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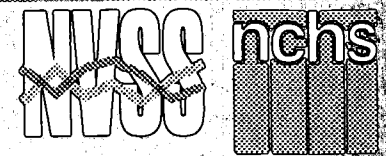
## ABSTRACT

This report presents preliminary data for 1999 on births in the United States. U.S. data on births are shown by age, race, and Hispanic origin of the mother. Data on marital status, prenatal care, cesarean delivery, and low birthweight rate are also presented. Data are based on a more than 97% sample of births for 1999. The crude birth rate in 1999 was 14.5% per 1,000 population, a slight decline from 1998 (14.6), returning to the level of 1997. However, the fertility rate, limited to women aged 15 to 44 years, was 65.8 in 1999, a slight increase over the rate for 1998. The birth rate for teenagers continued to decline for 1998-1999, dropping 3% to 49.6 births for 1,000 females aged 15 to 19 years. The 1999 rate for teenagers is 20% lower than the recent high point in 1991. Birth rates for 15-19 year-old Hispanics remained substantially higher than that of other groups. While birth rates for women aged 20 to 24 years declined slightly between 1998 and 1999, both rates for women in their 30s and 40s continued their long increase. Overall, the number of births to unmarried women was up about 1% due to the continued increase in the number of unmarried women of childbearing age. (Contains 9 tables and 12 references.) (Author/SLD)

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## Births: Preliminary Data for 1999

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### Abstract

**Objectives**—This report presents preliminary data for 1999 on births in the United States. U.S. data on births are shown by age, race, and Hispanic origin of mother. Data on marital status, prenatal care, cesarean delivery, and low birthweight are also presented.

**Methods**—Data in this report are based on more than a 97-percent sample of births for 1999. The records are weighted to independent control counts of births received in State vital statistics offices in 1999. Comparisons are made with 1998 final data.

**Results**—The crude birth rate in 1999 was 14.5 per 1,000 population, a slight decline from 1998 (14.6), returning to the level observed in 1997. However, the fertility rate, which is limited to women aged 15–44 years, was 65.8 in 1999, a slight increase over the rate for 1998 (65.6). The birth rate for teenagers continued to decline for 1998–99, dropping 3 percent to 49.6 births per 1,000 females aged 15–19 years. The 1999 rate for teenagers is 20 percent lower than the recent high point in 1991. The rate for young teenagers 15–17 years fell 6 percent, and the rate for teenagers 18–19 years declined 2 percent. Since 1991, rates have fallen 26 percent for teenagers 15–17 years, and 15 percent for teenagers 18–19 years. Birth rates for women aged 20–24 years declined slightly between 1998 and 1999 whereas the rate for women aged 25–29 years rose 2 percent. Birth rates for women in their thirties and forties continued their long increase. Rates for women in their thirties increased 2 to 3 percent and were the highest in three decades. The birth rate for women aged 40–44 years was the highest level reported since 1970. The birth rate for unmarried women in 1999 was 43.9 per 1,000, 1 percent lower than in 1998 and 6 percent lower than the peak level reported for 1994 (46.9). However, the number of births to unmarried women was up about 1 percent due to the continued increase in the number of unmarried women of childbearing age. The rate of prenatal care utilization continued to improve. The total cesarean rate increased 4 percent between 1998 and 1999 and continued a 3-year rise. The low birthweight rate remained unchanged at 7.6 percent.

**Keywords:** births • vital statistics

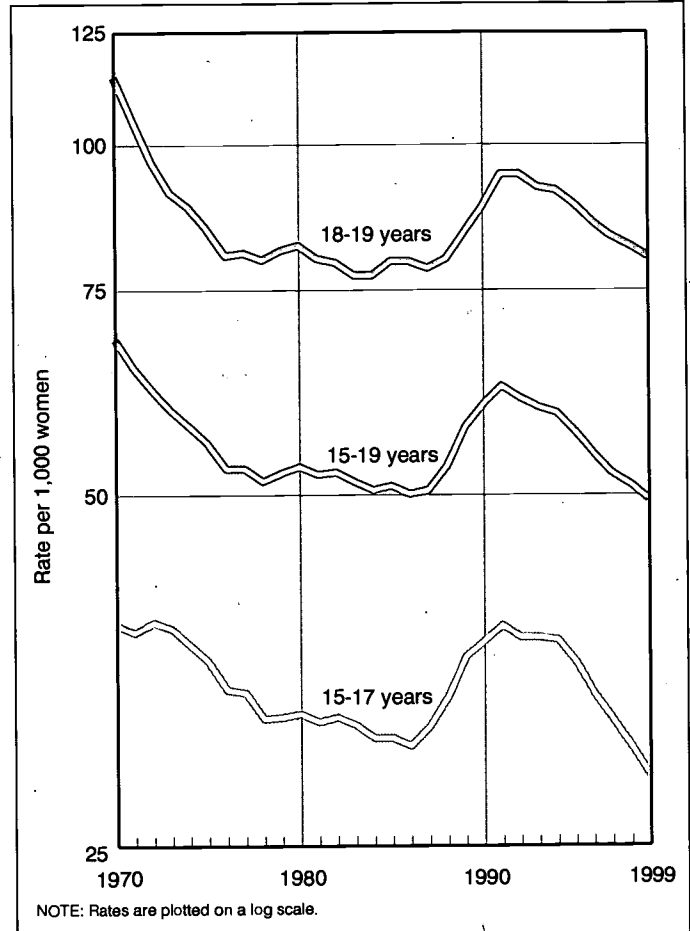


Figure 1. Birth rates for teenagers by age: United States, 1970–99

### Introduction

This report presents preliminary data on births based on a substantial proportion of vital records for births occurring in 1999. Previous reports in the preliminary series have included data for both

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births and deaths. This report includes data on births only; preliminary 1999 mortality data will be published separately. The preliminary report series, which is published annually by NCHS, includes detailed tabulations from the preliminary natality file. This report is the eighth in the series and shows preliminary birth data for 1999. Trends shown in the preliminary reports for 1995–98 births for most measures were confirmed by the final statistics for each year (1–4).

## Sources and methods

The preliminary data in this series are based on records of births that occurred during 1999 and were received and had undergone quality control by NCHS as of May 10, 2000. This represents over 97 percent of the births that occurred in the United States during this 12-month period.

To produce the preliminary estimates shown in this report, records in the file were weighted using independent control counts of births by State of occurrence. Preliminary estimates are subject to sampling variation as well as random variation.

In addition to national and State estimates of total births and birth rates, this report includes preliminary statistics on births by age, live-birth order, marital status, race, Hispanic origin, and selected maternal and infant health characteristics: receipt of prenatal care, cesarean delivery, and low birthweight.

Race and Hispanic origin are reported as separate items on the birth certificate. Therefore, births shown by race may be of Hispanic or non-Hispanic origin, and births of Hispanic origin may be of any race. All tabulations in this report show data separately for the non-Hispanic white population as well as for the white population as a whole. Although the overwhelming majority of Hispanic-origin births (approximately 97 percent) are to white women, there are notable differences in child-bearing patterns between Hispanic and non-Hispanic white women. About one in five white births are to Hispanic women. For this preliminary report, data are not shown separately for non-Hispanic black persons because the great majority (more than 95 percent) of black

births are to non-Hispanic persons and, thus, the difference in the statistics for the two groups are minimal (1). The report "Births: Final Data for 1998," show data for these groups separately.

State-specific preliminary data are shown only for those States and areas for which at least 75 percent of the records for 1999 were received and had undergone quality control by May 10, 2000 (i.e., were processed). (See Technical notes.) All States met this requirement in 1999. The proportion of records processed is shown by State in table I in the Technical notes. Detailed information on the nature, sources, and qualifications of the preliminary data is given in the Technical notes.

## Results

### Trends in numbers and rates

The number of **births** (preliminary) in the United States was 3,957,829 in 1999, a less than 1-percent increase over the final number for 1998 (3,941,553) (table A). All of the increase in the total number was due to increases for Asian or Pacific Islander and Hispanic mothers. The number of births for non-Hispanic white, black, and American Indian mothers declined between 1998 and 1999. The **crude birth rate** in 1999 was 14.5, a slight decline from 1998 (14.6), returning to the level observed in 1997. The rates in 1999 and 1997 were the lowest in two decades. The **fertility rate** relates births to the population at risk of giving birth (women aged 15–44 years) and is thus more indicative of changes in fertility behavior than is the crude birth rate. The rate was 65.8 in 1999, a slight increase over the rate for 1998 (65.6). This was the second consecutive increase in the fertility rate after dropping each year during 1990–97 (see tables 1–4 for birth, birth rates, and fertility rates). The majority of States, 28, and the District of Columbia had declines in their crude birth rates between 1998 and 1999 while 12 States had increases and 10 were unchanged. In contrast, fertility rates increased for 33 States, declined for 13 States and the District of Columbia, and were unchanged in 4 States.

**Table A. Total births and percent of births with selected demographic and health characteristics, by race and Hispanic origin of mother: United States, final 1998 and preliminary 1999**

[Figures for 1999 are based on weighted data rounded to the nearest individual]

Characteristic	All races <sup>1</sup>		White, total <sup>2</sup>		White, non-Hispanic		Black <sup>2</sup>		Hispanic <sup>3</sup>	
	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998
	Number									
Births . . . . .	3,957,829	3,941,553	3,130,100	3,118,727	2,349,536	2,361,462	606,720	609,902	762,364	734,661
	Percent									
Births to mothers under 20 years . . . . .	12.2	12.5	10.9	11.1	9.2	9.4	20.6	21.5	16.7	16.9
Births to unmarried mothers . . . . .	33.0	32.8	26.7	26.3	22.0	21.9	68.8	69.1	42.1	41.6
Low birthweight <sup>4</sup> . . . . .	7.6	7.6	6.6	6.5	6.6	6.6	13.1	13.0	6.4	6.4
Very low birthweight <sup>5</sup> . . . . .	1.45	1.45	1.15	1.15	1.15	1.15	3.13	3.08	1.13	1.15
Births delivered by cesarean . . . . .	22.0	21.2	21.9	21.0	22.1	21.2	23.1	22.4	21.2	20.6
Prenatal care beginning in first trimester . . . . .	83.2	82.8	85.1	84.8	88.4	87.9	74.0	73.3	74.5	74.3
Prenatal care beginning in third trimester or no care . . . . .	3.8	3.9	3.2	3.3	2.3	2.4	6.7	7.0	6.3	6.3

<sup>1</sup>Includes races other than white and black.

<sup>2</sup>Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race; see Technical notes.

<sup>3</sup>Includes all persons of Hispanic origin of any race; see Technical notes.

<sup>4</sup>Birthweight of less than 2,500 grams (5 pounds 8 ounces).

<sup>5</sup>Birthweight of less than 1,500 grams (3 pounds 4 ounces).

The fertility rate in 1999 for Hispanic women (101.8) was 76 percent higher than for non-Hispanic white women (57.9), the group with the lowest rate. Rates for black women (70.2), American Indian women (69.4), and Asian or Pacific Islander women (65.7) were much lower than for Hispanic women but moderately higher than for non-Hispanic white women. Fertility rates in 1999 for black and American Indian women both declined compared with 1998, by 1 and 2 percent, respectively. The rate for non-Hispanic white women increased slightly between 1998 and 1999. The 1999 rate for Asian and Pacific Islander women increased 3 percent compared with 1998, but was still the second lowest fertility rate since these data were first collected in 1980. For Hispanic women, the fertility rate was about 1 percent higher in 1999 than in 1998, the first increase in this rate since 1992. However, the 1999 fertility rate for Hispanic women was still the second lowest rate since national data became available for this group in 1989 (1). Births to Hispanic women comprised 19 percent of all births in the United States in 1999, the same percent as in 1998, but much higher than in 1989 (14 percent).

The **birth rate for teenagers** in 1999 was 49.6 per 1,000 births to women aged 15–19 years, a 3-percent decline compared with the rate for 1998 (51.1), and 20 percent lower than the recent high point in 1991 (62.1) (table B, table 1, and figure 1). The 1999 rate for teenagers is at an all-time low. The rate for the youngest teenage group, **10–14 years**, fell slightly between 1998 (1.0 per 1,000 women 10–14 years of age) and 1999 (0.9). The number of births to women aged 10–14 years fell 4 percent between 1998 and 1999 (from 9,462 to 9,049), to the lowest number in 30 years. **Rates for teenagers 15–17 and 18–19 years** continued their steady decline since the early 1990's. Compared with 1998, the 1999 rate for teenagers 15–17 years (28.7) declined 6 percent whereas the rate for teenagers 18–19 years (80.2) declined 2 percent. Between 1991 and 1999 there was a 26-percent drop in the birth rate for teenagers 15–17 years and a 15-percent drop in the rate for teenagers 18–19 years.

**Birth rates for 15–19 year-olds by race and Hispanic origin** show that all groups continued their declines into 1999. The largest declines between 1998 and 1999 were for American Indian teenagers (6 percent, with a 1999 rate of 67.7 per 1,000), followed by a 5-percent drop among black (81.1), and a 3-percent decline for non-Hispanic white teenagers (34.1). The birth rate for Hispanic teenagers declined by less than 1 percent, to 93.1, remaining substantially higher than that of other groups. Between 1991 and 1999, rates for teenagers dropped most steeply for black women (30 percent) with the smallest decline observed for Hispanic women (13 percent). Due to these trends, rates for Hispanic teenagers have been higher than for black teenagers for each year 1994–99.

