

Births and Deaths: Preliminary Data for July 1997–June 1998

by Betty L. Smith, B.S. Ed.; Joyce A. Martin, M.P.H.; and Stephanie J. Ventura, M.A.;
Division of Vital Statistics

Abstract

Objectives—This report presents preliminary data on births and deaths in the United States from the National Center for Health Statistics (NCHS) for the 12 months ending June 1998. U.S. data on births are shown by age, race, and Hispanic origin of mother. Natality data on marital status, prenatal care, cesarean delivery, and low birthweight are also presented. Mortality data presented include leading causes of death and infant mortality.

Methods—Data in this report are based on more than a 99-percent sample of births and on more than an 89-percent sample of deaths in the United States for the 12 months ending June 1998. The records are weighted to independent control counts of births, infant deaths, and deaths 1 year and over received in State vital statistics offices from July 1997 to June 1998. Unless otherwise indicated, comparisons are made with final data for the 12-month period ending June 1997.

Results—For the period July 1997–June 1998, the birth rate for teenagers dropped 4 percent to 51.5 births per 1,000 women aged 15–19 years, the lowest level since 1987. Birth rates for teenagers have been declining since 1991. Birth rates for women aged 20–29 years changed very little, whereas rates for women in their thirties and forties rose 2 to 4 percent. The birth rate for unmarried women declined slightly, but the number of births to unmarried women was up about 1 percent because of an increase in the number of unmarried women. The rate of prenatal care utilization continued to improve. The percent of births delivered by cesarean section rose from 20.7 percent to 20.9 percent as the result of a slight increase in the primary cesarean rate and a substantial decline in the rate of vaginal births after previous cesarean (VBAC). The overall low birthweight rate was unchanged at 7.5 percent.

Age-adjusted death rates reached a record low, 2 percent below the rate for the previous 12-month period. The largest declines in estimated age-adjusted death rates among the leading causes of death were for Human immunodeficiency virus (HIV) infection (37 percent) and homicide (9 percent). Smaller declines were noted for most of the other leading causes of death, but no increases occurred. Mortality also decreased for firearm injuries and alcohol-induced deaths. The infant mortality rates for all races and white and black infants were about the same as the corresponding rates for the previous 12-month period.

Keywords: births • deaths • vital statistics

Introduction

This report presents preliminary data on births and deaths based on a substantial proportion of vital records for births and deaths occurring in the 12-month period ending June 1998. The preliminary report series, which is published biannually by NCHS, includes detailed tabulations from the preliminary natality and mortality files. This report is the sixth in the series and shows preliminary data for the 12-month period from July 1997 to June 1998. Trends shown in the preliminary reports for 1995–97 births and deaths for most measures were confirmed by the final statistics for each year (1–4). The next *National Vital Statistics Report* (NVSR) in this series will show preliminary data for calendar year 1998.

NCHS also publishes monthly data on births, deaths, marriages, and divorces in the NVSR, formerly known as the *Monthly Vital Statistics Report* (MVSR). These provisional data include counts of births, deaths, marriages, and divorces reported by the States. Annual reports of final birth and death data, "Births: Final data" and "Deaths: Final data," also are published in the NVSR.

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Sources and methods

The preliminary data in this series are based on records of births and deaths that occurred during the period July 1997 to June 1998 and were received and have undergone quality control by NCHS as of February 10, 1999. This represents over 99 percent of the births that occurred in the United States during this 12-month period. Demographic information is available for about 95 percent of infant deaths and about 97 percent of deaths to persons aged 1 year or older. For these death records, medical or cause-of-death information is processed separately and is available for 89 percent of infant deaths and 93 percent of deaths to persons aged 1 year and older.

To produce the preliminary estimates shown in this report, records in each of the files were weighted using independent control counts of births, infant deaths, and deaths 1 year and over received in the State vital statistics offices from July 1997 through June 1998. Two separate sets of weights were applied to the death records—one set for the demographic information and one set for the medical information. This results in slight inconsistencies between comparable demographic data from the mortality demographic and medical tables (see [Technical notes](#)). Preliminary estimates are subject to sampling variation as well as random variation.

Cause of death is not always available when the preliminary data are sent to NCHS, but is available later for final data processing. As a result, estimates based on preliminary mortality data may differ from statistics that come from the final mortality data. Sampling bias tends to affect certain causes of death where the cause is pending investigation, such as for homicides, suicides, accidents, HIV infection, and Sudden infant death syndrome (SIDS). NCHS is currently exploring procedures for correcting possible sampling bias in the preliminary data. These procedures will require several years of data from the preliminary files.

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. Mortality data in this report include infant mortality and causes of death. Race and Hispanic origin are reported as separate items on the birth and death certificates. Therefore, data shown by race may be of Hispanic or non-Hispanic origin, and data for Hispanic origin may be of any race. Data are shown for the following race and ethnic groups: White, non-Hispanic white, black, American Indian, Asian or Pacific Islander (API), and Hispanic. Data for race and ethnic groups are based on the mother's reported race and ethnic group for births and on the decedent's reported race and ethnic group for deaths (see [Technical notes](#)).

All tabulations of birth data for this report have been designed to 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 (97 percent) are to white women, there are notable differences in childbearing 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 women because 97 percent of black births are to non-Hispanic women; therefore the difference in the statistics for the two groups are minimal (3). The report *Births: Final Data for 1997* shows 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 the 12-month period ending June 1998 were received and have undergone quality control (processed). See [Technical notes](#). The proportion of records processed is shown by State in [table 1](#) in the [Technical notes](#). Changes in death rates between the periods July 1996–June 1997 and July 1997–June 1998 and differences in death rates across demographic groups for July 1997–June 1998 are tested for statistical significance. Unless otherwise specified, reported differences in death rates are statistically significant. Detailed information on the nature, sources, and qualifications of the preliminary data is given in the [Technical notes](#).

Results

Natality trends and patterns

The preliminary number of **births** for the 12 months ending June 1998 totaled 3,908,470, slightly more than the number for the 12 months ending June 1997 (3,892,431) ([tables A and 1](#)). The **crude birth rate** for the 12 months ending June 1998 was 14.5 births per 1,000 population, compared with 14.6 for the 12 months ending a year earlier. The **fertility rate** (the number of births per 1,000 women aged 15–44 years) was 65.1 for the 12 months ending June 1998, compared with 65.2 for the previous 12-month period ([tables 1–3](#)). Birth and fertility rates by State are shown for these two periods in [table 3](#).

Fertility rates for the 12 months ending June 1998 for non-Hispanic white women (57.4) and for black women (70.7) differed 1 percent or less from the rates for the 12 months ending a year earlier. The rate for American Indian women (69.8) was 2 percent higher, and the rate for API women (64.1) was 2 percent lower than the comparable rates for the previous 12-month period. The fertility rate for Hispanic women, the group with the highest rate (100.4), declined 4 percent from the 12 months ending June 1997.

The **birth rate for teenagers** declined 4 percent to 51.5, the lowest level since 1987 (50.6 per 1,000 women aged 15–19 years) ([table 1](#)). The rates for teenage subgroups also continued to decline. The rate for the youngest teens fell to 1.0 birth per 1,000 aged 10–14 years. The rate for teenagers 15–17 years dropped 6 percent to 31.2, and the rate for teenagers 18–19 years declined 2 percent to 82.8.

Birth rates for teenagers 15–19 years continued to decline for all race and ethnic groups. The rates for non-Hispanic white (35.8) and American Indian (71.2) teenagers each represented a decline of 2 percent. Rates fell 4 percent for black teenagers (86.5) and 5 percent for API teenagers (22.8). The largest decline—7 percent—was reported for Hispanic teenagers (93.1).

Birth rates for women aged 20–24 and 25–29 years, the principal childbearing ages, changed very little. For the 12-month period ending June 1998, the rate for women 20–24 years was 110.5, and for women 25–29 years, it was 114.4.

Birth rates for women aged 30–34 and 35–39 years each rose 2 percent. The rate for women aged 30–34 years was 86.2 per 1,000, higher than in any year since 1965, while the rate for women aged 35–39 years increased to 36.7, higher than in 30 years (5). **Birth rates also increased for women in their forties**, 7.2 per 1,000 for women aged 40–44 years, and 0.4 per 1,000 for women aged 45–49 years.

