137	696,312	458,658	151,396	21,704
Not stated	194,990	426	22,308	7,804	14,504	50,571	62,412	42,320	14,706	2,247
Black										
Total	525,129	5,475	123,574	52,827	70,747	170,842	127,258	70,386	23,806	3,788
Drinker	20,400	32	1,699	503	1,196	6,215	6,869	4,120	1,294	171
Nondrinker	459,798	5,024	112,102	48,251	63,851	149,995	108,985	59,912	20,464	3,316
Not stated	44,931	419	9,773	4,073	5,700	14,632	11,404	6,354	2,048	301
					Percent					
Drinker[1]	4.1	1.2	2.2	1.8	2.5	3.4	4.4	5.3	5.8	5.4
White	4.1	1.9	2.5	2.2	2.7	3.3	4.2	5.3	5.9	5.7
Black	4.2	0.6	1.5	1.0	1.8	4.0	5.9	6.4	5.9	4.9
All races[1]					Percent distribution					
Drinker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less	61.0	57.4	61.4	61.4	61.4	59.5	61.8	61.6	60.7	54.8
2 drinks	17.7	*	16.4	16.2	16.5	17.6	17.3	18.3	18.2	19.5
3–4 drinks	10.5	*	10.6	11.3	10.2	10.8	10.3	10.2	11.0	12.6
5 drinks or more	10.8	*	11.6	11.1	11.9	12.2	10.6	9.9	10.2	13.1
White										
Drinker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less	65.2	*	64.8	63.8	65.2	64.8	66.6	65.2	63.2	56.8
2 drinks	17.1	*	15.4	14.8	15.7	16.5	16.7	17.9	18.0	19.6
3–4 drinks	9.4	*	10.0	11.0	9.6	9.4	8.7	9.4	10.3	12.3
5 drinks or more	8.3	*	9.7	10.3	9.5	9.3	7.9	7.5	8.4	11.3
Black										
Drinker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less	42.3	*	50.8	54.3	49.3	45.3	39.9	39.2	40.4	40.9
2 drinks	20.8	*	20.2	21.5	19.7	20.7	20.6	22.1	20.2	18.2
3–4 drinks	15.7	*	12.1	12.6	11.9	14.2	17.6	15.4	17.0	*
5 drinks or more	21.3	*	15.4	11.6	19.1	19.8	21.9	23.3	22.4	26.4

[1] Includes races other than white and black.

NOTE: Excludes data for California, Louisiana, Nebraska, New York, Oklahoma, and South Dakota, which did not require reporting of alcohol use during pregnancy.

Table 7. Number of live births by drinking status of mother and percent drinkers, by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 43 reporting States and the District of Columbia, 1989

Drinking status of mother	Origin of mother									
		Hispanic						Non-Hispanic		
	All origins[1]	Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total[2]	White	Black
	Number									
Total	3,006,269	269,604	160,315	32,290	9,386	27,064	40,549	2,676,689	2,080,815	505,936
Drinker	113,765	4,817	2,276	956	95	360	1,130	107,256	84,296	19,914
Nondrinker	2,644,395	221,711	125,902	28,414	9,043	24,377	33,975	2,396,533	1,867,942	448,654
Not stated	248,109	43,076	32,137	2,920	248	2,327	5,444	172,900	128,577	37,368
	Percent									
Drinker	4.1	2.1	1.8	3.3	1.0	1.5	3.2	4.3	4.3	4.2

[1]Includes origin not stated.
[2]Includes races other than white and black.

NOTE: Excludes data for California, Louisiana, Nebraska, New Hampshire, New York, Oklahoma, and South Dakota, which did not require reporting of either alcohol use during pregnancy or Hispanic origin of mother.

Table 8. Number of live births and percent distribution by weight gain during pregnancy and median weight gain, according to period of gestation and race of mother: Total of 46 reporting States and the District of Columbia, 1989

Period of gestation and race of mother	All births	Weight gain during pregnancy									Median weight gain
		Total	Less than 16 pounds	16–20 pounds	21–25 pounds	26–30 pounds	31–35 pounds	36–40 pounds	41–45 pounds	46 pounds or more	
All races[1]	Number	Percent distribution									Pounds
All gestational periods[2]	3,326,613	100.0	9.4	11.6	16.1	20.9	14.7	12.2	6.0	9.1	30.3
Under 37 weeks	351,275	100.0	17.8	16.2	16.7	18.0	10.9	9.0	4.3	7.1	25.9
37–39 weeks	1,336,184	100.0	9.2	12.0	17.0	21.5	14.7	11.9	5.6	8.2	30.2
40 weeks and over	1,614,352	100.0	7.9	10.3	15.3	21.0	15.5	13.1	6.6	10.3	30.6
White											
All gestational periods	2,626,486	100.0	8.0	10.8	16.2	21.4	15.5	12.7	6.2	9.1	30.5
Under 37 weeks	228,554	100.0	14.5	15.3	17.3	18.9	12.1	9.8	4.7	7.5	27.2
37–39 weeks	1,044,245	100.0	7.9	11.2	17.1	22.1	15.5	12.3	5.8	8.1	30.3
40 weeks and over	1,335,840	100.0	7.0	9.7	15.3	21.4	16.1	13.5	6.8	10.2	30.7
Black											
All gestational periods[2]	588,459	100.0	15.9	15.0	15.4	18.1	11.1	10.1	4.9	9.4	27.8
Under 37 weeks	111,023	100.0	25.4	18.4	15.1	15.6	8.4	7.3	3.3	6.5	24.1
37–39 weeks	242,313	100.0	14.6	15.0	16.2	18.8	11.4	10.3	4.8	8.8	28.0
40 weeks and over	229,110	100.0	13.0	13.5	14.8	18.5	12.0	11.3	5.7	11.3	30.1

[1]Includes races other than white and black.
[2]Includes births with period of gestation not stated.

NOTE: Excludes data for California, Louisiana, Nebraska, and Oklahoma, which did not require reporting of weight gain during pregnancy.