**Birth rates for women in their twenties** in 1999, the ages at which rates are typically the highest, were 111.0 per 1,000 for women aged 20–24 years and 117.8 for women aged 25–29 years (table 1). The 1999 rate for women aged 20–24 years was slightly lower than in 1998 (111.2) whereas the rate for women aged 25–29 years increased 2 percent, from 115.9 in 1998. The rate for women aged 20–24 years was down slightly for non-Hispanic white and Hispanic women and declined 2 percent for American Indian mothers. In contrast, the rate for black women aged 20–24 years was unchanged whereas it rose 2 percent for Asian or Pacific Islander women. Except for American Indian women, all groups experienced increases in the rate for women aged 25–29 years. All of the increases in the rate between 1998 and 1999 were less than 2 percent except for a 5-percent increase in the rate for Asian or Pacific Islander women. The decline for American Indian women was less than 1 percent.

**The birth rates for women in their thirties** continued to increase. For women aged 30–34 years, the rate in 1999 (89.6) was 3 percent higher than the 1998 rate (87.4) whereas the 1999 rate for women aged 35–39 years (38.3) was 2 percent higher than the comparable rate in 1998 (37.4). The birth rates for women in their thirties were the highest

**Table B. Birth rates for women aged 15–19 years, by age, race, and Hispanic origin: United States, final 1990–98 and preliminary 1999, and percent change in rates, 1991–99**

[Rates per 1,000 women in specified group]

Age, race, and Hispanic origin of mother	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	Percent change 1991–99
<b>15–19 years</b>											
All races <sup>1</sup> . . . . .	49.6	51.1	52.3	54.4	56.8	58.9	59.6	60.7	62.1	59.9	-20.1
White, total <sup>2</sup> . . . . .	44.5	45.4	46.3	48.1	50.1	51.1	51.1	51.8	52.8	50.8	-15.7
White, non-Hispanic . . . . .	34.1	35.2	36.0	37.6	39.3	40.4	40.7	41.7	43.4	42.5	-21.4
Black, total <sup>2</sup> . . . . .	81.1	85.4	88.2	91.4	96.1	104.5	108.6	112.4	115.5	112.8	-29.8
Hispanic <sup>3</sup> . . . . .	93.1	93.6	97.4	101.8	106.7	107.7	106.8	107.1	106.7	100.3	-12.7
<b>15–17 years</b>											
All races <sup>1</sup> . . . . .	28.7	30.4	32.1	33.8	36.0	37.6	37.8	37.8	38.7	37.5	-25.8
White, total <sup>2</sup> . . . . .	24.8	25.9	27.1	28.4	30.0	30.7	30.3	30.1	30.7	29.5	-19.2
White, non-Hispanic . . . . .	17.1	18.4	19.4	20.6	22.0	22.8	22.7	22.7	23.6	23.2	-27.5
Black, total <sup>2</sup> . . . . .	52.1	56.8	60.8	64.7	69.7	76.3	79.8	81.3	84.1	82.3	-38.0
Hispanic <sup>3</sup> . . . . .	61.2	62.3	66.3	69.0	72.9	74.0	71.7	71.4	70.6	65.9	-13.3
<b>18–19 years</b>											
All races <sup>1</sup> . . . . .	80.2	82.0	83.6	86.0	89.1	91.5	92.1	94.5	94.4	88.6	-15.0
White, total <sup>2</sup> . . . . .	73.4	74.6	75.9	78.4	81.2	82.1	82.1	83.8	83.5	78.0	-12.1
White, non-Hispanic . . . . .	59.0	60.6	61.9	63.7	66.1	67.4	67.7	69.8	70.5	66.6	-16.3
Black, total <sup>2</sup> . . . . .	122.9	126.9	130.1	132.5	137.1	148.3	151.9	157.9	158.6	152.9	-22.5
Hispanic <sup>3</sup> . . . . .	139.0	140.1	144.3	151.1	157.9	158.0	159.1	159.7	158.5	147.7	-11.6

<sup>1</sup>Includes races other than white and black.

<sup>2</sup>Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race; see notes.

<sup>3</sup>all persons of Hispanic origin of any race; see Technical notes.

in about three decades. The **birth rate for women aged 40–44 years** increased slightly between 1998 (7.3) and 1999 (7.4) and was the highest in almost two decades.

The **birth rate for women aged 45–54 years** remained at 0.4 per 1,000 in 1999 but the number of births to these women increased 14 percent between 1998 (3,782) and 1999 (4,330). All of the increase in the number of births can be attributed to the increase in the population of these women.

Due to the continued decline in teenage birth rates along with increases for most groups aged 20 years and over, the percent of all births to women under the age of 20 declined to 12.2 percent compared with 12.5 percent in 1998 (table A). The percent of teenage births varies tremendously by State, from 6.9 in Massachusetts to 19.7 in Mississippi (table 5).

The **first birth rate** increased slightly between 1998 (26.4 first births per 1,000 women aged 15–44 years) and 1999 (26.5) (table 3). This was the first increase in this rate since 1990 (5). The first birth rate for teenagers, however, continued to decline to the lowest level recorded since 1986. The first birth rate for teenagers was 38.9 in 1999, a 3-percent decline compared with 1998 (39.9).

The **total fertility rate (TFR)** indicates the number of births that a hypothetical group of 1,000 women would have if they experienced throughout their childbearing years the age-specific birth rates observed in a given year. The TFR for 1999 was 2,075.0, a 1-percent increase over 1998 (2,058.5) and the highest TFR since 1990. TFR's increased between 1998 and 1999 for the following groups—from 2,041.0 to 2,063.0 overall for white women, from 1,837.0 to 1,853.5 for non-Hispanic white women, from 1,867.5 to 1,930.5 for Asian or Pacific Islander women, and from 2,947.5 to 2,978.0 for Hispanic women. TFR's declined between 1998 and 1999 for black women (from 2,171.0 to 2,149.0) and for American Indian women (from 2,090.5 to 2,049.5) (tabular data not shown).

The **number (preliminary) of births to unmarried women** for 1999 was 1,304,594, about 1 percent higher than in 1998 (1,293,567) (table C). The number for 1999 is the highest ever reported in the United States, and the increase is due mostly to the continued increase in the number of unmarried women of childbearing age (up 4 percent since 1997) (6). The **birth rate for unmarried women** declined about 1 percent in 1999 to 43.9 births per 1,000 unmarried women aged 15–44 years, compared with 44.3 in 1998; the 1999 rate was 6 percent lower than its highest level, 46.9 in 1994 (1).

The **proportion of all births to unmarried women** in 1999 increased to 33.0 percent, compared with 32.8 percent in 1998. This proportion has been relatively stable since 1994, ranging from 32.2 to 33.0 percent. The proportion for all white births increased from 26.3 to 26.7 percent, for non-Hispanic white births from 21.9 to 22.0 percent, and for Hispanic births from 41.6 to 42.1 percent. The proportion declined slightly for black births from 69.1 to 68.8 percent.

The number (preliminary) of births to unmarried teenagers (total under age 20 years) was 2 percent lower in 1999 than in 1998 (table C). The numbers declined 5 percent for births to teenagers under 15 years and for births to teenagers 15–17 years. Births to older unmarried teenagers, 18–19 years, rose by about 1 percent.

Despite the decline in the total number of births to unmarried teenagers, the percent of all teenage births that occurred to unmarried teenagers was unchanged in 1999 (78.9 percent) compared with 1998. Slight increases in the percent unmarried were found for each teenage

**Table C. Number and percent of births to unmarried women, all ages and women under 20 years: United States, final 1998 and preliminary 1999**

[Figures for 1999 are based on weighted data rounded to the nearest individual]

Age of mother	Number		Percent	
	1999	1998	1999	1998
All ages . . . . .	1,304,594	1,293,567	33.0	32.8
Under 20 years . . . . .	382,655	390,005	78.9	78.9
Under 15 years . . . . .	8,724	9,137	96.4	96.6
15–19 years . . . . .	373,931	380,868	78.6	78.5
15–17 years . . . . .	143,318	151,557	87.6	87.5
18–19 years . . . . .	230,613	229,311	73.9	73.6

subgroup, 15–19 years, even for the 15–17 age group, which reported fewer nonmarital births. The percent unmarried increased slightly for births to teenagers 15–17 years because total births to these teenagers declined even more than nonmarital births. Birth rates for unmarried teenagers for 1999 are not yet available; see Technical notes.

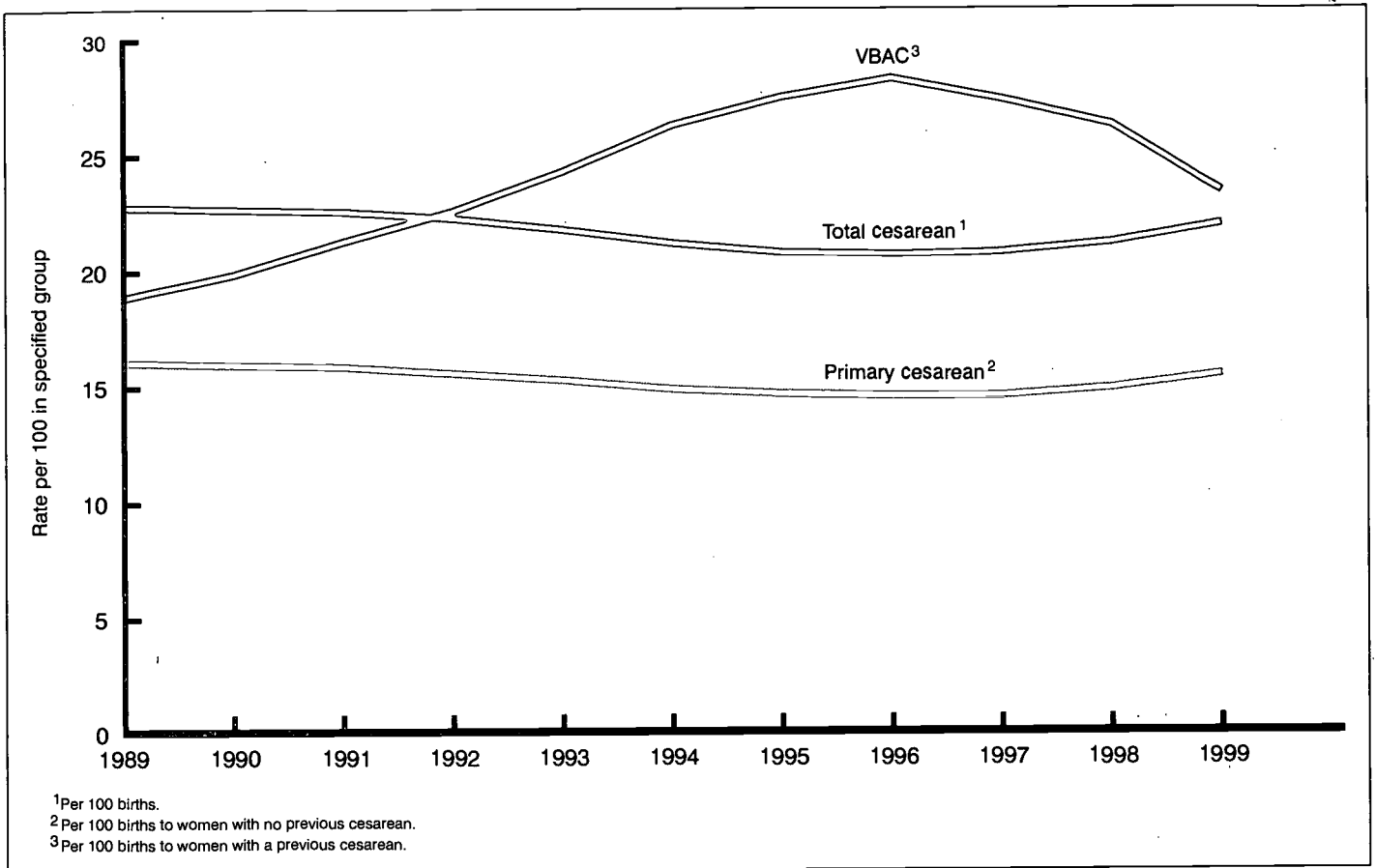
The procedures for reporting mother's marital status did not change in any State between 1998 and 1999 (See table 6 for State data). Connecticut added a direct question on marital status to the birth certificate in June 1998. Previously, Connecticut inferred the mother's marital status from information on the birth certificate (see Technical notes). Because the change in Connecticut was implemented in June 1998 and because Connecticut accounts for only 1 percent of U.S. births, the change has had essentially no impact on the national data or the trends for 1998–99. For 1998 and 1999, birth data on marital status for all but two States are based on a direct question on each State's birth certificate or electronic birth registration system (see Technical notes).

The proportion of **low birthweight** births (LBW) (less than 2,500 grams) was 7.6 percent for 1999, unchanged from the previous year. A gradual upward trend in LBW has been observed since the mid-1980's; during the 1990's, LBW has risen from 7.0 percent (1). See tables A and 7 for 1998 and 1999 data. The percent of births born very low birthweight (VLBW) remained unchanged at 1.45 percent. VLBW has also risen slowly over the last two decades.