Table A. Total births and percent of births with selected demographic and health characteristics, by race and Hispanic origin of mother: United States, final data for 12 months ending June 1997 and preliminary data for 12 months ending June 1998

Characteristic	All races ¹		White, total ²		White, non-Hispanic		Black, total ²		Hispanic ³	
	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997
	Number									
Births	3,908,470	3,892,431	3,093,843	3,086,023	2,349,374	2,345,259	605,011	601,045	717,307	708,853
	Percent									
Births to mothers under 20 years.	12.6	12.8	11.1	11.2	9.5	9.6	21.8	22.6	16.9	17.2
Births to unmarried mothers	32.6	32.4	26.1	25.7	21.8	21.4	69.1	69.6	41.0	40.7
Low birthweight ⁴	7.5	7.5	6.5	6.4	6.5	6.4	13.0	13.0	6.4	6.3
Very low birthweight ⁵	1.44	1.40	1.14	1.10	1.13	1.10	3.06	3.01	1.15	1.11
Births delivered by cesarean	20.9	20.7	20.8	20.7	20.9	20.8	22.1	21.7	20.3	20.1
Prenatal care beginning in first trimester.	82.6	82.3	84.7	84.5	87.8	87.7	72.8	71.8	74.0	73.1
Prenatal care beginning in third trimester or no care.	3.9	3.9	3.3	3.2	2.4	2.3	7.1	7.4	6.2	6.4

¹Includes races other than white and black.

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

³Includes all persons of Hispanic origin of any race; see Technical notes.

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

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

As a result of the sizable declines in teenage birth rates and increases in rates for women in their thirties, the proportion of all births occurring to women under age 20 years declined to 12.6 percent for the 12 months ending June 1998, compared with 12.8 percent for the previous 12-month period (table A).

The **total fertility rate (TFR)**, which provides an estimate of lifetime childbearing based on current age-specific birth rates, changed very little. The TFR for the 12 months ending June 1998 was 2,039.5 per 1,000 women, compared with 2,033.0 for the 12 months ending June 1997. TFR's increased for non-Hispanic white women (1,821.5) and American Indian women (2,068.0) and declined for black (2,158.5), API (1,866.5) and Hispanic women (2,922.5).

As noted in a recent report, the **procedures for reporting marital status** changed beginning January 1, 1997, in California, Nevada, and New York City (3). California has a direct question on the birth certificate asking for the mother's marital status, and Nevada asks for this information in the electronic birth registration process. These reporting procedures are essentially the same as those currently in effect in all but two States (New York and Michigan). New York City now infers the mother's marital status using the same two criteria long in use by the balance of New York State: A birth is inferred as nonmarital if there is a paternity affidavit or if the father's name is missing from the birth certificate. Beginning June 15, 1998, Connecticut has a direct question on the birth certificate asking for the mother's marital status. Because the change in Connecticut affects only 2 weeks of the 12-month period ending June 1998, it is believed that the impact on the national statistics is essentially nil.

The **preliminary number of births to unmarried women** increased about 1 percent, 1,274,692 for the 12-month period ending June 1998, compared with 1,260,205 for the period ending June 1997. The **proportion of all births to unmarried women** rose slightly to 32.6 percent, compared with 32.4 percent. The **preliminary birth rate for unmarried women** declined slightly to 43.8 births per 1,000 unmarried women aged 15–44 years, compared with 44.0 for the previous

12-month period. The number of births to unmarried women increased slightly, despite the decline in the **birth rate**, because the number of unmarried women increased 2 percent.

To assess the impact of these reporting changes on the national trends, data have been examined separately for the States that changed their reporting procedures and for the balance of the country. In brief, in the States where reporting procedures changed, overall levels of nonmarital births in the 12 months ending June 1998 were slightly lower than those in the earlier period. However, there were compensating effects: The levels were considerably higher for teenagers and considerably lower for women aged 30 years and older. For the balance of the States, overall differences and differences by age between the two periods were very small. For all States combined, the reporting changes in California, Nevada, and New York City (which together accounted for 17 percent of U.S. births) had a modest impact on the nonmarital birth data by age. Details of these changes are described in a recent report (3).

The preliminary number of births to unmarried teenagers (under 20 years) was about 1 percent higher in the 12-month period ending June 1998, compared with the 12 months ending a year earlier (table B).

Table B. Number and percent of births to unmarried women, all ages and under 20 years: United States, final data for 12 months ending June 1997 and preliminary data for 12 months ending June 1998

Age of mother	Number		Percent	
	1998	1997	1998	1997
All ages	1,274,692	1,260,205	32.6	32.4
Under 20 years	387,453	385,067	78.5	77.2
Under 15 years	9,356	10,076	96.1	94.6
15–19 years	378,097	374,991	78.2	76.8
15–17 years	154,528	156,869	87.1	85.6
18–19 years	223,570	218,122	73.0	71.5

In the current 12-month period, 78.5 percent of teenage births were to unmarried teens, compared with 77.2 percent for the earlier period. More than one-half of that increase is associated with the change in reporting procedures just described. Looking at the total for all States excluding California, Nevada, and New York City, the proportion of births to unmarried teenagers increased slightly (77.7 percent to 78.4 percent).

The percent of women with timely **prenatal care**, that is, care beginning in the first trimester of pregnancy, rose slightly for the 12-month period ending June 1998, to 82.6 percent, compared with a level of 82.3 percent for the period ending June 1997. (See [table A](#).) The proportion of women with first trimester care has risen steadily during the 1990's (from 75.5 percent in 1989) following a decade of no improvement. Gains in prenatal care utilization were observed for most age groups and for the three largest racial/ethnic groups: non-Hispanic white, black, and Hispanic. The percent receiving late care (beginning in the third trimester) or no care declined among black (from 7.4 to 7.1) and Hispanic women (from 6.4 to 6.2), and was up very slightly for non-Hispanic white (from 2.3 to 2.4 percent). Although wide disparities persist among racial/ethnic groups, the gap in prenatal care utilization has narrowed somewhat during the 1990's with large gains reported for groups with less advantageous levels of care (3).

The percent of births delivered by **cesarean section** rose from 20.7 to 20.9 between the 12-month period ending with June 1997 and the same period for 1998 ([table A](#)). The continued rise in the rate (the rate rose from 20.7 to 20.8 for 1996–97) suggests that the decline in the cesarean rate, observed since 1989 when these data first became available, has abated.

The rise over the current 12-month period in the total cesarean rate is the result of a slight increase in the primary cesarean section rate (first cesareans per 100 live births to women who have not had a previous cesarean) from 14.6 to 14.7 percent, the first reported rise in this measure since 1989, and a substantial decline in the rate of vaginal births after previous cesarean (VBAC). The VBAC rate was down 3 percent (from 27.9 to 27.1 percent). The VBAC rate had risen from 1989 (18.9 percent) through 1996 (28.3 percent). The same trend, that is, an increase in the primary cesarean rate and a decline in the rate of VBAC's, was observed among non-Hispanic white, black, and Hispanic women for the current 12-month period.

The percent **low birthweight** (LBW) (less than 2,500 grams) was essentially unchanged for the latest 12-month period at 7.5 percent (from 7.46 to 7.53 percent), 12 percent higher than the low of 6.7 percent reported in 1984. (See [table A](#) for current period data.)

The small overall increase in LBW is primarily influenced by increases in LBW among non-Hispanic white and Hispanic mothers. Low birthweight among births to non-Hispanic white mothers increased from 6.4 to 6.5 percent, continuing the rising trend of the 1990's (from 5.6 percent in 1990). The proportion of LBW Hispanic births rose slightly from 6.3 to 6.4 percent.

The percent LBW among births to black mothers was unchanged at 13.0. LBW among black births has declined from a high of 13.6 percent reported for 1991, but is still higher than the levels reported in the early to mid 1980's.

Mortality trends and patterns

The **preliminary number of deaths** in the United States for the 12 months ending June 1998 totaled 2,329,535, an increase of 7,602

from the 12-month period ending June 1997. The **crude death rate** of 865.8 per 100,000 population dropped 1 percent from the rate of 871.3 per 100,000 population in the previous 12-month period. The estimated **age-adjusted death rate**, which accounts for changes in the age distribution of the population, was 474.3 per 100,000 U.S. standard population, a record low for the United States and 2 percent below the rate for the 12-month period ending June 1997 (485.8). Age-adjusted death rates are better indicators than crude death rates for showing changes in the risk of death over time when the age distribution of the population is changing and for comparing the mortality of subgroups of the population that have different age compositions. The final age-adjusted death rate for 1996 was 491.6 (4). (See [tables C, D](#), and [4–8](#) for mortality data.)

The decline in the U.S. age-adjusted death rate continues the long-term downward trend in mortality and reflects reductions in mortality for males and females of most **race and ethnic groups**. Age-adjusted death rates for API males declined by 6 percent, for black males and Hispanic males by 4 percent, for white males by 3 percent, and for non-Hispanic white males by 2 percent. The decline for API females was 3 percent, and for black females and Hispanic females, each 2 percent. Changes in the age-adjusted death rate between the July 1996–June 1997 period and the 12 months ending June 1998 for white non-Hispanic females and American Indians of either sex were not statistically significant.

The reductions in mortality for all ages combined between the 12-month period ending June 1997 and the 12-month period ending June 1998 were the result of **declines** in the death rate for most **age groups**. The greatest decline occurred in the 25–34-year age group where the age-specific death rate declined by 7 percent. The age groups 5–14 and 35–44 years each experienced a decline of 5 percent in the age-specific death rate. No **increases** occurred in the age-specific rates between the two successive periods.