Table 9. Percent low birth weight by weight gain during pregnancy, by period of gestation, and race of mother: Total of 46 reporting States and the District of Columbia, 1989

[Low birth weight is defined as weight of less than 2,500 grams (5 lb 8oz)]

Period of gestation and race of mother	Total	Weight gain during pregnancy								
		Less than 16 pounds	16–20 pounds	21–25 pounds	26–30 pounds	31–35 pounds	36–40 pounds	41–45 pounds	46 pounds or more	Not stated
All gestational periods[1]										
All races[2]	7.2	15.7	10.4	6.8	5.1	4.1	4.0	3.9	4.1	10.2
White	5.8	12.6	8.8	5.8	4.4	3.6	3.5	3.4	3.7	7.9
Black	13.5	23.8	16.6	11.9	9.5	7.8	7.2	6.7	6.3	17.1
Under 37 weeks										
All races[2]	41.4	57.5	46.5	38.4	33.5	30.7	30.3	30.5	30.1	47.0
White	39.9	57.0	46.4	38.0	33.2	30.6	30.5	30.6	31.0	44.8
Black	45.3	59.0	48.0	40.0	35.2	31.9	30.6	31.2	28.6	50.8
37–39 weeks										
All races[2]	4.7	8.4	6.5	4.8	3.8	3.3	3.1	3.2	3.4	5.8
White	4.0	7.1	5.6	4.1	3.3	2.9	2.8	2.9	3.1	4.6
Black	7.9	11.9	9.6	7.8	6.4	5.6	5.0	4.8	4.8	9.3
40 weeks and over										
All races[2]	1.7	3.6	2.8	1.8	1.3	1.1	1.0	0.9	1.0	2.3
White	1.3	2.8	2.2	1.5	1.1	0.9	0.9	0.8	0.9	1.7
Black	3.8	6.8	5.4	3.7	3.0	2.4	2.3	2.0	1.7	4.6

[1] Includes births with period of gestation not stated.
[2] Includes races other than white and black.

NOTE: Excludes data for California, Louisiana, Nebraska, and Oklahoma, which did not require reporting of weight gain during pregnancy.

Table 10. Percent low birth weight by weight gain during pregnancy, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 45 reporting States and the District of Columbia, 1989

[Low birth weight is defined as weight of less than 2,500 grams (5 lb 8 oz)]

Origin of mother	Total	Weight gain during pregnancy								
		Less than 16 pounds	16–20 pounds	21–25 pounds	26–30 pounds	31–35 pounds	36–40 pounds	41–45 pounds	46 pounds or more	Not stated
All origins[1]	7.2	15.7	10.4	6.8	5.1	4.1	4.0	3.9	4.1	10.2
Hispanic	6.8	12.3	8.3	6.1	4.8	4.1	3.8	4.1	4.0	8.2
Mexican	6.0	10.8	7.2	5.5	4.4	3.6	3.4	3.9	3.7	6.9
Puerto Rican	9.6	17.4	10.9	7.9	6.5	5.5	5.5	4.8	4.9	12.6
Cuban	5.8	15.0	7.7	5.3	5.2	4.0	2.5	3.6	3.9	9.6
Central and South American	5.9	10.7	8.5	5.4	4.0	3.8	3.9	3.5	3.9	6.9
Other and unknown Hispanic	7.2	13.0	9.2	6.8	5.0	4.4	3.7	4.4	4.1	9.5
Non-Hispanic[2]	7.2	16.1	10.6	6.9	5.1	4.2	4.0	3.8	4.2	10.9
White	5.7	12.7	8.9	5.8	4.3	3.6	3.5	3.4	3.7	8.0
Black	13.6	24.0	16.7	12.0	9.6	7.8	7.2	6.7	6.3	17.5

[1] Includes origin not stated.
[2] Includes races other than white and black.

NOTE: Excludes data for California, Louisiana, Nebraska, New Hampshire, and Oklahoma, which did not require reporting of either weight gain during pregnancy or Hispanic origin of mother.

Table 11. Live births with selected obstetric procedures and rates for selected obstetric procedures, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989

[Rates are number of live births with specified procedure per 1,000 live births in specified group]

Obstetric procedure and race of mother	All births[1]	Obstetric procedure reported	All ages	Age of mother: Under 20 years	20–24 years	25–29 years	30–34 years	35–39 years	40–49 years	Not stated
All races[2]	Number			Rate						Number
Amniocentesis	3,896,605	118,871	32.3	12.4	15.4	17.8	32.4	162.3	200.2	212,395
Electronic fetal monitoring	3,896,605	2,521,640	684.4	702.8	690.7	686.4	674.4	657.3	641.7	212,395
Induction of labor	3,896,605	333,071	90.4	77.5	87.7	93.9	93.2	97.1	108.2	212,395
Stimulation of labor	3,896,605	402,107	109.1	105.3	107.6	111.6	110.2	107.9	108.5	212,395
Tocolysis	3,896,605	59,018	16.0	18.8	16.9	15.0	14.9	15.8	14.9	212,395
Ultrasound[3]	3,706,297	1,669,223	477.2	458.3	470.4	481.0	483.6	497.5	496.7	208,632
White										
Amniocentesis	3,090,834	101,919	34.8	13.0	15.8	18.2	34.2	173.9	214.9	162,682
Electronic fetal monitoring	3,090,834	2,019,588	689.7	708.0	695.4	693.1	680.6	663.3	648.2	162,682
Induction of labor	3,090,834	283,532	96.8	85.8	95.2	99.5	97.7	101.6	113.4	162,682
Stimulation of labor	3,090,834	326,300	111.4	107.9	110.0	113.6	112.0	110.4	111.0	162,682
Tocolysis	3,090,834	46,483	15.9	18.9	16.8	14.8	15.0	15.8	15.2	162,682
Ultrasound[3]	2,949,182	1,363,344	488.9	472.3	482.6	491.7	493.4	506.5	507.3	160,774
Black										
Amniocentesis	636,865	11,759	19.8	11.1	14.1	16.3	22.0	91.8	125.5	43,109
Electronic fetal monitoring	636,865	405,170	682.4	698.7	686.3	673.3	669.0	666.6	665.2	43,109
Induction of labor	636,865	39,652	66.8	60.8	63.2	69.0	73.0	84.0	99.6	43,109
Stimulation of labor	636,865	59,777	100.7	100.8	100.7	101.6	99.6	98.5	101.9	43,109
Tocolysis	636,865	10,519	17.7	18.8	18.4	17.2	15.6	17.6	15.4	43,109
Ultrasound[3]	593,447	242,287	438.8	428.4	432.9	440.4	450.1	478.7	483.3	41,347

[1] Total number of births to residents of areas reporting specified obstetric procedure.
[2] Includes races other than white and black.
[3] Illinois does not report this procedure.

NOTE: Excludes data for Louisiana, Nebraska, and Oklahoma, which did not require reporting of obstetric precedures.