The percent LBW was essentially the same for 1998–99 for births to non-Hispanic white (6.6 percent), black (13.1 percent), and Hispanic women (6.4 percent). For the 1990's, LBW rose among non-Hispanic white births, declined among black births, and remained fairly stable among Hispanic births.

The rate of **cesarean delivery** increased 4 percent between 1998 and 1999, from 21.2 per 100 births to 22.0 (tables A and 8). This was the third consecutive increase in the cesarean rate after steady declines between 1989–95 (figure 2). The rate of **primary cesarean delivery** increased for the second consecutive year and was 4 percent higher in 1999 (15.5 per 100 births to women with no previous cesarean) than in 1998 (14.9). The **rate of vaginal births after previous cesarean delivery (VBAC)** fell 11 percent between 1998 and 1999 (from 26.3 per 100 births to women with a previous cesarean to 23.4) and has declined 17 percent since 1996. Between 1989 and 1996 the rate had risen 50 percent (1).

**Cesarean rates increase with maternal age**, from 15.0 for women under age 20 years to 34.7 for women aged 40–54 years. All



**Figure 2. Total and primary cesarean rate and vaginal birth after previous cesarean (VBAC) rate: United States, 1989–99**

age groups experienced increases in cesarean rates between 1998 and 1999, with the percent increases ranging between 3 and 5 percent. The percent increases for older mothers were slightly greater than for their younger counterparts (tabular data not shown).

**Cesarean rates by race and Hispanic origin** show that all groups experienced increases between 1998 and 1999 (table 8). The percent increase in the rate was 4 percent for non-Hispanic white women, and 3 percent each for black and Hispanic women. The rate in 1999 continued to be the highest for black women (23.1 per 100 births), lowest for Hispanic women (21.2) and intermediate for non-Hispanic white women (22.1).

Cesarean rates vary tremendously by State, from 14.8 in Alaska to 27.3 in Mississippi. The vast majority of States—45 and the District of Columbia—experienced increases in their rates between 1998 and 1999 whereas only 2 States declined (Delaware and Montana) and 3 States were unchanged (New Mexico, Utah, and Vermont).

VBAC rates varied from a low of 11.3 in Louisiana to a high of 36.2 in New Hampshire. Rates declined between 1998 and 1999 for 46 States, with 29 States having declines of greater than 10 percent. VBAC rates increased for the District of Columbia, Montana, North Dakota, South Dakota, and Utah (tabular data not shown).

The percent of women beginning prenatal care in the first trimester of pregnancy rose slightly for 1999 to 83.2 percent, compared with 82.8 percent for 1998. This measure of prenatal care has shown steady progress during the 1990's, rising 10 percent since 1989 (5 percent) (1). The percent of women with late (care beginning

in the 3rd trimester of pregnancy) or no care declined slightly from 3.9 to 3.8 percent for 1998–99. The proportion late or no care has dropped from 6.4 percent during the decade. (See tables A and 9 for 1998 and 1999 data.)

For the current year, improvement in prenatal care initiation was observed for each of the racial and ethnic groups: non-Hispanic white, black, and Hispanic women. During the 1990's, first trimester care has risen 7 percent among non-Hispanic white women (from 82.7 to 88.4 percent), 24 percent among black women (from 60.0 to 74.0 percent) and 25 percent among women of Hispanic origin (from 59.5 to 74.5 percent).

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**Table 1. Births and birth rates, by age, race and Hispanic origin of mother: United States, final 1998 and preliminary 1999**

[Data for 1999 are based on a continuous file of records received from the States. Figures for 1999 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age and race/Hispanic origin	1999		1998	
	Number	Rate	Number	Rate
<b>All races</b>				
Total <sup>1</sup> .....	3,957,829	65.8	3,941,553	65.6
10-14 years .....	9,049	0.9	9,462	1.0
15-19 years .....	475,745	49.6	484,895	51.1
15-17 years .....	163,559	28.7	173,231	30.4
18-19 years .....	312,186	80.2	311,664	82.0
20-24 years .....	981,207	111.0	965,122	111.2
25-29 years .....	1,078,350	117.8	1,083,010	115.9
30-34 years .....	892,478	89.6	889,365	87.4
35-39 years .....	433,793	38.3	424,890	37.4
40-44 years .....	82,875	7.4	81,027	7.3
45-54 years <sup>2</sup> .....	4,330	0.4	3,782	0.4
<b>White, total <sup>3</sup></b>				
Total <sup>1</sup> .....	3,130,100	65.0	3,118,727	64.6
10-14 years .....	4,723	0.6	4,801	0.6
15-19 years .....	337,323	44.5	340,694	45.4
15-17 years .....	111,481	24.8	116,623	25.9
18-19 years .....	225,842	73.4	224,071	74.6
20-24 years .....	747,217	106.8	736,664	107.2
25-29 years .....	873,586	121.1	880,688	119.1
30-34 years .....	739,967	93.2	737,532	90.5
35-39 years .....	356,546	38.7	349,799	37.8
40-44 years .....	67,228	7.3	65,485	7.2
45-54 years <sup>2</sup> .....	3,509	0.4	3,064	0.4
<b>White, non-Hispanic</b>				
Total <sup>1</sup> .....	2,349,536	57.9	2,361,462	57.7
10-14 years .....	2,046	0.3	2,132	0.3
15-19 years .....	213,223	34.1	219,169	35.2
15-17 years .....	63,659	17.1	68,619	18.4
18-19 years .....	149,564	59.0	150,550	60.6
20-24 years .....	515,026	90.1	511,101	90.7
25-29 years .....	665,018	111.3	678,227	109.7
30-34 years .....	601,676	90.4	603,639	88.0
35-39 years .....	294,585	37.3	291,202	36.4
40-44 years .....	55,037	6.8	53,480	6.7
45-54 years <sup>2</sup> .....	2,802	0.4	2,388	0.4
<b>Black, total <sup>3</sup></b>				
Total <sup>1</sup> .....	606,720	70.2	609,902	71.0
10-14 years .....	3,981	2.6	4,289	2.9
15-19 years .....	121,262	81.1	126,937	85.4
15-17 years .....	45,979	52.1	50,103	56.8
18-19 years .....	75,283	122.9	76,834	126.9
20-24 years .....	193,483	141.9	189,088	141.9
25-29 years .....	139,175	102.2	139,302	101.8
30-34 years .....	91,596	64.5	93,785	64.7
35-39 years .....	47,244	30.7	46,657	30.5
40-44 years .....	9,562	6.5	9,496	6.7
45-54 years <sup>2</sup> .....	417	0.3	348	0.3
<b>American Indian, total <sup>3,4</sup></b>				
Total <sup>1</sup> .....	40,015	69.4	40,272	70.7
10-14 years .....	203	1.7	197	1.6
15-19 years .....	7,905	67.7	8,201	72.1
15-17 years .....	2,980	41.3	3,167	44.4
18-19 years .....	4,925	110.4	5,034	118.4
20-24 years .....	13,203	136.9	13,046	139.3
25-29 years .....	9,549	101.4	9,529	102.2
30-34 years .....	5,695	64.3	5,930	66.3
35-39 years .....	2,822	30.5	2,795	30.2
40-44 years .....	613	7.0	555	6.4
45-54 years <sup>2</sup> .....	26	0.4	19	0.4

See footnotes at end of table.



**Table 1. Births and birth rates, by age, race and Hispanic origin of mother: United States, final 1998 and preliminary 1999 -Con.**

[Data for 1999 are based on a continuous file of records received from the States. Figures for 1999 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age and race/Hispanic origin	1999		1998	
	Number	Rate	Number	Rate
<b>Asian or Pacific Islander, total <sup>3</sup></b>				
Total <sup>1</sup> .....	180,993	65.7	172,652	64.0
10-14 years .....	142	0.4	175	0.4
15-19 years .....	9,255	22.8	9,063	23.1
15-17 years .....	3,119	12.6	3,338	13.8
18-19 years .....	6,135	38.8	5,725	38.3
20-24 years .....	27,304	70.4	26,324	68.8
25-29 years .....	56,040	116.3	53,491	110.4
30-34 years .....	55,220	109.2	52,118	105.1
35-39 years .....	27,182	54.6	25,639	52.8
40-44 years .....	5,472	11.5	5,491	12.0
45-54 years <sup>2</sup> .....	379	0.9	351	0.9
<b>Hispanic <sup>5</sup></b>				
Total <sup>1</sup> .....	762,364	101.8	734,661	101.1
10-14 years .....	2,721	2.0	2,716	2.1
15-19 years .....	124,352	93.1	121,388	93.6
15-17 years .....	48,127	61.2	48,234	62.3
18-19 years .....	76,226	139.0	73,154	140.1
20-24 years .....	230,881	178.3	223,113	178.4
25-29 years .....	203,399	162.6	196,012	160.2
30-34 years .....	131,134	102.1	125,702	98.9
35-39 years .....	57,926	46.2	54,195	44.9
40-44 years .....	11,430	10.7	11,056	10.8
45-54 years <sup>2</sup> .....	519	0.6	479	0.6

\* Figure does not meet standards of reliability or precision.

<sup>1</sup> The total number includes births to women of all ages, 10-54 years. The rate shown for all ages is the fertility rate, which is defined as the total number of births, regardless of age of mother, per 1,000 women aged 15-44 years.

<sup>2</sup> The number of births shown is the total for women aged 45-54 years. The birth rate is computed by relating the number of births to women aged 45-54 years to women aged 45-49 years, because most of the births in this group are to women aged 45-49.

<sup>3</sup> Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are also included in the data for each race group, according to the mother's reported race; see Technical notes.

<sup>4</sup> Includes births to Aleuts and Eskimos.

<sup>5</sup> Includes all persons of Hispanic origin of any race; see Technical notes.

NOTE: Data are subject to sampling and/or random variation. For information on the relative standard errors of the data and further discussion, see Technical notes.

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**Table 2. Live births by age of mother, live-birth order, and race and Hispanic origin of mother: United States, preliminary 1999**

[Data are based on a continuous file of records received from the States. Figures are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Live-birth order and race/Hispanic origin of mother	All ages	Age of mother							
		Under 15 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-54 years
All races .....	3,957,829	9,049	475,745	981,207	1,078,350	892,478	433,793	82,875	4,330
1st child .....	1,587,971	8,818	370,749	448,102	392,762	253,327	95,585	17,577	1,051
2d child .....	1,285,974	160	85,455	338,720	373,887	322,390	141,258	23,118	987
3d child .....	652,380	8	14,643	137,232	194,879	186,292	101,369	17,200	757
4th child and over .....	413,012	1	2,148	52,762	112,263	126,464	93,376	24,499	1,499
Not stated .....	18,491	62	2,750	4,391	4,559	4,006	2,205	481	37
White, total <sup>1</sup> .....	3,130,100	4,723	337,323	747,217	873,586	739,967	356,546	67,228	3,509
1st child .....	1,261,393	4,607	268,489	355,369	326,633	211,308	79,472	14,610	905
2d child .....	1,034,704	72	57,139	260,979	309,448	271,040	116,263	18,950	813
3d child .....	516,212	3	8,461	96,764	155,646	156,369	84,531	13,827	610
4th child and over .....	302,888	-	1,038	30,636	78,224	97,918	74,464	19,451	1,156
Not stated .....	14,903	41	2,196	3,469	3,635	3,331	1,816	390	25
White, non-Hispanic .....	2,349,536	2,046	213,223	515,026	665,018	601,676	294,585	55,037	2,924
1st child .....	972,697	2,017	174,829	256,339	270,788	184,899	70,065	12,950	809
2d child .....	796,235	22	32,840	177,890	237,628	229,669	100,916	16,543	726
3d child .....	373,019	-	4,218	61,682	106,704	119,710	68,867	11,322	516
4th child and over .....	199,202	-	459	17,484	47,774	65,180	53,495	13,952	857
Not stated .....	8,383	6	877	1,631	2,124	2,217	1,242	269	16
Black, total <sup>1</sup> .....	606,720	3,981	121,262	193,483	139,175	91,596	47,244	9,562	417
1st child .....	228,479	3,868	88,746	71,573	34,648	19,725	8,315	1,541	65
2d child .....	179,729	88	25,359	65,573	44,331	28,542	13,492	2,257	87
3d child .....	106,375	4	5,658	35,744	31,135	20,759	10,918	2,081	76
4th child and over .....	89,620	1	1,020	19,879	28,453	22,153	14,304	3,626	184
Not stated .....	2,517	21	479	715	607	418	216	57	5
American Indian, total <sup>1,2</sup> .....	40,015	203	7,905	13,203	9,549	5,695	2,822	613	26
1st child .....	14,395	203	6,035	4,907	1,946	882	354	64	4
2d child .....	10,904	-	1,540	4,681	2,721	1,320	539	95	8
3d child .....	7,003	-	259	2,414	2,385	1,267	563	113	2
4th child and over .....	7,522	-	30	1,143	2,452	2,203	1,346	337	12
Not stated .....	192	-	41	58	44	24	20	4	-
Asian or Pacific Islander, total <sup>1</sup> .....	180,993	142	9,255	27,304	56,040	55,220	27,182	5,472	379
1st child .....	83,705	141	7,480	16,254	29,534	21,412	7,444	1,363	77
2d child .....	60,636	-	1,416	7,487	17,387	21,488	10,964	1,815	79
3d child .....	22,790	1	265	2,311	5,713	7,897	5,357	1,178	68
4th child and over .....	12,983	-	60	1,103	3,134	4,190	3,263	1,086	147
Not stated .....	879	-	34	149	273	233	154	29	7
Hispanic <sup>3</sup> .....	762,364	2,721	124,352	230,881	203,399	131,134	57,926	11,430	519
1st child .....	282,364	2,633	93,964	98,610	53,337	23,968	8,341	1,435	76
2d child .....	232,287	52	24,412	82,612	70,370	38,530	14,056	2,175	80
3d child .....	140,947	3	4,255	35,040	48,555	35,721	14,875	2,412	85
4th child and over .....	102,216	-	577	13,139	30,159	32,322	20,385	5,360	274
Not stated .....	4,550	33	1,145	1,480	979	593	269	48	3

- Quantity zero.