Although the 15 **leading causes of death** for the 12 months ending June 1998 were the same as for the 12 months ending June 1997, the order changed somewhat. Of particular note, HIV infection dropped from the 13th leading cause of death in the 12-month period ending June 1997 to the 15th leading cause in the 12-month period ending June 1998. Alzheimer's disease dropped from 11th to 12th, giving way to one place rises in the ranking for Atherosclerosis from 15th to 14th, Homicide and legal intervention (homicide) from 14th to 13th, and Septicemia (blood poisoning) from 12th to 11th place. The 15 leading causes of death for the 12 months ending June 1998 were Diseases of heart (heart disease), 1st; Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (cancer), 2nd; Cerebrovascular diseases (stroke), 3rd; Chronic obstructive pulmonary disease and allied conditions (COPD), 4th; Accidents and adverse effects, 5th; Pneumonia and influenza, 6th; Diabetes mellitus, 7th; Suicide, 8th; Nephritis, nephrotic syndrome, and nephrosis (kidney disease), 9th; Chronic liver disease and cirrhosis, 10th; blood poisoning, 11th; Alzheimer's disease, 12th; homicide, 13th; Atherosclerosis, 14th; and HIV infection, 15th ([table D](#)).

Reductions in mortality occurred in a number of the leading causes of death. From July 1997 to June 1998, the preliminary age-adjusted death rate for the leading cause of death, **heart disease**, declined by 3 percent, while the age-adjusted death rate for **cancer** declined by about 2 percent ([tables D](#) and [5](#)). Deaths from these two diseases combined accounted for more than 1.2 million deaths, which is more than one-half of the total deaths that occurred in the 12-month period

Table C. Deaths and age-adjusted death rates by race and sex and infant mortality rates, by race: United States, preliminary data for 12 months ending June 1997 and 1998

Measure and sex	All races ¹		White		Black	
	12 months ending June		12 months ending June		12 months ending June	
	1998	1997	1998	1997	1998	1997
All deaths	2,329,535	2,321,933	2,011,089	2,002,697	276,670	278,519
Age-adjusted death rate ²	474.3	485.8	452.7	462.4	694.6	719.3
Male	594.0	613.3	566.4	582.9	894.0	935.9
Female	373.8	379.1	356.7	361.0	540.3	551.7
All infant deaths	28,089	28,078	18,473	18,574	8,518	8,536
Infant mortality rates ³	7.2	7.2	6.0	6.0	14.1	14.2

¹Includes races other than white and black.²Age-adjusted death rates are per 100,000 U.S. standard population. For method of computation, see Technical notes.³Infant mortality rates are deaths under 1 year per 1,000 live births in specified group.**Table D. Deaths and death rates for the 12 months ending June 1998, and age-adjusted death rates and percent changes in age-adjusted rates from 12 months ending June 1997 to 12 months ending June 1998 for the 15 leading causes of death: United States**

[Data are based on a continuous file of records received from the States. Rates per 100,000 population; age-adjusted rates per 100,000 U.S. standard population; see Technical notes. For explanation of asterisks preceding cause-of-death categories, see Technical notes. Figures for 1998 are based on weighted data rounded to the nearest individual, so categories may not add to the totals]

Rank ¹	Causes of death (Based on the <i>Ninth Revision, International Classification of Diseases, 1975</i>)	Number	Death rate	Age-adjusted death rate		
				12 months ending June 1998	12 months ending June 1997	Percent change
...	All causes	2,329,520	865.8	473.8	485.8	-2.5
1	Diseases of heart (390-398, 402, 404-429)	727,624	270.4	128.1	132.6	-3.4
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	540,702	201.0	124.3	126.5	-1.7
3	Cerebrovascular diseases (430-438)	159,059	59.1	25.4	26.2	-3.0
4	Chronic obstructive pulmonary diseases and allied conditions (490-496)	111,823	41.6	21.3	21.4	-0.4
5	Accidents and adverse effects (E800-E949)	94,266	35.0	29.2	30.1	-3.0
	Motor vehicle accidents (E810-E825)	42,693	15.9	15.4	16.1	-4.3
	All other accidents and adverse effects (E800-E807, E826-E949)	51,572	19.2	13.7	14.1	-2.8
6	Pneumonia and influenza (480-487)	92,048	34.2	13.3	13.2	0.8
7	Diabetes mellitus (250)	63,813	23.7	13.5	13.6	-0.7
8	Suicide (E950-E959)	29,732	11.1	10.2	10.7	-4.7
9	Nephritis, nephrotic syndrome, and nephrosis (580-589)	25,755	9.6	4.4	4.4	-
10	Chronic liver disease and cirrhosis (571)	24,981	9.3	7.2	7.4	-2.7
11	Septicemia (038)	22,817	8.5	4.2	4.2	-
12	Alzheimer's disease (331.0)	22,467	8.3	2.7	2.8	-3.6
13	Homicide and legal intervention (E960-E978)	18,890	7.0	7.5	8.2	-8.5
14	Atherosclerosis (440)	15,563	5.8	2.0	2.1	-4.8
15	Human immunodeficiency virus infection (*042-*044)	13,930	5.2	4.9	7.8	-37.2
...	All other causes	366,050	136.0	---	---	---

- Quantity zero.

... Category not applicable.

--- Data not available.

¹Rank based on number of deaths; see Technical notes.

ending June 1998. While heart disease mortality has followed a consistent downward trend since 1950, cancer mortality has declined only since 1990.

The preliminary age-adjusted death rate for **HIV infection** showed a large decline of 37 percent from the 12-month period ending June 1997 to the 12-month period ending June 1998 (table D). Nevertheless, HIV infection still remained a leading cause of death and ranked as the 15th cause of death for the total population. However, in the 25-44-year age group, it was the leading cause for black men, 3rd for black women,

and 5th for white men. While delays in reporting HIV infection deaths may have resulted in a slight overestimate of the decline, this decline is consistent with the trend observed in the decline of age-adjusted rates for HIV infection based on final data for 1996, compared with final data for 1995 (29 percent) and based on preliminary data for July 1996-June 1997, compared with preliminary data for July 1995-June 1996 (44 percent). This consistency is also observed in the decline based on preliminary data for 1997 compared with final data for 1996 (47 percent) (4,6,7).

The preliminary age-adjusted death rates dropped for **homicide** by 9 percent and for **suicide** by 5 percent. The decline in mortality due to homicide and suicide continues the downward trend reported in the final 1996 and preliminary 1997 calendar year data (4,7). Age-adjusted death rates declined for **Accidents and adverse effects** by 3 percent, following the general downward trend in accident mortality since the 1980's. Declines were also noted for deaths due to **stroke** (3 percent) and **Chronic liver disease and cirrhosis** (3 percent). No statistically significant **increases** in the age-adjusted rate were observed for any of the leading causes of death for the period July 1997–June 1998 when compared with the previous 12-month period ending June 1997.

During the 12-month period ending June 1998, preliminary age-adjusted death rates decreased appreciably for **firearm injuries** (7 percent) and **alcohol-induced causes** (5 percent) (table 5). The rates for these causes may change when data based on 100 percent of the death records are presented for this period in the final report (see [Technical notes](#)). The age-adjusted death rate for **injuries at work** was 2.0 deaths per 100,000 standard population, down slightly from the previous period, but not statistically significant. An estimated 5,606 persons were reported as having died from injuries at work, 186 fewer than in the same period a year earlier.

Among the major race and ethnic groups, the lowest mortality was reported for the API and Hispanic populations, whose preliminary age-adjusted death rates were 41 percent and 25 percent lower, respectively, than that for the white population. In contrast, the age-adjusted death rate for the black population was 53 percent higher than that for the white population. Mortality for races (other than white and black) and ethnic groups may be substantially understated due to inconsistencies in reporting race on censuses, population surveys, and vital statistics (8,9).

The preliminary **infant mortality rate** for the 12-month period ending June 1998 was 7.2 infant deaths per 1,000 live births, the same as for the previous 12-month period (tables C and 7). Changes in the rates for the race/ethnic groups shown in table 7 were not statistically significant. Because of inconsistencies in reporting some race groups and Hispanic origin on birth and death certificates, infant mortality rates for these groups are likely to be underestimates (8,9). The linked birth/infant death data set (linked file) provides a better source of data for infant deaths and mortality rates by race and ethnicity (10).

The infant mortality rate for the leading cause of infant mortality, **Congenital anomalies**, which accounted for 22 percent of all infant deaths, declined less than 1 percent from the 12 months ending June 1997 to the 12 months ending June 1998 (table 8). The rate for **Disorders relating to short gestation and unspecified low birthweight**, the second leading cause of death for all infants, declined by less than 1 percent also for the 12-month period ending June 1998. Changes in infant mortality rates between the two periods for Congenital anomalies and for Disorders relating to short gestation and unspecified low birthweight were not statistically significant. A decline of 8 percent was reported for **SIDS**, which accounted for 10 percent of all infant deaths. While deaths due to SIDS have been declining since 1988 (4), part of the decline in the 12-month period ending June 1998 may be attributable to delays in receiving cause-of-death information for these deaths in the preliminary data file.