Table 12. Live births with selected complications of labor and/or delivery and rates for selected complications, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989

[Rates are number of live births with specified complication per 1,000 live births in specified group]

Complication and race of mother	All births[1]	Complication reported	All ages	Age of mother: Under 20 years	20–24 years	25–29 years	30–34 years	35–39 years	40–49 years	Not stated
All races[2]	Number		Rate							Number
Febrile	3,896,605	40,991	11.2	15.2	11.9	10.5	9.6	9.4	8.8	231,990
Meconium, moderate/heavy[3]	3,876,999	230,155	63.1	70.5	64.4	60.3	60.5	63.8	71.1	230,514
Premature rupture of membrane	3,896,605	131,165	35.8	36.5	34.3	34.9	36.6	40.4	44.2	231,990
Abruptio placenta	3,896,605	24,418	6.7	6.6	6.4	6.4	6.9	7.8	10.5	231,990
Placenta previa	3,896,605	13,340	3.6	1.4	2.3	3.6	5.1	7.3	9.2	231,990
Other excessive bleeding	3,896,605	22,268	6.1	5.8	5.9	5.9	6.2	7.2	8.6	231,990
Seizures during labor	3,896,605	1,899	0.5	1.0	0.6	0.4	0.3	0.4	0.6	231,990
Precipitous labor	3,896,605	69,591	19.0	14.9	18.1	19.1	21.1	22.5	21.8	231,990
Prolonged labor	3,896,605	43,916	12.0	13.5	12.6	11.7	11.0	11.3	12.0	231,990
Dysfunctional labor	3,896,605	108,640	29.6	29.0	29.2	30.0	29.2	31.5	34.4	231,990
Breech/Malpresentation	3,896,605	143,043	39.0	31.4	34.1	39.8	44.3	49.1	56.0	231,990
Cephalopelvic disproportion[4,5]	3,430,329	130,528	39.5	39.5	39.6	40.9	38.1	38.2	37.3	128,827
Cord prolapse[6]	3,794,500	9,558	2.7	2.4	2.5	2.7	2.9	3.3	3.8	233,633
Anesthetic complication[5]	3,588,941	2,159	0.6	0.5	0.6	0.6	0.7	0.8	0.8	132,873
Fetal distress[3,5]	3,569,335	156,848	45.6	52.3	46.6	43.2	42.1	48.3	62.3	131,382
White										
Febrile	3,090,834	29,608	10.2	13.3	10.9	9.7	9.0	9.1	8.1	180,032
Meconium, moderate/heavy[3]	3,074,062	168,536	58.2	63.2	59.0	56.0	56.9	60.2	68.2	178,844
Premature rupture of membrane	3,090,834	100,262	34.4	34.7	32.5	33.7	35.3	39.9	43.6	180,032
Abruptio placenta	3,090,834	18,865	6.5	6.6	6.2	6.1	6.8	7.6	10.2	180,032
Placenta previa	3,090,834	10,330	3.5	1.4	2.3	3.4	4.9	6.9	8.6	180,032
Other excessive bleeding	3,090,834	17,473	6.0	6.0	5.9	5.8	6.0	6.9	8.6	180,032
Seizures during labor	3,090,834	1,370	0.5	0.9	0.6	0.4	0.3	0.4	0.6	180,032
Precipitous labor	3,090,834	52,589	18.1	12.9	16.4	18.1	20.6	22.6	21.6	180,032
Prolonged labor	3,090,834	36,019	12.4	14.4	13.3	12.0	11.2	11.6	12.4	180,032
Dysfunctional labor	3,090,834	89,266	30.7	30.9	30.5	30.8	29.7	32.2	35.3	180,032
Breech/Malpresentation	3,090,834	119,389	41.0	35.0	36.3	41.2	45.4	49.7	57.0	180,032
Cephalopelvic disproportion[4,5]	2,693,792	106,890	41.1	41.4	42.3	42.4	38.8	38.7	36.8	94,085
Cord prolapse[6]	3,021,191	7,461	2.6	2.4	2.4	2.6	2.8	3.1	3.7	181,405
Anesthetic complication[5]	2,832,718	1,766	0.6	0.6	0.6	0.6	0.7	0.8	0.8	97,344
Fetal distress[3,5]	2,815,946	118,894	43.7	52.0	45.4	41.3	39.8	45.7	59.7	96,141
Black										
Febrile	636,865	9,451	16.0	19.4	16.2	14.6	13.8	11.7	12.5	45,259
Meconium, moderate/heavy[3]	635,036	52,707	89.3	87.9	86.8	90.5	92.0	96.9	99.5	45,018
Premature rupture of membrane	636,865	25,865	43.7	40.8	41.7	44.3	48.9	50.7	56.4	45,259
Abruptio placenta	636,865	4,624	7.8	6.7	7.3	8.4	8.6	10.3	11.2	45,259
Placenta previa	636,865	2,274	3.8	1.6	2.7	4.7	6.7	8.4	10.6	45,259
Other excessive bleeding	636,865	3,061	5.2	4.4	4.6	5.5	6.5	7.0	5.6	45,259
Seizures during labor	636,865	437	0.7	1.1	0.6	0.7	0.5	*	*	45,259
Precipitous labor	636,865	13,338	22.5	18.7	23.6	24.2	23.9	22.2	18.5	45,259
Prolonged labor	636,865	5,592	9.5	10.9	9.5	8.4	9.0	9.1	7.5	45,259
Dysfunctional labor	636,865	15,118	25.6	25.0	24.8	25.6	26.6	28.5	32.3	45,259
Breech/Malpresentation	636,865	17,969	30.4	23.5	26.5	32.6	39.5	46.2	54.5	45,259
Cephalopelvic disproportion[4,5]	577,460	17,617	32.2	36.2	30.9	31.7	30.0	29.9	32.4	30,370
Cord prolapse[6]	606,924	1,754	3.1	2.6	3.0	3.1	3.7	4.4	5.4	45,517
Anesthetic complication[5]	593,896	314	0.6	0.4	0.5	0.6	0.7	*	*	31,077
Fetal distress[3,5]	592,067	31,738	56.6	54.2	52.9	57.3	60.3	71.9	81.7	30,836

[1] Total number of births to residents of areas reporting specified complication.
[2] Includes races other than white and black.
[3] Nevada does not report this complication.
[4] New York City (but not New York State) reports this complication.
[5] Texas does not report this complication.
[6] North Carolina does not report this complication.

NOTE: Excludes data for Louisiana, Nebraska, and Oklahoma, which did not require reporting of complications of labor and/or delivery.