<sup>1</sup> Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race; see Technical notes.

<sup>2</sup> Includes births to Aleuts and Eskimos.

<sup>3</sup> Includes all persons of Hispanic origin of any race; see Technical notes.

NOTE: Data are subject to sampling and/or random variation. For information on the relative standard errors of the data and further discussion, see Technical notes.

**Table 3. Birth rates by age of mother, live-birth order, and race and Hispanic origin of mother: United States, preliminary 1999**

[Data are based on a continuous file of records received from the States. Rates per 1,000 women in specified age and racial group]

Live-birth order and race/Hispanic origin of mother	Age of mother								
	15-44 years <sup>1</sup>	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years <sup>2</sup>
All races .....	65.8	0.9	49.6	111.0	117.8	89.6	38.3	7.4	0.4
1st child .....	26.5	0.9	38.9	50.9	43.1	25.6	8.5	1.6	0.1
2d child .....	21.5	0.0	9.0	38.5	41.0	32.5	12.5	2.1	0.1
3d child .....	10.9	*	1.5	15.6	21.4	18.8	9.0	1.5	0.1
4th child and over .....	6.9	*	0.2	6.0	12.3	12.8	8.3	2.2	0.2
White, total <sup>3</sup> .....	65.0	0.6	44.5	106.8	121.1	93.2	38.7	7.3	0.4
1st child .....	26.3	0.6	35.7	51.0	45.5	26.7	8.7	1.6	0.1
2d child .....	21.6	0.0	7.6	37.5	43.1	34.3	12.7	2.1	0.1
3d child .....	10.8	*	1.1	13.9	21.7	19.8	9.2	1.5	0.1
4th child and over .....	6.3	*	0.1	4.4	10.9	12.4	8.1	2.1	0.1
White, non-Hispanic .....	57.9	0.3	34.1	90.1	111.3	90.4	37.3	6.8	0.4
1st child .....	24.0	0.3	28.1	44.9	45.4	27.9	8.9	1.6	0.1
2d child .....	19.7	0.0	5.3	31.2	39.8	34.7	12.8	2.1	0.1
3d child .....	9.2	*	0.7	10.8	17.9	18.0	8.7	1.4	0.1
4th child and over .....	4.9	*	0.1	3.1	8.1	9.8	6.8	1.7	0.1
Black, total <sup>3</sup> .....	70.2	2.6	81.1	141.9	102.2	64.5	30.7	6.5	0.3
1st child .....	26.6	2.6	59.6	52.7	25.5	14.0	5.4	1.1	0.1
2d child .....	20.9	0.1	17.0	48.3	32.7	20.2	8.8	1.6	0.1
3d child .....	12.4	*	3.8	26.3	23.0	14.7	7.1	1.4	0.1
4th child and over .....	10.4	*	0.7	14.6	21.0	15.7	9.3	2.5	0.2
American Indian, total <sup>3,4</sup> .....	69.4	1.7	67.7	136.9	101.4	64.3	30.5	7.0	0.4
1st child .....	25.1	1.7	52.0	51.1	20.8	10.0	3.8	0.7	*
2d child .....	19.0	*	13.3	48.7	29.0	15.0	5.9	1.1	*
3d child .....	12.2	*	2.2	25.1	25.4	14.4	6.1	1.3	*
4th child and over .....	13.1	*	0.3	11.9	26.2	25.0	14.6	3.8	*
Asian or Pacific Islander, total <sup>3</sup> ...	65.7	0.4	22.8	70.4	116.3	109.2	54.6	11.5	0.9
1st child .....	30.5	0.4	18.5	42.2	61.6	42.5	15.0	2.9	0.2
2d child .....	22.1	*	3.5	19.4	36.3	42.7	22.1	3.8	0.2
3d child .....	8.3	*	0.7	6.0	11.9	15.7	10.8	2.5	0.2
4th child and over .....	4.7	*	0.1	2.9	6.5	8.3	6.6	2.3	0.4
Hispanic <sup>5</sup> .....	101.8	2.0	93.1	178.3	162.6	102.1	46.2	10.7	0.6
1st child .....	37.9	2.0	71.0	76.6	42.8	18.7	6.7	1.3	0.1
2d child .....	31.2	0.0	18.5	64.2	56.5	30.1	11.3	2.0	0.1
3d child .....	18.9	*	3.2	27.2	39.0	27.9	11.9	2.3	0.1
4th child and over .....	13.7	*	0.4	10.2	24.2	25.3	16.3	5.0	0.3

0.0 Quantity more than zero but less than 0.05.

\* Figure does not meet standards of reliability or precision.

<sup>1</sup> The rate shown is the fertility rate, which is defined as the total number of births, regardless of age of mother, per 1,000 women aged 15-44 years.<sup>2</sup> The birth rate for ages 45-49 years is computed by relating births to women aged 45-54 years to women aged 45-49 years, because most of the births in this group are to women aged 45-49.<sup>3</sup> Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race; see Technical notes.<sup>4</sup> Includes births to Aleuts and Eskimos.<sup>5</sup> Includes all persons of Hispanic origin of any race; see Technical notes.

NOTE: Data are subject to sampling and/or random variation. For information on the relative standard errors of the data and further discussion, see Technical notes.

**Table 4. Live births by race and Hispanic origin of mother: United States, each State, and territory, preliminary 1999, and birth and fertility rates, final 1998 and preliminary 1999**

[By place of residence. Data are based on a continuous file of records received from the States. Birth rates are total births per 1,000 total population; fertility rates are total births per 1,000 women aged 15-44 years. Figures for 1999 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Area	Number							Birth rate		Fertility rate	
	All races	White, total <sup>1</sup>	White, non-Hispanic	Black <sup>1</sup>	American Indian <sup>1,2</sup>	Asian or Pacific Islander <sup>1</sup>	Hispanic <sup>3</sup>	1999	1998	1999	1998
United States <sup>4</sup>	3,957,829	3,130,100	2,349,536	606,720	40,015	180,993	762,364	14.5	14.6	65.8	65.6
Alabama	62,123	41,729	40,182	19,771	158	466	1,586	14.2	14.3	63.3	63.2
Alaska	9,953	6,529	6,063	460	2,485	478	595	16.1	16.2	74.3	73.1
Arizona	81,225	71,125	39,299	2,803	5,388	1,909	31,845	17.0	16.8	81.1	78.2
Arkansas	36,832	28,476	26,521	7,717	241	398	1,973	14.4	14.5	67.8	67.5
California	518,229	420,188	172,219	35,991	3,262	58,788	249,247	15.6	16.0	69.4	70.7
Colorado	62,161	56,706	40,700	2,900	645	1,910	16,284	15.3	15.0	69.7	67.2
Connecticut	43,471	36,502	28,420	5,314	81	1,573	6,341	13.2	13.4	62.1	61.3
Delaware	10,675	7,678	6,865	2,688	34	275	853	14.2	14.2	61.7	61.2
District of Columbia	7,523	1,687	1,411	5,662	6	168	790	14.5	14.7	60.0	60.8
Florida	197,014	146,663	106,370	45,095	853	4,403	41,487	13.0	13.1	65.1	65.1
Georgia	126,744	81,140	69,957	42,113	222	3,269	10,566	16.3	16.0	68.8	67.2
Hawaii	17,047	4,001	3,347	460	202	12,384	2,211	14.4	14.7	68.8	69.6
Idaho	19,871	19,211	16,809	77	299	283	2,357	15.9	15.8	73.2	72.3
Illinois	182,174	140,805	103,986	34,254	209	6,907	36,942	15.0	15.2	68.1	68.3
Indiana	86,040	75,448	70,885	9,323	114	1,155	4,384	14.5	14.4	65.2	64.3
Iowa	37,541	35,348	33,249	1,165	205	823	1,844	13.1	13.0	62.2	61.4
Kansas	38,788	34,611	30,035	2,858	367	951	4,275	14.6	14.6	67.5	67.1
Kentucky	54,344	48,747	47,807	4,959	101	536	937	13.7	13.8	61.4	61.6
Louisiana	66,913	38,408	36,819	27,225	324	955	1,527	15.3	15.3	67.5	66.7
Maine	13,615	13,241	12,448	106	99	169	135	10.9	11.0	49.4	49.7
Maryland	72,207	44,296	40,520	24,568	196	3,147	4,105	14.0	14.0	60.6	60.1
Massachusetts	80,998	68,218	60,797	8,292	152	4,336	8,794	13.1	13.2	58.5	58.5
Michigan	133,562	105,293	91,806	24,057	702	3,509	6,232	13.5	13.6	60.7	60.4
Minnesota	65,966	57,491	50,965	4,034	1,181	3,260	3,299	13.8	13.8	62.6	61.8
Mississippi	42,694	22,668	22,134	19,417	226	383	449	15.4	15.6	67.9	68.3
Missouri	75,352	62,531	60,335	11,253	332	1,236	2,262	13.8	13.9	62.9	62.9
Montana	10,789	9,387	8,974	35	1,268	97	316	12.2	12.3	59.8	59.0
Nebraska	23,907	21,727	18,921	1,281	425	474	2,273	14.3	14.2	66.6	65.2
Nevada	29,357	24,975	15,573	2,223	438	1,722	9,267	16.2	16.4	78.3	77.9
New Hampshire	14,071	13,657	12,780	139	29	247	357	11.7	12.2	51.0	52.3
New Jersey	114,097	84,103	65,288	21,385	192	8,417	21,045	14.0	14.1	64.5	64.3
New Mexico	27,065	22,791	9,149	497	3,407	370	13,773	15.6	15.7	71.9	72.2
New York	258,412	186,128	126,312	53,798	696	17,789	53,269	14.2	14.2	64.3	63.9
North Carolina	113,800	81,232	71,502	28,446	1,678	2,445	9,819	14.9	14.8	67.6	66.6
North Dakota	7,637	6,742	6,463	86	730	79	121	12.1	12.4	57.3	58.3
Ohio	150,292	126,636	122,980	21,020	281	2,355	3,371	13.4	13.6	60.5	61.2
Oklahoma	49,054	38,628	34,179	4,649	4,907	870	3,916	14.6	14.8	69.0	69.0
Oregon	45,205	41,410	34,251	905	709	2,180	6,902	13.6	13.8	64.8	64.7
Pennsylvania	145,497	121,063	113,733	20,608	338	3,488	7,191	12.1	12.2	57.4	56.9
Rhode Island	12,356	10,796	7,400	967	149	444	1,858	12.5	12.7	57.1	57.5
South Carolina	54,984	34,987	33,333	19,103	159	734	1,721	14.2	14.0	62.2	61.3
South Dakota	10,523	8,669	8,504	89	1,664	101	178	14.4	13.9	67.7	65.1
Tennessee	77,839	59,998	57,607	16,537	142	1,162	2,434	14.2	14.3	63.5	63.1
Texas	346,774	297,150	140,486	38,883	806	9,934	156,207	17.3	17.3	77.1	76.2
Utah	46,289	44,033	38,548	270	618	1,367	5,426	21.7	21.5	93.1	91.4
Vermont	6,565	6,469	6,297	40	10	45	39	11.1	11.1	49.2	49.1
Virginia	95,538	68,199	62,097	22,498	153	4,688	6,528	13.9	13.9	59.7	59.1
Washington	79,603	68,227	55,437	3,363	1,881	6,131	10,360	13.8	14.0	62.1	62.3
West Virginia	20,764	19,828	19,710	752	10	174	96	11.5	11.5	54.8	53.7
Wisconsin	68,216	58,777	54,833	6,509	971	1,960	4,044	13.0	12.9	59.4	58.5
Wyoming	6,135	5,745	5,230	73	268	49	530	12.8	13.0	60.8	60.9
Puerto Rico	59,571	54,556	---	5,016	---	---	---	15.3	15.7	65.3	66.8
Virgin Islands	1,669	303	99	1,295	66	5	299	14.0	15.2	64.2	69.6
Guam	4,015	315	284	51	2	3,646	46	26.4	29.0	129.1	139.0
American Samoa	---	---	---	---	---	---	---	---	27.2	---	124.6
Northern Marianas	---	---	---	---	---	---	---	---	21.9	---	65.0

--- Data not available.

