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**VITAL STATISTICS OF
THE UNITED STATES**

2002

NATALITY

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**CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL CENTER FOR HEALTH STATISTICS**

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Introduction

This report, published by the Centers for Disease Control and Prevention's National Center for Health Statistics (NCHS), is an updated and abridged version of the "1999 Technical Appendix" and focuses on information for the 2002 data file (1). This "Appendix" is also included in "Vital Statistics of the United States, 2002, Volume I, Natality" (in preparation). Reference will be made to the "1999 Technical Appendix" for historical discussion of the variables, definitions, quality, and completeness of the birth data (2). This report supplements the "Technical Notes" section of "Births: Final data for 2002" (3) and is recommended for use with the public-use file for 2002 births, available on CD-ROM from NCHS, and the tabulated data of "Vital Statistics of the United States, 2002, Volume I, Natality."

Definition of Live Birth

Every product of conception that gives a sign of life after birth, regardless of the length of the pregnancy, is considered a live birth. This concept is included in the definition set forth by the World Health Organization in 1950 and revised in 1988 by a working group formed by the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists (4-6):

Live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered liveborn.

This definition distinguishes in precise terms a live birth from a fetal death (see section on fetal deaths in the "Technical Appendix" of "Vital Statistics of the United States, Volume II"). In the interest of comparable natality statistics, both the Statistical Commission of the United Nations and NCHS have adopted this definition (7,8).

History of Birth-Registration Area

Currently the birth-registration system of the United States covers the 50 States, the District of Columbia, the independent registration area of New York City, and Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands (referred to as Northern Marianas). However, in the statistical tabulations, "United States" refers only to the aggregate of the 50 States (including New York City) and the District of Columbia. Information on the history and development of the birth-registration area is available elsewhere (2).

Sources of Data

Nativity statistics

Since 1985 natality statistics for all States and the District of Columbia have been based on information from the total file of records. The information is received on electronic files of individual records processed by the States and provided to NCHS through the Vital Statistics Cooperative Program. NCHS receives these files from the registration offices of all States, the District of Columbia, and New York City. Information for Puerto Rico and the Virgin Islands is also received through the Vital Statistics Cooperative Program. Information for Guam, American Samoa, and the Northern Marianas is obtained from microfilm copies of original birth certificates and is based on the total file of records for all years. Data from American Samoa first became available in 1997. Data from the Northern Marianas first became available in 1998.

U.S. natality data are limited to births occurring within the United States, including those occurring to U.S. residents and nonresidents. Births to nonresidents of the United States have been excluded from all tabulations by place of residence beginning in 1970 (for further discussion see “Classification by occurrence and residence”). Births occurring to U.S. citizens outside the United States are not included in any tabulation in this report. Data for Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Northern Marianas are limited to births registered in these areas.

Standard certificate of live birth

The U.S. Standard Certificate of Live Birth, issued by the Public Health Service, has served for many years as the principal means of attaining uniformity in the content of the documents used to collect information on births in the United States. It has been modified in each State to the extent required by the particular State's needs or by special provisions of the State's vital statistics law. However, most State certificates conform closely in content to the standard certificate.

1989 revision—Effective January 1, 1989, a revised U.S. Standard Certificate of Live Birth ([figure 4–A](#)) replaced the 1978 revision. This revision provided a wide variety of new information on maternal and infant health characteristics, representing a significant departure from previous versions in both content and format. The most significant format change was the use of checkboxes to obtain detailed medical and health information about the mother and child. Details of the nature and content of the 1989 revision are available elsewhere (2).

Classification of Data

One of the principal values of vital statistics data is realized through the presentation of rates that are computed by relating the vital events of a class to the population of a similarly defined class. Vital statistics and population statistics, therefore, must be classified according to similarly defined systems and tabulated in comparable groups. Even when the variables common to both, such as geographic area, age, race, and sex, have been similarly classified and tabulated, significant discrepancies may result from differences between the enumeration method of obtaining population data and the registration method of obtaining vital statistics data.

The general rules used to classify geographic and personal items for live births are set

forth in “Vital Statistics Classification and Coding Instructions for Live Birth Records, 1999–2001,” *NCHS Instruction Manual*, Part 3a (9). This material is incorporated in the basic file layout on the CD-ROM (1). The instruction materials are for States to use in coding the data items; they do not include any NCHS recodes. Therefore, the file layout is a better source of information on the code structure because it provides the exact codes and recodes that are available. Classification of certain important items is discussed in the following pages. Information on the completeness of reporting of birth certificate data is shown in [table A](#), which presents a listing of items and the percentage of records that were not stated for each State, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Northern Marianas.

Classification by occurrence and residence

In tabulations by place of residence, births occurring within the United States to U.S. citizens and to resident aliens are allocated to the usual place of residence of the mother in the United States, as reported on the birth certificate. Beginning in 1970, births to nonresidents of the United States occurring in the United States are excluded from these tabulations. Births to U.S. residents occurring outside this country are not included in tabulations by place of residence.

The total count of births for the United States by place of residence and by place of occurrence will not be identical. Births to nonresidents of the United States are included in data by place of occurrence but excluded from data by place of residence, as previously indicated. See [table B](#) for the number of births by residence and occurrence for the 50 States and the District of Columbia for 2002.

Residence error—A nationwide test of birth-registration completeness in 1950 provided measures of residence error for natality statistics. According to the 1950 test (which has not been repeated), errors in residence reporting for the country as a whole tend to overstate the number of births to residents of urban areas and to understate the number of births to residents of other areas (10). Recent experience demonstrates that this is still a concern based on anecdotal evidence from the States. This tendency has assumed special importance because of a concomitant development—the increased utilization of hospitals in cities by residents of nearby places—with the result that a number of births are erroneously reported as having occurred to residents of urban areas. Another factor that contributes to this overstatement of urban births is the customary practice of using city addresses for persons living outside the city limits. Residence error should be taken into consideration in interpreting data for small areas and for cities. Both birth and infant mortality patterns can be affected.

Incomplete residence—Beginning in 1973 where only the State of residence is reported with no city or county specified and the State named is different from the State of occurrence, the birth is allocated to the largest city of the State of residence. Before 1973, such births were classified according to the exact place of occurrence.

Geographic classification

The rules followed in the classification of geographic areas for live births are contained in the instruction manual mentioned previously. The geographic code structure for 2002 is given in another manual, “Vital Records Geographic Classification, 1995,” *NCHS Instruction Manual*, Part 8, which is included with the documentation file on CD-ROM (1). The geographic code structure in 2002 is based on results of the 1990 Census of Population.

United States—In the statistical tabulations, “United States” refers only to the aggregate of the 50 States and the District of Columbia. Alaska has been included in the U.S. tabulations

since 1959 and Hawaii since 1960.

Details of the classification of births for metropolitan statistical areas, metropolitan and nonmetropolitan counties, and population size groups for cities and urban places are presented elsewhere (2).

Places with a population of less than 100,000 are not separately identified on the public-use file because of confidentiality limitations.

Race or national origin

Beginning with the 1989 data year, birth data are tabulated primarily by race of mother. Since 1989 the criteria for reporting the race of the parents has not changed and continues to reflect the response of the informant (usually the mother). Beginning with the 1992 issue of "Vital Statistics of the United States, Volume I, Natality," trend data for years beginning with 1980 have been retabulated by race of mother. The factors influencing the decision to tabulate births by race of the mother have been discussed in detail elsewhere (2,11). Information on tabulation procedures for data by race prior to 1989 is presented elsewhere (2). The change in the tabulation of births by race presents some problems when analyzing birth data by race, particularly trend data. The problem is likely to be acute for races other than white and black.

The categories for race or national origin are "White," "Black," "American Indian" (including Aleuts and Eskimos), "Chinese," "Japanese," "Hawaiian," "Filipino," and "Other Asian or Pacific Islander" (including Asian Indian). Before 1992, there was also an "Other" category, which is now combined with the "Not stated" category. Before 1978, the category "Other Asian or Pacific Islander" was not identified separately but included with "Other" races. The separation of this category from "Other" allows for identification of the category "Asian or Pacific Islander" by combining the new category "Other Asian or Pacific Islander" with Chinese, Japanese, Hawaiian, and Filipino.

Since 1992 States with the largest Asian or Pacific Islander (API) populations have provided NCHS with data for additional API subgroups. The API subgroups include Vietnamese, Asian Indian, Korean, Samoan, Guamanian, and other API women. In 2002, 11 States were included in this reporting area: California, Hawaii, Illinois, Minnesota, Missouri, New Jersey, New York, Texas, Virginia, Washington, and West Virginia. At least two-thirds of the U.S. population of each of these additional API groups lived in the 11-State reporting area (12). The data are available on the detailed natality tapes and CD-ROMs beginning with the 1992 data year. An analytic report based on the 1992 data year is also available upon request (13).

If the race or national origin of an Asian parent is ill-defined or not clearly identifiable with one of the categories used in the classification (for example, if "Oriental" is entered), an attempt is made to determine the specific race or national origin from the entry for place of birth. If the birthplace is China, Japan, or the Philippines, the race of the parent is assigned to that category. When race cannot be determined from birthplace, it is assigned to the category "Other Asian or Pacific Islander."

Hispanic origin and race are reported independently on the birth certificate. Data for Hispanic subgroups are shown in most cases for four specific groups: Mexican, Puerto Rican, Cuban, Central and South American; and an additional subgroup: "Other and unknown Hispanic." More specific Hispanic origin information for the "Other and unknown Hispanic" category is not available. In tabulations of birth data by race only, data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race. The category "White" comprises births reported as white and births where race, as distinguished from

Hispanic origin, is reported as Hispanic. In tabulations of birth data by race and Hispanic origin, data for persons of Hispanic origin are not further classified by race because the vast majority of births to Hispanic women are reported as white (98 percent in 2002). In these tabulations, data for non-Hispanic persons are classified according to the race of the mother because there are substantial differences in fertility and maternal and infant health between Hispanic and non-Hispanic white women. A recode variable is available that provides cross tabulations of race by Hispanic origin.

Race or national origin not stated—If the race of the mother is not defined or not identifiable with one of the categories used in the classification (0.5 percent of births in 2002) and the race of the father is known, the race of the father is assigned to the mother. If information for both parents is missing, the race of the mother is allocated according to the specific race of the mother on the preceding record with a known race of mother. Data for both parents were missing for only 0.3 percent of birth certificates for 2002. Nearly all statistics by race or national origin for the United States as a whole in 1962 and 1963 are affected by a lack of information for New Jersey, which did not report the race of the parents in those years. Birth rates by race for those years are computed on a population base that excluded New Jersey. For the method of estimating the U.S. population by age, sex, and race excluding New Jersey in 1962 and 1963, see page 4-8 in the “Technical Appendix” of “Vital Statistics of the United States, Volume I, 1963.” The percentage of records for which Hispanic origin of the parents was not reported in 2002 is shown by State in [table A](#).

Age of mother

Beginning in 1989 a “Date of birth” item on the birth certificate replaced the “Age (at time of this birth)” item. Not all States revised this item, and, therefore, the age of mother either is derived from the reported month and year of birth or coded as stated on the certificate. In 2002 age of mother was reported directly by five States (Kentucky, Nevada, North Dakota, Virginia, and Wyoming) and American Samoa. From 1964 to 1996 age of mother was considered not stated and therefore imputed for ages under 10 years or 50 years and over. Beginning in 1997 age of mother was considered not stated and imputed for ages under 10 years or 55 years and over. The numbers of births to women aged 50–54 years are too small for computing age-specific birth rates. These births have been included with births to women aged 45–49 years for computing birth rates.

Age-specific birth rates are based on populations of women by age, prepared by the U.S. Census Bureau. In census years the decennial census counts are used. In intercensal years, estimates of the population of women by age are published by the U.S. Census Bureau in *Current Population Reports*. The 2000 Census of Population derived age in completed years as of April 1, 2000, from responses to questions on age at last birthday and month and year of birth, with the latter given preference. In the 1960, 1970, 1980, and 1990 Census of Population, age was also derived from month and year of birth. Age in completed years was asked in censuses before 1960. This was nearly the equivalent of the former birth certificate question, which the 1950 test of matched birth and census records confirms by showing a high degree of consistency in reporting age in these two sources (14). More recently, reporting of maternal age on the birth certificate was compared with reporting of age in a survey of women who had recently given birth. Reporting of age was very consistent between the two sources (15).

Median age of mother—Median age is the value that divides an age distribution into two equal parts, one-half of the values being less and one-half being greater. Median ages of mothers

for 1960 to the present have been computed from birth rates for 5-year age groups rather than from birth frequencies. This method eliminates the effects of changes in the age composition of the childbearing population over time. Changes in the median ages from year to year can thus be attributed solely to changes in the age-specific birth rates. Trend data on the median age is shown in table 1–5 of “Vital Statistics of the United States, Volume 1, Natality” (at <http://www.cdc.gov/nchs/datawh/statab/unpubd/natality/natab99.htm>).

Not stated date of birth of mother– In 2002 age of mother was not reported on 0.01 percent of the records. Beginning in 1964 birth records with date of birth of mother and/or age of mother not stated have had age imputed according to the age of mother from the previous birth record of the same race and total-birth order (total of fetal deaths and live births). (See “Computer Edits for Natality Data, Effective 1993” *NCHS Instruction Manual*, Part 12, page 9) (16). Editing procedures for 1963 and earlier years are described elsewhere (2).