Table 13. Live births by method of delivery, and rates of cesarean delivery and vaginal birth after previous cesarean delivery, by age and race of mother: Total of 45 reporting States and the District of Columbia, 1989

Age and race of mother	All births	Births by method of delivery						Cesarean delivery rate			Rate of vaginal birth after previous cesarean[4]
		Vaginal		Cesarean			Not stated				
		Total	After previous cesarean	Total	Primary	Repeat		Total[1]	Primary[2]	Repeat[3]	
All races[5]	3,798,734	2,793,463	71,019	826,955	521,873	305,082	178,316	22.8	16.1	36.9	18.9
Under 20 years	484,420	382,328	3,451	77,801	66,844	10,957	24,291	16.9	15.0	14.1	24.0
20–24 years	1,009,739	762,217	15,993	198,722	134,697	64,025	48,800	20.7	15.3	32.2	20.0
25–29 years	1,187,826	867,694	24,192	265,121	161,382	103,739	55,011	23.4	16.1	39.1	18.9
30–34 years	795,041	563,775	19,796	195,305	107,529	87,776	35,961	25.7	16.5	44.9	18.4
35–39 years	278,117	189,120	6,778	76,714	43,108	33,606	12,283	28.9	19.1	43.8	16.8
40–49 years	43,591	28,329	809	13,292	8,313	4,979	1,970	31.9	23.2	37.5	14.0
White	3,022,537	2,212,843	56,851	667,114	418,177	248,937	142,580	23.2	16.2	37.3	18.6
Under 20 years	326,975	256,981	1,851	53,035	46,370	6,665	16,959	17.1	15.4	12.6	21.7
20–24 years	779,397	585,932	11,457	155,649	107,097	48,552	37,816	21.0	15.7	31.2	19.1
25–29 years	984,147	717,483	19,952	221,033	134,323	86,710	45,631	23.6	16.1	39.2	18.7
30–34 years	666,304	472,528	17,037	163,557	88,878	74,679	30,219	25.7	16.3	45.7	18.6
35–39 years	230,502	156,979	5,873	63,209	34,932	28,277	10,314	28.7	18.8	44.7	17.2
40–49 years	35,212	22,940	681	10,631	6,577	4,054	1,641	31.7	22.8	38.1	14.4
Black	611,147	452,921	11,104	127,907	82,695	45,212	30,319	22.0	15.8	35.3	19.7
Under 20 years	143,251	113,263	1,493	23,068	19,005	4,063	6,920	16.9	14.5	17.6	26.9
20–24 years	195,335	147,519	3,943	37,942	23,899	14,043	9,874	20.5	14.3	37.0	21.9
25–29 years	151,603	109,427	3,301	34,553	20,553	14,000	7,623	24.0	16.2	40.5	19.1
30–34 years	86,147	59,786	1,752	22,040	12,786	9,254	4,321	26.9	18.1	42.0	15.9
35–39 years	29,855	19,809	545	8,692	5,377	3,315	1,354	30.5	21.8	38.1	14.1
40–49 years	4,956	3,117	70	1,612	1,075	537	227	34.1	26.1	33.3	11.5

[1]Percent of all live births by cesarean delivery.
[2]Number of primary cesareans per 100 live births to women who have not had a previous cesarean.
[3]Percent of all cesareans that are repeat cesareans.
[4]Number of vaginal births after previous cesarean delivery per 100 live births to women with a previous cesarean delivery.
[5]Includes races other than white and black.

NOTE: Excludes data for Louisiana, Maryland, Nebraska, Nevada, and Oklahoma, which did not require reporting of method of delivery.

Table 14. Rates of cesarean delivery and vaginal birth after previous cesarean delivery, by selected medical risk factors, complications of labor and/or delivery, and obstetric procedures: Total of 45 reporting States and the District of Columbia, 1989

Medical risk factor, complication, and obstetric procedure	All births with specified condition and/or procedure	Cesarean delivery rate			Rate of vaginal birth after previous cesarean[4]
		Total[1]	Primary[2]	Repeat[3]	
Medical risk factors					
Anemia	67,514	25.9	18.4	37.6	19.2
Cardiac disease	12,710	26.2	19.2	35.4	22.0
Acute or chronic lung disease	10,826	29.1	21.1	37.4	19.8
Diabetes	75,609	37.8	28.1	38.2	13.1
Genital herpes[5,6]	26,033	46.9	41.6	24.3	22.7
Hydramnios/Oligohydramnios[5]	19,542	46.8	41.8	21.0	15.2
Hemoglobinopathy[5]	1,640	28.6	21.1	35.8	22.0
Hypertension, chronic	26,204	41.5	32.8	33.6	12.8
Eclampsia	15,726	52.1	48.4	15.6	11.9
Incompetent cervix[5]	8,843	31.7	24.1	34.4	20.8
Renal disease	9,744	29.0	22.1	32.7	18.9
Rh sensitization[7]	21,381	24.6	17.2	38.3	19.9
Uterine bleeding[5]	30,546	34.7	27.1	32.7	17.2
Complications of labor and/or delivery					
Febrile	39,799	36.4	34.3	13.3	38.8
Premature rupture of membrane	128,153	29.7	26.3	17.7	28.5
Abruptio placenta	23,888	56.5	52.6	18.3	16.2
Placenta previa	12,981	82.2	78.4	24.6	3.3
Other excessive bleeding	21,651	25.5	19.2	32.9	25.7
Seizures during labor	1,722	48.3	44.7	15.4	14.2
Precipitous labor (less than 3 hours)	68,081	1.7	1.3	24.5	84.9
Prolonged labor (more than 20 hours)	42,695	42.3	41.4	7.3	40.3
Dysfunctional labor	106,844	63.8	62.1	11.0	18.4
Breech/Malpresentation	140,309	83.9	82.6	12.8	5.1
Cephalopelvic disproportion[8,9]	127,284	97.7	97.5	13.4	0.9
Cord prolapse[10]	9,259	68.0	66.2	10.6	10.8
Anesthetic complications[9]	1,991	56.5	47.7	33.2	10.2
Fetal distress[9]	154,135	62.9	61.1	10.8	16.8
Obstetric procedures					
Electronic fetal monitoring	2,463,276	21.4	16.3	30.7	25.8
Induction of labor	325,291	22.4	21.1	10.0	50.4
Stimulation of labor	392,684	18.6	17.4	10.9	58.3
Tocolysis	57,739	30.5	24.6	27.9	22.0
Ultrasound[11]	1,636,821	27.2	19.2	38.1	18.1

[1]Percent of all live births by cesarean delivery.
[2]Number of primary cesareans per 100 live births to women who have not had a previous cesarean.
[3]Percent of all cesareans that are repeat cesareans.
[4]Number of vaginal births after previous cesarean delivery per 100 live births to women with a previous cesarean delivery.
[5]New York City (but not New York State) reports this risk factor.
[6] Texas does not report this risk factor.
[7]Kansas does not report this risk factor.
[8]New York City (but not New York State) reports this complication.
[9]Texas does not report this complication.
[10]North Carolina does not report this complication.
[11]Illinois does not report this procedure.