<sup>1</sup> Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race; see Technical notes.

<sup>2</sup> Includes births to Aleuts and Eskimos.

<sup>3</sup> Includes all persons of Hispanic origin of any race; see Technical notes.

<sup>4</sup> Excludes data for the territories.

NOTE: Data are subject to sampling and/or random variation. For information on the relative standard errors of the data and further discussion, see Technical notes.

**Table 5. Percent of live births to mothers under 20 years of age by race and Hispanic origin of mother: United States, each State and territory, final 1998 and preliminary 1999**

[By place of residence. Data are based on a continuous file of records received from the States]

Area	All races <sup>1</sup>		White, total <sup>2</sup>		White, non-Hispanic		Black, total <sup>2</sup>		Hispanic <sup>3</sup>	
	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998
United States <sup>4</sup>	12.2	12.5	10.9	11.1	9.2	9.4	20.6	21.5	16.7	16.9
Alabama	16.2	17.1	12.9	13.3	12.7	13.3	23.5	25.2	17.0	14.2
Alaska	11.5	11.2	8.5	8.9	8.6	8.7	17.4	13.5	11.1	12.0
Arizona	14.8	15.1	14.4	14.6	10.0	10.1	22.6	22.2	20.1	20.7
Arkansas	17.8	18.6	15.3	15.9	15.2	15.9	27.5	28.4	16.6	15.9
California	11.1	11.4	11.5	11.7	6.5	6.9	16.2	16.9	15.0	15.2
Colorado	11.8	12.1	11.6	11.7	8.1	8.2	18.5	20.8	20.5	21.4
Connecticut	8.0	8.3	7.0	7.0	4.2	4.1	16.0	17.8	21.1	21.6
Delaware	13.3	13.1	10.0	9.5	9.3	8.6	23.5	24.9	16.6	17.0
District of Columbia	14.8	15.3	2.6	5.7	*	1.5	18.7	19.3	13.4	12.6
Florida	12.9	13.2	10.8	10.9	10.1	10.4	20.6	21.5	12.7	12.5
Georgia	14.6	15.0	11.9	12.0	11.5	11.7	20.4	21.4	15.2	15.0
Hawaii	10.4	10.7	5.1	5.0	4.4	4.1	8.9	9.1	18.9	18.7
Idaho	12.2	12.8	12.1	12.7	11.0	11.7	*	*	19.9	20.3
Illinois	12.0	12.4	9.4	9.5	7.3	7.5	24.6	25.6	15.4	15.7
Indiana	13.2	13.8	12.0	12.5	11.7	12.2	24.0	25.6	16.5	18.2
Iowa	10.6	10.6	10.2	10.2	9.8	9.7	24.5	25.3	18.0	18.2
Kansas	12.8	12.6	11.9	11.7	11.0	10.8	25.1	25.3	18.6	18.6
Kentucky	15.0	15.4	14.4	14.6	14.3	14.7	22.6	24.5	15.6	12.5
Louisiana	17.6	18.4	12.6	12.9	12.7	12.9	25.0	26.5	10.9	12.4
Maine	9.7	9.8	9.7	9.7	9.3	9.5	*	*	15.6	*
Maryland	10.3	10.2	7.0	7.0	6.6	6.6	17.3	17.2	11.4	10.9
Massachusetts	6.9	7.2	6.3	6.6	4.5	4.9	13.0	14.0	19.7	20.5
Michigan	11.1	11.6	9.2	9.6	8.2	8.7	20.1	21.0	18.4	18.8
Minnesota	8.5	8.6	7.0	7.1	6.6	6.8	19.4	21.2	18.1	17.9
Mississippi	19.7	20.0	14.1	14.1	14.1	14.1	26.5	27.3	14.4	15.1
Missouri	13.5	13.8	11.9	12.1	11.7	12.0	23.1	23.9	16.0	16.6
Montana	11.7	12.3	10.2	10.7	9.9	10.4	*	*	17.3	21.4
Nebraska	10.5	10.6	9.4	9.7	8.5	8.7	26.5	23.0	16.8	16.8
Nevada	13.1	13.1	12.5	12.7	10.4	10.5	22.3	20.1	16.1	16.7
New Hampshire	7.1	7.7	7.2	7.7	6.9	7.4	*	*	14.0	16.4
New Jersey	7.3	7.7	5.6	5.7	3.2	3.2	16.3	18.1	14.3	14.6
New Mexico	17.9	18.2	18.0	18.2	11.3	11.7	21.4	24.0	22.5	23.0
New York	8.6	8.8	7.5	7.7	5.2	5.3	14.2	14.5	14.1	14.7
North Carolina	13.5	14.0	11.0	11.1	10.2	10.4	20.8	22.0	16.6	17.1
North Dakota	9.3	9.8	8.0	8.3	7.7	8.0	*	*	17.4	14.5
Ohio	12.6	13.0	11.0	11.1	10.8	10.9	23.4	24.4	19.3	19.8
Oklahoma	16.2	16.3	14.8	14.7	14.4	14.2	23.5	23.5	19.0	20.3
Oregon	12.3	12.5	12.3	12.4	11.2	11.5	20.8	21.4	17.8	17.3
Pennsylvania	10.3	10.3	8.4	8.5	7.5	7.5	22.1	22.3	23.3	24.1
Rhode Island	9.7	10.5	8.8	9.6	7.1	7.9	15.4	16.9	16.3	18.9
South Carolina	15.8	16.0	12.1	12.0	11.8	11.9	23.0	23.5	17.4	13.6
South Dakota	11.3	12.0	8.7	9.5	8.6	9.5	*	*	14.6	16.3
Tennessee	15.4	15.9	13.4	13.5	13.3	13.4	23.1	24.7	16.3	16.0
Texas	15.9	16.1	15.5	15.6	11.1	11.3	21.8	22.4	19.6	19.6
Utah	9.3	9.8	9.1	9.7	8.0	8.5	20.4	19.9	17.0	19.0
Vermont	8.5	7.9	8.5	7.9	8.4	7.7	*	*	*	*
Virginia	10.6	10.8	8.2	8.4	7.9	8.1	19.5	19.7	11.8	11.2
Washington	10.8	10.9	10.6	10.7	9.4	9.6	16.8	18.5	17.9	17.7
West Virginia	14.8	15.7	14.5	15.4	14.5	15.4	24.6	25.3	22.9	*
Wisconsin	10.7	10.5	8.4	8.1	7.7	7.4	28.0	28.3	19.2	19.4
Wyoming	13.9	16.2	13.8	15.8	13.2	15.0	*	*	19.4	24.0
Puerto Rico	19.9	20.5	19.8	20.3	---	---	20.9	22.8	---	---
Virgin Islands	16.3	17.8	16.5	19.9	*	*	16.8	17.6	18.1	25.2
Guam	14.6	14.2	6.6	6.3	7.3	*	*	*	*	*
American Samoa	---	7.6	---	*	---	---	---	*	---	---
Northern Marianas	---	11.1	---	*	---	---	---	*	---	---

\* Figure does not meet standards of reliability or precision.

--- Data not available.

<sup>1</sup> Includes races other than white and black.<sup>2</sup> Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race; see Technical notes.<sup>3</sup> Includes all persons of Hispanic origin of any race; see Technical notes.<sup>4</sup> Excludes data for territories.

**Table 6. Percent of live births to unmarried mothers by race and Hispanic origin of mother: United States, each State and territory, final 1998 and preliminary 1999**

[By place of residence. Data are based on a continuous file of records received from the States]

Area	All races <sup>1</sup>		White, total <sup>2</sup>		White, non-Hispanic		Black, total <sup>2</sup>		Hispanic <sup>3</sup>	
	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998
United States <sup>4</sup> .....	33.0	32.8	26.7	26.3	22.0	21.9	68.8	69.1	42.1	41.6
Alabama .....	33.3	34.1	17.2	17.3	16.9	17.1	67.8	69.3	26.5	23.0
Alaska .....	33.1	31.1	23.0	21.8	22.7	21.3	45.9	39.7	31.8	28.8
Arizona .....	38.7	38.4	36.0	35.5	24.8	24.9	63.5	62.9	50.4	49.7
Arkansas .....	35.2	35.0	24.7	24.1	24.0	23.5	74.5	74.4	35.0	34.0
California .....	32.9	32.8	32.7	32.5	20.7	21.4	62.0	61.9	41.3	40.7
Colorado .....	25.4	25.6	24.1	24.1	18.4	18.5	54.6	54.6	38.8	39.8
Connecticut .....	28.9	31.2	24.2	26.0	16.6	18.4	66.9	68.7	62.5	64.1
Delaware .....	38.9	37.1	28.0	25.9	25.4	23.4	72.8	72.6	51.4	48.1
District of Columbia ...	61.7	62.9	14.2	23.3	8.2	8.2	77.2	79.0	54.0	50.7
Florida .....	37.5	36.6	29.0	27.9	26.1	25.7	67.1	67.1	37.3	34.7
Georgia .....	36.6	36.2	21.9	20.7	20.0	19.5	66.7	67.1	35.4	32.3
Hawaii .....	32.7	31.5	17.6	15.5	16.6	14.5	24.8	22.1	45.4	45.4
Idaho .....	21.6	22.0	21.1	21.3	19.7	19.6	41.6	40.2	31.3	32.1
Illinois .....	34.1	34.1	24.9	24.2	19.3	19.2	77.1	77.9	40.8	39.4
Indiana .....	34.5	33.5	29.5	28.4	28.5	27.7	77.0	77.2	45.4	42.2
Iowa .....	27.5	27.2	26.0	25.8	25.2	24.9	71.2	72.3	40.2	41.0
Kansas .....	28.6	27.8	25.4	24.4	23.7	22.7	69.1	69.0	38.8	38.7
Kentucky .....	30.3	30.1	26.1	26.1	26.0	26.0	73.0	71.5	31.6	28.8
Louisiana .....	44.8	44.9	25.1	24.4	24.9	24.2	73.6	74.2	30.7	31.9
Maine .....	31.3	30.6	31.1	30.3	30.5	30.1	49.1	49.5	35.6	32.8
Maryland .....	34.9	34.4	21.6	21.4	19.9	19.9	62.0	61.7	40.5	37.8
Massachusetts .....	26.5	26.1	23.1	22.9	18.7	18.6	59.3	58.4	61.3	60.0
Michigan .....	33.1	33.9	24.6	25.1	22.8	23.4	72.7	74.7	41.4	42.0
Minnesota .....	25.8	25.6	22.3	22.1	21.5	21.5	61.8	65.8	47.2	47.8
Mississippi .....	46.0	45.4	21.0	20.4	20.7	20.2	75.4	75.5	33.3	31.0
Missouri .....	34.1	34.1	26.7	26.5	26.2	26.1	76.5	77.0	39.5	37.8
Montana .....	29.7	29.9	24.3	25.1	23.8	24.4	50.0	50.0	38.8	39.6
Nebraska .....	25.9	26.2	22.7	23.1	20.5	21.1	69.8	68.9	40.9	39.3
Nevada .....	35.7	35.0	33.2	32.5	28.5	27.6	68.0	66.1	41.4	41.2
New Hampshire .....	24.2	24.1	24.3	24.0	23.5	23.5	37.4	44.8	40.9	37.9
New Jersey .....	28.2	28.3	21.1	20.8	12.8	12.8	64.6	65.8	50.6	49.9
New Mexico .....	45.0	44.0	41.3	40.0	26.6	25.7	63.3	60.9	51.2	50.2
New York .....	36.5	34.9	29.4	27.5	19.1	17.5	67.9	66.3	60.0	57.9
North Carolina .....	33.2	32.8	21.8	20.8	19.1	18.6	66.4	66.7	41.7	40.7
North Dakota .....	27.5	27.0	22.9	22.4	22.6	22.1	26.7	28.7	33.9	29.6
Ohio .....	34.0	34.0	27.4	26.8	26.9	26.2	76.1	76.7	47.7	49.1
Oklahoma .....	32.9	33.2	27.0	27.3	26.0	26.5	70.5	69.1	36.4	35.5
Oregon .....	30.4	29.7	29.9	28.9	28.0	27.2	63.0	65.4	39.6	38.3
Pennsylvania .....	32.9	32.8	25.9	25.7	23.6	23.6	77.7	77.5	61.8	61.1
Rhode Island .....	33.3	33.9	29.9	30.6	24.8	25.6	64.9	66.4	55.2	57.2
South Carolina .....	39.0	38.8	22.3	22.1	21.6	21.6	70.6	69.9	37.1	35.5
South Dakota .....	31.8	32.0	23.6	23.2	23.4	22.9	36.0	37.6	34.3	42.5
Tennessee .....	34.6	34.9	24.3	24.1	23.7	23.7	73.3	73.8	37.9	37.5
Texas .....	31.0	31.5	27.6	27.8	20.0	20.0	62.3	63.0	34.6	35.1
Utah .....	16.7	17.1	16.0	16.3	12.9	13.5	51.1	49.3	37.7	38.6
Vermont .....	29.0	28.0	28.9	27.9	28.7	27.6	55.0	55.0	37.7	37.7
Virginia .....	29.8	29.8	20.5	20.1	18.8	18.7	62.4	63.6	37.6	36.4
Washington .....	26.5	27.9	25.1	26.4	23.2	24.5	50.5	54.4	36.3	38.3
West Virginia .....	31.7	32.4	30.2	30.8	30.1	30.8	77.7	76.7	39.5	32.3
Wisconsin .....	29.2	28.5	23.2	22.4	21.8	21.0	83.5	82.1	43.8	44.9
Wyoming .....	29.1	29.6	27.2	27.9	26.0	26.5	54.1	50.0	40.2	42.6
Puerto Rico .....	47.9	47.0	46.6	45.7	---	---	61.4	62.7	---	---
Virgin Islands .....	67.1	69.6	51.3	57.4	28.3	42.1	73.4	74.3	66.6	66.8
Guam .....	55.9	54.2	20.2	19.3	18.9	19.2	40.5	40.5	---	---
American Samoa .....	---	34.2	---	---	---	---	---	---	---	---
Northern Marianas .....	---	45.6	---	---	---	---	---	---	---	---

\* Figure does not meet standards of reliability or precision.