Age of father

Age of father is derived from the reported date of birth or coded as stated on the birth certificate. If the age is under 10 years, it is considered not stated and grouped with those cases for which age is not stated on the certificate. Information on age of father is often missing on birth certificates of children born to unmarried mothers, greatly inflating the number in the “Not stated” category in all tabulations by age of father. In computing birth rates by age of father, births tabulated as age of father not stated are distributed in the same proportions as births with known age within each 5-year-age classification of the mother. This procedure is followed because, while father’s age is missing in 13 percent of the birth certificates in 2002, 25 percent of these were on records where the mother is a teenager. This distribution procedure is done separately by race. The resulting distributions are summed to form a composite frequency distribution that is the basis for computing birth rates by age of father. This procedure avoids the distortion in rates that would result if the relationship between age of mother and age of father were disregarded. Births with age of father not stated are distributed only for rates, not for frequency tabulations (3).

Live-birth order and parity

Live-birth order and parity classifications refer to the total number of live births the mother has had including the 2002 birth. Fetal deaths are excluded.

Live-birth order indicates what number the present birth represents; for example, a baby born to a mother who has had two previous live births (even if one or both are not now living) has a live-birth order of three. Parity indicates how many live births a mother has had. Before delivery a mother having her first baby has a parity of zero, and a mother having her third baby has a parity of two. After delivery the mother of a baby who is a first live birth has a parity of one, and the mother of a baby who is a third live birth has a parity of three.

Live-birth order and parity are determined from two items on the birth certificate, “Live births now living” and “Live births now dead.” Editing procedures for live birth order are summarized elsewhere (2,16).

Not stated birth order–All births tabulated in the “Not stated birth order” category are excluded from the computation of percentages. In computing birth rates by live-birth order, births tabulated as birth order not stated are distributed in the same proportion as births of known live-birth order.

Educational attainment

National data on educational attainment are currently available only for the mother (2). Beginning in 1995, NCHS ceased to collect information on the educational attainment of the father.

The educational attainment of the mother is defined as the number of years of school completed. Only those years completed in regular schools are counted, that is, a formal educational system of public schools or the equivalent in accredited private or parochial schools. Business or trade schools, such as beauty and barber schools, are not considered regular schools for the purposes of this item. No attempt has been made to convert years of school completed in foreign school systems, ungraded school systems, and so forth, to equivalent grades in the American school system. Such entries are included in the “Not stated” category.

Women who have completed only a partial year in high school or college are tabulated as having completed the highest preceding grade. For those certificates on which a specific degree is stated, years of school completed is coded to the level at which the degree is most commonly attained; for example, women reporting B.A., A.B., or B.S. degrees are considered to have completed 16 years of school.

Education not stated—The “Not stated” category includes all records in reporting areas for which there is no information on years of school completed as well as all records for which the information provided is not compatible with coding specifications.

Births tabulated as education not stated are excluded from the computations of percentages.

Marital status

National estimates of births to unmarried women are based on two methods of determining marital status. For 1994 through 1996 birth certificates in 45 States and the District of Columbia included a question about the mother's marital status. Beginning in 1997, the marital status of women giving birth in California and Nevada is determined by a direct question in the birth registration process. Beginning June 15, 1998, Connecticut discontinued inferring the mother's marital status and added a direct question on mother's marital status to the State's birth certificate.

In the two States (Michigan and New York) which used inferential procedures to compile birth statistics by marital status in 2002, a birth is inferred as nonmarital if any of these factors, listed in priority-of-use order, is present: a paternity acknowledgment was received or the father's name is missing. In recent years, a number of States have extended their efforts to identify the fathers when the parents are not married in order to enforce child support obligations. The presence of a paternity acknowledgment, therefore, is the most reliable indicator that the birth is nonmarital in the States not reporting this information directly; this is now the key indicator in the nonreporting States. Details of the changes in reporting procedures are described in previous reports (17,18).

The procedures for reporting marital status in California, Nevada, and New York City changed beginning January 1, 1997, and in Connecticut on June 15, 1998. The methods used to determine marital status and the impact of the procedures on the data were discussed in detail in a previous report (17).

The mother's marital status was not reported in 2002 on 0.03 percent of the birth records in the 48 States and the District of Columbia where this information is obtained by a direct question. Marital status was imputed as married for these records.

When births to unmarried women are reported as second or higher order births, it is not known whether the mother was married or unmarried when the previous deliveries occurred because her marital status at the time of these earlier births is not available from the birth record.

Place of delivery and attendant at birth

The 1989 revision of the U.S. Standard Certificate of Live Birth included separate categories for freestanding birthing centers, the mother's residence, and clinic or doctor's office as the place of birth. Beginning in 1989 births occurring in clinics and in birthing centers not attached to a hospital are classified as "Not in hospital." This change in classification may account in part for the lower proportion of "In hospital" births compared with previous years. (The change in classification of clinics should have minor impact because comparatively few births occur in these facilities, but the effect of any change in classification of freestanding birthing centers is unknown.)

Beginning in 1975 the attendant at birth and place of delivery items were coded independently, primarily to permit the identification of the person in attendance at hospital deliveries. Additional information on these items is presented elsewhere (2).

Babies born on the way to or on arrival at the hospital are classified as having been born in the hospital. This may account for some of the hospital births not delivered by physicians or midwives. The "Not in hospital" category includes births for which no information is reported on place of birth.

In 2000 Illinois started collecting data on certified nurse-midwives (CNM) and making corrections for "Other midwife" and "Other" categories. Data for earlier years were incomplete for Illinois births. As a result, the number of CNMs has significantly increased while the number of "Other midwife" has sharply decreased compared to earlier years.

Procedures in some hospitals may require that a physician be listed as the attendant for every birth and that a physician sign each birth certificate, even if the birth is attended by a midwife and no physician is physically present. Therefore, the number of live births attended by midwives may be understated in some areas.

Birthweight

In some areas birthweight is reported in pounds and ounces rather than in grams. However, the metric system has been used in tabulating and presenting the statistics to facilitate comparison with data published by other groups. The categories for birthweight were changed in 1979 to be consistent with the recommendations in the *International Classification of Diseases, Ninth Revision (ICD-9)* and remain the same for the *International Classification of Diseases, Tenth Revision (ICD-10)* (5). The categories in gram intervals and their equivalents in pounds and ounces are as follows:

Less than 500 grams = 1 lb 1 oz or less
500–999 grams = 1 lb 2 oz–2 lb 3 oz
1,000–1,499 grams = 2 lb 4 oz–3 lb 4 oz
1,500–1,999 grams = 3 lb 5 oz–4 lb 6 oz
2,000–2,499 grams = 4 lb 7 oz–5 lb 8 oz
2,500–2,999 grams = 5 lb 9 oz–6 lb 9 oz
3,000–3,499 grams = 6 lb 10 oz–7 lb 11 oz
3,500–3,999 grams = 7 lb 12 oz–8 lb 13 oz

4,000–4,499 grams = 8 lb 14 oz–9 lb 14 oz
4,500–4,999 grams = 9 lb 15 oz–11 lb 0 oz
5,000 grams or more = 11 lb 1 oz or more

ICD–9 and ICD–10 define low birthweight as less than 2,500 grams. This is a shift of 1 gram from the previous criterion of 2,500 grams or less, which was recommended by the American Academy of Pediatrics in 1935 and adopted in 1948 by the World Health Organization in the *International Lists of Diseases and Causes of Death, Sixth Revision*.

After data classified by pounds and ounces are converted to grams, median weights are computed and rounded before publication. To establish the continuity of class intervals needed to convert pounds and ounces to grams, the end points of these intervals are assumed to be half an ounce less at the lower end and half an ounce more at the upper end. For example, 2 lb 4 oz–3 lb 4 oz is interpreted as 2 lb 3 ½ oz–3 lb 4 ½ oz.

Births for which birthweight is not reported are excluded from the computation of percentages and medians.

Period of gestation

The period of gestation is defined as beginning with the first day of the last normal menstrual period (LMP) and ending with the day of the birth. The LMP is used as the initial date because it can be more accurately determined than the date of conception, which usually occurs 2 weeks after the LMP.

Births occurring before 37 completed weeks of gestation are considered to be preterm or premature for purposes of classification. At 37–41 weeks gestation, births are considered to be term, and at 42 completed weeks and over, postterm. These distinctions are according to the ICD–9 and ICD–10 (5) definitions.

The 1989 revision of the U.S. Standard Certificate of Live Birth included a new item, “Clinical estimate of gestation” that is being compared with length of gestation computed from the LMP date when the latter appears to be inconsistent with birthweight. This is done for normal weight births of apparently short gestations and very low birthweight births reported to be full term. The use of the clinical estimate in the 2002 data file is described in the “Technical Notes” of “Births: Final data for 2002” (3).

Before 1981, the period of gestation was computed only when there was a valid month, day, and year of LMP. However, length of gestation could not be determined from a substantial number of live-birth certificates each year because the day of LMP was missing. Beginning in 1981, weeks of gestation have been imputed for records with missing day of LMP when there is a valid month and year. The imputation procedure and its effect on the data are described elsewhere (2,19).

Because of postconception bleeding or menstrual irregularities, the presumed date of LMP may be in error. In these instances, the computed gestational period may be longer or shorter than the true gestational period, but the extent of such errors is unknown.

Month of pregnancy prenatal care began

If the name of the month is entered for this item, instead of first, second, third, and so forth, the month of pregnancy in which prenatal care began is determined from the month named and the month last normal menses began. For these births, if the date last normal menses began is not stated, the month of pregnancy in which prenatal care began is tabulated as not stated.

Number of prenatal visits

Tabulations of the number of prenatal visits were presented for the first time in 1972. Beginning in 1989 these data were collected from the birth certificates of all States. Percentage distributions and the median number of prenatal visits exclude births to mothers who had no prenatal care.

Apgar score

The 1– and 5–minute Apgar scores were added to the U.S. Standard Certificate of Live Birth in 1978 to evaluate the condition of the newborn infant at 1 and 5 minutes after birth. The Apgar score is a useful measure of the need for resuscitation and a predictor of the infant's chances of surviving the first year of life. It is a summary measure of the infant's condition based on heart rate, respiratory effort, muscle tone, reflex irritability, and color. Each of these factors is given a score of 0, 1, or 2; the sum of these 5 values is the Apgar score, which ranges from 0 to 10. A score of 10 is optimum, and a low score raises some concerns about the potential survival and subsequent health of the infant. Beginning in 1995, NCHS collected information only on the 5–minute Apgar score. Since 1991, the reporting area for the 5–minute Apgar score has been comprised of 48 States and the District of Columbia, accounting for 77 percent of all births in the United States in 2002. California and Texas did not have information on Apgar scores on their birth certificates.

Tobacco and alcohol use during pregnancy

The checkbox format allows for classification of a mother as a smoker or drinker during pregnancy and for reporting the average number of cigarettes smoked per day or drinks consumed per week. Procedures for determining the consistency between smoking and/or drinking status and the quantity of cigarettes or drinks reported are described elsewhere (2).

Information on smoking and drinking status was reported by 49 States and the District of Columbia (not available for California), accounting for 87 percent of U.S. births in 2002. Information on number of cigarettes smoked per day was reported in a consistent manner for 46 States, the District of Columbia, and New York City ([figure 4–A](#)). Indiana and New York State (except for New York City) reported this information but in a format that was inconsistent with NCHS standards. Information was not available for California and South Dakota. The areas reporting on the number of cigarettes smoked comprised 81 percent of U.S. births in 2002.

Weight gain during pregnancy

Weight gain is reported in pounds. A loss of weight is reported as zero gain. Computations of median weight gain were based on ungrouped data. This item was included on the certificates of 49 States and the District of Columbia; California did not report this information. This reporting area, excluding California, accounted for 87 percent of all births in the United States in 2002.

Medical risk factors for this pregnancy

An item on medical risk factors was included on the 1989 birth certificate, but 2 States did not report all of the 16 risk factors in 2002. Texas did not report genital herpes or uterine bleeding, and Kansas did not report Rh sensitization.

The format allows for the designation of more than one risk factor and includes a choice of “None.” Accordingly, if the item is not completed, it is classified as not stated.

Definitions 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 are available elsewhere (3).

Obstetric procedures

This item includes six specific obstetric procedures. Birth records with “Obstetric procedures” left blank are considered not stated. Data on obstetric procedures were reported by all States and the District of Columbia in 2002.

Definitions adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics officials for the National Association for Public Health Statistics and Information Systems (NAPHSIS), formerly the Association for Vital Records and Health Statistics, are available elsewhere (3).

Complications of labor and/or delivery

The checkbox format allows for the selection of 15 specific complications and for the designation of more than one complication where appropriate. A choice of “None” is also included. Accordingly, if the item is not completed, it is classified as not stated.

All States and the District of Columbia included this item on their birth certificates in 2002. However, Texas did not report anesthetic complications or fetal distress.

Definitions adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics officials are available elsewhere (3).

Abnormal conditions of the newborn

This item provides information on eight specific abnormal conditions. More than one abnormal condition may be reported for a given birth or “None” may be selected. If the item is not completed it is tabulated as not stated. This item was included on the birth certificates of all States and the District of Columbia in 2002. However, four areas did not include all conditions. Nebraska and Texas did not report birth injury, New York City did not report assisted ventilation less than 30 minutes or assisted ventilation of 30 minutes or more, and Wisconsin did not report fetal alcohol syndrome.

Definitions adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics are available elsewhere (3).