By place of residence, **Hawaii** had the lowest mortality, with an age-adjusted death rate of 377.3 deaths per 100,000 U.S. standard population. Mortality in the **District of Columbia** was the highest among

the States, with an age-adjusted death rate of 691.1 per 100,000 U.S. standard population (table 6). As the District of Columbia is a metropolitan area, its rates are not comparable with those of States.

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Table 1. Births and birth rates, by age, race and Hispanic origin of mother: United States, final data for 12 months ending June 1997 and preliminary data for 12 months ending June 1998

[Data for 1998 are based on a continuous file of records received from the States. Figures for 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age and race/Hispanic origin	1998		1997	
	Number	Rate	Number	Rate
All races				
15-44 years ¹	3,908,470	65.1	3,892,431	65.2
10-14 years	9,734	1.0	10,647	1.1
15-19 years	483,625	51.5	488,276	53.4
15-17 years	177,375	31.2	183,360	33.1
18-19 years	306,251	82.8	304,916	84.8
20-24 years	953,484	110.5	942,051	110.7
25-29 years	1,075,693	114.4	1,073,685	113.8
30-34 years	886,815	86.2	894,000	84.5
35-39 years	417,105	36.7	406,289	35.9
40-44 years	78,422	7.2	74,171	6.9
45-49 years	3,441	0.4	3,243	0.3
White, total ²				
15-44 years ¹	3,093,843	64.2	3,086,023	64.2
10-14 years	4,871	0.7	5,298	0.7
15-19 years	339,421	45.7	341,191	47.2
15-17 years	118,889	26.4	121,761	27.8
18-19 years	220,531	75.3	219,430	77.0
20-24 years	729,035	106.8	721,768	107.2
25-29 years	875,907	117.5	877,399	116.6
30-34 years	734,989	89.1	742,693	87.0
35-39 years	343,320	37.0	335,173	36.2
40-44 years	63,441	7.1	59,854	6.8
45-49 years	2,733	0.3	2,589	0.3
White, non-Hispanic				
15-44 years ¹	2,349,374	57.4	2,345,259	57.1
10-14 years	2,200	0.4	2,394	0.4
15-19 years	220,298	35.8	222,014	36.7
15-17 years	70,971	19.0	73,371	20.0
18-19 years	149,327	61.7	148,643	62.6
20-24 years	508,083	90.6	501,515	89.8
25-29 years	676,631	108.4	680,217	107.2
30-34 years	602,514	86.6	609,813	84.3
35-39 years	285,626	35.6	278,539	34.6
40-44 years	51,661	6.6	48,648	6.3
45-49 years	2,241	0.3	2,071	0.3
Black, total ²				
15-44 years ¹	605,011	70.7	601,045	71.1
10-14 years	4,509	3.1	4,939	3.4
15-19 years	127,504	86.5	130,787	90.5
15-17 years	52,039	58.7	55,267	63.4
18-19 years	75,465	128.5	75,520	131.8
20-24 years	185,604	140.1	181,192	138.8
25-29 years	137,130	99.9	135,542	99.7
30-34 years	94,725	65.1	94,873	64.0
35-39 years	46,009	30.2	44,709	29.7
40-44 years	9,178	6.5	8,662	6.4
45-49 years	349	0.3	340	0.3
American Indian, total ^{2,3}				
15-44 years ¹	39,488	69.8	37,979	68.5
10-14 years	172	1.4	209	1.8
15-19 years	7,967	71.2	7,729	72.5
15-17 years	3,142	44.5	3,120	46.1
18-19 years	4,825	116.8	4,609	118.6
20-24 years	12,676	136.7	12,206	134.4
25-29 years	9,508	102.9	8,879	98.3
30-34 years	5,841	64.9	5,797	63.5
35-39 years	2,764	29.9	2,628	28.6
40-44 years	541	6.3	512	6.1
45-49 years	19	*	19	*

See footnotes at end of table.

Table 1. Births and birth rates, by age, race and Hispanic origin of mother: United States, final data for 12 months ending June 1997 and preliminary data for 12 months ending June 1998 -Con.

[Data for 1998 are based on a continuous file of records received from the States. Figures for 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age and race/Hispanic origin	1998		1997	
	Number	Rate	Number	Rate
Asian or Pacific Islander, total ²				
15-44 years ¹	170,127	64.1	167,384	65.6
10-14 years	182	0.5	201	0.5
15-19 years	8,734	22.8	8,569	24.0
15-17 years	3,305	13.9	3,212	14.5
18-19 years	5,429	37.6	5,357	39.8
20-24 years	26,169	68.6	26,885	70.6
25-29 years	53,149	111.1	51,865	111.1
30-34 years	51,260	105.2	50,637	108.3
35-39 years	25,013	52.5	23,779	52.5
40-44 years	5,262	11.7	5,143	12.0
45-49 years	340	0.9	295	0.8
Hispanic ⁴				
15-44 years ¹	717,307	100.4	708,853	104.6
10-14 years	2,720	2.2	2,955	2.4
15-19 years	118,746	93.1	118,726	100.0
15-17 years	48,068	62.8	48,486	67.8
18-19 years	70,677	138.7	70,240	148.6
20-24 years	217,818	177.1	216,162	188.8
25-29 years	191,440	158.7	188,055	163.1
30-34 years	122,775	97.4	121,405	98.6
35-39 years	52,600	44.6	51,001	45.4
40-44 years	10,766	10.8	10,099	10.8
45-49 years	439	0.6	446	0.6

* Figure does not meet standards of reliability or precision.

¹ Numbers include births to women of all ages. Fertility rates computed by relating total births, regardless of age of mother, to women aged 15-44 years.

² 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.

³ Includes births to Aleuts and Eskimos.

⁴ 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 2. Birth rates by age of mother, live-birth order, and race and Hispanic origin of mother: United States, preliminary data for 12 months ending June 1998

[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 ¹	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years
All races	65.1	1.0	51.5	110.5	114.4	86.2	36.7	7.2	0.4
1st child	26.4	1.0	40.2	50.8	42.4	24.3	8.1	1.5	0.1
2d child	21.2	0.0	9.4	38.4	40.0	31.3	11.9	2.0	0.1
3d child	10.7	*	1.6	15.3	20.3	18.2	8.6	1.5	0.1
4th child and over	6.8	*	0.2	6.1	11.8	12.4	8.0	2.2	0.1
White, total ²	64.2	0.7	45.7	106.8	117.5	89.1	37.0	7.1	0.3
1st child	26.1	0.7	36.6	51.1	44.7	25.3	8.3	1.5	0.1
2d child	21.3	0.0	7.8	37.7	41.9	32.8	12.1	1.9	0.1
3d child	10.5	*	1.2	13.6	20.6	19.1	8.8	1.5	0.1
4th child and over	6.2	*	0.1	4.3	10.3	11.9	7.8	2.1	0.1
White, non-Hispanic	57.4	0.4	35.8	90.6	108.4	86.6	35.6	6.6	0.3
1st child	23.9	0.4	29.4	45.3	44.7	26.2	8.5	1.6	0.1
2d child	19.5	*	5.6	31.7	39.0	33.2	12.2	1.9	0.1
3d child	9.1	*	0.7	10.7	17.1	17.6	8.4	1.4	0.1
4th child and over	4.8	*	0.1	3.0	7.6	9.6	6.5	1.7	0.1
Black, total ²	70.7	3.1	86.5	140.1	99.9	65.1	30.2	6.5	0.3
1st child	27.1	3.0	62.9	52.0	25.7	14.4	5.4	1.1	0.0
2d child	20.9	0.1	18.6	46.9	32.1	20.2	8.5	1.5	0.1
3d child	12.2	*	4.3	25.9	21.6	14.7	6.9	1.4	0.1
4th child and over	10.6	*	0.7	15.3	20.4	15.8	9.4	2.6	0.1
American Indian, total ^{2,3}	69.8	1.4	71.2	136.7	102.9	64.9	29.9	6.3	*
1st child	24.8	1.4	54.3	49.9	21.0	9.6	3.3	0.6	*
2d child	19.2	*	14.5	49.2	29.2	14.8	5.8	1.1	*
3d child	12.3	*	2.2	25.9	25.3	14.3	6.2	1.2	*
4th child and over	13.6	*	0.3	11.7	27.4	26.1	14.7	3.4	*
Asian or Pacific Islander, total ² ...	64.1	0.5	22.8	68.6	111.1	105.2	52.5	11.7	0.9
1st child	29.4	0.5	18.2	41.0	58.0	40.0	14.4	2.8	0.2
2d child	21.4	*	3.6	18.4	34.4	41.8	20.3	3.8	0.2
3d child	8.2	*	0.8	5.9	11.9	15.0	10.7	2.5	0.1
4th child and over	5.1	*	0.2	3.3	6.9	8.4	7.0	2.6	0.4
Hispanic ⁴	100.4	2.2	93.1	177.1	158.7	97.4	44.6	10.8	0.6
1st child	37.6	2.1	70.6	76.0	42.0	18.3	6.5	1.4	0.1
2d child	30.6	0.0	18.8	63.9	54.7	28.5	10.6	1.9	0.1
3d child	18.4	*	3.3	26.8	37.7	26.1	11.1	2.3	0.1
4th child and over	13.8	*	0.5	10.4	24.4	24.5	16.3	5.2	0.3

* Figure does not meet standards of reliability or precision.