--- Data not available.

<sup>1</sup> Includes races other than white and black.<sup>2</sup> Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race; see Technical notes.<sup>3</sup> Includes all persons of Hispanic origin of any race; see Technical notes.<sup>4</sup> Excludes data for the territories.

E: Data are subject to sampling and/or random variation. For information on the relative standard errors of the data and further discussion, see Technical notes.

**Table 7. Percent low birthweight by race and Hispanic origin of mother: United States, each State and territory, final 1998 and preliminary 1999**

[By place of residence. Data are based on a continuous file of records received from the States. Low birthweight is less than 2,500 grams]

Area	All races <sup>1</sup>		White, total <sup>2</sup>		White, non-Hispanic		Black, total <sup>2</sup>		Hispanic <sup>3</sup>	
	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998
United States <sup>4</sup> .....	7.6	7.6	6.6	6.5	6.6	6.6	13.1	13.0	6.4	6.4
Alabama .....	9.3	9.3	7.3	7.3	7.3	7.4	13.6	13.3	6.6	5.9
Alaska .....	5.8	6.0	5.3	5.6	5.2	5.6	10.7	10.5	6.6	6.4
Arizona .....	7.0	6.8	6.7	6.6	6.5	6.6	12.3	12.2	7.0	6.6
Arkansas .....	8.6	8.9	7.4	7.5	7.5	7.6	13.0	13.9	5.8	6.6
California .....	6.1	6.2	5.5	5.7	5.6	5.8	11.6	11.6	5.5	5.6
Colorado .....	8.3	8.6	8.0	8.3	8.0	8.3	13.7	13.3	8.2	8.4
Connecticut .....	7.6	7.8	6.8	7.0	6.3	6.5	13.2	13.3	9.0	9.7
Delaware .....	8.6	8.4	6.9	6.2	6.8	6.1	13.7	14.8	6.9	7.7
District of Columbia ...	13.1	13.1	6.2	5.9	6.7	5.7	15.3	15.8	6.1	5.9
Florida .....	8.2	8.1	6.9	6.8	7.1	6.9	12.2	12.2	6.4	6.5
Georgia .....	8.7	8.5	6.7	6.4	6.8	6.6	12.7	12.7	5.8	5.3
Hawaii .....	7.5	7.5	5.5	6.2	5.2	6.2	9.6	10.7	7.9	7.7
Idaho .....	6.2	6.0	6.1	6.0	6.1	5.9	•	•	6.0	6.8
Illinois .....	8.0	8.0	6.5	6.4	6.5	6.5	14.2	14.2	6.4	6.3
Indiana .....	7.9	7.9	7.2	7.2	7.3	7.3	12.9	13.5	6.7	6.9
Iowa .....	6.2	6.4	5.9	6.2	5.9	6.2	12.7	12.8	5.6	6.1
Kansas .....	7.1	7.0	6.7	6.5	6.8	6.6	12.1	13.0	6.2	5.9
Kentucky .....	8.2	8.1	7.6	7.6	7.6	7.6	13.9	13.5	6.5	6.9
Louisiana .....	10.0	10.1	6.9	7.0	7.0	7.0	14.4	14.6	6.3	7.3
Maine .....	6.0	5.8	6.0	5.8	6.1	5.9	•	•	•	•
Maryland .....	9.0	8.7	6.7	6.4	6.7	6.4	13.5	13.0	7.2	6.1
Massachusetts .....	7.1	6.9	6.6	6.5	6.4	6.3	10.8	10.2	8.2	7.8
Michigan .....	8.1	7.8	6.6	6.4	6.5	6.3	14.7	13.8	6.8	6.6
Minnesota .....	6.1	5.8	5.6	5.4	5.7	5.6	11.0	11.0	6.0	5.7
Mississippi .....	10.3	10.1	7.4	7.2	7.4	7.3	13.8	13.7	6.3	•
Missouri .....	7.7	7.8	6.7	6.7	6.7	6.7	13.7	14.0	5.8	6.3
Montana .....	6.8	7.0	6.8	6.9	6.9	6.8	•	•	•	7.4
Nebraska .....	6.7	6.5	6.4	6.2	6.4	6.1	12.8	12.2	6.7	6.6
Nevada .....	7.6	7.6	7.1	6.9	7.6	7.3	12.2	13.3	6.1	6.3
New Hampshire .....	6.2	5.7	6.2	5.6	5.9	5.5	•	•	7.3	•
New Jersey .....	8.1	8.0	6.8	6.7	6.7	6.4	13.0	13.3	7.1	7.4
New Mexico .....	7.7	7.6	7.7	7.7	7.7	8.1	12.4	11.4	7.6	7.5
New York .....	7.8	7.8	6.7	6.7	6.5	6.3	11.7	11.9	7.6	7.8
North Carolina .....	8.9	8.8	7.2	7.0	7.3	7.1	13.7	13.9	6.4	6.2
North Dakota .....	6.2	6.5	6.2	6.5	6.3	6.5	•	•	•	•
Ohio .....	7.7	7.7	6.8	6.7	6.7	6.7	13.4	13.2	7.3	7.7
Oklahoma .....	7.4	7.2	7.1	6.6	7.2	6.7	11.8	12.5	6.0	6.0
Oregon .....	5.4	5.4	5.3	5.2	5.3	5.1	10.7	9.8	5.2	5.8
Pennsylvania .....	7.8	7.6	6.7	6.6	6.6	6.4	14.3	13.5	9.1	9.4
Rhode Island .....	7.3	7.6	6.8	7.1	6.7	6.9	11.1	11.4	7.1	7.9
South Carolina .....	9.8	9.5	7.2	7.1	7.3	7.1	14.7	14.0	5.5	5.8
South Dakota .....	5.9	5.8	5.9	5.7	5.9	5.7	•	•	•	•
Tennessee .....	9.2	9.1	7.9	7.6	7.9	7.6	14.1	14.3	6.6	6.5
Texas .....	7.3	7.4	6.6	6.7	6.6	6.7	12.6	12.6	6.6	6.7
Utah .....	6.8	6.7	6.7	6.6	6.7	6.6	13.3	14.9	6.7	7.2
Vermont .....	5.7	6.5	5.7	6.5	5.6	6.6	•	•	•	•
Virginia .....	7.8	7.9	6.4	6.4	6.5	6.4	11.9	12.7	5.9	6.5
Washington .....	5.8	5.7	5.5	5.4	5.4	5.3	10.3	10.1	5.3	5.7
West Virginia .....	8.0	8.0	7.9	7.8	7.9	7.9	12.3	13.4	•	•
Wisconsin .....	6.7	6.5	5.9	5.7	5.9	5.6	13.4	13.6	6.1	6.5
Wyoming .....	8.4	8.9	8.1	8.8	8.4	8.9	•	•	5.7	7.5
Puerto Rico .....	11.5	10.9	11.5	11.0	---	---	11.6	10.5	---	---
Virgin Islands .....	10.0	9.2	10.6	•	•	•	10.1	10.3	13.0	•
Guam .....	7.9	7.6	•	6.1	•	•	•	•	•	•
American Samoa .....	---	3.0	---	•	---	---	---	•	---	---
Northern Marianas .....	---	8.6	---	•	---	---	---	•	---	---

\* Figure does not meet standards of reliability or precision.

--- Data not available.

<sup>1</sup> Includes races other than white and black.

<sup>2</sup> Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race; see Technical notes.

<sup>3</sup> Includes all persons of Hispanic origin of any race; see Technical notes.

<sup>4</sup> Excludes data for the territories.

**Table 8. Percent of live births by cesarean delivery by race and Hispanic origin of mother: United States, each State and territory, final 1998 and preliminary 1999**

[By place of residence. Data are based on a continuous file of records received from the States]

Area	All races <sup>1</sup>		White, total <sup>2</sup>		White, non-Hispanic		Black, total <sup>2</sup>		Hispanic <sup>3</sup>	
	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998
United States <sup>4</sup> .....	22.0	21.2	21.9	21.0	22.1	21.2	23.1	22.4	21.2	20.6
Alabama .....	24.8	24.0	25.4	24.7	25.6	24.8	23.6	22.8	20.4	20.7
Alaska .....	14.8	14.7	16.9	16.5	16.7	16.4	16.2	18.0	17.2	17.6
Arizona .....	17.8	17.0	17.9	17.2	19.2	18.3	19.0	20.1	16.2	15.6
Arkansas .....	25.4	24.9	24.9	24.7	25.3	25.0	27.6	26.1	19.2	20.8
California .....	22.7	21.7	22.6	21.6	23.5	22.5	25.8	24.8	21.9	20.9
Colorado .....	17.3	16.4	17.3	16.4	17.9	16.7	19.2	16.9	15.8	15.7
Connecticut .....	21.0	20.1	21.0	20.1	21.1	20.4	21.6	20.6	19.1	18.7
Delaware .....	23.0	23.2	23.2	22.7	23.5	23.3	22.9	24.8	20.9	18.2
District of Columbia ...	22.2	20.8	22.1	17.8	23.9	21.3	22.3	22.1	12.9	12.2
Florida .....	23.8	22.4	24.3	22.9	23.4	22.1	22.5	21.2	26.4	24.9
Georgia .....	21.7	20.8	21.5	20.7	22.2	21.3	22.4	21.5	16.7	15.1
Hawaii .....	17.5	15.6	18.7	16.8	18.6	16.4	17.4	18.7	18.9	17.1
Idaho .....	17.3	15.7	17.1	15.6	17.0	15.5	*	*	18.0	16.5
Illinois .....	20.1	19.4	20.1	19.4	20.9	20.3	20.2	19.5	17.8	16.9
Indiana .....	20.5	20.0	20.5	20.0	20.5	20.0	20.5	19.9	19.6	20.3
Iowa .....	19.9	19.6	20.0	19.7	20.0	19.7	18.9	19.9	19.5	19.8
Kansas .....	21.2	18.6	21.3	18.5	21.4	18.7	21.3	20.6	20.2	17.2
Kentucky .....	23.3	22.8	23.4	22.9	23.4	22.9	23.1	22.6	22.0	17.9
Louisiana .....	26.8	26.0	27.4	26.8	27.4	26.8	26.0	25.1	28.9	26.4
Maine .....	21.5	19.7	21.5	19.8	21.5	19.8	28.3	23.1	28.1	22.1
Maryland .....	23.2	21.3	22.5	20.7	22.8	21.0	24.7	22.5	19.7	17.9
Massachusetts .....	22.4	20.9	22.4	21.1	22.7	21.5	23.7	21.6	20.4	17.9
Michigan .....	21.0	20.6	21.1	20.6	21.4	20.7	20.4	20.6	18.5	19.3
Minnesota .....	18.9	18.0	19.4	18.4	19.5	18.5	18.8	17.2	17.6	17.4
Mississippi .....	27.3	27.0	28.1	27.9	28.3	28.0	26.4	26.0	20.6	24.9
Missouri .....	21.7	20.6	22.1	20.7	22.2	20.8	19.9	20.0	18.2	19.3
Montana .....	18.8	18.9	18.4	18.6	18.3	18.5	*	*	21.2	21.7
Nebraska .....	22.0	20.6	22.2	20.7	22.5	21.0	20.4	21.8	19.5	18.3
Nevada .....	21.8	21.4	21.3	20.8	22.5	22.1	26.8	25.7	19.2	18.6
New Hampshire .....	19.9	18.5	19.9	18.5	20.0	18.6	25.4	17.2	21.1	18.0
New Jersey .....	26.2	25.4	26.2	25.5	26.3	25.4	26.5	25.5	26.4	26.3
New Mexico .....	16.4	16.4	16.8	16.8	17.4	17.7	18.8	20.5	16.3	16.1
New York .....	23.6	22.9	23.6	22.9	24.3	23.5	24.3	23.5	22.7	22.0
North Carolina .....	22.7	21.5	22.3	21.3	22.9	21.8	23.9	22.3	18.1	16.6
North Dakota .....	19.5	19.4	19.5	19.2	19.8	18.9	*	23.0	16.2	30.3
Ohio .....	19.2	18.9	19.3	18.9	19.3	18.9	19.0	19.0	18.4	17.9
Oklahoma .....	24.2	22.8	24.1	22.6	24.5	22.8	24.6	24.2	21.5	20.2
Oregon .....	18.4	17.8	18.3	17.6	18.5	17.9	18.3	21.6	17.7	16.6
Pennsylvania .....	20.7	19.6	21.0	19.8	21.1	19.9	19.7	19.3	18.2	18.1
Rhode Island .....	20.6	19.5	20.9	19.9	21.3	21.3	20.9	19.4	20.5	16.7
South Carolina .....	24.2	23.4	24.3	23.5	24.6	23.6	24.1	23.4	18.8	19.4
South Dakota .....	22.3	21.5	22.6	21.5	22.7	21.5	*	29.8	19.1	27.0
Tennessee .....	24.0	22.6	24.2	22.5	24.3	22.7	23.8	23.0	20.4	18.3
Texas .....	23.8	23.5	23.6	23.3	24.8	24.1	25.5	25.1	22.5	22.7
Utah .....	16.0	16.0	15.9	15.9	15.7	15.9	20.4	23.8	17.7	16.4
Vermont .....	16.5	16.5	16.5	16.5	16.5	16.7	*	*	*	*
Virginia .....	21.7	21.2	21.6	20.8	21.8	21.1	22.0	22.5	19.3	17.9
Washington .....	18.9	17.9	18.7	17.7	18.8	17.8	22.4	22.7	17.7	17.2
West Virginia .....	24.7	24.1	24.6	24.1	24.6	24.1	27.3	23.3	25.5	21.5
Wisconsin .....	17.0	16.0	17.5	16.5	17.6	16.5	13.7	14.1	16.2	15.4
Wyoming .....	19.6	18.6	19.5	18.4	19.6	18.2	*	*	18.7	19.5
Puerto Rico .....	37.8	35.1	38.0	35.4	---	---	36.1	30.7	---	---
Virgin Islands .....	22.7	22.7	28.1	27.0	26.3	29.1	21.4	21.5	27.6	24.9
Guam .....	16.8	14.7	19.1	20.8	19.0	20.6	*	*	*	*
American Samoa .....	---	---	---	---	---	---	---	---	---	---
Northern Marianas .....	---	17.1	---	*	---	---	---	*	---	---