Congenital anomalies of child

The data provided in this item relate to 21 specific anomalies or anomaly groups. It is well documented that congenital anomalies, except for the most visible and most severe, are incompletely reported on birth certificates (20). The completeness of reporting specific anomalies depends on how easily they are recognized in the short time between birth and birth-registration. Forty-nine States and the District of Columbia included this item on their birth certificates (New Mexico did not). This reporting area included 99 percent of all births in the United States in 2002. The format allows for the identification of more than one anomaly including a choice of “None” should no anomalies be evident. The “Not stated” category includes birth records for which the item is not completed.

In 2002 Oklahoma’s rates for the “Other central nervous system anomalies” category may be overstated because of misreporting.

Definitions adapted and abbreviated from a set of definitions compiled by a committee of

Federal and State health statistics officials are available elsewhere (3).

Method of delivery

The birth certificate contains a checkbox for method of delivery. Choices include vaginal delivery, with the additional options of forceps, vacuum, and vaginal birth after previous cesarean section (VBAC), as well as a choice of primary or repeat cesarean. When only forceps, vacuum, or VBAC is checked, a vaginal birth is assumed. In 2002 this information was collected from the birth certificates of all States and the District of Columbia.

Several rates are computed for method of delivery. The overall cesarean section rate or total cesarean rate is computed as the proportion 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 birth to all women giving birth who have never had a cesarean delivery. The denominator for this rate is the sum of women with a vaginal birth excluding VBACs and women with a primary cesarean birth. The VBAC delivery rate 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. VBAC rates are computed for first births because the rates are computed based on previous pregnancies, not just live births.

Hispanic parentage

The 1989 revision of the U.S. Standard Certificate of Live Births includes items to identify the Hispanic origin of the parents. All 50 States and the District of Columbia reported Hispanic origin of the parents for 2002.

In computing birth and fertility rates for the Hispanic population, births with origin of mother not stated are included with non-Hispanic births rather than being distributed. Thus, rates for the Hispanic population are underestimates of the true rates to the extent that the births with origin of mother not stated (0.6 percent in 2002) were actually to Hispanic mothers. The population with origin not stated was imputed. The effect on the rates is believed to be small.

Quality of Data

Although vital statistics data are useful for a variety of administrative and scientific purposes, they cannot be correctly interpreted unless various qualifying factors and methods of classification are taken into account. The factors to be considered depend on the specific purposes for which the data are to be used. It is not feasible to discuss all the pertinent factors in the use of vital statistics tabulations, but some of the more important ones should be mentioned.

Most of the factors limiting the use of data arise from imperfections in the original records or from the impracticability of tabulating these data in very detailed categories. These limitations should not be ignored, but their existence does not lessen the value of the data for most general purposes.

Completeness of registration

An estimated 99 percent of all births occurring in the United States in 2002 were registered; for white births registration was 99.5 percent complete and for all other births, 98.6 percent complete. These estimates are based on the results of the 1964–68 test of

birth-registration completeness according to place of delivery (in or out of hospital) and race. (This test has not been conducted more recently.) The primary purpose of the test was to obtain current measures of registration completeness for births in and out of hospital by race on a national basis. Data for States were not available as they had been from the previous birth-registration tests in 1940 and 1950. A detailed discussion of the method and results of the 1964–68 birth-registration test is available (21). Information on procedures for adjusting births for underregistration (for cohort fertility tables) is presented elsewhere (2).

Completeness of reporting

Interpretation of these data must include evaluation of item completeness. The “Not stated” percentage is one measure of the quality of the data. Completeness of reporting varies among items and States. See [table A](#) for the percentage of birth records on which specified items were not stated. Data users should note that levels of incomplete or inaccurate reporting for some of the items are quite high in some States. The 2002 data for Alaska, the District of Columbia, and Washington are of particular concern.

Quality control procedures

As electronic files are received at NCHS, they are automatically checked for completeness, individual item code validity, and unacceptable inconsistencies between data items. The registration area is notified of any problems. In addition, NCHS staff review the files on an ongoing basis to detect problems in overall quality such as inadequate reporting for certain items, failure to follow NCHS coding rules, and systems and software errors. Traditionally, quality assurance procedures were limited to review and analysis of differences between NCHS and registration area code assignments for a small sample of records. In recent years, as electronic birth registration became prevalent, this procedure was augmented by analyses of year-to-year and area-to-area variations in the data. These analyses are based on preliminary tabulations of the data that are cumulated by State on a year-to-date basis each month. NCHS investigates all differences that are judged to have consequences for quality and completeness. In the review process, statistical tests are used to call initial attention to differences for possible followup. As necessary, registration areas are informed of differences encountered in the tables and asked to verify the counts or to determine the nature of the differences. Missing records (except those permanently voided) and other problems detected by NCHS are resolved, and corrections are transmitted to NCHS in the same manner as for those corrections identified by the registration area.

Random variation and significance testing for natality data

A detailed discussion of random variation and significance testing for natality data is presented in the “Technical Notes” of “Births: Final data for 2002” (3). This section presents information specifically for Hispanic subgroups.

Computing confidence intervals for Hispanic subgroups

Birth and fertility rates for Mexicans, Puerto Ricans, Cubans, and “Other” Hispanics for 2002 are shown in tables 6, 8, 9, and 14 in “Births: Final data for 2002” (3) and in tables 1–4 and 1–12 of “Vital Statistics of the United States, Part 1, Natality.” Population estimates for Hispanic subgroups are derived from the U.S. Census Bureau’s *Current Population Survey* (CPS) and

adjusted to resident population control totals as shown in [table 4-3](#). As a result, the rates are subject to the variability of the denominator as well as the numerator. For these Hispanic subgroups only (not for all origin, total Hispanic, total non-Hispanic, non-Hispanic white, or non-Hispanic black populations), the following formulas are used:

Approximate 95-percent confidence interval: 100 or more births

When the number of events in the numerator is greater than 100, the confidence interval for the birth rate can be estimated from the following formulas:

For crude and age-specific birth rates,

$$\text{Lower limit} = R - 1.96 * R * \sqrt{\left(\frac{1}{B}\right) + f\left(a + \frac{b}{P}\right)}$$

$$\text{Upper limit} = R + 1.96 * R * \sqrt{\left(\frac{1}{B}\right) + f\left(a + \frac{b}{P}\right)}$$

where:

R = rate (births per 1,000 population)

B = total number of births upon which rate is based

f = factor that depends on whether the population estimate is based on demographic analysis or CPS and the number of years used, equals 0.670 for single year

a and b are single year averages of the 2001 and 2002 CPS standard error parameters (22, 23)

a = -0.000200

b = 3,809

P = total estimated population upon which rate is based

Example

Suppose that the fertility rate of Cuban women 15–44 years of age was 51.2 per 1,000 based on 13,088 births in the numerator and an estimated resident population of 255,399 in the denominator. The 95-percent confidence interval would be:

$$\begin{aligned} \text{Lower limit} &= 51.2 - 1.96 * 51.2 * \sqrt{\left(\frac{1}{13,088}\right) + 0.670 * \left[-0.000200 + \left(\frac{3,809}{255,399}\right)\right]} \\ &= 51.2 - 1.96 * 51.2 * \sqrt{0.000076406 + (0.670 * 0.0147139)} \\ &= 51.2 - 1.96 * 51.2 * \sqrt{0.0099347} \\ &= 51.2 - 1.96 * 51.2 * 0.099673 \\ &= 41.20 \end{aligned}$$

$$\begin{aligned}
\text{Upper limit} &= 51.2 + 1.96 * 51.2 * \sqrt{\left(\frac{1}{13,088}\right) + 0.670 * \left[-0.000200 + \left(\frac{3,809}{255,399}\right)\right]} \\
&= 51.2 + 1.96 * 51.2 * \sqrt{0.000076406 + (0.670 * 0.0147139)} \\
&= 51.2 + 1.96 * 51.2 * \sqrt{0.0099347} \\
&= 51.2 + 1.96 * 51.2 * 0.1099673 \\
&= 61.20
\end{aligned}$$

This means that the chances are 95 out of 100 that the actual fertility rate of Cuban women 15–44 years of age is between 41.20 and 61.20.

Approximate 95-percent confidence interval: 1–99 births

When the number of events in the numerator is less than 20, an asterisk is shown in place of the rate. When the number of events in the numerator is greater than 20 but less than 100, the confidence interval for the birth rate can be estimated using the formulas that follow and the values in [table C](#).

For crude and age-specific birth rates,

$$\text{Lower limit} = R * L(1 - \alpha = .96, B) * \left(1 - 2.576 \sqrt{f \left(a + \frac{b}{P}\right)}\right)$$

$$\text{Upper limit} = R * U(1 - \alpha = .96, B) * \left(1 + 2.576 \sqrt{f \left(a + \frac{b}{P}\right)}\right)$$

where:

R = rate (births per 1,000 population)

B = total number of births upon which rate is based

L = the value in table C that corresponds to the number B , using the 96 percent CI column

U = the value in table C that corresponds to the number B , using the 96 percent CI column

f = factor that depends on whether the population estimate is based on demographic analysis or CPS and the number of years used, equals 0.670 for single year

a and b are CPS standard error parameters (see previous section on 95-percent confidence interval for 100 or more births for description and specific values)

P = total estimated population upon which rate is based

Example

Suppose that the birth rate of Puerto Rican women 45–49 years of age was 0.4 per 1,000, based on 35 births in the numerator and an estimated resident population of 87,892 in the denominator. Using [table C](#), the 95-percent confidence interval would be:

$$\begin{aligned}
\text{Lower limit} &= 0.4 * 0.68419 * \left(1 - 2.576 \sqrt{0.670 \left(-0.000200 + \left(\frac{3,809}{87,892} \right) \right)} \right) \\
&= 0.4 * 0.68419 * \left(1 - 2.576 \sqrt{0.289020} \right) \\
&= 0.4 * 0.68419 * \left(1 - 2.576 * 0.170006 \right) \\
&= 0.4 * 0.68419 * 0.562065 \\
&= 0.2
\end{aligned}$$

$$\begin{aligned}
\text{Upper limit} &= 0.4 * 1.41047 * \left(1 + 2.576 \sqrt{0.670 \left(-0.000200 + \left(\frac{3,809}{87,892} \right) \right)} \right) \\
&= 0.4 * 1.41047 * \left(1 + 2.576 \sqrt{0.289020} \right) \\
&= 0.4 * 1.41047 * \left(1 + 2.576 * 0.170006 \right) \\
&= 0.4 * 1.41047 * 1.437935 \\
&= 0.8
\end{aligned}$$

This means that the chances are 95 out of 100 that the actual birth rate of Puerto Rican women 45–49 years of age lies between 0.2 and 0.8.

NOTE: In the formulas above, the confidence limits are estimated from the nonsampling error in the number of births, the numerator, and the sampling error in the population estimate, the denominator. A 96 percent standard error is computed for the numerator and a 99 percent standard error is computed for the denominator in order to compute a 95-percent confidence interval for the rate.

Significance testing for Hispanic subgroups

When both rates are based on 100 or more events, the difference between the two rates is considered statistically significant if it exceeds the statistic in the formula below. This statistic equals 1.96 times the standard error for the difference between two rates.

$$= 1.96 * \sqrt{R_1^2 * \left[\left(\frac{1}{B_1} \right) + f \left(a + \frac{b}{P_1} \right) \right] + R_2^2 * \left[\left(\frac{1}{B_2} \right) + f \left(a + \frac{b}{P_2} \right) \right]}$$

If the difference is greater than this statistic, then the difference would occur by chance less than 5 times out of 100. If the difference is less than this statistic, the difference might occur by chance more than 5 times out of 100. We would therefore conclude that the difference is not statistically significant at the 95-percent Confidence level.

Example

Suppose the birth rate for Mexican mothers 15–19 years of age (R_1) is 94.5, based on 97,744 births and an estimated population of 1,033,878, and the birth rate for Puerto Rican mothers 15–19 years of age (R_2) is 61.4, based on 10,006 births and an estimated population of 162,899.

Using the above formula, the z score is computed as follows:

$$\begin{aligned}
 &= 1.96 * \sqrt{94.5^2 * \left[\left(\frac{1}{97,744} \right) + 0.670 \left(-0.0002000 + \frac{3,809}{1,033,878} \right) \right] + 61.4^2 * \left[\left(\frac{1}{10,006} \right) + 0.670 \left(-0.000200 + \frac{3,809}{162,899} \right) \right]} \\
 &= 1.96 * \sqrt{8930.25 * (0.000010231 + 0.670 * 0.003484) + 3769.96 * (0.00009994 + 0.670 * 0.023183)} \\
 &= 1.96 * \sqrt{(8930.25 * 0.0023445) + (3769.96 * 0.0156326)} \\
 &= 1.96 * \sqrt{20.94 + 58.93} \\
 &= 1.96 * 8.94 \\
 &= 17.52
 \end{aligned}$$

Since the difference between the two rates of 33.1 is greater than the value above, the two rates are statistically significantly different at the 0.05 level of significance.

Computation of Rates and Other Measures

Population bases

The rates shown in this report were computed based on population statistics prepared by the U.S. Census Bureau. Rates for 1940, 1950, 1960, 1970, 1980, 1990, and 2000 are based on the population enumerated as of April 1 in the censuses of those years. Rates for all other years are based on the estimated midyear (July 1) population for the respective years. These populations have been modified to be consistent with Office of Management and Budget (OMB) racial categories and historical categories for birth data and, in the case of age, to reflect age as of the census reference date (24).

An asterisk (*) is shown in place of any derived rate based on fewer than 20 births in the numerator, or a population denominator of less than 50 (unweighted) for decennial years and 75,000 (weighted) for all other years for the Hispanic subgroups. Rates based on populations below these minimum levels lack sufficient reliability for analytic purposes.