NOTE: Excludes data for Louisiana, Maryland, Nebraska, Nevada, and Oklahoma, which did not require reporting of either method of delivery, medical risk factors, complications of labor and/or delivery or obstetric procedures.

Table 15. Live births by day of week and index of occurrence by method of delivery, day of week, and race of mother: Total of 45 reporting States and the District of Columbia, 1989

Day of week and race of mother	All births	Index of occurrence[1]				
			Method of delivery			
				Cesarean		
		Total[2]	Vaginal	Total	Primary	Repeat
All races[3]	3,798,734	100.0	100.0	100.0	100.0	100.0
Sunday	447,898	81.2	87.3	60.7	73.1	39.5
Monday	550,925	101.8	100.5	106.0	97.9	120.0
Tuesday	588,409	108.7	106.3	116.5	111.6	124.9
Wednesday	581,230	107.4	105.2	114.6	111.0	120.8
Thursday	578,959	107.0	104.8	114.0	110.5	120.0
Friday	584,747	108.0	104.4	120.3	113.7	131.4
Saturday	466,566	86.2	91.8	68.6	82.6	44.5
White	3,022,537	100.0	100.0	100.0	100.0	100.0
Sunday	348,984	79.5	86.0	58.4	71.5	36.5
Monday	439,835	102.1	100.7	106.8	98.1	121.4
Tuesday	471,843	109.6	106.9	117.7	112.7	126.1
Wednesday	465,586	108.1	105.9	115.3	111.6	121.7
Thursday	463,203	107.6	105.4	114.4	110.9	120.2
Friday	468,929	108.9	105.1	121.6	114.5	133.5
Saturday	364,157	84.6	90.3	66.6	81.3	41.9
Black	611,147	100.0	100.0	100.0	100.0	100.0
Sunday	78,082	88.0	93.0	70.8	79.6	54.8
Monday	87,284	100.2	99.4	102.6	96.7	113.6
Tuesday	91,682	105.3	103.8	111.0	107.1	118.3
Wednesday	91,117	104.7	102.6	111.7	108.9	116.7
Thursday	90,976	104.5	102.0	112.8	109.1	119.5
Friday	91,098	104.6	101.8	114.2	110.5	120.9
Saturday	80,908	92.9	97.6	77.4	88.5	57.2

[1] Index is the ratio of the average number of births by a specified method of delivery on a given day of the week to the average daily number of births by a specified method of delivery for the year, multiplied by 100.
[2] Includes method of delivery not stated.
[3] Includes races other than white and black.

NOTE: Excludes data for Louisiana, Maryland, Nebraska, Nevada, and Oklahoma, which did not require reporting of method of delivery.

Table 16. Live births with selected abnormal conditions of the newborn and rates for selected abnormal conditions of the newborn, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989

[Rates are number of live births with specified abnormal condition per 1,000 live births in specified group]

Abnormal condition and race of mother	All births[1]	Abnormal condition reported	All ages	Age of mother						Not stated
				Under 20 years	20–24 years	25–29 years	30–34 years	35–39 years	40–49 years	
All races[2]	Number		Rate							Number
Anemia	3,896,605	7,139	2.0	2.5	2.1	1.8	1.7	1.8	1.6	256,288
Birth injury[3]	3,497,418	6,578	2.0	2.0	2.0	2.0	1.9	1.9	2.1	156,921
Fetal alcohol syndrome[4,5]	3,665,991	611	0.2	0.1	0.2	0.2	0.2	0.2	*	253,905
Hyaline membrane disease/RDS	3,896,605	21,417	5.9	7.6	6.3	5.5	5.1	5.5	5.8	256,288
Meconium aspiration syndrome[5]	3,737,993	11,149	3.2	3.5	3.2	3.0	3.1	3.6	4.3	252,667
Assisted ventilation less than 30 minutes[6]	3,605,156	38,298	11.4	12.3	11.3	11.3	10.9	11.8	13.1	252,290
Assisted ventilation 30 minutes or longer[6]	3,605,156	23,141	6.9	9.0	7.1	6.3	6.3	6.8	8.1	252,290
Seizures	3,896,605	3,888	1.1	1.2	1.0	1.0	1.1	1.2	1.2	256,288
White										
Anemia	3,090,834	5,177	1.8	2.3	1.9	1.7	1.7	1.7	1.6	200,011
Birth injury[3]	2,753,029	5,726	2.2	2.4	2.3	2.2	2.0	1.9	2.3	117,673
Fetal alcohol syndrome[4,5]	2,889,255	351	0.1	0.1	0.1	0.1	0.1	0.2	*	198,327
Hyaline membrane disease/RDS	3,090,834	17,177	5.9	8.0	6.3	5.5	5.2	5.5	6.1	200,011
Meconium aspiration syndrome[5]	2,951,908	8,403	3.1	3.2	3.0	2.9	3.0	3.5	3.9	197,112
Assisted ventilation less than 30 minutes[6]	2,875,053	30,740	11.5	12.5	11.5	11.4	10.9	11.8	13.2	197,616
Assisted ventilation 30 minutes or longer[6]	2,875,053	17,480	6.5	8.8	6.7	6.0	6.0	6.5	8.2	197,616
Seizures	3,090,834	2,852	1.0	1.1	0.9	0.9	1.0	1.1	1.1	200,011
Black										
Anemia	636,865	1,717	2.9	3.2	3.1	2.6	2.6	2.6	*	48,947
Birth injury[3]	585,540	583	1.1	1.1	0.9	1.0	1.2	1.5	*	34,277
Fetal alcohol syndrome[4,5]	613,505	199	0.4	0.2	0.3	0.4	0.5	*	*	48,308
Hyaline membrane disease/RDS	636,865	3,738	6.4	6.9	6.4	6.1	5.9	6.2	5.9	48,947
Meconium aspiration syndrome[5]	620,429	2,352	4.1	4.0	3.9	4.0	4.4	5.3	8.2	48,292
Assisted ventilation less than 30 minutes[6]	573,608	6,019	11.4	11.9	10.8	11.5	11.6	12.3	16.4	47,174
Assisted ventilation 30 minutes or longer[6]	573,608	4,917	9.3	9.5	9.0	9.1	9.9	10.1	10.9	47,174
Seizures	636,865	895	1.5	1.3	1.4	1.7	1.7	1.8	*	48,947

[1] Total number of births to residents of areas reporting specified condition.
[2] Includes races other than white and black.
[3] Massachusetts and Texas do not report this condition.
[4] Wisconsin does not report this condition.
[5] New York City (but not New York State) reports this condition.
[6] New York State and New York City do not report this condition.