0.0 Quantity more than zero but less than 0.05.

¹ Fertility rates computed by relating total births, regardless of age of mother, to women aged 15-44 years.² 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.³ Includes births to Aleuts and Eskimos.⁴ 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. Live births by race and Hispanic origin of mother: United States, each State, Puerto Rico, Virgin Islands, and Guam, preliminary data for 12 months ending June 1998, and birth and fertility rates, final data for 12 months ending June 1997 and preliminary data for 12 months ending June 1998

[By place of residence. Data are based on a continuous file of records received from the States. Birth rates per 1,000 total population; fertility rates per 1,000 women aged 15-44 years. Figures for 1998 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 ¹	White, non-Hispanic	Black ¹	American Indian ^{1,2}	Asian or Pacific Islander ¹	Hispanic ³	1998	1997	1998	1997
United States ⁴	3,908,470	3,093,843	2,349,374	605,011	39,488	170,127	717,307	14.5	14.6	65.1	65.2
Alabama	61,986	41,220	40,054	20,154	142	470	1,170	14.4	14.2	63.2	62.4
Alaska	9,917	6,679	6,150	428	2,377	433	645	16.3	16.5	72.2	71.5
Arizona	76,544	66,825	38,207	2,585	5,409	1,725	28,643	16.8	17.1	78.9	77.4
Arkansas	36,561	28,094	26,449	7,861	239	367	1,618	14.5	14.6	67.5	67.5
California	522,276	424,513	176,959	36,849	3,390	57,524	247,687	16.2	16.7	72.0	73.7
Colorado	57,755	52,785	39,480	2,688	643	1,639	13,568	14.8	14.7	65.6	64.2
Connecticut	43,319	36,366	28,515	5,420	104	1,429	5,914	13.2	13.4	60.6	60.8
Delaware	10,426	7,555	6,852	2,614	22	235	678	14.3	14.1	61.3	60.0
District of Columbia	7,697	1,976	1,260	5,569	7	145	711	14.6	15.3	59.9	61.9
Florida	193,337	144,328	107,151	44,053	790	4,166	38,264	13.2	13.4	65.2	65.5
Georgia	119,855	76,603	68,588	40,306	231	2,715	7,594	16.0	15.9	67.0	65.9
Hawaii	17,474	4,334	3,679	549	190	12,401	2,127	14.7	15.0	69.3	70.2
Idaho	18,976	18,371	15,655	82	294	229	2,405	15.7	15.7	71.8	71.3
Illinois	181,643	139,073	105,359	35,795	237	6,538	33,853	15.3	15.4	68.7	68.9
Indiana	83,122	73,323	69,524	8,660	109	1,029	3,533	14.2	14.3	62.6	62.8
Iowa	37,065	34,985	32,996	1,096	213	771	1,690	13.0	13.0	61.0	60.4
Kansas	37,952	33,824	29,787	2,803	353	972	3,745	14.6	14.4	66.9	65.7
Kentucky	54,049	48,648	47,904	4,792	93	516	761	13.8	13.6	60.9	59.7
Louisiana	66,360	37,854	36,620	27,257	282	967	1,248	15.2	15.1	66.0	65.8
Maine	13,698	13,331	12,632	84	105	178	139	11.0	11.0	49.6	49.3
Maryland	71,051	44,420	40,838	23,779	210	2,642	3,354	13.9	14.0	59.6	59.8
Massachusetts	81,314	69,307	62,143	7,951	150	3,906	8,334	13.3	13.2	58.5	57.1
Michigan	133,234	105,187	93,021	24,301	744	3,001	5,678	13.6	14.0	59.8	61.3
Minnesota	64,467	56,936	51,060	3,458	1,146	2,927	2,685	13.8	13.9	61.4	61.4
Mississippi	42,470	22,611	22,205	19,283	214	362	357	15.6	15.2	67.8	66.3
Missouri	74,774	61,934	60,126	11,370	273	1,197	1,817	13.8	13.8	62.8	62.2
Montana	10,725	9,340	8,716	37	1,251	97	346	12.2	12.4	58.4	58.7
Nebraska	23,534	21,519	18,979	1,222	360	433	2,050	14.2	14.1	65.1	64.3
Nevada	27,696	23,500	15,204	2,160	450	1,586	8,266	16.5	16.5	77.6	76.2
New Hampshire	14,456	14,135	13,427	121	37	163	242	12.3	12.4	52.9	52.8
New Jersey	113,246	84,331	66,014	21,083	161	7,671	19,881	14.1	14.3	64.0	64.7
New Mexico	27,031	22,847	9,528	472	3,322	390	13,468	15.6	15.8	70.9	71.1
New York	260,214	187,368	122,091	55,077	653	17,116	51,120	14.3	14.3	64.7	63.8
North Carolina	109,221	77,507	70,130	27,821	1,691	2,201	7,498	14.7	14.4	65.6	63.6
North Dakota	8,222	7,333	7,014	84	723	82	158	12.8	13.0	60.0	60.6
Ohio	152,381	127,150	123,720	22,681	287	2,263	3,449	13.6	13.7	60.9	60.6
Oklahoma	49,042	38,624	35,121	4,839	4,730	849	3,470	14.8	14.3	68.9	66.5
Oregon	44,745	41,085	34,863	914	770	1,976	6,223	13.8	13.6	64.0	62.7
Pennsylvania	145,692	122,218	115,217	20,616	351	2,507	6,671	12.1	12.1	56.5	55.9
Rhode Island	12,413	10,859	7,687	957	155	441	1,782	12.6	12.6	56.4	56.3
South Carolina	53,093	33,721	32,534	18,617	126	629	1,205	14.1	13.9	61.4	60.1
South Dakota	10,148	8,315	8,179	97	1,643	93	143	13.8	14.3	63.4	66.8
Tennessee	76,044	58,153	56,302	16,680	128	1,083	1,880	14.2	13.9	62.5	61.1
Texas	336,047	286,316	138,751	39,573	763	9,396	147,246	17.3	17.4	75.8	75.7
Utah	44,272	42,082	37,476	251	658	1,281	4,541	21.5	21.3	91.0	90.1
Vermont	6,578	6,495	6,292	19	9	55	33	11.2	11.4	49.4	50.0
Virginia	92,827	67,492	61,950	21,454	253	3,627	5,620	13.8	13.9	58.6	58.7
Washington	79,359	68,722	57,371	3,139	1,815	5,683	9,650	14.1	14.1	62.7	62.1
West Virginia	20,714	19,800	19,702	775	15	124	85	11.4	11.4	53.1	52.7
Wisconsin	67,129	57,884	54,503	6,474	914	1,857	3,468	13.0	12.9	58.6	58.0
Wyoming	6,315	5,961	5,386	59	255	40	594	13.2	13.1	61.1	59.9
Puerto Rico	63,242	58,396	---	4,846	---	---	---	16.5	16.8	70.1	71.3
Virgin Islands	1,914	347	96	1,512	54	1	344	16.7	18.2	76.2	82.5
Guam	4,265	387	341	58	4	3,816	45	29.3	30.2	137.5	138.5

--- Data not available.

¹ 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.

² Includes births to Aleuts and Eskimos.

³ Includes all persons of Hispanic origin of any race; see Technical notes.

⁴ Excludes data for Puerto Rico, Virgin Islands, and Guam.