Populations in [tables 4–1](#) through [4–4](#) differ from those used to calculate birth and fertility rates published in “Births: Final data for 2001” and “Births: Final data for 2000” (3,25). Rates in these publications were based on postcensal population estimates based on the 1990 census. Populations for April 1, 2000, and July 1, 2001, provided in this report were produced under a collaborative arrangement with the U.S. Census Bureau (26–28) and are based on the 2000 census counts by age, race, and sex, which were modified to be consistent with OMB racial categories of 1977 and historical categories for birth data and, in the case of age, to reflect age as of the census reference date. The modification procedures are described in detail elsewhere (24, 29–30).

Reflecting the new guidelines issued in 1997 by the OMB, the 2000 census included an option for individuals to report more than one race as appropriate for themselves and household members (31). The 1997 OMB guidelines also provided for the reporting of Asian persons separately from Native Hawaiians or other Pacific Islanders. Under the prior OMB standards (issued in 1977), data for Asian or Pacific Islander persons were collected as a single group (32). Birth certificates currently collect only one race for the mother and father in the same categories as specified in the 1977 guidelines, (that is, the certificates do not report Asians separately from

Native Hawaiians or other Pacific Islanders). Birth data by race (the numerators for birth rates) are thus currently incompatible with the population data collected in the 2000 census (denominators by race).

To produce birth rates for 2000–2002 and revised intercensal rates for 1991–99, it was necessary to bridge the reported population data for multiple-race persons back to single-race categories. In addition, the 2000 census counts were modified to be consistent with the 1977 OMB race categories, that is, to report the data for Asian persons and Native Hawaiians or Other Pacific Islanders as a combined category, Asian or Pacific Islanders (24). The procedures used to produce the bridged populations are described elsewhere (29,30).

It is anticipated that bridged population data will be used over the next few years for computing population-based rates. Beginning with births occurring in 2003, several States began reporting multiple race data. Once all State birth certificates are revised to be compliant with the 1997 OMB standard, the use of bridged populations can be discontinued.

The special report “Revised Birth and Fertility Rates for the United States, 2000 and 2001” (33) updates the rates published in “Births: Final data for 2001” and “Births: Final data for 2000” (3,25). The revised birth and fertility rates in the special report include rates by race and Hispanic origin, by age of mother, and by age of father for 2000 and 2001. Rates for unmarried women are also presented. A subsequent special report shows revised birth and fertility rates, including rates by marital status for the United States, and rates by age of mother by State, for the intercensal years, 1991–99, along with the rates for 2000 and 2001 (34). Additional information on the revised populations is available at:

<http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm>

Birth rates for the United States, individual States, and metropolitan areas are based on the total resident populations of the respective areas (table 4–4). Except as noted these populations exclude the Armed Forces abroad but include the Armed Forces stationed in each area. The resident population of the birth- and death-registration States for 1900–32 and for the United States for 1900–2002 is shown in table 4–1. In addition, the population including Armed Forces abroad is shown for the United States. Table D shows the sources for these populations. A detailed discussion of historical population bases is presented elsewhere (2).

Net census undercounts and overcounts

Studies conducted by the U.S. Census Bureau indicate that some age, race, and sex groups are more completely enumerated than others. These census miscounts can have consequences for vital statistics measures. For example, an adjustment to increase the population denominator would result in a smaller rate compared to the unadjusted rate. A more detailed discussion of census undercounts and overcounts can be found in the “1999 Technical Appendix” (2). Adjusted rates for 2000 can be computed by multiplying the reported rates by ratios of the 2000 census-level population adjusted for the estimated net census miscounts, which are shown in table E.

Cohort fertility tables

The various fertility measures shown for cohorts of women are computed from births adjusted for underregistration and population estimates corrected for under enumeration and misstatement of age. Data published after 1974 use revised population estimates prepared by the U.S. Census Bureau and have been expanded to include data for the two major racial groups. Heuser has prepared a detailed description of the methods used in deriving these measures as

well as more detailed data for earlier years (35). Tables for the most currently-available years are available at <http://www.cdc.gov/nchs/dataawh/statab/unpubd/natality/natab99.htm>.

Parity distribution—The percentage distribution of women by parity (number of children ever born alive to mother) is derived from cumulative birth rates by order of birth. The percentage of 0-parity women is found by subtracting the cumulative first birth rate from 1,000 and dividing by 10. The proportions of women at parities one through six are found from the following formula:

$$\text{Percent at N parity} = ((\text{cum. rate, order N}) - (\text{cum. rate, order N} + 1)) / 10$$

The percentage of women at seventh and higher parities is found by dividing the cumulative rate for seventh-order births by 10.

Birth probabilities—Birth probabilities indicate the likelihood that a woman of a certain parity and age at the beginning of the year will have a child during the year. Birth probabilities differ from central birth rates in that the denominator for birth probabilities is specific for parity as well as for age.

Total fertility rate

The total fertility rate is the sum of the birth rates by age of mother (in 5-year age groups) multiplied by 5. It is an age-adjusted rate because it is based on the assumption that there are the same number of women in each age group. The rate of 2,013 in 2002, for example, means that if a hypothetical group of 1,000 women were to have the same birth rates in each age group that were observed in the actual childbearing population in 2002, they would have a total of 2,013 children by the time they reached the end of the reproductive period (taken here to be age 50 years), assuming that all of the women survived to that age.

Seasonal adjustment of rates

The seasonally adjusted birth and fertility rates are computed from the X-11 variant of Census Method II (36). This method, used since 1964, differs slightly from the U.S. Bureau of Labor Statistics (BLS) Seasonal Factor Method, which was used for *Vital Statistics of the United States*, 1964. The fundamental technique is the same in that it is an adaptation of the ratio-to-moving-average method. Before 1964, the method of seasonal adjustment was based on the X-9 variant and other variants of Census Method II. A comparison of the Census Method II with the BLS Seasonal Factor Method shows the differences in the seasonal patterns of births to be negligible.

Computations of percentages, percentage distributions, and medians

Births for which a particular characteristic is unknown were subtracted from the figures for total births that were used as denominators before percentages, percentage distributions, and medians were computed. The percentage of records with missing information for each item is shown by State in [table A](#). The median number of prenatal visits also excludes births to mothers who had no prenatal care. Computations of the median years of school completed and the median number of prenatal visits were based on ungrouped data. The median age of mother is computed from birth rates in 5-year age groups, which eliminates the effects of changes in the age composition of the childbearing population over time. An asterisk is shown in place of any derived statistic based on fewer than 20 births in the numerator or denominator.

References

1. National Center for Health Statistics. Natality public-use tape and CD-ROM. Hyattsville, Maryland: National Center for Health Statistics. Annual products. 2002.
2. National Center for Health Statistics. Technical appendix from vital statistics of the United States: 1999, Natality. Hyattsville, Maryland. 2001. Available on the Internet at www.cdc.gov/nchs/data/techap99.pdf
3. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Munson ML. Births: Final data for 2002. National vital statistics reports; vol 52 no 10. Hyattsville, Maryland: National Center for Health Statistics. 2003.
4. Department of Health and Human Services. Model State Vital Statistics Act and Regulations, 1992 Revision. Publication no. (PHS) 94-1115.
5. World Health Organization. Manual of the international statistical classification of diseases, injuries, and causes of death, based on the recommendations of the Tenth Revision Conference, 1987. Geneva: World Health Organization. 1992.
6. American College of Obstetricians and Gynecologists. Guidelines for perinatal care, ed. 2, Washington, DC. 308-24. 1988.
7. Kowaleski J. State definitions and reporting requirements for live births, fetal deaths, and induced terminations of pregnancy (1997 revision). Hyattsville, Maryland: National Center for Health Statistics. 1997.
8. Statistical Office of the United Nations. Handbook of vital statistics systems and methods/Department of International Economic and Social Affairs. Studies in methods. Series F, no. 35, ST/ESA/STAT/SER.F35. New York: United Nations. 1985.
9. Division of Vital Statistics. Instruction manual part 3a: Classification and coding instructions for birth records, 1999. Hyattsville, Maryland: National Center for Health Statistics. Available on the Internet at www.cdc.gov/nchs/data/dvs/3amanual.pdf
10. U.S. Department of Health, Education and Welfare, Public Health Service, Office of Vital Statistics. Birth registration completeness in the United States and geographic areas, 1950; vol 39 no 2. 1954.
11. Ventura SJ, Martin JA, Taffel SM, et al. Advance report of final natality statistics, 1992. Monthly vital statistics report; vol 43 no 5 supp. Hyattsville, Maryland: National Center for Health Statistics. 1994. Available on the Internet at www.cdc.gov/nchs/data/mvstr/supp/mv43_05s.pdf

12. U.S. Census Bureau. Census 2000 summary file (SF1) 100-percent data. Table DP-1. Profile of general demographic characteristics: 2000. Washington, D.C.: U.S. Census Bureau. Available at: <http://factfinder.census.gov>
13. Martin JA. Birth characteristics for Asian or Pacific Islander subgroups, 1992. Monthly vital statistics report; vol 43 no 10 supp. Hyattsville, Maryland: National Center for Health Statistics. 1995. Available on the Internet at www.cdc.gov/nchs/data/mvsr/supp/mv43_10s.pdf
14. Schachter J. Matched record comparison of birth certificate and census information in the United States, 1950. Vital statistics—Special Reports; vol 47 no 12. Washington: Public Health Service. 1962.
15. Schoendorf KC, Parker JD, Batkhan LZ, Kiely JL. Comparability of the birth certificate and 1988 maternal and infant health survey. Vital and health statistics reports: series 2 no 116. Hyattsville, Maryland: National Center for Health Statistics. 1993.
16. Division of Vital Statistics. Instruction manual part 12: Computer edits for natality data, effective 1993. Hyattsville, Maryland: National Center for Health Statistics. 1995. Available on the Internet at www.cdc.gov/nchs/data/dvs/instr12.pdf
17. Ventura SJ, Bachrach CA. Nonmarital childbearing in the United States, 1940–99. National vital statistics reports; vol 48 no 16. Hyattsville, Maryland: National Center for Health Statistics. 2000. Available on the Internet at www.cdc.gov/nchs/data/nvsr/nvsr48/nvs48_16.pdf
18. Ventura SJ. Births to unmarried mothers: United States, 1980–92. National Center for Health Statistics. Vital Health Stat 21(53). 1995.
19. Taffel S, Johnson D, Heuser R. A method for imputing length of gestation on birth certificates. National Center for Health Statistics. Vital Health Stat 2(93). 1982.
20. Watkins ML, Edmonds L, McClearn A, et al. The surveillance of birth defects: The usefulness of the revised U.S. standard birth certificate. Am J Public Health 86(5):731–4. 1996.
21. U.S. Bureau of the Census. Test of birth-registration completeness, 1964 to 1968. 1970 census of population and housing; PHC (E)–2. Evaluation and Research Program. Washington: U.S. Department of Commerce. 1973.
22. U.S. Census Bureau. Money income in the United States: 2001 (with separate data on valuation of noncash benefits). Current population reports, consumer income. Series P60–218. Washington: U.S. Government Printing Office. 2002.

23. U.S. Census Bureau. Income in the United States: 2002 (with separate data on valuation of noncash benefits). Current population reports, consumer income. Series P60–221. Washington: U.S. Government Printing Office. 2003.
24. U.S. Bureau of the Census. Age, sex, race, and Hispanic origin information from the 1990 census: A comparison of census results with results where age and race have been modified. 1990 CPH–L–74. Washington, DC: U.S. Department of Commerce. 1991.
25. Martin JA, Hamilton BE, Ventura SJ, Menacker F, Park MM. Births: Final data for 2000. National vital statistics reports; vol 50 no 5. Hyattsville, Maryland: National Center for Health Statistics. 2002.
26. National Center for Health Statistics. Unpublished estimates of the April 1, 2000, United States population by age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. 2002.
27. National Center for Health Statistics. Unpublished estimates of the July 1, 2001, United States population by age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. 2002.
28. National Center for Health Statistics. Postcensal estimates of the resident population of the United States as of July 1, 2002, by year, State and county, age, bridged race, sex, and Hispanic origin. File pcen V2002.zip (zipped) or pcen v2002.txt (ASCII). Released August 1, 2003. Available on the Internet at:
www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm
29. Ingram DD, Parker JD, Schenker N, Weed JA, Hamilton B, Arias E, Madans JH. United States census 2000 with bridged race categories. National Center for Health Statistics. Vital Health Stat 2 (135). 2003.
30. Schenker N, Parker JD. From single-race reporting to multiple-race reporting: Using imputation methods to bridge the transition. *Statistics in Medicine*. 22: 1572–87. 2003.
31. Office of Management and Budget. Revisions to the standards for the classification of Federal data on race and ethnicity. *Federal Register* 62FR58781–58790. October 30, 1997. Available on the Internet at: <http://www.whitehouse.gov/omb/fedreg/ombdir15.html>
32. Office of Management and Budget. Race and ethnic standards for Federal statistics and administrative reporting. *Statistical Policy Directive* 15. 1977.
33. Ventura SJ, Hamilton BE, Sutton PD. Revised birth and fertility rates for the United States, 2000 and 2001. National vital statistics reports; vol 51 no 4. Hyattsville, Maryland: National Center for Health Statistics. 2003.