NOTE: Excludes data for Louisiana, Nebraska, and Oklahoma, which did not require reporting of abnormal conditions of the newborn.

Table 17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 45 reporting States and the District of Columbia, 1989

[Rates are number of live births with specified congenital anomaly per 100,000 live births in specified group]

Congenital anomaly and race of mother	All births[1]	Congenital anomaly reported	All ages	Age of mother: Under 20 years	20–24 years	25–29 years	30–34 years	35–39 years	40–49 years	Not stated
All races[2]	Number			Rate						Number
Anencephalus	3,577,803	670	20.2	21.6	22.4	20.0	17.4	18.4	*	253,639
Spina bifida/Meningocele	3,577,803	1,014	30.5	31.2	32.6	30.5	28.9	25.5	*	253,639
Hydrocephalus	3,577,803	1,026	30.6	40.5	32.1	30.0	24.6	24.7	*	253,639
Microcephalus	3,577,803	402	12.1	12.8	11.2	13.2	10.2	13.0	*	253,639
Other central nervous system anomalies	3,577,803	1,087	32.7	36.5	35.2	30.8	29.5	31.4	*	253,639
Heart malformations	3,577,803	4,621	139.0	133.4	132.9	135.2	140.9	169.2	229.2	253,639
Other circulatory/respiratory anomalies	3,577,803	5,292	159.2	156.7	160.5	156.9	155.2	175.9	191.0	253,639
Rectal atresia/stenosis	3,577,803	458	13.8	18.1	13.3	11.6	13.7	17.2	*	253,639
Tracheo-esophageal fistula/Esophage atresia	3,577,803	488	14.7	11.6	14.7	14.5	15.7	18.0	*	253,639
Omphalocele/Gastroschisis	3,577,803	946	28.5	53.9	34.2	22.5	18.2	18.0	*	253,639
Other gastrointestinal anomalies	3,577,803	1,458	43.9	49.5	42.9	43.6	39.0	51.5	*	253,639
Malformed genitalia	3,577,803	2,965	89.2	93.2	90.9	87.3	85.1	94.6	95.5	253,639
Renal agenesis	3,577,803	407	12.2	13.0	12.2	12.5	11.6	10.9	*	253,639
Other urogenital anomalies	3,577,803	5,072	152.6	149.5	148.9	158.8	151.5	147.8	152.8	253,639
Cleft lip/palate	3,577,803	3,460	104.1	106.9	108.7	103.1	97.1	105.9	106.4	253,639
Polydactyly/Syndactyly/Adactyly	3,577,803	3,562	107.2	148.8	123.0	93.3	87.8	89.2	106.4	253,639
Club foot	3,577,803	2,332	70.2	74.4	73.2	70.2	64.0	69.9	62.8	253,639
Diaphragmatic hernia	3,577,803	499	15.0	16.7	15.3	13.1	16.3	14.7	*	253,639
Other musculoskeletal/integumental anomalies	3,577,803	8,477	255.0	262.0	250.3	246.9	255.8	290.6	270.1	253,639
Down's syndrome	3,577,803	1,945	58.5	42.3	38.4	48.6	66.2	125.2	442.0	253,639
Other chromosomal anomalies	3,577,803	1,875	56.4	48.8	50.0	52.9	55.5	90.0	196.4	253,639
White										
Anencephalus	2,852,565	537	20.2	22.4	23.1	19.3	18.8	16.1	*	197,415
Spina bifida/Meningocele	2,852,565	868	32.7	36.8	35.6	32.2	29.7	26.6	*	197,415
Hydrocephalus	2,852,565	845	31.8	44.8	34.6	31.2	24.9	25.1	*	197,415
Microcephalus	2,852,565	309	11.6	13.1	10.1	11.8	10.7	15.1	*	197,415
Other central nervous system anomalies	2,852,565	886	33.4	38.2	37.0	31.3	28.5	33.7	*	197,415
Heart malformations	2,852,565	3,807	143.4	140.5	138.1	137.9	143.1	177.4	231.7	197,415
Other circulatory/respiratory anomalies	2,852,565	4,448	167.5	180.1	172.3	162.7	156.7	182.4	184.7	197,415
Rectal atresia/stenosis	2,852,565	369	13.9	19.6	14.0	12.1	12.6	17.6	*	197,415
Tracheo-esophageal fistula/Esophageal atresia	2,852,565	424	16.0	15.2	14.8	15.5	17.4	20.1	*	197,415
Omphalocele/Gastroschisis	2,852,565	740	27.9	56.1	35.3	22.3	17.4	16.6	*	197,415
Other gastrointestinal anomalies	2,852,565	1,130	42.6	49.2	43.2	41.1	36.8	51.8	*	197,415
Malformed genitalia	2,852,565	2,506	94.4	101.2	97.8	90.6	89.8	101.0	104.1	197,415
Renal agenesis	2,852,565	327	12.3	14.5	13.0	12.1	10.9	11.1	*	197,415
Other urogenital anomalies	2,852,565	4,430	166.8	172.5	166.2	171.0	162.3	155.3	171.3	197,415
Cleft lip/palate	2,852,565	3,022	113.8	127.7	120.3	110.8	103.6	115.1	104.1	197,415
Polydactyly/Syndactyly/Adactyly	2,852,565	1,994	75.1	86.1	82.7	72.5	65.1	69.8	97.4	197,415
Club foot	2,852,565	2,038	76.8	87.1	80.0	75.9	69.9	76.4	*	197,415
Diaphragmatic hernia	2,852,565	417	15.7	18.6	16.3	13.9	16.1	15.6	*	197,415
Other musculoskeletal/integumental anomalies	2,852,565	6,904	260.0	273.1	256.0	250.8	257.2	302.0	268.6	197,415
Down's syndrome	2,852,565	1,686	63.5	49.9	42.1	51.1	70.9	129.1	470.1	197,415
Other chromosomal anomalies	2,852,565	1,511	56.9	52.3	50.2	53.9	53.7	89.4	191.4	197,415

See footnotes at end of table.