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. Deaths and death rates, by age, sex, and race and Hispanic origin and age-adjusted death rates, by sex and race and Hispanic origin: United States, preliminary data for 12 months ending June 1997 and 1998

[Data are based on a continuous file of records received from the States. Age-specific rates per 100,000 population in specified group; age-adjusted rates per 100,000 U.S. standard population. The number of deaths and death rates for Hispanic origin and specified races other than white and black should be interpreted with caution because of inconsistencies between reporting Hispanic origin and race on death certificates and censuses and surveys; see Technical notes. Figures for the 12 months ending with June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race/Hispanic origin, and sex	12 months ending with June			
	1998		1997	
	Number	Rate	Number	Rate
All races, both sexes				
All ages	2,329,535	865.8	2,321,933	871.3
Under 1 year ¹	28,089	742.9	28,078	750.3
1-4 years	5,325	34.9	5,642	36.6
5-14 years	7,829	20.1	8,192	21.2
15-24 years	31,019	84.1	31,907	87.8
25-34 years	43,550	111.3	47,820	119.4
35-44 years	88,323	199.5	91,966	210.2
45-54 years	144,995	424.4	144,285	436.7
55-64 years	232,609	1,044.6	232,806	1,080.8
65-74 years	462,075	2,501.2	470,332	2,531.1
75-84 years	677,499	5,715.2	670,982	5,789.4
85 years and over	607,813	15,230.4	589,460	15,426.3
Not stated	408	...	463	...
Age-adjusted rate ² .....	...	474.3	...	485.8
All races, male				
All ages	1,155,372	879.1	1,161,027	890.1
Under 1 year ¹	15,667	810.8	15,843	827.9
1-4 years	3,017	38.7	3,194	40.5
5-14 years	4,660	23.3	4,854	24.5
15-24 years	22,964	121.6	23,710	126.9
25-34 years	30,116	154.9	33,544	167.5
35-44 years	56,979	259.4	60,569	278.3
45-54 years	90,624	542.8	90,531	560.0
55-64 years	139,106	1,311.5	139,904	1,364.1
65-74 years	261,657	3,163.0	267,286	3,221.6
75-84 years	331,959	7,054.1	329,330	7,208.7
85 years and over	198,316	17,072.7	191,913	17,545.6
Not stated	308	...	349	...
Age-adjusted rate ² .....	...	594.0	...	613.3
All races, female				
All ages	1,174,163	853.1	1,160,906	853.3
Under 1 year ¹	12,422	672.0	12,235	669.2
1-4 years	2,308	31.0	2,448	32.6
5-14 years	3,169	16.7	3,338	17.7
15-24 years	8,055	44.7	8,197	46.4
25-34 years	13,434	68.2	14,276	71.3
35-44 years	31,344	140.6	31,397	142.7
45-54 years	54,370	311.2	53,754	318.6
55-64 years	93,503	801.8	92,902	823.3
65-74 years	200,418	1,964.6	203,046	1,974.1
75-84 years	345,540	4,833.8	341,652	4,866.0
85 years and over	409,497	14,474.0	397,547	14,576.4
Not stated	100	...	114	...
Age-adjusted rate ² .....	...	373.8	...	379.1

See footnotes at end of table.

Table 4. Deaths and death rates by age, sex, and race and Hispanic origin and age-adjusted death rates, by sex and race and Hispanic origin: United States, preliminary data for 12 months ending June 1997 and 1998 - Con.

[Data are based on a continuous file of records received from the States. Age-specific rates per 100,000 population in specified group; age-adjusted rates per 100,000 U.S. standard population. The number of deaths and death rates for Hispanic origin and specified races other than white and black should be interpreted with caution because of inconsistencies between reporting Hispanic origin and race on death certificates and censuses and surveys; see Technical notes. Figures for the 12 months ending with June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race/Hispanic origin, and sex	12 months ending with June			
	1998		1997	
	Number	Rate	Number	Rate
White, total ³ , both sexes				
All ages	2,011,089	905.1	2,002,697	908.1
Under 1 year ¹	18,473	615.3	18,574	626.2
1-4 years	3,666	30.3	3,945	32.3
5-14 years	5,647	18.3	5,942	19.4
15-24 years	22,299	76.0	22,678	78.4
25-34 years	30,831	97.7	33,687	103.8
35-44 years	64,865	177.0	66,576	183.2
45-54 years	111,381	384.1	110,991	394.5
55-64 years	188,562	983.6	188,840	1,017.5
65-74 years	397,688	2,445.7	405,552	2,471.4
75-84 years	609,308	5,686.8	603,953	5,757.3
85 years and over	558,082	15,450.0	541,610	15,658.5
Not stated	287	...	349	...
Age-adjusted rate ² .....	...	452.7	...	462.4
White ³ , male				
All ages	988,911	906.6	991,960	914.4
Under 1 year ¹	10,262	667.3	10,576	695.6
1-4 years	2,102	33.9	2,267	36.2
5-14 years	3,385	21.4	3,551	22.6
15-24 years	16,301	108.0	16,578	110.8
25-34 years	21,592	136.2	23,945	145.9
35-44 years	42,722	232.5	44,679	244.6
45-54 years	70,341	490.8	70,130	503.7
55-64 years	113,517	1,228.9	114,377	1,279.6
65-74 years	227,535	3,099.3	232,601	3,149.9
75-84 years	299,852	7,025.7	297,704	7,173.0
85 years and over	181,081	17,361.7	175,276	17,871.2
Not stated	222	...	276	...
Age-adjusted rate ² .....	...	566.4	...	582.9
White ³ , female				
All ages	1,022,178	903.6	1,010,737	902.0
Under 1 year ¹	8,211	560.7	7,998	553.2
1-4 years	1,564	26.5	1,678	28.2
5-14 years	2,263	15.1	2,391	16.1
15-24 years	5,998	42.1	6,100	43.7
25-34 years	9,239	58.8	9,742	60.7
35-44 years	22,144	121.2	21,897	121.1
45-54 years	41,040	279.8	40,861	287.5
55-64 years	75,045	755.5	74,463	773.9
65-74 years	170,153	1,907.7	172,951	1,916.3
75-84 years	309,457	4,800.3	306,249	4,830.5
85 years and over	377,001	14,674.0	366,334	14,782.8
Not stated	65	...	73	...
Age-adjusted rate ² .....	...	356.7	...	361.0

See footnotes at end of table.

Table 4. Deaths and death rates by age, sex, and race and Hispanic origin and age-adjusted death rates, by sex and race and Hispanic origin: United States, preliminary data for 12 months ending June 1997 and 1998 - Con.

[Data are based on a continuous file of records received from the States. Age-specific rates per 100,000 population in specified group; age-adjusted rates per 100,000 U.S. standard population. The number of deaths and death rates for Hispanic origin and specified races other than white and black should be interpreted with caution because of inconsistencies between reporting Hispanic origin and race on death certificates and censuses and surveys; see Technical notes. Figures for the 12 months ending with June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race/Hispanic origin, and sex	12 months ending with June			
	1998		1997	
	Number	Rate	Number	Rate
White, non-Hispanic, both sexes				
All ages	1,910,112	978.9	1,888,608	971.9
Under 1 year ¹	14,093	594.8	14,202	604.6
1-4 years	2,879	29.8	3,104	31.6
5-14 years	4,716	18.4	4,935	19.2
15-24 years	17,824	72.5	18,032	74.2
25-34 years	25,413	94.5	27,576	99.4
35-44 years	57,459	176.2	58,167	179.2
45-54 years	102,085	384.1	101,059	391.2
55-64 years	176,721	995.7	175,516	1,020.0
65-74 years	378,447	2,474.0	383,860	2,479.1
75-84 years	589,086	5,750.3	580,269	5,771.1
85 years and over	541,284	15,681.7	521,773	15,755.4
Not stated	104	...	115	...
Age-adjusted rate ² .....	...	455.2	...	460.7
White, non-Hispanic, male				
All ages	932,112	976.8	927,613	976.5
Under 1 year ¹	7,912	651.3	8,092	672.1
1-4 years	1,656	33.4	1,797	35.7
5-14 years	2,849	21.6	2,966	22.4
15-24 years	12,711	100.8	12,891	103.4
25-34 years	17,475	130.2	19,280	139.2
35-44 years	37,516	229.8	38,637	237.8
45-54 years	64,201	488.2	63,496	496.9
55-64 years	106,416	1,241.0	106,133	1,278.7
65-74 years	216,658	3,133.5	220,222	3,159.0
75-84 years	289,839	7,107.2	286,017	7,191.4
85 years and over	174,811	17,670.4	167,995	18,048.5
Not stated	69	...	87	...
Age-adjusted rate ² .....	...	568.1	...	579.5
White, non-Hispanic, female				
All ages	978,000	980.8	960,995	967.5
Under 1 year ¹	6,181	535.4	6,110	533.7
1-4 years	1,223	26.0	1,307	27.3
5-14 years	1,867	14.9	1,969	15.7
15-24 years	5,113	42.7	5,141	43.4
25-34 years	7,938	58.9	8,296	59.7
35-44 years	19,943	122.4	19,530	120.5
45-54 years	37,885	282.1	37,563	287.8
55-64 years	70,306	766.4	69,383	779.0
65-74 years	161,789	1,930.0	163,638	1,922.4
75-84 years	299,247	4,852.9	294,252	4,841.6
85 years and over	366,472	14,882.6	353,778	14,858.9
Not stated	36	...	28	...
Age-adjusted rate ² .....	...	360.2	...	361.5

See footnotes at end of table.

Table 4. Deaths and death rates by age, sex, and race and Hispanic origin and age-adjusted death rates, by sex and race and Hispanic origin: United States, preliminary data for 12 months ending June 1997 and 1998 - Con.