34. Hamilton BE, Sutton PD, Ventura SJ. Revised birth and fertility rates for the 1990s and new rates for Hispanic populations, 2000 and 2001. National vital statistics reports; vol 51 no 12. Hyattsville, Maryland: National Center for Health Statistics. 2003.
35. Heuser R. Fertility tables for birth cohorts by color: United States, 1917–73. Washington: National Center for Health Statistics. 1976. Available on the Internet at <http://www.cdc.gov/nchs/data/misc/fertiltbacc.pdf> and on CD from the National Center for Health Statistics.
36. U.S. Bureau of the Census. The X–11 variant of the Census Method II Seasonal Adjustment Program. Technical paper; no 15, 1967 rev. Washington: U.S. Department of Commerce. 1967.

Figure 4—A. U.S. Standard Certificate of Live Birth: 1989 Revision

TYPE/PRINT IN PERMANENT BLACK INK FOR INSTRUCTIONS SEE HANDBOOK		LOCAL FILE NUMBER		U.S. STANDARD CERTIFICATE OF LIVE BIRTH		BIRTH NUMBER		
CHILD	1. CHILD'S NAME (First,Middle,Last)				2. DATE OF BIRTH (Month,Day,Year)		3. TIME OF BIRTH M	
	4. SEX	5. CITY, TOWN, OR LOCATION OF BIRTH			6. COUNTY OF BIRTH			
	7. PLACE OF BIRTH: <input type="checkbox"/> Hospital <input type="checkbox"/> Freestanding Birthing Center <input type="checkbox"/> Clinic/Doctor's Office <input type="checkbox"/> Residence <input type="checkbox"/> Other (Specify)				8. FACILITY NAME (If not institution, give street and number)			
CERTIFIER/ ATTENDANT	9. I certify that this child was born alive at the place and time and on the date stated. Signature ▶			10. DATE SIGNED (Month,Day,Year)		11. ATTENDANT'S NAME AND TITLE (If other than certifier) (Type/Print) Name _____ <input type="checkbox"/> M.D. <input type="checkbox"/> D.O. <input type="checkbox"/> C.N.M. <input type="checkbox"/> Other Midwife <input type="checkbox"/> Other (Specify)		
	12. CERTIFIER'S NAME AND TITLE (Type/Print) Name _____ <input type="checkbox"/> M.D. <input type="checkbox"/> D.O. <input type="checkbox"/> Hospital Admin. <input type="checkbox"/> C.N.M. <input type="checkbox"/> Other Midwife <input type="checkbox"/> Other (Specify)				13. ATTENDANT'S MAILING ADDRESS (Street and Number or Rural Route Number, City or Town, State, Zip Code)			
	14. REGISTRAR'S SIGNATURE ▶					15. DATE FILED BY REGISTRAR (Month,Day,Year)		
MOTHER	16a. MOTHER'S NAME (First,Middle,Last)			16b. MAIDEN SURNAME		17. DATE OF BIRTH (Month,Day,Year)		
	18. BIRTHPLACE (State or Foreign Country)		19a. RESIDENCE—STATE		19b. COUNTY		19c. CITY, TOWN, OR LOCATION	
	19d. STREET AND NUMBER		19e. INSIDE CITY LIMITS? (Yes or no)		20. MOTHER'S MAILING ADDRESS (If same as residence, enter Zip Code only)			
FATHER	21. FATHER'S NAME (First,Middle,Last)			22. DATE OF BIRTH (Month,Day,Year)		23. BIRTHPLACE (State or Foreign Country)		
INFORMANT	24. I certify that the personal information provided on this certificate is correct to the best of my knowledge and belief. Signature of Parent or Other Informant ▶							

Figure 4-A. U.S. Standard Certificate of Live Birth: 1989 Revision - Con.

INFORMATION FOR MEDICAL AND HEALTH USE ONLY

25. OF HISPANIC ORIGIN? (Specify No or Yes--If yes, specify Cuban, Mexican, Puerto Rican, etc.)		26. RACE —American Indian, Black, White, etc. (Specify below)		27. EDUCATION (Specify only highest grade completed)	
25a. <input type="checkbox"/> No <input type="checkbox"/> Yes Specify:		26a.		27a.	
25b. <input type="checkbox"/> No <input type="checkbox"/> Yes Specify:		26b.		27b.	
28. PREGNANCY HISTORY (Complete each section)			29. MOTHER MARRIED? (At birth, conception, or any time between) (Yes or no)		30. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)
LIVE BIRTHS (Do not include this child)		OTHER TERMINATIONS (Spontaneous and induced at any time after conception)		31. MONTH OF PREGNANCY PRENATAL CARE BEGAN —First, Second, Third, etc. (Specify)	
28a. Now Living Number _____ <input type="checkbox"/> None		28b. Now Dead Number _____ <input type="checkbox"/> None		32. PRENATAL VISITS —Total Number (If none, so state)	
28c. DATE OF LAST LIVE BIRTH (Month, Year)		28d. DATE OF LAST OTHER TERMINATION (Month, Year)		33. BIRTH WEIGHT (Specify unit)	
36. APGAR SCORE		37a. MOTHER TRANSFERRED PRIOR TO DELIVERY? <input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, enter name of facility transferred from:		34. CLINICAL ESTIMATE OF GESTATION (Weeks)	
36a. 1 Minute		36b. 5 Minutes		35a. PLURALITY —Single, Twin, Triplet, etc. (Specify)	
37b. INFANT TRANSFERRED? <input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, enter name of facility transferred to:		35b. IF NOT SINGLE BIRTH —Born First, Second, Third, etc. (Specify)			
38a. MEDICAL RISK FACTORS FOR THIS PREGNANCY (Check all that apply)		40. COMPLICATIONS OF LABOR AND/OR DELIVERY (Check all that apply)		43. CONGENITAL ANOMALIES OF CHILD (Check all that apply)	
Anemia (Hct. <30/Hgb. <10) 01 <input type="checkbox"/> Cardiac disease 02 <input type="checkbox"/> Acute or chronic lung disease 03 <input type="checkbox"/> Diabetes 04 <input type="checkbox"/> Genital herpes 05 <input type="checkbox"/> Hydramnios/Oligohydramnios 06 <input type="checkbox"/> Hemoglobinopathy 07 <input type="checkbox"/> Hypertension, chronic 08 <input type="checkbox"/> Hypertension, pregnancy-associated 09 <input type="checkbox"/> Eclampsia 10 <input type="checkbox"/> Incompetent cervix 11 <input type="checkbox"/> Previous infant 4000+ grams 12 <input type="checkbox"/> Previous preterm or small-for-gestational-age infant 13 <input type="checkbox"/> Renal disease 14 <input type="checkbox"/> Rh sensitization 15 <input type="checkbox"/> Uterine bleeding 16 <input type="checkbox"/> None 00 <input type="checkbox"/> Other 17 <input type="checkbox"/> (Specify)		Febrile (>100°F. or 38°C.) 01 <input type="checkbox"/> Meconium, moderate/heavy 02 <input type="checkbox"/> Premature rupture of membrane (>12 hours) 03 <input type="checkbox"/> Abruptio placenta 04 <input type="checkbox"/> Placenta previa 05 <input type="checkbox"/> Other excessive bleeding 06 <input type="checkbox"/> Seizures during labor 07 <input type="checkbox"/> Precipitous labor (<3 hours) 08 <input type="checkbox"/> Prolonged labor (>20 hours) 09 <input type="checkbox"/> Dysfunctional labor 10 <input type="checkbox"/> Breech/Malpresentation 11 <input type="checkbox"/> Cephalopelvic disproportion 12 <input type="checkbox"/> Cord prolapse 13 <input type="checkbox"/> Anesthetic complications 14 <input type="checkbox"/> Fetal distress 15 <input type="checkbox"/> None 00 <input type="checkbox"/> Other 16 <input type="checkbox"/> (Specify)		Anencephalus 01 <input type="checkbox"/> Spina bifida/Meningocele 02 <input type="checkbox"/> Hydrocephalus 03 <input type="checkbox"/> Microcephalus 04 <input type="checkbox"/> Other central nervous system anomalies (Specify) 05 <input type="checkbox"/> Heart malformations 06 <input type="checkbox"/> Other circulatory/respiratory anomalies (Specify) 07 <input type="checkbox"/> Rectal atresia/stenosis 08 <input type="checkbox"/> Tracheo-esophageal fistula/ Esophageal atresia 09 <input type="checkbox"/> Omphalocele/ Gastroschisis 10 <input type="checkbox"/> Other gastrointestinal anomalies (Specify) 11 <input type="checkbox"/> Malformed genitalia 12 <input type="checkbox"/> Renal agenesis 13 <input type="checkbox"/> Other urogenital anomalies (Specify) 14 <input type="checkbox"/> Cleft lip/palate 15 <input type="checkbox"/> Polydactyly/Syndactyly/Adactyly 16 <input type="checkbox"/> Club foot 17 <input type="checkbox"/> Diaphragmatic hernia 18 <input type="checkbox"/> Other musculoskeletal/integumental anomalies (Specify) 19 <input type="checkbox"/> Down's syndrome 20 <input type="checkbox"/> Other chromosomal anomalies (Specify) 21 <input type="checkbox"/> None 00 <input type="checkbox"/> Other 22 <input type="checkbox"/> (Specify)	
38b. OTHER RISK FACTORS FOR THIS PREGNANCY (Complete all items)		41. METHOD OF DELIVERY (Check all that apply)			
Tobacco use during pregnancy Yes <input type="checkbox"/> No <input type="checkbox"/> Average number cigarettes per day _____ Alcohol use during pregnancy Yes <input type="checkbox"/> No <input type="checkbox"/> Average number drinks per week _____ Weight gained during pregnancy _____ lbs.		Vaginal 01 <input type="checkbox"/> Vaginal birth after previous C-section 02 <input type="checkbox"/> Primary C-section 03 <input type="checkbox"/> Repeat C-section 04 <input type="checkbox"/> Forceps 05 <input type="checkbox"/> Vacuum 06 <input type="checkbox"/>			
39. OBSTETRIC PROCEDURES (Check all that apply)		42. ABNORMAL CONDITIONS OF THE NEWBORN (Check all that apply)			
Amniocentesis 01 <input type="checkbox"/> Electronic fetal monitoring 02 <input type="checkbox"/> Induction of labor 03 <input type="checkbox"/> Stimulation of labor 04 <input type="checkbox"/> Tocolysis 05 <input type="checkbox"/> Ultrasound 06 <input type="checkbox"/> None 00 <input type="checkbox"/> Other 07 <input type="checkbox"/> (Specify)		Anemia (Hct. <39/Hgb. <13) 01 <input type="checkbox"/> Birth injury 02 <input type="checkbox"/> Fetal alcohol syndrome 03 <input type="checkbox"/> Hyaline membrane disease/RDS 04 <input type="checkbox"/> Meconium aspiration syndrome 05 <input type="checkbox"/> Assisted ventilation <30 min 06 <input type="checkbox"/> Assisted ventilation ≥30 min 07 <input type="checkbox"/> Seizures 08 <input type="checkbox"/> None 00 <input type="checkbox"/> Other 09 <input type="checkbox"/> (Specify)			

MOTHER

FATHER

MULTIPLE BIRTHS
Enter State File
Number for Mate(s)
LIVE BIRTH(S)

FETAL DEATH(S)

DEPARTMENT OF HEALTH AND HUMAN SERVICES - PUBLIC HEALTH SERVICE - CENTERS FOR DISEASE CONTROL
NATIONAL CENTER FOR HEALTH STATISTICS - 1989 REVISION

Table A. Percentage of birth records on which specified items were not stated: United States and each State and territory, 2002

[By place of residence]