\* Figure does not meet standards of reliability or precision.

--- Data not available.

<sup>1</sup> Includes races other than white and black.<sup>2</sup> Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race; see Technical notes.<sup>3</sup> Includes all persons of Hispanic origin of any race; see Technical notes.<sup>4</sup> Includes data for the territories.**BEST COPY AVAILABLE**



**Table 9. Percent of mothers receiving prenatal care in first trimester of pregnancy by race and Hispanic origin of mother: United States, each State and territory, final 1998 and preliminary 1999**

[By place of residence. Data are based on a continuous file of records received from the States]

Area	All races <sup>1</sup>		White, total <sup>2</sup>		White, non-Hispanic		Black, total <sup>2</sup>		Hispanic <sup>3</sup>	
	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998
United States <sup>4</sup> .....	83.2	82.8	85.1	84.8	88.4	87.9	74.0	73.3	74.5	74.3
Alabama .....	83.2	82.4	88.9	88.3	90.0	89.1	71.4	70.1	60.5	62.9
Alaska .....	79.3	81.4	82.2	83.5	82.2	83.7	83.6	82.3	79.6	81.3
Arizona .....	76.0	75.1	76.7	76.0	86.0	84.7	73.7	73.5	65.1	64.7
Arkansas .....	79.1	77.8	81.8	80.7	83.1	82.0	69.4	67.6	63.7	61.6
California .....	83.6	82.4	83.6	82.4	89.2	88.2	81.2	79.5	79.7	78.1
Colorado .....	81.7	82.2	82.0	82.7	88.4	87.9	75.4	75.9	66.0	68.3
Connecticut .....	89.3	88.0	90.5	89.3	93.0	91.3	81.2	79.0	78.1	78.2
Delaware .....	83.7	83.4	86.6	86.4	88.3	88.2	75.4	74.2	71.7	69.7
District of Columbia ...	71.9	72.0	87.4	84.8	90.9	91.0	66.9	66.9	64.2	69.5
Florida .....	83.9	83.6	87.1	86.9	89.1	88.6	73.6	72.8	81.3	81.9
Georgia .....	87.3	86.4	90.4	90.0	91.9	91.4	81.0	79.4	79.7	78.2
Hawaii .....	85.7	85.4	91.0	90.2	91.6	90.9	91.2	91.5	83.8	83.5
Idaho .....	80.5	78.7	80.7	79.1	82.9	81.7	74.7	69.1	64.8	61.5
Illinois .....	82.5	82.7	85.4	85.7	89.9	89.7	70.0	70.1	72.4	73.7
Indiana .....	80.0	79.9	81.7	81.6	82.8	82.6	66.1	65.3	63.5	64.7
Iowa .....	87.7	87.3	88.3	87.9	89.2	88.6	74.8	74.8	71.2	73.0
Kansas .....	85.8	85.8	86.7	86.7	89.2	89.2	77.0	76.1	68.1	68.1
Kentucky .....	86.6	86.4	87.5	87.3	87.8	87.5	78.4	78.0	71.7	73.8
Louisiana .....	82.9	82.2	89.7	89.4	89.9	89.6	73.2	72.1	85.8	85.3
Maine .....	89.2	88.9	89.5	89.1	89.7	89.3	83.0	85.6	85.2	77.9
Maryland .....	87.0	87.8	91.5	91.5	92.4	92.3	78.0	80.3	81.4	82.3
Massachusetts .....	89.4	89.5	90.9	90.9	92.2	92.3	79.8	80.1	79.0	79.2
Michigan .....	84.0	84.3	87.0	87.1	88.6	88.4	69.9	71.1	72.0	72.8
Minnesota .....	84.5	84.5	87.1	87.1	88.1	87.9	66.3	66.7	62.1	63.8
Mississippi .....	81.5	80.6	89.1	89.3	89.4	89.6	72.6	70.2	75.1	73.8
Missouri .....	87.1	86.1	89.1	88.2	89.5	88.6	76.3	74.5	77.6	77.7
Montana .....	83.9	82.3	85.8	84.8	86.1	84.9	85.7	77.3	76.0	78.6
Nebraska .....	84.4	83.9	85.4	84.9	87.3	86.9	73.7	71.0	68.9	68.8
Nevada .....	75.2	74.6	75.5	75.3	83.2	82.5	69.5	66.3	62.0	62.2
New Hampshire .....	90.7	89.7	91.0	89.8	91.4	90.0	72.9	76.9	80.1	78.4
New Jersey .....	81.7	81.6	85.6	85.5	89.8	89.6	65.0	65.1	70.3	71.0
New Mexico .....	66.8	67.6	68.0	69.1	73.5	75.1	62.5	58.5	64.4	64.8
New York .....	81.0	81.2	84.2	84.4	88.1	88.2	71.0	70.8	71.8	72.1
North Carolina .....	85.0	84.5	88.4	88.1	91.1	90.3	76.1	75.2	68.7	68.5
North Dakota .....	86.3	85.6	88.3	87.3	88.6	87.7	72.1	78.8	81.7	73.6
Ohio .....	86.5	85.5	88.2	87.6	88.5	87.9	76.1	73.3	77.7	77.4
Oklahoma .....	80.6	78.6	82.7	80.7	83.9	81.8	73.2	69.7	69.0	68.3
Oregon .....	80.9	80.2	81.2	80.4	83.8	82.8	76.1	79.4	68.6	67.2
Pennsylvania .....	85.1	84.8	87.5	87.3	88.4	88.2	71.1	70.8	74.1	72.4
Rhode Island .....	91.5	89.7	92.7	90.9	93.8	92.1	83.5	79.3	86.3	82.4
South Carolina .....	80.6	81.4	85.9	87.2	87.2	88.0	70.9	71.0	61.1	65.9
South Dakota .....	83.4	82.7	87.0	86.6	87.4	86.8	74.2	75.3	68.9	74.3
Tennessee .....	84.3	84.1	87.0	87.3	87.9	88.1	74.6	72.7	64.0	64.8
Texas .....	79.3	79.3	79.4	79.6	87.3	86.9	76.5	75.7	72.2	72.7
Utah .....	80.5	82.1	81.5	82.9	84.0	85.3	64.3	64.7	63.1	64.9
Vermont .....	88.0	87.4	88.0	87.5	88.0	87.6	81.6	*	82.8	85.3
Virginia .....	85.3	85.2	88.8	88.8	90.2	90.2	74.4	74.4	74.0	73.2
Washington .....	83.0	83.0	83.9	83.6	86.1	85.8	75.5	77.1	71.5	71.0
West Virginia .....	85.1	83.7	85.6	84.2	85.7	84.2	70.9	70.2	68.9	84.0
Wisconsin .....	84.1	84.3	86.6	87.0	87.7	88.0	69.1	67.5	70.6	71.9
Wyoming .....	83.0	81.3	83.4	82.2	84.3	83.4	76.6	67.3	74.8	70.2
Puerto Rico .....	77.9	78.8	78.7	79.4	---	---	69.5	70.5	---	---
Virgin Islands .....	59.5	59.3	63.8	60.5	73.7	76.6	58.1	58.6	57.4	55.0
Guam .....	62.1	63.0	87.2	86.0	88.8	86.8	78.6	81.8	70.3	83.7
American Samoa .....	---	---	---	---	---	---	---	---	---	---
Northern Marianas .....	---	26.3	---	---	---	---	---	*	---	---

\* Figure does not meet standards of reliability or precision.

--- Data not available.

<sup>1</sup> Includes races other than white and black.

<sup>2</sup> Race and Hispanic origin are reported separately on the birth certificate. Data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race; see Technical notes.

<sup>3</sup> Includes all persons of Hispanic origin of any race; see Technical notes

<sup>4</sup> Excludes data for the territories.

## Technical notes

### Nature and sources of data

Preliminary data for 1999 are based on a substantial proportion of vital records for that year. The data for 1999 are based on a continuous receipt and processing of statistical records through May 10, 2000, by the National Center for Health Statistics (NCHS). NCHS receives the data from the States' vital registration systems through the Vital Statistics Cooperative Program. In this report, U.S. totals include only events occurring within the 50 States and the District of Columbia. Data for Puerto Rico, the Virgin Islands, and Guam are included in tables showing data by State, but are not included in U.S. totals. Tables by State generally show entries for American Samoa and the Northern Marianas, but preliminary data for these areas were not available by May 10, 2000, and are not presented in this report. Final data for 1998 for these areas are presented where available.

For 1999, individual records of births are weighted to independent counts of vital events occurring in each State. These State-specific counts serve as control totals and are the basis for the record weights in the preliminary file. If the number of records in the preliminary file is greater than the count received from the State, the State-specific number of records in the preliminary file is used instead and the weight is set at 1.0.

Each birth record has one weight specific to the State where the birth occurred. Table I shows the percent completeness of the preliminary file for each event by place of occurrence. The percent completeness is obtained by dividing the number of records in the preliminary file by the control total and multiplying by 100. Although data by place of occurrence are used to compute the weights, all data in this report are tabulated by place of residence.

For selected variables in the natality file, unknown or not-stated values are imputed. The percent not stated in the natality files was less than 1 percent for birthweight and method of delivery and 2.7 percent for month prenatal care began. Detailed information on reporting completeness and imputation procedures may be found in *Technical Appendix of the Vital Statistics of the United States: Natality (7)*.

Race and Hispanic origin are reported separately on the birth certificate. Therefore, data shown by race include persons of Hispanic or non-Hispanic origin, and data for Hispanic origin include persons of any race. In this report, births of Hispanic origin are included in the totals for each race group—white, black, American Indian, and Asian or Pacific Islander—according to the mother's race as reported on the birth certificate. Data shown for Hispanic persons include all persons of Hispanic origin of any race. In 1999, approximately 97 percent of Hispanic-origin births were to white women. Data are shown separately for non-Hispanic white women because there are substantial differences in childbearing patterns between Hispanic and non-Hispanic white women. More than 1 in 5 white births were to Hispanic women in 1999.