[Data are based on a continuous file of records received from the States. Age-specific rates per 100,000 population in specified group; age-adjusted rates per 100,000 U.S. standard population. The number of deaths and death rates for Hispanic origin and specified races other than white and black should be interpreted with caution because of inconsistencies between reporting Hispanic origin and race on death certificates and censuses and surveys; see Technical notes. Figures for the 12 months ending with June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race/Hispanic origin, and sex	12 months ending with June			
	1998		1997	
	Number	Rate	Number	Rate
Black, total³, both sexes				
All ages	276,670	808.8	278,519	825.6
Under 1 year ¹	8,518	1,524.0	8,536	1,516.2
1-4 years	1,402	61.1	1,460	61.9
5-14 years	1,843	30.1	1,859	30.8
15-24 years	7,563	134.7	7,950	144.0
25-34 years	11,135	207.3	12,509	231.6
35-44 years	20,900	379.9	22,819	423.6
45-54 years	29,708	809.6	29,475	842.3
55-64 years	38,595	1,717.0	38,609	1,774.9
65-74 years	55,818	3,366.1	56,365	3,437.9
75-84 years	58,359	6,677.2	57,587	6,728.0
85 years and over	42,718	14,212.5	41,248	14,248.2
Not stated	112	...	102	...
Age-adjusted rate ² .....	...	694.6	...	719.3
Black ³, male				
All ages	143,368	883.3	146,225	913.0
Under 1 year ¹	4,799	1,694.3	4,714	1,653.1
1-4 years	796	68.5	802	67.1
5-14 years	1,079	34.7	1,070	34.9
15-24 years	5,856	208.0	6,208	224.0
25-34 years	7,496	294.9	8,472	330.9
35-44 years	12,686	492.4	14,277	566.4
45-54 years	17,967	1,080.5	18,156	1,144.9
55-64 years	22,288	2,287.2	22,322	2,365.0
65-74 years	29,456	4,238.0	29,960	4,369.7
75-84 years	26,961	8,302.5	26,663	8,462.8
85 years and over	13,902	15,784.6	13,516	15,990.9
Not stated	82	...	65	...
Age-adjusted rate ² .....	...	894.0	...	935.9
Black ³, female				
All ages	133,302	741.5	132,294	746.6
Under 1 year ¹	3,719	1,349.0	3,822	1,375.7
1-4 years	605	53.5	658	56.6
5-14 years	764	25.4	789	26.5
15-24 years	1,707	61.0	1,742	63.3
25-34 years	3,639	128.6	4,037	142.1
35-44 years	8,214	280.8	8,542	298.0
45-54 years	11,741	585.0	11,319	591.6
55-64 years	16,307	1,280.6	16,287	1,322.6
65-74 years	26,362	2,736.9	26,405	2,768.1
75-84 years	31,398	5,716.3	30,924	5,717.5
85 years and over	28,817	13,561.4	27,732	13,529.6
Not stated	30	...	37	...
Age-adjusted rate ² .....	...	540.3	...	551.7

See footnotes at end of table.

Table 4. Deaths and death rates by age, sex, and race and Hispanic origin and age-adjusted death rates, by sex and race and Hispanic origin: United States, preliminary data for 12 months ending June 1997 and 1998 - Con.

[Data are based on a continuous file of records received from the States. Age-specific rates per 100,000 population in specified group; age-adjusted rates per 100,000 U.S. standard population. The number of deaths and death rates for Hispanic origin and specified races other than white and black should be interpreted with caution because of inconsistencies between reporting Hispanic origin and race on death certificates and censuses and surveys; see Technical notes. Figures for the 12 months ending with June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race/Hispanic origin, and sex	12 months ending with June			
	1998		1997	
	Number	Rate	Number	Rate
American Indian, total ^{3, 4} , both sexes				
All ages	10,737	458.4	10,271	445.4
Under 1 year ¹	356	876.8	315	788.5
1-4 years	98	61.5	91	56.3
5-14 years	113	24.2	140	30.1
15-24 years	468	113.5	490	122.1
25-34 years	649	173.7	678	181.3
35-44 years	1,019	289.6	966	279.4
45-54 years	1,254	517.6	1,209	518.8
55-64 years	1,590	1,131.3	1,505	1,110.8
65-74 years	2,042	2,308.3	1,922	2,224.0
75-84 years	1,879	3,952.1	1,806	4,024.1
85 years and over	1,266	6,963.7	1,143	6,519.9
Not stated	2	...	6	...
Age-adjusted rate ² .....	...	461.9	...	457.0
American Indian ^{3, 4} , male				
All ages	5,937	512.0	5,819	508.4
Under 1 year ¹	203	995.6	187	930.8
1-4 years	44	54.5	45	55.0
5-14 years	64	27.0	81	34.3
15-24 years	350	168.4	371	181.8
25-34 years	434	227.0	496	258.1
35-44 years	660	380.4	634	372.8
45-54 years	751	641.1	729	646.4
55-64 years	947	1,432.4	880	1,378.3
65-74 years	1,099	2,758.7	1,067	2,729.6
75-84 years	882	4,474.2	873	4,739.7
85 years and over	502	8,707.7	452	7,882.8
Not stated	-	...	4	...
Age-adjusted rate ² .....	...	569.4	...	573.3
American Indian ^{3, 4} , female				
All ages	4,800	405.8	4,452	383.4
Under 1 year ¹	153	756.9	128	644.5
1-4 years	53	67.3	46	57.6
5-14 years	48	20.9	59	25.7
15-24 years	119	58.2	119	60.3
25-34 years	215	117.9	182	100.2
35-44 years	359	201.2	332	189.0
45-54 years	503	402.0	480	399.1
55-64 years	643	863.9	625	872.4
65-74 years	943	1,939.3	855	1,806.5
75-84 years	997	3,582.3	933	3,525.9
85 years and over	765	6,161.9	691	5,857.4
Not stated	2	...	2	...
Age-adjusted rate ² .....	...	366.9	...	353.3

See footnotes at end of table.

Table 4. Deaths and death rates by age, sex, and race and Hispanic origin and age-adjusted death rates, by sex and race and Hispanic origin: United States, preliminary data for 12 months ending June 1997 and 1998 - Con.

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Age, race/Hispanic origin, and sex	12 months ending with June			
	1998		1997	
	Number	Rate	Number	Rate
Asian or Pacific Islander, total ³ , both sexes				
All ages	31,039	301.0	30,446	307.1
Under 1 year ¹	743	414.9	653	377.5
1-4 years	160	22.9	146	21.5
5-14 years	227	14.0	251	16.1
15-24 years	688	44.9	789	52.9
25-34 years	935	51.5	946	52.7
35-44 years	1,539	87.1	1,605	95.4
45-54 years	2,652	212.0	2,610	223.2
55-64 years	3,862	545.0	3,852	574.6
65-74 years	6,527	1,398.1	6,493	1,453.8
75-84 years	7,953	3,642.4	7,636	3,842.4
85 years and over	5,747	9,598.2	5,459	9,886.8
Not stated	7	...	6	...
Age-adjusted rate ² .....	...	264.9	...	278.1
Asian or Pacific Islander ³ , male				
All ages	17,157	345.9	17,023	354.8
Under 1 year ¹	403	443.5	366	416.2
1-4 years	74	20.8	80	23.1
5-14 years	132	15.9	152	19.1
15-24 years	457	59.5	553	73.4
25-34 years	594	70.0	631	73.4
35-44 years	911	108.4	979	122.1
45-54 years	1,565	268.3	1,516	277.3
55-64 years	2,354	715.3	2,325	749.5
65-74 years	3,566	1,817.7	3,658	1,950.3
75-84 years	4,264	4,556.3	4,090	4,829.9
85 years and over	2,832	11,432.7	2,669	11,724.1
Not stated	4	...	4	...
Age-adjusted rate ² .....	...	335.7	...	356.7
Asian or Pacific Islander ³ , female				
All ages	13,882	259.4	13,423	262.3
Under 1 year ¹	340	385.5	287	337.4
1-4 years	86	25.0	66	19.8
5-14 years	94	12.0	99	13.1
15-24 years	231	30.2	236	32.0
25-34 years	341	35.3	315	33.7
35-44 years	628	67.8	626	71.1
45-54 years	1,087	162.8	1,094	175.6
55-64 years	1,508	397.3	1,527	423.9
65-74 years	2,960	1,093.6	2,835	1,094.3
75-84 years	3,689	2,956.8	3,546	3,109.2
85 years and over	2,915	8,303.7	2,790	8,597.8
Not stated	3	...	2	...
Age-adjusted rate ² .....	...	208.4	...	215.2

See footnotes at end of table.

Table 4. Deaths and death rates by age, sex, and race and Hispanic origin and age-adjusted death rates, by sex and race and Hispanic origin: United States, preliminary data for 12 months ending June 1997 and 1998 - Con.