Area	All births	Place of birth	Attendant at birth	Mother's birthplace	Father's age	Father's race	Hispanic origin	
							Mother	Father
Total of reporting areas ¹	4,021,726	0.0	0.0	0.2	13.4	14.2	0.6	14.1
Alabama	58,967	-	0.0	0.1	21.3	21.5	0.1	21.3
Alaska	9,938	0.2	0.0	0.7	14.3	16.3	22.5	22.9
Arizona	87,837	0.0	0.0	0.1	21.1	22.5	1.1	22.1
Arkansas	37,437	0.0	0.0	0.6	19.7	21.6	0.5	20.6
California	529,357	0.0	0.0	0.2	7.1	7.0	0.8	6.6
Colorado	68,418	-	-	0.4	8.1	8.7	0.0	8.7
Connecticut	42,001	0.0	0.1	0.4	9.8	11.3	0.8	10.7
Delaware	11,090	-	0.0	0.2	31.4	32.7	0.1	31.3
District of Columbia	7,498	-	-	0.1	39.4	48.8	0.7	39.2
Florida	205,579	0.0	0.0	0.1	16.1	16.5	0.2	18.2
Georgia	133,300	0.0	0.0	0.2	17.2	17.5	1.3	18.3
Hawaii	17,477	-	0.1	0.2	10.0	10.1	0.2	10.1
Idaho	20,970	0.0	0.0	0.5	7.9	11.8	1.6	12.1
Illinois	180,622	0.0	-	0.1	13.1	14.7	0.0	14.6
Indiana	85,081	0.0	0.1	0.1	12.9	12.9	0.4	13.1
Iowa	37,559	0.0	0.0	0.0	13.6	14.3	0.2	13.9
Kansas	39,412	-	0.0	0.1	10.2	10.7	1.0	11.6
Kentucky	54,233	-	0.1	0.0	19.4	22.2	0.1	22.3
Louisiana	64,872	0.0	0.0	0.0	20.0	20.1	0.1	20.0
Maine	13,559	-	0.0	-	9.1	13.2	0.3	13.5
Maryland	73,323	-	0.0	0.4	12.0	13.9	0.4	11.7
Massachusetts	80,645	0.0	0.0	0.0	7.2	7.2	0.6	6.6
Michigan	129,967	0.0	0.1	0.1	14.1	16.5	1.6	17.3
Minnesota	68,025	0.0	0.0	0.2	8.9	13.4	1.3	14.0
Mississippi	41,518	0.0	0.0	0.1	21.4	21.2	0.1	21.4
Missouri	75,251	-	0.0	0.2	18.8	18.9	0.1	18.0
Montana	11,049	-	0.1	0.0	9.5	11.0	1.8	12.6
Nebraska	25,383	0.0	0.0	0.0	12.0	13.9	2.3	14.2
Nevada	32,571	-	0.0	0.4	21.5	22.6	0.7	21.6
New Hampshire	14,442	-	0.0	0.1	5.4	7.4	3.8	10.6
New Jersey	114,751	0.0	0.0	0.1	7.6	9.1	0.1	7.8
New Mexico	27,753	0.0	-	1.3	20.6	20.1	0.0	20.1
New York	251,415	0.0	0.0	0.3	13.3	13.9	0.4	13.5
North Carolina	117,335	-	0.0	0.0	15.6	15.7	0.1	15.8
North Dakota	7,757	-	-	0.0	8.5	9.0	1.6	10.6
Ohio	148,720	0.0	0.0	0.4	15.0	15.6	0.2	15.1
Oklahoma	50,387	-	0.0	0.0	17.5	20.0	0.0	19.8
Oregon	45,192	-	0.0	0.1	9.9	4.1	0.6	4.5
Pennsylvania	142,850	0.0	0.1	1.0	5.1	5.9	0.8	4.6
Rhode Island	12,894	0.0	0.0	0.4	12.9	13.5	11.7	22.2
South Carolina	54,570	0.0	0.0	0.1	26.9	27.0	0.2	26.9
South Dakota	10,698	-	-	0.0	13.8	14.0	0.1	14.2
Tennessee	77,482	-	0.0	0.1	15.3	15.7	0.0	15.5
Texas	372,450	0.0	0.0	0.4	14.1	14.4	0.4	14.5
Utah	49,182	0.0	0.0	0.2	7.8	9.3	0.4	8.9
Vermont	6,387	0.0	-	0.2	8.3	12.8	1.2	13.7
Virginia	99,672	-	0.0	0.1	16.2	18.7	0.2	16.4
Washington	79,028	-	0.1	0.4	10.1	13.2	1.8	13.4
West Virginia	20,712	0.0	0.0	0.1	13.0	13.2	0.2	13.2
Wisconsin	68,560	0.0	-	0.1	29.6	29.7	0.0	29.6
Wyoming	6,550	-	-	0.2	13.8	14.0	0.0	13.9
Puerto Rico	52,747	-	0.0	-	3.1	4.0	---	---
Virgin Islands	1,634	-	0.6	0.1	18.7	20.6	4.3	26.2
Guam	3,212	0.1	0.9	0.6	22.0	22.3	2.8	29.0
American Samoa	1,627	0.2	0.3	5.7	32.0	32.9	---	---
Northern Marianas	1,290	-	-	-	8.1	7.1	---	---

See footnotes at end of table.

Table A. Percentage of birth records on which specified items were not stated: United States and each State and territory, 2002— Con.

[By place of residence]

Area	Educational attainment of mother	Live-birth order	Length of gestation	Month prenatal care began	Number of prenatal visits
Total of reporting areas ¹	1.3	0.3	1.0	2.0	2.7
Alabama	0.2	0.0	0.1	0.3	0.3
Alaska	4.8	5.8	0.5	5.3	8.2
Arizona	2.0	0.4	0.1	1.1	1.9
Arkansas	0.9	0.1	0.2	1.5	1.8
California	2.2	0.1	² 6.6	1.9	3.0
Colorado	0.8	0.0	0.0	1.5	2.0
Connecticut	0.8	0.1	0.1	1.2	2.4
Delaware	0.7	0.1	0.1	0.4	0.5
District of Columbia	8.8	1.5	0.2	12.0	7.1
Florida	0.8	0.0	0.1	1.2	2.3
Georgia	1.5	0.2	0.1	1.7	2.0
Hawaii	1.0	0.1	0.3	2.2	2.1
Idaho	3.2	0.2	0.2	2.9	2.4
Illinois	1.1	0.2	0.2	2.5	3.0
Indiana	0.5	0.1	0.1	1.0	1.9
Iowa	0.2	0.0	0.1	0.2	0.3
Kansas	0.3	0.0	0.1	0.8	1.1
Kentucky	0.3	0.1	0.2	1.2	1.6
Louisiana	0.1	0.0	0.1	0.2	0.1
Maine	0.5	0.1	0.1	0.2	0.2
Maryland	1.5	0.3	0.2	1.7	2.5
Massachusetts	0.3	0.2	0.2	1.4	0.5
Michigan	2.1	0.4	0.1	2.0	2.7
Minnesota	1.7	0.5	0.3	3.7	5.0
Mississippi	0.3	0.1	0.2	0.9	1.7
Missouri	0.8	0.6	0.2	2.0	4.0
Montana	0.4	0.0	0.1	0.5	0.6
Nebraska	0.1	0.0	0.0	0.3	0.3
Nevada	2.8	0.8	0.9	4.2	6.8
New Hampshire	1.3	0.1	0.2	1.7	1.3
New Jersey	1.2	0.2	0.0	1.3	1.5
New Mexico	2.6	0.4	0.3	4.3	4.9
New York	0.9	0.3	0.1	3.4	2.1
North Carolina	0.2	0.0	0.0	0.7	0.6
North Dakota	0.4	0.0	0.1	0.8	0.8
Ohio	0.9	0.8	0.0	1.4	2.8
Oklahoma	0.3	0.0	0.1	1.0	0.5
Oregon	1.4	0.0	0.0	0.1	0.2
Pennsylvania	2.8	0.6	0.5	6.3	7.0
Rhode Island	2.4	1.4	0.1	4.1	4.6
South Carolina	0.4	0.1	0.1	0.8	0.9
South Dakota	0.1	0.0	0.0	0.2	0.2
Tennessee	0.3	0.0	0.3	2.1	2.2
Texas	1.5	0.3	0.4	1.4	3.6
Utah	1.3	0.3	0.0	2.4	2.3
Vermont	0.8	0.2	0.1	4.1	0.9
Virginia	1.3	0.0	0.0	0.2	1.2
Washington	5.5	1.4	0.9	8.8	11.5
West Virginia	0.7	0.0	0.1	2.9	1.7
Wisconsin	0.4	0.0	0.0	0.2	0.3
Wyoming	0.3	0.0	0.1	0.5	0.6
Puerto Rico	0.2	0.0	0.0	0.3	0.1
Virgin Islands	1.4	0.8	0.8	-	1.6
Guam	1.3	1.4	0.2	1.4	1.7
American Samoa	---	-	---	---	---
Northern Marianas	0.5	-	0.8	1.6	1.3

See footnotes at end of table.

Table A. Percentage of birth records on which specified items were not stated: United States and each State and territory, 2002—Con.

[By place of residence]

Area	Birthweight	5-minute apgar score	Medical risk factors	Tobacco use	Alcohol use	Weight gain
Total of reporting areas ¹	0.1	0.4	0.7	0.5	0.7	6.3
Alabama	0.1	0.2	0.0	0.1	0.1	2.7
Alaska	0.3	0.5	3.2	1.0	1.1	7.7
Arizona	0.1	0.5	0.0	1.0	1.2	15.8
Arkansas	0.0	3.3	0.0	0.8	0.9	9.3
California	0.0	---	0.0	---	---	---
Colorado	0.0	0.3	0.0	0.1	0.1	2.6
Connecticut	0.0	0.2	1.0	0.4	0.4	2.8
Delaware	0.0	0.1	0.0	0.1	0.1	1.2
District of Columbia	0.1	0.5	-	-	-	12.3
Florida	0.0	0.2	0.0	0.1	0.1	5.4
Georgia	0.0	0.4	0.4	0.3	0.3	9.6
Hawaii	0.1	0.4	0.1	0.1	0.1	13.6
Idaho	0.1	0.5	0.3	0.4	0.6	8.6
Illinois	0.1	0.2	0.0	0.2	0.1	4.3
Indiana	0.4	0.3	0.0	³ 0.2	0.2	2.4
Iowa	0.0	0.3	0.0	0.1	0.1	0.5
Kansas	0.0	0.7	⁴ 0.1	0.1	0.1	0.2
Kentucky	0.2	0.3	2.3	1.7	2.3	6.9
Louisiana	0.1	0.3	0.1	0.1	0.1	5.1
Maine	0.1	0.1	0.1	0.1	0.2	0.7
Maryland	0.0	0.3	0.0	0.1	0.1	3.4
Massachusetts	0.2	0.3	0.2	0.2	0.2	0.8
Michigan	0.1	0.3	0.0	0.9	1.0	6.8
Minnesota	0.1	0.3	7.0	5.5	5.6	16.3
Mississippi	0.1	0.3	0.2	0.2	0.2	5.9
Missouri	0.1	0.6	0.1	0.5	0.5	3.5
Montana	0.1	0.4	0.0	0.7	1.0	1.3
Nebraska	0.0	0.2	0.0	0.1	0.1	1.4
Nevada	0.0	1.5	2.0	1.7	1.7	7.4
New Hampshire	0.1	0.3	0.0	0.3	0.3	3.9
New Jersey	0.1	0.2	0.4	0.3	0.4	2.1
New Mexico	0.2	3.4	0.0	1.1	1.1	7.2
New York	0.1	0.2	2.3	³ 0.2	0.2	5.1
North Carolina	0.1	0.3	0.0	0.2	0.2	2.5
North Dakota	0.1	0.2	0.2	1.3	1.8	3.2
Ohio	0.1	0.2	0.0	0.3	0.3	3.2
Oklahoma	0.0	1.0	1.2	0.2	0.2	1.5
Oregon	0.0	0.4	0.8	1.1	1.1	2.4
Pennsylvania	0.0	0.4	0.1	1.0	1.0	13.5
Rhode Island	0.2	0.3	9.0	2.0	2.0	14.3
South Carolina	0.0	0.2	0.0	0.1	0.1	1.7
South Dakota	0.0	0.3	0.0	⁵ 0.1	⁵ 0.2	0.6
Tennessee	0.0	0.3	0.0	0.2	0.2	8.3
Texas	0.1	---	⁶ 0.6	0.3	0.3	9.0
Utah	0.1	0.3	0.1	0.6	0.7	3.5
Vermont	0.2	0.3	0.1	0.5	0.3	1.1
Virginia	0.1	0.1	0.0	0.0	0.0	3.4
Washington	0.5	0.7	11.1	2.7	9.2	26.8
West Virginia	0.1	0.3	0.7	0.5	1.0	8.1
Wisconsin	0.0	0.4	0.1	0.1	0.1	2.2
Wyoming	0.0	0.2	0.0	0.1	0.2	1.5
Puerto Rico	0.0	0.1	0.0	0.0	0.0	0.1
Virgin Islands	0.3	2.6	5.3	0.6	0.6	20.4
Guam	0.2	0.7	1.4	0.4	0.6	3.7
American Samoa	-	---	---	---	---	---
Northern Marianas	0.4	1.4	---	⁵ 0.9	⁵ 1.0	---

See footnotes at end of table.

Table A. Percentage of birth records on which specified items were not stated: United States and each State and territory, 2002— Con.

[By place of residence]

Area	Obstetric procedures	Complications of labor and/or delivery	Method or delivery	Abnormal conditions of newborn	Congenital anomalies
Total of reporting areas ¹	0.4	0.5	0.5	0.7	0.7
Alabama	0.0	0.0	0.5	0.0	0.0
Alaska	3.1	3.0	0.2	3.7	4.2
Arizona	0.0	0.0	0.4	0.0	0.3
Arkansas	0.0	0.0	0.4	0.0	0.0
California	0.0	0.0	0.0	0.0	0.0
Colorado	0.0	0.0	0.0	0.0	0.2
Connecticut	0.5	0.6	0.5	2.2	2.6
Delaware	0.1	0.0	0.0	0.1	0.0
District of Columbia	-	-	0.1	-	-
Florida	0.0	0.0	0.6	0.0	0.0
Georgia	0.0	0.0	0.5	0.0	0.0
Hawaii	0.0	0.1	0.6	0.1	0.0
Idaho	0.3	0.4	0.4	0.4	0.4
Illinois	0.0	0.0	0.5	0.0	0.1
Indiana	0.0	0.0	0.5	0.0	0.0
Iowa	0.0	0.0	0.6	0.1	0.0
Kansas	0.1	0.1	0.3	0.1	0.2
Kentucky	1.5	2.3	2.1	3.2	1.9
Louisiana	0.1	0.1	0.1	0.1	0.1
Maine	0.1	0.0	0.3	0.1	0.1
Maryland	0.0	0.0	0.3	0.0	0.0
Massachusetts	0.3	0.3	0.4	0.4	0.7
Michigan	0.0	0.0	0.5	0.0	0.0
Minnesota	4.6	6.6	1.4	7.3	7.4
Mississippi	0.0	0.1	0.3	0.1	0.1
Missouri	0.1	0.1	0.6	0.1	0.1
Montana	0.0	0.0	0.2	0.0	0.0
Nebraska	0.0	0.0	0.3	⁷ 0.1	0.0
Nevada	0.7	1.3	1.3	1.1	2.3
New Hampshire	0.0	0.0	0.4	0.0	0.1
New Jersey	0.0	0.2	0.8	0.3	0.5
New Mexico	0.0	0.0	0.6	0.0	---
New York	0.2	0.6	0.5	⁸ 2.1	2.0
North Carolina	0.0	0.0	0.5	0.0	0.0
North Dakota	0.1	0.1	1.7	0.3	0.2
Ohio	0.0	0.0	0.7	0.0	0.0
Oklahoma	0.9	1.2	1.4	1.9	⁹ 2.6
Oregon	0.0	0.0	0.5	0.0	0.0
Pennsylvania	0.0	0.0	0.1	0.0	0.0
Rhode Island	8.9	9.0	0.6	18.5	18.9
South Carolina	-	-	1.0	-	-
South Dakota	0.0	0.0	0.5	0.0	0.0
Tennessee	0.0	0.0	0.7	0.0	0.0
Texas	0.0	¹⁰ 0.0	0.8	⁷ 0.0	0.0
Utah	0.0	0.0	0.1	0.1	0.1
Vermont	0.0	0.1	0.1	0.1	0.1
Virginia	-	-	0.5	0.2	0.0
Washington	9.1	10.6	0.4	11.0	11.2
West Virginia	0.1	0.3	0.3	0.5	0.2
Wisconsin	0.0	0.1	0.0	¹¹ 0.1	0.1
Wyoming	0.0	0.0	0.1	0.0	0.0
Puerto Rico	0.0	0.1	0.0	0.0	0.1
Virgin Islands	2.1	6.9	1.1	8.0	6.9
Guam	0.5	1.9	0.4	1.2	1.5
American Samoa	---	---	---	---	---
Northern Marianas	---	---	1.5	---	---

See footnotes at end of table.