Table 17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 45 reporting States and the District of Columbia, 1989—Con.

[Rates are number of live births with specified congenital anomaly per 100,000 live births in specified group]

Congenital anomaly and race of mother	All births[1]	Congenital anomaly reported	All ages	Age of mother						Not stated
				Under 20 years	20–24 years	25–29 years	30–34 years	35–39 years	40–49 years	
Black	Number			Rate						Number
Anencephalus	573,082	104	19.8	22.1	18.9	24.1	*	*	*	48,145
Spina bifida/Meningocele	573,082	117	22.3	20.5	20.6	23.3	29.4	*	*	48,145
Hydrocephalus	573,082	151	28.8	33.1	23.6	29.5	28.0	*	*	48,145
Microcephalus	573,082	80	15.2	*	14.7	26.4	*	*	*	48,145
Other central nervous system anomalies	573,082	153	29.1	31.5	28.3	28.7	33.5	*	*	48,145
Heart malformations	573,082	630	120.0	112.6	112.0	123.5	130.0	152.6	*	48,145
Other circulatory/respiratory anomalies	573,082	629	119.8	97.7	114.4	124.3	152.3	136.1	*	48,145
Rectal atresia/stenosis	573,082	69	13.1	*	*	*	*	*	*	48,145
Tracheo-esophageal fistula/Esophageal atresia	573,082	47	9.0	*	14.7	*	*	*	*	48,145
Omphalocele/Gastroschisis	573,082	175	33.3	45.7	31.8	29.5	*	*	*	48,145
Other gastrointestinal anomalies	573,082	267	50.9	45.7	43.6	61.4	57.3	*	*	48,145
Malformed genitalia	573,082	377	71.8	75.6	70.2	77.7	61.5	*	*	48,145
Renal agenesis	573,082	66	12.6	*	*	*	*	*	*	48,145
Other urogenital anomalies	573,082	490	93.3	99.3	87.3	94.0	95.0	99.0	*	48,145
Cleft lip/palate	573,082	239	45.5	48.8	49.5	39.6	48.9	*	*	48,145
Polydactyly/Syndactyly/Adactyly	573,082	1,469	279.8	300.9	294.2	243.2	280.9	272.2	*	48,145
Club foot	573,082	242	46.1	47.3	50.1	45.8	33.5	*	*	48,145
Diaphragmatic hernia	573,082	66	12.6	*	*	*	*	*	*	48,145
Other musculoskeletal/integumental anomalies	573,082	1,193	227.3	226.9	227.0	219.1	246.0	214.5	*	48,145
Down's syndrome	573,082	199	37.9	26.8	24.8	36.5	37.7	127.9	*	48,145
Other chromosomal anomalies	573,082	295	56.2	41.7	52.5	52.8	79.7	*	*	48,145

[1] Total number of births to residents of areas reporting specified congenital anomaly.
[2] Includes races other than white and black.

NOTE: Excludes data for Louisiana, Nebraska, New Mexico, New York, and Oklahoma, which did not require reporting of congenital anomalies.

Technical notes

Source of data

Data shown in this report are based on 100 percent of the birth certificates in all States and the District of Columbia. The data are provided to the National Center for Health Statistics through the Vital Statistics Cooperative Program. Information in this report on selected maternal and infant health characteristics was derived from items on the 1989 revision of the U.S. Standard Certificate of Live Birth (figure 1).

Race of mother

Birth data are tabulated by the race of the mother as reported directly on the birth certificate. If race of mother was not stated, it was imputed as that of the father, if known. If neither race was stated, race of mother was imputed as the race of the mother on the preceding record with known race.

Definitions of medical terms

The following definitions are adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics officials for the Association for Vital Records and Health Statistics (24).

Medical risk factors for this pregnancy

Anemia.—Hemoglobin level of less than 10.0 g/dL during pregnancy, or a hematocrit of less than 30 percent during pregnancy.

Cardiac disease.—Disease of the heart.

Acute or chronic lung disease.—Disease of the lungs during pregnancy.

Diabetes.—Metabolic disorder characterized by excessive discharge of urine and persistent thirst; includes juvenile onset, adult onset, and gestational diabetes during pregnancy.

Genital herpes.—Infection of the skin of the genital area by herpes simplex virus.

Hydramnios/Oligohydramnios.—Any noticeable excess (hydramnios) or lack (oligohydramnios) of amniotic fluid.

Hemoglobinopathy.—A blood disorder caused by alteration in the genetically determined molecular structure of hemoglobin (for example, sickle cell anemia).

Hypertension, chronic.—Blood pressure persistently greater than 140/90, diagnosed prior to onset of pregnancy or before the 20th week of gestation.

Hypertension, pregnancy-associated.—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 pre-eclampsia.

Incompetent cervix.—Characterized by painless dilation of the cervix in the second trimester or early in the third trimester of pregnancy, with premature expulsion of membranes through the cervix and ballooning of the membranes into the vagina, followed by rupture of the membranes and subsequent expulsion of the fetus.

Previous infant 4,000+ grams.—The birth weight of a previous live-born child was over 4,000 grams (8 lbs 14 oz).

Previous preterm or small-for-gestational-age infant.—Previous birth of an infant prior to term (before 37 completed weeks of gestation), or of an infant weighing less than the 10th percentile for gestational age, using a standard weight for age chart.

Renal disease.—Kidney disease.

Rh sensitization.—The process or state of becoming sensitized to the Rh factor as when an Rh-negative woman is pregnant with an Rh-positive fetus.

Uterine bleeding.—Any clinically significant bleeding during the pregnancy, taking into consideration the stage of pregnancy; any second or third trimester bleeding of the uterus prior to the onset of labor.

Obstetric procedures

Amniocentesis.—Surgical transabdominal perforation of the uterus to obtain amniotic fluid to be used in the detection of genetic disorders, fetal abnormalities, and fetal lung maturity.

Electronic fetal monitoring.—Monitoring with external devices applied to the maternal abdomen or with internal devices with an electrode attached to the fetal scalp and a catheter through the cervix into the uterus, to detect and record fetal heart tones and uterine contractions.