From 1964 to 1996, mother's age was edited for ages 10–49 years: births reported to occur to mothers younger than age 10 or older than 49 years had age imputed according to the same race and total birth order (total of live births and fetal deaths). Beginning in 1997, age of mother is edited for ages 10–54 years. A review and verification of unedited birth data for 1996 showed that the vast majority of births reported as occurring to women aged 50 years and over were to women 50–54 years. The numbers of births to women aged 50–54 years

**Table I. Total count of records and percent completeness of preliminary file of live births: United States, each State and territory, preliminary 1999**

[By place of occurrence]

Area	Live births	
	Count of records	Percent completeness
United States <sup>1</sup> .....	3,964,473	97.6
Alabama .....	61,341	100.0
Alaska .....	9,848	100.0
Arizona .....	81,286	78.5
Arkansas .....	35,691	99.6
California .....	518,853	100.0
Colorado .....	62,388	100.0
Connecticut .....	43,401	94.9
Delaware .....	11,306	100.0
District of Columbia .....	14,660	100.0
Florida .....	197,156	100.0
Georgia .....	127,616	100.0
Hawaii .....	17,091	100.0
Idaho .....	19,414	100.0
Illinois .....	179,300	99.7
Indiana .....	86,351	99.8
Iowa .....	37,690	100.0
Kansas .....	38,244	100.0
Kentucky .....	52,850	97.6
Louisiana .....	67,524	99.9
Maine .....	13,393	100.0
Maryland .....	67,852	99.7
Massachusetts .....	81,839	100.0
Michigan .....	132,319	100.0
Minnesota .....	65,784	99.9
Mississippi .....	41,757	98.8
Missouri .....	77,300	99.9
Montana .....	10,751	98.7
Nebraska .....	24,210	100.0
Nevada .....	28,894	100.0
New Hampshire .....	13,718	100.0
New Jersey .....	111,049	90.4
New Mexico .....	26,865	100.0
New York .....	259,961	98.4
New York excluding New York City ...	136,204	97.0
New York City .....	123,757	100.0
North Carolina .....	114,894	100.0
North Dakota .....	8,879	100.0
Ohio .....	152,616	85.3
Oklahoma .....	47,935	97.8
Oregon .....	46,106	100.0
Pennsylvania .....	145,938	87.3
Rhode Island .....	13,223	97.7
South Carolina .....	52,640	99.9
South Dakota .....	10,673	100.0
Tennessee .....	83,002	100.0
Texas .....	350,593	96.0
Utah .....	47,265	100.0
Vermont .....	6,216	99.4
Virginia .....	93,360	99.9
Washington .....	79,075	100.0
West Virginia .....	21,389	100.0
Wisconsin .....	67,198	100.0
Wyoming .....	5,769	100.0
Puerto Rico .....	59,685	89.9
Virgin Islands .....	1,773	100.0
Guam .....	4,038	82.0
American Samoa .....	...	...
Northern Marianas .....	...	...

... Data not available.

<sup>1</sup> Excludes data for Puerto Rico, Virgin Islands, Guam, American Samoa, and Northern Marianas.

NOTE: Percent completeness =  $\frac{\text{Number of records in preliminary file}}{\text{Count of records}} \times 100$

are too small for computing age-specific birth rates and have been included with births to women aged 45–49 years for computing birth rates.

National estimates of births to unmarried women are based on two methods of determining marital status. For 1998 and 1999, birth certificates in 48 States and the District of Columbia included a direct question about mother's marital status; in Nevada the direct question is part of the electronic birth registration process but does not appear on certified or paper copies of the birth certificate. The question in most States is: "Mother married? (At birth, conception, or any time between) (Yes or no)."

Marital status is inferred in Michigan and New York (both New York City and the balance of the State). A birth is inferred as nonmarital if the father's name is missing from the birth certificate or if a paternity acknowledgment was filed.

Since June 1998, marital status has been reported in Connecticut based on a direct question on the birth certificate. Previously, marital status was inferred for Connecticut births on the basis of one of these factors: a paternity acknowledgment was filed, the father's name is missing, or the parent's and child's surnames were different. The impact of the change was to reduce the numbers and proportions of births to unmarried women in the State. During the first half of 1998, 33.4 percent of Connecticut births were nonmarital; during the second half, 29.1 percent were nonmarital. The inferential procedures evidently had resulted in overstatement of births to unmarried women because of the reliance on the comparison of the parent's and child's surnames. Many births were erroneously inferred as nonmarital because the surnames did not match or because the parents and/or child had a hyphenated surname. With the adoption of a direct question on marital status, data on nonmarital births for Connecticut are much more accurate since mid-1998 than in previous years.

The birth rate for unmarried women for 1999 is estimated on the basis of population distributions by marital status provided by the U.S. Bureau of the Census as of March 1999 (6) applied to the national population estimates as of July 1 (8). The nonmarital birth rate shown here for 1999 thus differs from those published by NCHS in the annual final reports, which are based on populations estimated from 3-year averages of the marital status distributions, rather than a single year as shown here (1–4,9). Population estimates for a single year are not an adequate basis for computing age-specific birth rates for unmarried women—these rates are available only in the final reports.

### Computing rates and percents

Rates are on an annual basis per 1,000 estimated population residing in the specified area as of July 1, 1999, and July 1, 1998, and are based on populations furnished by the U.S. Bureau of the Census (8,10). Rates by State are computed on the basis of populations on July 1, 1999, and July 1, 1998 (11,12).

For calculating birth rates, age and race of mother are imputed if they are not stated (0.02 percent and 0.2 percent, respectively, for 1999). In computing birth rates by live-birth order, births with live birth order not stated are distributed in proportion to stated data. Births with marital status not reported (0.1 percent for 1999) are included with births to married mothers. Percents were computed using only events for which the characteristic is reported. The "Not stated" category is subtracted from the total before the percent is computed for birthweight, vital care, and method of delivery. Birth rates for the Hispanic

population are based only on events to persons reported as Hispanic. Rates for non-Hispanic white persons are based on the sum of all white events reported as non-Hispanic and white events with origin not stated. Hispanic origin is not imputed if it is not reported.

An asterisk indicates that the figure does not meet standards of reliability or precision. In this report, three sets of criteria determine whether a figure meets these standards.

- The State-specific sample is complete enough to provide reliable estimates. For example, a criterion of at least 75 percent of a State's records for the 12-month period is used as a basis for providing State-specific estimates (see table I).
- Reporting for any particular variable is at least 80 percent complete. In this report, no data were suppressed based on this criterion.
- A rate or percent is based on at least 20 births in the numerator or denominator.

Rates based on fewer than 20 births have a relative standard error (RSE) of about 23 percent or more and, therefore, are considered highly variable. However, some birth rates (based on data files that are less than 100-percent complete and based on 20–31 births) may have RSE's of 23 percent or more but are still shown instead of asterisks. As a result, caution should be exercised in analyzing rates based on 20–31 events. Additional information on random variation in numbers of events, rates, ratios, and percents may be found in "Reliability of estimates."

### Reliability of estimates

Because the preliminary estimates of births in this report are based on files that may not be complete, they are subject to sampling variability. The notion of the sample is reflected in the record weights that are used to adjust record counts to independent control totals. The lack of completeness of the vital statistics files is due to delays in receiving and processing the live birth records.

In addition, the natality file is subject to nonsampling errors or biases. Records that were delayed and were not included in this report are assumed to have the same characteristics as the records that were included in this report. Seasonal bias may occur because file completeness is greater during the early part than during the later part of the 12-month period for which the data are processed and tabulated.

Even if the number of vital events in this report were 100 percent complete and not subject to sampling variability, it might be affected by random variation. Thus, when the number of events is small and the probability of such an event is small, considerable caution must be observed in interpreting the data. Such infrequent events may be assumed to follow a Poisson probability distribution. The first column of table II shows the estimated RSE's of a file that is nearly 100 percent complete. The estimated RSE's of the 1998 final data, the preliminary 1999 control totals, and the preliminary 1999 data (based on nearly 100 percent of a file) are shown in the first column of table II.

Data based on a sample, that is, where the file is less than 100 percent complete, are affected by sampling variation as well as by random variation. The estimated RSE's in columns 2–6 of table II for various levels of file completeness are measures of the sampling errors and the random errors of the estimates. The estimated RSE's in table II were computed using this formula:

**Table II. Relative standard errors for preliminary number of live births by percent of file completeness**

[Relative standard errors are expressed as a percent of the estimate]

Estimated number of live births	Percent of file completeness					
	100	95	90	80	70	60
	Relative standard error (percent)					
1..	100.0	102.6	105.4	111.8	119.5	129.1
5..	44.7	45.9	47.1	50.0	53.5	57.7
10..	31.6	32.4	33.3	35.4	37.8	40.8
20..	22.4	22.9	23.6	25.0	26.7	28.9
30..	18.3	18.7	19.2	20.4	21.8	23.6
40..	15.8	16.2	16.7	17.7	18.9	20.4
50..	14.1	14.5	14.9	15.8	16.9	18.3
60..	12.9	13.2	13.6	14.4	15.4	16.7
70..	12.0	12.3	12.6	13.4	14.3	15.4
80..	11.2	11.5	11.8	12.5	13.4	14.4
90..	10.5	10.8	11.1	11.8	12.6	13.6
100..	10.0	10.3	10.5	11.2	12.0	12.9
200..	7.1	7.3	7.5	7.9	8.5	9.1
300..	5.8	5.9	6.1	6.5	6.9	7.5
400..	5.0	5.1	5.3	5.6	6.0	6.5
500..	4.5	4.6	4.7	5.0	5.3	5.8
600..	4.1	4.2	4.3	4.6	4.9	5.3
700..	3.8	3.9	4.0	4.2	4.5	4.9
800..	3.5	3.6	3.7	4.0	4.2	4.6
900..	3.3	3.4	3.5	3.7	4.0	4.3
1,000..	3.2	3.2	3.3	3.5	3.8	4.1
2,000..	2.2	2.3	2.4	2.5	2.7	2.9
5,000..	1.4	1.5	1.5	1.6	1.7	1.8
10,000..	1.0	1.0	1.1	1.1	1.2	1.3
20,000..	0.7	0.7	0.7	0.8	0.8	0.9
50,000..	0.4	0.5	0.5	0.5	0.5	0.6
100,000..	0.3	0.3	0.3	0.4	0.4	0.4
200,000..	0.2	0.2	0.2	0.2	0.3	0.3
500,000..	0.1	0.1	0.1	0.2	0.2	0.2
1,000,000..	0.1	0.1	0.1	0.1	0.1	0.1
2,000,000..	0.1	0.1	0.1	0.1	0.1	0.1
4,000,000..	0.1	0.1	0.1	0.1	0.1	0.1

$$RSE = 100 \sqrt{\frac{1}{X} + \frac{(1-f)(N-X)}{fX(N-f)}}$$

where

$f$  = the sampling fraction or the percent of file completeness/100 from table I.

$X$  = the estimated number of live births.

$N$  = the total count of live births for the United States or any State. (The RSE's shown in table II are based on  $N = 4,000,000$ . If  $N$  is smaller, the RSE's may be slightly smaller than those shown.)

RSE's may be used to compute 95-percent confidence intervals for the number of events ( $X$ ), for a rate ( $R$ ), or for a percent ( $P$ ) and to compute statistical tests concerning the equality of two rates ( $R_1$  and  $R_2$ ) or two percents ( $P_1$  and  $P_2$ ).

For the number of live births, the 95-percent confidence interval may be computed as follows:

$$\text{Lower limit: } X_1 - 1.96 \cdot X_1 \cdot \frac{RSE(X_1)}{100}$$

$$\text{Upper limit: } X_1 + 1.96 \cdot X_1 \cdot \frac{RSE(X_1)}{100}$$

As a hypothetical example, assume the number of births,  $X_1$ , is 70 from a file with 80-percent completeness. Then

$$\text{Lower limit: } 70 - 1.96 \cdot 70 \cdot \frac{13.4}{100} = 51.6$$

$$\text{Upper limit: } 70 + 1.96 \cdot 70 \cdot \frac{13.4}{100} = 88.4$$

This means that the chances are 95 times out of 100 that the confidence interval (51.6–88.4) will cover the "true" number of births.

For rates based on population estimates in the denominator, the 95-percent confidence interval may be computed as follows:

$$\text{Lower limit: } R_1 - 1.96 \cdot R_1 \cdot \frac{RSE(R_1)}{100}$$

$$\text{Upper limit: } R_1 + 1.96 \cdot R_1 \cdot \frac{RSE(R_1)}{100}$$

As a hypothetical example, assume the birth rate,  $R_1$ , is 20.0, which is based on 70 births from a file with 80-percent completeness.

$$\text{Lower limit: } 20.0 - 1.96 \cdot 20.0 \cdot \frac{13.4}{100} = 14.7$$

$$\text{Upper limit: } 20.0 + 1.96 \cdot 20.0 \cdot \frac{13.4}{100} = 25.3$$



This means that the chances are 95 times out of 100 that the confidence interval (14.7–25.3) will cover the “true” rate.

For testing the equality of two rates,  $R_1$  and  $R_2$ , the following z-test may be used to define a significance test statistic:

$$z = \frac{R_1 - R_2}{\sqrt{R_1^2 \left( \frac{\text{RSE}(R_1)}{100} \right)^2 + R_2^2 \left( \frac{\text{RSE}(R_2)}{100} \right)^2}}$$

The two-tailed 0.95 critical value for a z statistic is 1.96. Therefore, if  $|z| \geq 1.96$ , the difference is significant at the 0.05 level. If  $|z| < 1.96$ , then the difference would be considered not statistically significant at the 0.05 level.

As a hypothetical example, assume  $R_1$  is the same as the above example for the current 12-month period and that  $R_2$ , 15.0, is based on 50 births occurring in the prior 12-month period (which implies that the file is approximately 100 percent complete for  $R_2$ ). The z-test may be determined as follows:

$$z = \frac{20.0 - 15.0}{\sqrt{(20.0)^2 \left( \frac{13.4}{100} \right)^2 + (15.0)^2 \left( \frac{14.1}{100} \right)^2}} = 1.46$$

Because  $|z| < 1.96$ , there is not a statistically significant difference between the two rates at the 0.05 level of significance.

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