Table A. Percentage of birth records on which specified items were not stated: United States and each State and territory, 2002— Con.

0.0 Quantity more than zero but less than 0.05.

--- Data not available.

- Quantity zero.

¹ Excludes data for Puerto Rico, Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Marianas.

² California reports date last normal menses began but does not report clinical estimate of gestation.

³ Indiana and New York State report tobacco use but do not report the average number of cigarettes smoked per day in standard categories; data for New York City are reported in standard categories.

⁴ Kansas does not report Rh sensitization.

⁵ South Dakota and the Commonwealth of the Northern Marianas report tobacco and alcohol use but do not report the average number of cigarettes smoked per day or the average number of drinks per week.

⁶ Texas does not report genital herpes and uterine bleeding.

⁷ Nebraska and Texas do not report birth injury.

⁸ New York City does not report assisted ventilation less than 30 minutes and assisted ventilation of 30 minutes or more.

⁹ Rates of "Other central nervous system anomalies" may be overstated for Oklahoma for 2002.

¹⁰ Texas does not report anesthetic complications and fetal distress.

¹¹ Wisconsin does not report fetal alcohol syndrome.

Table B. Births by place of occurrence and residence for births occurring in the 50 States, the District of Columbia, U.S. territories, and other countries, 2002

Area	Occurrence	Residence
United States	4,027,376	4,021,726
Alabama	57,861	58,967
Alaska	9,845	9,938
Arizona	87,928	87,837
Arkansas	36,763	37,437
California	530,204	529,357
Colorado	68,537	68,418
Connecticut	42,657	42,001
Delaware	11,724	11,090
District of Columbia	14,988	7,498
Florida	205,680	205,579
Georgia	134,598	133,300
Hawaii	17,512	17,477
Idaho	20,449	20,970
Illinois	177,579	180,622
Indiana	85,506	85,081
Iowa	37,819	37,559
Kansas	39,655	39,412
Kentucky	52,735	54,233
Louisiana	65,120	64,872
Maine	13,372	13,559
Maryland	68,790	73,323
Massachusetts	81,697	80,645
Michigan	128,689	129,967
Minnesota	68,064	68,025
Mississippi	40,539	41,518
Missouri	76,368	75,251
Montana	11,018	11,049
Nebraska	25,515	25,383
Nevada	32,188	32,571
New Hampshire	13,943	14,442
New Jersey	111,813	114,751
New Mexico	27,350	27,753
New York State only	129,430	133,121
New York City only	122,934	118,294
North Carolina	118,178	117,335
North Dakota	8,877	7,757
Ohio	149,061	148,720
Oklahoma	49,237	50,387
Oregon	46,053	45,192
Pennsylvania	142,972	142,850
Rhode Island	13,559	12,894
South Carolina	52,162	54,570
South Dakota	11,015	10,698
Tennessee	82,609	77,482
Texas	377,750	372,450
Utah	50,314	49,182
Vermont	6,107	6,387
Virginia	97,390	99,672
Washington	78,579	79,028
West Virginia	21,130	20,712
Wisconsin	67,408	68,560
Wyoming	6,105	6,550
Occurrence in U.S. territories or foreign countries	-	5,650
Puerto Rico	-	11
Virgin Islands	-	25
Guam	-	-
American Samoa	-	-
Northern Marianas	-	-
Canada	-	174
Cuba	-	1
Mexico	-	4,935
Remainder of world	-	504

- Quantity zero.

Table C. Lower and upper 95 percent and 96 percent confidence limit factors for a birth rate based on a Poisson variable of 1 through 99 births, B

B	$L(1-a=.95,B)$	$U(1-a=.95,B)$	$L(1-a=.96,B)$	$U(1-a=.96,B)$
1	0.02532	5.57164	0.02020	5.83392
2	0.12110	3.61234	0.10735	3.75830
3	0.20622	2.92242	0.18907	3.02804
4	0.27247	2.56040	0.25406	2.64510
5	0.32470	2.33367	0.30591	2.40540
6	0.36698	2.17658	0.34819	2.23940
7	0.40205	2.06038	0.38344	2.11666
8	0.43173	1.97040	0.41339	2.02164
9	0.45726	1.89831	0.43923	1.94553
10	0.47954	1.83904	0.46183	1.88297
11	0.49920	1.78928	0.48182	1.83047
12	0.51671	1.74680	0.49966	1.78566
13	0.53246	1.71003	0.51571	1.74688
14	0.54671	1.67783	0.53027	1.71292
15	0.55969	1.64935	0.54354	1.68289
16	0.57159	1.62394	0.55571	1.65610
17	0.58254	1.60110	0.56692	1.63203
18	0.59266	1.58043	0.57730	1.61024
19	0.60207	1.56162	0.58695	1.59042
20	0.61083	1.54442	0.59594	1.57230
21	0.61902	1.52861	0.60435	1.55563
22	0.62669	1.51401	0.61224	1.54026
23	0.63391	1.50049	0.61966	1.52602
24	0.64072	1.48792	0.62666	1.51278
25	0.64715	1.47620	0.63328	1.50043
26	0.65323	1.46523	0.63954	1.48888
27	0.65901	1.45495	0.64549	1.47805
28	0.66449	1.44528	0.65114	1.46787
29	0.66972	1.43617	0.65652	1.45827
30	0.67470	1.42756	0.66166	1.44922
31	0.67945	1.41942	0.66656	1.44064
32	0.68400	1.41170	0.67125	1.43252
33	0.68835	1.40437	0.67575	1.42480
34	0.69253	1.39740	0.68005	1.41746
35	0.69654	1.39076	0.68419	1.41047
36	0.70039	1.38442	0.68817	1.40380
37	0.70409	1.37837	0.69199	1.39743
38	0.70766	1.37258	0.69568	1.39134
39	0.71110	1.36703	0.69923	1.38550
40	0.71441	1.36172	0.70266	1.37991
41	0.71762	1.35661	0.70597	1.37454
42	0.72071	1.35171	0.70917	1.36938
43	0.72370	1.34699	0.71227	1.36442
44	0.72660	1.34245	0.71526	1.35964
45	0.72941	1.33808	0.71816	1.35504
46	0.73213	1.33386	0.72098	1.35060
47	0.73476	1.32979	0.72370	1.34632
48	0.73732	1.32585	0.72635	1.34218
49	0.73981	1.32205	0.72892	1.33818
50	0.74222	1.31838	0.73142	1.33431

Table C. Lower and upper 95 percent and 96 percent confidence limit factors for a birth rate based on a Poisson variable of 1 through 99 births, B — Con.

B	$L(1-a=.95,B)$	$U(1-a=.95,B)$	$L(1-a=.96,B)$	$U(1-a=.96,B)$
51	0.74457	1.31482	0.73385	1.33057
52	0.74685	1.31137	0.73621	1.32694
53	0.74907	1.30802	0.73851	1.32342
54	0.75123	1.30478	0.74075	1.32002
55	0.75334	1.30164	0.74293	1.31671
56	0.75539	1.29858	0.74506	1.31349
57	0.75739	1.29562	0.74713	1.31037
58	0.75934	1.29273	0.74916	1.30734
59	0.76125	1.28993	0.75113	1.30439
60	0.76311	1.28720	0.75306	1.30152
61	0.76492	1.28454	0.75494	1.29873
62	0.76669	1.28195	0.75678	1.29601
63	0.76843	1.27943	0.75857	1.29336
64	0.77012	1.27698	0.76033	1.29077
65	0.77178	1.27458	0.76205	1.28826
66	0.77340	1.27225	0.76373	1.28580
67	0.77499	1.26996	0.76537	1.28340
68	0.77654	1.26774	0.76698	1.28106
69	0.77806	1.26556	0.76856	1.27877
70	0.77955	1.26344	0.77011	1.27654
71	0.78101	1.26136	0.77162	1.27436
72	0.78244	1.25933	0.77310	1.27223
73	0.78384	1.25735	0.77456	1.27014
74	0.78522	1.25541	0.77598	1.26810
75	0.78656	1.25351	0.77738	1.26610
76	0.78789	1.25165	0.77876	1.26415
77	0.78918	1.24983	0.78010	1.26223
78	0.79046	1.24805	0.78143	1.26036
79	0.79171	1.24630	0.78272	1.25852
80	0.79294	1.24459	0.78400	1.25672
81	0.79414	1.24291	0.78525	1.25496
82	0.79533	1.24126	0.78648	1.25323
83	0.79649	1.23965	0.78769	1.25153
84	0.79764	1.23807	0.78888	1.24987
85	0.79876	1.23652	0.79005	1.24824
86	0.79987	1.23499	0.79120	1.24664
87	0.80096	1.23350	0.79233	1.24507
88	0.80203	1.23203	0.79344	1.24352
89	0.80308	1.23059	0.79453	1.24201
90	0.80412	1.22917	0.79561	1.24052
91	0.80514	1.22778	0.79667	1.23906
92	0.80614	1.22641	0.79771	1.23762
93	0.80713	1.22507	0.79874	1.23621
94	0.80810	1.22375	0.79975	1.23482
95	0.80906	1.22245	0.80074	1.23345
96	0.81000	1.22117	0.80172	1.23211
97	0.81093	1.21992	0.80269	1.23079
98	0.81185	1.21868	0.80364	1.22949
99	0.81275	1.21746	0.80458	1.22822

Table D. Sources for resident population and population including Armed Forces abroad: Birth- and death-registration States, 1900–1932, and United States, 1900–2002

Year	Source
2002	National Center for Health Statistics. Postcensal estimates of the resident population of the United States as of July 1, 2002, by State and county, age, bridged race, sex, and Hispanic origin. File pcen v2002.txt. Internet released, August 1, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
2001	National Center for Health Statistics. Postcensal estimates of the resident population of the United States as of July 1, 2001, by State and county, age, bridged race, sex, and Hispanic origin. File pcen v2001.txt. Internet released, August 1, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
2001	National Center for Health Statistics. Postcensal estimates of the resident population of the United States as of July 1, 2001, by age, bridged race, sex, and Hispanic origin. File pcen v2001.txt. Internet released, January 12, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
2000	National Center for Health Statistics. Estimates of the April 1, 2000, United States resident population by State and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File br040100.txt. Internet released, January 12, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
1999	National Center for Health Statistics. Intercensal estimates of the July 1, 1999, United States resident population by State and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1999.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
1998	National Center for Health Statistics. Intercensal estimates of the July 1, 1998, United States resident population by State and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1998.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
1997	National Center for Health Statistics. Intercensal estimates of the July 1, 1997, United States resident population by State and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1997.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
1996	National Center for Health Statistics. Intercensal estimates of the July 1, 1996, United States resident population by State and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1996.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
1995	National Center for Health Statistics. Intercensal estimates of the July 1, 1995, United States resident population by State and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1995.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
1994	National Center for Health Statistics. Intercensal estimates of the July 1, 1994, United States resident population by State and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1994.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
1993	National Center for Health Statistics. Intercensal estimates of the July 1, 1993, United States resident population by State and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1993.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
1992	National Center for Health Statistics. Intercensal estimates of the July 1, 1992, United States resident population by State and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1992.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
1991	National Center for Health Statistics. Intercensal estimates of the July 1, 1991, United States resident population by State and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1991.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .
1990	U.S. Bureau of the Census, Unpublished data from the 1990 census. 1990 CPH-L-74 and unpublished data consistent with <i>Current Population Reports</i> , Series P-25, No. 1095, Feb. 1993.
1989	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 1057, Mar. 1990.
1988	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 1045, Jan. 1990.
1986–87	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 1022, Mar. 1988.
1985	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 1000, Feb. 1987.
1984	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 985, Apr. 1986.
1983	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 965, Mar. 1985.
1982	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 949, May 1984.
1981	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 929, May 1983.
1980	U.S. Bureau of the Census, <i>U.S. Census of Population: 1980, Number of Inhabitants</i> , PC80-1-A1, United States Summary, 1983.
1971–79	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 917, July 1982.
1970	U.S. Bureau of the Census, <i>U.S. Census of Population: 1970, Number of Inhabitants, Final Report</i> PC(1)-A1, United States Summary,
1961–69	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 519, April 1974.
1960	U.S. Bureau of the Census, <i>U.S. Census of Population: 1960, Number of Inhabitants</i> , PC(1)-A1, United States Summary, 1964.
1951–59	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 310, June 30, 1965.
1940–50	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 499, May 1973.
1930–39	U.S. Bureau of the Census, <i>Current Population Reports</i> , Series P-25, No. 499, May 1973, and National Office of Vital Statistics, <i>Vital Statistics Rates in the United States</i> , 1900–1940, 1947.
1920–29	National Office of Vital Statistics, <i>Vital Statistics Rates in the United States</i> , 1900–1940, 1947.
1917–19	Same as for 1930–39.
1900–1916	Same as for 1920–29.