Induction of labor.—The initiation of uterine contractions before the spontaneous onset of labor by medical and/or surgical means for the purpose of delivery.

Stimulation of labor.—Augmentation of previously established labor by use of oxytocin.

Tocolysis.—Use of medications to inhibit preterm uterine contractions to extend the length of pregnancy and, therefore, avoid a preterm birth.

Ultrasound.—Visualization of the fetus and the placenta by means of sound waves.

Complications of labor and/or delivery

Febrile.—A fever greater than 100 degrees F. or 38 C. occurring during labor and/or delivery.

Meconium, moderate/heavy.—Meconium consists of undigested debris from swallowed amniotic fluid, various products of secretion, and excretion and shedding by the gastrointestinal tract; moderate to heavy amounts of meconium in the amniotic fluid noted during labor and/or delivery.

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

Abruptio placenta.—Premature separation of a normally-implanted placenta from the uterus.

Placenta previa.—Implantation of the placenta over or near the internal opening of the cervix.

Other excessive bleeding.—The loss of a significant amount of blood from conditions other than abruptio placenta or placenta previa.

Seizures during labor.—Maternal seizures occurring during labor from any cause.

Precipitous labor (less than 3 hours). —Extremely rapid labor and delivery lasting less than 3 hours.

Prolonged labor (more than 20 hours). —Abnormally slow progress of labor lasting more than 20 hours.

Dysfunctional labor. —Failure to progress in a normal pattern of labor.

Breech/Malpresentation. —At birth, the presentation of the fetal buttocks rather than the head, or other malpresentation.

Cephalopelvic disproportion. —The relationship of the size, presentation, and position of the fetal head to the maternal pelvis, which prevents dilation of the cervix and/or descent of the fetal head.

Cord prolapse. —Premature expulsion of the umbilical cord in labor before the fetus is delivered.

Anesthetic complications. —Any complication during labor and/or delivery brought on by an anesthetic agent or agents.

Fetal distress. —Signs indicating fetal hypoxia (deficiency in amount of oxygen reaching fetal tissues).

Abnormal conditions of the newborn

Anemia. —Hemoglobin level of less than 13.0 g/dL, or a hematocrit of less than 39 percent.

Birth injury. —Impairment of the infant's body function or structure due to adverse influences that occurred at birth.

Fetal alcohol syndrome. —A syndrome of altered prenatal growth and development occurring in infants born of women who consumed excessive amounts of alcohol during pregnancy.

Hyaline membrane disease/RDS. —A disorder primarily of prematurity, manifested clinically by respiratory distress and pathologically by pulmonary hyaline membranes and incomplete expansion of the lungs at birth.

Meconium aspiration syndrome. —Aspiration of meconium by the fetus or newborn, affecting the lower respiratory system.

Assisted ventilation (less than 30 minutes). —A mechanical method of assisting respiration for newborns with respiratory failure.

Assisted ventilation (30 minutes or more). —Newborn placed on assisted ventilation for 30 minutes or longer.

Seizures. —A seizure of any etiology.

Congenital anomalies of child

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.

Hydrocephalus. —Excessive accumulation of cerebrospinal fluid within the ventricles of the brain with consequent enlargement of the cranium.

Microcephalus. —A significantly small head.

Other central nervous system anomalies. —Other specified anomalies of the brain, spinal cord, and nervous system.

Heart malformations. —Congenital anomalies of the heart.

Other circulatory/respiratory anomalies. —Other specified anomalies of the circulatory and respiratory systems.

Rectal atresia/stenosis. —Congenital absence, closure, or narrowing of the rectum.

Tracheo-esophageal fistula/Esophageal atresia. —An abnormal passage between the trachea and the esophagus; esophageal atresia is the congenital absence or closure of the esophagus.

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.

Other gastrointestinal anomalies. —Other specified congenital anomalies of the gastrointestinal system.

Malformed genitalia. —Congenital anomalies of the reproductive organs.

Renal agenesis. —One or both kidneys are completely absent.

Other urogenital anomalies. —Other specified congenital anomalies of the organs concerned in the production and excretion of urine, together with organs of reproduction.

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.

Polydactyly/Syndactyly, Adactyly. —Polydactyly is the presence of more than five digits on either hands and/or feet; syndactyly is having fused or webbed fingers and/or toes; adactyly is the absence of fingers and/or toes.

Club foot. —Deformities of the foot, which is twisted out of shape or position.

Diaphragmatic hernia. —Herniation of the abdominal contents through the diaphragm into the thoracic cavity, usually resulting in respiratory distress.

Other musculoskeletal/integumental anomalies. —Other specified congenital anomalies of the muscles, skeleton, or skin.

Down's syndrome. —The most common chromosomal defect with most cases resulting from an extra chromosome (trisomy 21).

Other chromosomal anomalies. —All other chromosomal aberrations.

Method of delivery

Several rates are computed for method of delivery. The overall cesarean section rate or *total cesarean* rate is computed as the percent of all births that were delivered by cesarean section. The *primary cesarean* rate is a measure that relates the number of women having a primary cesarean delivery to all women giving birth who have never had a cesarean delivery. The denominator for this rate includes all births, less those with method of delivery classified as repeat cesarean, vaginal birth after previous cesarean, or method not stated. The *repeat cesarean* rate is the percent of all cesarean deliveries that were to women having their second (or subsequent) cesarean delivery. The rate for *vaginal birth after previous cesarean* (VBAC) delivery is computed by relating all VBAC deliveries to the sum of VBAC and repeat cesarean deliveries, that is, to women with a previous cesarean section.

Computation of percent, percent distributions, and medians

Births with unknown medical and life-style risk factors of pregnancy and birth, obstetric procedures, abnormal conditions and congenital anomalies of infant, and method of delivery were subtracted from the figures for total births that were used as denominators before percents, percent distributions, and medians were computed. Computations of median weight gain were based on ungrouped data. An asterisk is shown in place of any derived statistic based on fewer than 20 births in the numerator or denominator.

Random variation

Although the birth data in this report are not subject to sampling error, they may be affected by random variation in the number of births involved. Many of the checkbox items refer to extremely rare events. When the number of events is small, perhaps less than 100, and the probability of such an event is small, considerable caution must be observed in interpreting the data.

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This report presents summary tabulations on new data from the 1989 birth certificate. More detailed tabulations for 1989 will be published in *Vital Statistics of the United States, Volume I—Natality.* Prior to the publication of that volume, the National Center for Health Statistics will respond to requests for unpublished data whenever posssible.

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