Table E. Percentage net undercount, by age, sex, and race/Hispanic origin: United States, April 1, 2000

Characteristic	Estimate (%)
Total	-0.49
Age/sex	
10–17 Male and female	-1.32
18–29 Male	1.12
18–29 Female	-1.39
30–49 Male	2.01
30–49 Female	-0.60
50 years and over male	-0.80
50 years and over female	-2.53
Race/Hispanic origin	
Non-Hispanic white	-1.13
Non-Hispanic black	1.84
Hispanic	0.71

SOURCE: Fenstermaker D, Haines D. Summary of estimated net coverage. DSSD A.C.E. Revision II Memorandum Series #PP-54. Washington: U.S. Census Bureau. 2002.

Table 4–1. Population of birth- and death-registration States, 1900–1932, and United States, 1900–2002

[Population enumerated as of April 1 for 1940, 1950, 1960, 1970, 1980, 1990, and 2000 and estimated as of July 1 for all other years]

Year	United States ¹		Year	United States ¹		Birth-registration States		Death-registration States	
	Population including Armed Forces abroad	Population residing in area		Population including Armed Forces abroad	Population residing in area	Number of States ²	Population residing in area	Number of States ²	Population residing in area
2002	288,600,204	288,368,706	1950	151,132,000	150,697,361	...	...	...	...
2001	285,024,000	284,796,887	1949	149,188,000	148,665,000	...	...	...	...
2000	281,652,000	281,421,906	1948	146,631,000	146,093,000	...	...	...	...
1999	279,294,713	279,040,168	1947	144,126,000	143,446,000	...	...	...	...
1998	276,115,288	275,854,104	1946	141,389,000	140,054,000	...	...	...	...
1997	272,911,760	272,646,925	1945	139,928,000	132,481,000	...	...	...	...
1996	269,667,391	269,394,284	1944	138,397,000	132,885,000	...	...	...	...
1995	266,557,091	266,278,393	1943	136,739,000	134,245,000	...	...	...	...
1994	263,435,673	263,125,821	1942	134,860,000	133,920,000	...	...	...	...
1993	260,255,352	259,918,588	1941	133,402,000	133,121,000	...	...	...	...
1992	256,894,189	256,514,224	1940	131,820,000	131,669,275	...	...	...	...
1991	253,492,503	252,980,941	1939	131,028,000	130,879,718	...	...	...	...
1990	249,225,000	248,709,873	1938	129,969,000	129,824,939	...	...	...	...
1989	247,342,000	246,819,000	1937	128,961,000	128,824,829	...	...	...	...
1988	245,021,000	244,499,000	1936	128,181,000	128,053,180	...	...	...	...
1987	242,804,000	242,289,000	1935	127,362,000	127,250,232	...	...	...	...
1986	240,651,000	240,133,000	1934	126,485,000	126,373,773	...	...	...	...
1985	238,466,000	237,924,000	1933	125,690,000	125,578,763	...	...	...	...
1984	236,348,000	235,825,000	1932	124,949,000	124,840,471	47	118,903,899	47	118,903,899
1983	234,307,000	233,792,000	1931	124,149,000	124,039,648	46	117,455,229	47	118,148,987
1982	232,188,000	231,664,000	1930	123,188,000	123,076,741	46	116,544,946	47	117,238,278
1981	229,966,000	229,466,000	1929	---	121,769,939	46	115,317,450	46	115,317,450
1980	227,061,000	226,545,805	1928	---	120,501,115	44	113,636,160	44	113,636,160
1979	225,055,000	224,567,000	1927	---	119,038,062	40	104,320,830	42	107,084,532
1978	222,585,000	222,095,000	1926	---	117,399,225	35	90,400,590	41	103,822,683
1977	220,239,000	219,760,000	1925	---	115,831,963	33	88,294,564	40	102,031,555
1976	218,035,000	217,563,000	1924	---	114,113,463	33	87,000,295	39	99,318,098
1975	215,973,000	215,465,000	1923	---	111,949,945	30	81,072,123	38	96,788,197
1974	213,854,000	213,342,000	1922	---	110,054,778	30	79,560,746	37	92,702,901
1973	211,909,000	211,357,000	1921	---	108,541,489	27	70,807,090	34	87,814,447
1972	209,896,000	209,284,000	1920	---	106,466,420	23	63,597,307	34	86,079,263
1971	207,661,000	206,827,000	1919	105,063,000	104,512,110	22	61,212,076	33	83,157,982
1970	204,270,000	203,211,926	1918	104,550,000	103,202,801	20	55,153,782	30	79,008,412
1969	202,677,000	201,385,000	1917	103,414,000	103,265,913	20	55,197,952	27	70,234,775
1968	200,706,000	199,399,000	1916	---	101,965,984	11	32,944,013	26	66,971,177
1967	198,712,000	197,457,000	1915	---	100,549,013	10	31,096,697	24	61,894,847
1966	196,560,000	195,576,000	1914	---	99,117,567	...	...	24	60,963,309
1965	194,303,000	193,526,000	1913	---	97,226,814	...	...	23	58,156,740
1964	191,889,000	191,141,000	1912	---	95,331,300	...	...	22	54,847,700
1963	189,242,000	188,483,000	1911	---	93,867,814	...	...	22	53,929,644
1962	186,538,000	185,771,000	1910	---	92,406,536	...	...	20	47,470,437
1961	183,691,000	182,992,000	1909	---	90,491,525	...	...	18	44,223,513
1960	179,933,000	179,323,175	1908	---	88,708,976	...	...	17	38,634,759
1959	177,264,000	176,513,000	1907	---	87,000,271	...	...	15	34,552,837
1958	174,141,000	173,320,000	1906	---	85,436,556	...	...	15	33,782,288
1957	171,274,000	170,371,000	1905	---	83,819,666	...	...	10	21,767,980
1956	168,221,000	167,306,000	1904	---	82,164,974	...	...	10	21,332,076
1955	165,275,000	164,308,000	1903	---	80,632,152	...	...	10	20,943,222
1954	162,391,000	161,164,000	1902	---	79,160,196	...	...	10	20,582,907
1953	159,565,000	158,242,000	1901	---	77,585,128	...	...	10	20,237,453
1952	156,954,000	155,687,000	1900	---	76,094,134	...	...	10	19,965,446
1951	154,287,000	153,310,000							

--- Data not available.

... Category not applicable.

¹ Alaska included beginning 1959 and Hawaii, 1960.

² The District of Columbia is not included in "Number of States," but it is represented in all data shown for each year.

SOURCE: Published and unpublished data from the U.S. Census Bureau; see text and table D.

Table 4–2. Estimated total population by race and estimated female population by age and race: United States, 2003

[Populations estimated as of July 1]

Age	All races	White	Black	American Indian	Asian or Pacific Islander
Total population	288,368,706	234,746,440	37,747,692	3,076,095	12,798,479
Female population					
15–44 years	62,044,142	48,998,121	9,026,073	731,071	3,288,877
10–14 years	10,311,553	7,994,986	1,731,004	150,875	434,688
15–19 years	9,905,023	7,764,527	1,559,455	143,268	437,773
15–17 years	5,967,384	4,676,219	946,988	86,700	257,477
18–19 years	3,937,639	3,088,308	612,467	56,568	180,296
20–24 years	9,863,491	7,706,591	1,531,763	127,401	497,736
25–29 years	9,331,760	7,247,653	1,380,362	110,456	593,289
30–34 years	10,393,768	8,164,321	1,475,044	112,424	641,979
35–39 years	10,961,381	8,730,699	1,534,119	117,384	579,179
40–44 years	11,588,719	9,384,330	1,545,330	120,138	538,921
45–49 years	10,810,307	8,844,142	1,366,556	105,700	493,909

NOTE: These population counts are estimated based on the 2000 census; see "Technical Notes." Race categories are consistent with the 1977 Office of Management and Budget guidelines.

SOURCE: U.S. Census Bureau. See reference 28.

Table 4–3. Estimated total population by specified Hispanic origin and estimated female population by age and specified Hispanic origin and by race for women of non-Hispanic origin: United States, 2002

[Populations estimated as of July 1]

Age	Hispanic					Non-Hispanic		
	Total	Mexican	Puerto Rican	Cuban	Other Hispanic ¹	Total ²	White	Black
Total population	38,761,304	25,927,404	3,491,092	1,418,217	7,924,566	249,607,402	198,691,529	36,145,193
Female population								
15–44 years	9,282,682	6,102,378	878,299	241,087	2,060,918	52,761,460	40,394,467	8,619,604
10–14 years	1,724,621	1,224,988	150,149	34,898	314,587	8,586,932	6,409,899	1,649,550
15–19 years	1,532,680	1,033,878	162,899	34,194	301,711	8,372,343	6,351,004	1,491,961
15–17 years	922,312	615,761	95,008	22,870	188,675	5,045,072	3,826,729	905,629
18–19 years	610,368	418,117	67,891	11,324	113,036	3,327,271	2,524,275	586,332
20–24 years	1,614,569	1,113,026	137,167	34,815	329,566	8,248,922	6,216,387	1,457,446
25–29 years	1,694,283	1,177,138	152,759	37,297	327,084	7,637,477	5,673,667	1,306,663
30–34 years	1,659,543	1,085,092	153,026	31,013	390,414	8,734,225	6,622,138	1,402,937
35–39 years	1,495,141	950,362	140,021	53,883	350,873	9,466,240	7,341,768	1,469,838
40–44 years	1,286,466	742,882	132,427	49,885	361,270	10,302,253	8,189,503	1,490,759
45–49 years	1,028,664	610,181	101,147	45,103	272,237	9,781,643	7,888,991	1,322,234

¹Includes Central and South American and other and unknown Hispanic.

²Includes races other than white and black.

NOTE: These population counts are estimated based on the 2000 census; see "Technical Notes." Race categories are consistent with the 1977 Office of Management and Budget guidelines.

SOURCE: U.S. Census Bureau. Population Estimates for 2000 based on unpublished tabulations prepared by the Housing and Household Economic Statistics Division. 2001.

Table 4–4. Estimated total population and female population aged 15–44 years: United States, each State, and territory: July 1, 2002

[Figures include Armed Forces stationed in each area and exclude those stationed outside the United States]

State	Total	Female 15–44 years
United States	214,959,789	46,188,961
Alabama	4,486,508	964,076
Alaska	643,786	135,128
Arizona	5,456,453	1,129,623
Arkansas	2,710,079	562,512
California	35,116,033	7,753,983
Colorado	4,506,542	986,708
Connecticut	3,460,503	714,099
Delaware	807,385	178,365
District of Columbia	570,898	141,808
Florida	16,713,149	3,290,358
Georgia	8,560,310	1,949,647
Hawaii	1,244,898	254,652
Idaho	1,341,131	284,118
Illinois	12,600,620	2,734,050
Indiana	6,159,068	1,312,372
Iowa	2,936,760	609,101
Kansas	2,715,884	573,685
Kentucky	4,092,891	895,803
Louisiana	4,482,646	991,485
Maine	1,294,466	272,137
Maryland	5,458,137	1,209,363
Massachusetts	6,427,803	1,423,025
Michigan	10,050,446	2,140,053
Minnesota	5,019,720	1,096,832
Mississippi	2,871,782	631,498
Missouri	5,672,579	1,212,701
Montana	909,453	183,288
Nebraska	1,729,180	365,235
Nevada	2,173,491	449,407
New Hampshire	1,275,056	275,577
New Jersey	8,590,303	1,806,387
New Mexico	1,855,059	392,488
New York	19,157,532	4,200,848
North Carolina	8,320,146	1,795,328
North Dakota	634,110	132,083
Ohio	11,421,268	2,408,493
Oklahoma	3,493,714	732,645
Oregon	3,521,515	729,844
Pennsylvania	12,335,091	2,532,890
Rhode Island	1,069,725	236,192
South Carolina	4,107,183	898,778
South Dakota	761,063	156,684
Tennessee	5,797,289	1,246,504
Texas	21,779,893	4,830,280
Utah	2,316,256	542,919
Vermont	616,592	130,731
Virginia	7,293,542	1,609,552
Washington	6,068,996	1,312,243
West Virginia	1,801,873	363,147
Wisconsin	5,441,196	1,162,494
Wyoming	498,703	102,923
Puerto Rico	3,858,806	855,825
Virgin Islands	108,810	22,971
Guam	161,057	36,377
American Samoa	57,716	12,842
Northern Marianas	74,003	28,608

SOURCE: National Center for Health Statistics. Unpublished estimates of the July 1, 2002, United States population by age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. 2003.