[Data are based on a continuous file of records received from the States. Age-specific rates per 100,000 population in specified group; age-adjusted rates per 100,000 U.S. standard population. The number of deaths and death rates for Hispanic origin and specified races other than white and black should be interpreted with caution because of inconsistencies between reporting Hispanic origin and race on death certificates and censuses and surveys; see Technical notes. Figures for the 12 months ending with June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race/Hispanic origin, and sex	12 months ending with June			
	1998		1997	
	Number	Rate	Number	Rate
Hispanic ⁵ , both sexes				
All ages	95,814	322.5	94,585	328.9
Under 1 year ¹	4,262	615.8	4,111	609.5
1-4 years	800	29.9	838	32.0
5-14 years	934	16.6	968	18.2
15-24 years	4,491	86.2	4,470	88.6
25-34 years	5,385	104.9	5,824	112.3
35-44 years	7,219	162.7	7,780	181.7
45-54 years	8,977	337.2	8,797	347.6
55-64 years	11,339	729.1	11,432	773.8
65-74 years	18,265	1,746.1	17,710	1,764.6
75-84 years	18,757	3,712.4	18,137	3,878.6
85 years and over	15,336	8,991.0	14,453	9,246.0
Not stated	50	...	65	...
Age-adjusted rate ² .....	...	341.5	...	355.4
Hispanic ⁵ , male				
All ages	54,087	361.3	54,544	369.1
Under 1 year ¹	2,291	648.8	2,343	677.7
1-4 years	455	33.2	466	34.7
5-14 years	533	18.6	560	20.6
15-24 years	3,612	133.4	3,569	131.5
25-34 years	4,097	153.6	4,465	159.4
35-44 years	5,060	223.5	5,631	253.4
45-54 years	5,930	456.6	5,900	471.4
55-64 years	6,744	933.3	7,006	1,007.5
65-74 years	10,255	2,217.4	10,013	2,243.4
75-84 years	9,252	4,542.8	9,003	4,850.7
85 years and over	5,812	10,137.3	5,525	10,362.2
Not stated	46	...	63	...
Age-adjusted rate ² .....	...	438.3	...	458.9
Hispanic ⁵ , female				
All ages	41,727	283.2	40,041	286.4
Under 1 year ¹	1,971	581.4	1,768	537.8
1-4 years	345	26.3	372	29.2
5-14 years	400	14.6	408	15.7
15-24 years	879	35.1	901	38.6
25-34 years	1,288	52.2	1,359	57.0
35-44 years	2,159	99.4	2,149	104.3
45-54 years	3,046	223.4	2,897	226.5
55-64 years	4,594	551.7	4,426	566.0
65-74 years	8,010	1,372.5	7,697	1,381.1
75-84 years	9,505	3,151.6	9,134	3,238.8
85 years and over	9,524	8,410.7	8,928	8,668.1
Not stated	4	...	2	...
Age-adjusted rate ² .....	...	256.7	...	262.7

... Category not applicable.

- Quantity zero.

¹ Death rates are based on population estimates; they differ from infant mortality rates, which are based on live births and are shown separately for "Under 1 year."

² For method of computation, see Technical notes.

³ Race and Hispanic origin are reported separately on the death certificate. Data for persons of Hispanic origin included in the data for each race group, according to the decedent's reported race; see Technical notes.

⁴ Includes deaths among Aleuts and Eskimos.

⁵ 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 5. Deaths, death rates, and age-adjusted death rates for 72 selected causes, Human immunodeficiency virus infection, Alzheimer's disease, Injury by firearms, Drug-induced deaths, Alcohol-induced deaths, and Injury at work: United States, preliminary data for 12 months ending June 1997 and 1998

[Data are based on a continuous file of records received from the States. Rates per 100,000 population; age-adjusted rates per 100,000 U.S. standard population; see Technical notes. For explanation of asterisks preceding cause-of-death categories, see Technical notes. Figures for the 12 months ending with June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Cause of death (Based on the Ninth Revision, International Classification of Diseases, 1975)	12 months ending June					
	1998			1997		
	Number	Rate	Age-adjusted rate	Number	Rate	Age-adjusted rate
All causes	2,329,520	865.8	473.8	2,321,933	871.3	485.8
Shigellosis and amebiasis (004,006)	7	*	*	6	*	*
Certain other intestinal infections (007-009)	1,058	0.4	0.2	907	0.3	0.2
Tuberculosis (010-018)	1,135	0.4	0.3	1,180	0.4	0.3
Tuberculosis of respiratory system (010-012)	844	0.3	0.2	893	0.3	0.2
Other tuberculosis (013-018)	291	0.1	0.1	287	0.1	0.1
Whooping cough (033)	6	*	*	5	*	*
Streptococcal sore throat, scarlatina, and erysipelas (034-035)	9	*	*	10	*	*
Meningococcal infection (036)	272	0.1	0.1	290	0.1	0.1
Septicemia (038)	22,817	8.5	4.2	22,259	8.4	4.2
Acute poliomyelitis (045)	0	*	*	0	*	*
Measles (055)	3	*	*	2	*	*
Viral hepatitis (070)	4,270	1.6	1.2	3,907	1.5	1.1
Syphilis (090-097)	53	0.0	0.0	67	0.0	0.0
All other infectious and parasitic diseases (001-003,005,020-032,037,039-041,*042-*044,046-054,056-066,071-088,098-139)	20,756	7.7	6.7	29,112	10.9	9.7
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	540,702	201.0	124.3	538,553	202.1	126.5
Malignant neoplasms of lip, oral cavity, and pharynx (140-149)	7,951	3.0	2.0	7,930	3.0	2.1
Malignant neoplasms of digestive organs and peritoneum (150-159)	127,921	47.5	28.1	126,035	47.3	28.1
Malignant neoplasms of respiratory and intrathoracic organs (160-165)	159,253	59.2	38.4	157,823	59.2	39.0
Malignant neoplasm of breast (174-175)	42,310	15.7	10.4	42,448	15.9	10.7
Malignant neoplasms of genital organs (179-187)	58,647	21.8	11.8	59,443	22.3	12.2
Malignant neoplasms of urinary organs (188-189)	23,590	8.8	5.0	23,170	8.7	5.0
Malignant neoplasms of all other and unspecified sites (170-173,190-199)	65,517	24.3	15.9	66,075	24.8	16.4
Leukemia (204-208)	20,193	7.5	4.6	20,181	7.6	4.7
Other malignant neoplasms of lymphatic and hematopoietic tissues (200-203)	35,320	13.1	8.0	35,448	13.3	8.3
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature (210-239)	7,831	2.9	1.6	7,659	2.9	1.6
Diabetes mellitus (250)	63,813	23.7	13.5	62,436	23.4	13.6
Nutritional deficiencies (260-269)	4,013	1.5	0.5	3,839	1.4	0.5
Anemias (280-285)	4,547	1.7	0.8	4,390	1.6	0.8
Meningitis (320-322)	769	0.3	0.2	796	0.3	0.3
Major cardiovascular diseases (390-448)	943,753	350.8	163.0	949,865	356.4	168.5
Diseases of heart (390-398,402,404-429)	727,624	270.4	128.1	732,027	274.7	132.6
Rheumatic fever and rheumatic heart disease (390-398)	5,099	1.9	1.1	4,880	1.8	1.0
Hypertensive heart disease (402)	26,766	9.9	5.1	26,448	9.9	5.2
Hypertensive heart and renal disease (404)	2,426	0.9	0.4	2,500	0.9	0.4
Ischemic heart disease (410-414)	465,297	172.9	81.2	472,264	177.2	84.9
Acute myocardial infarction (410)	205,930	76.5	38.9	209,591	78.6	40.7
Other acute and subacute forms of ischemic heart disease (411)	2,904	1.1	0.6	3,057	1.1	0.6
Angina pectoris (413)	745	0.3	0.1	778	0.3	0.1
Old myocardial infarction and other forms of chronic ischemic heart disease (412,414)	255,718	95.0	41.6	258,838	97.1	43.4
Other diseases of endocardium (424)	18,111	6.7	2.7	17,414	6.5	2.7
All other forms of heart disease (415-423,425-429)	209,923	78.0	37.6	208,521	78.2	38.3
Hypertension with or without renal disease (401,403)	13,788	5.1	2.3	13,312	5.0	2.3
Cerebrovascular diseases (430-438)	159,059	59.1	25.4	160,459	60.2	26.2
Intracerebral and other intracranial hemorrhage (431-432)	25,890	9.6	5.5	24,859	9.3	5.4
Cerebral thrombosis and unspecified occlusion of cerebral arteries (434.0,434.9)	11,497	4.3	1.7	12,605	4.7	1.9
Cerebral embolism (434.1)	630	0.2	0.1	623	0.2	0.1
All other and late effects of cerebrovascular diseases (430,433,435-438)	121,043	45.0	18.0	122,372	45.9	18.7
Atherosclerosis (440)	15,563	5.8	2.0	16,362	6.1	2.1
Other diseases of arteries, arterioles, and capillaries (441-448)	27,719	10.3	5.2	27,705	10.4	5.3
Acute bronchitis and bronchiolitis (466)	476	0.2	0.1	485	0.2	0.1
Pneumonia and influenza (480-487)	92,048	34.2	13.3	87,842	33.0	13.2
Pneumonia (480-486)	90,137	33.5	13.0	86,876	32.6	13.1
Influenza (487)	1,911	0.7	0.2	966	0.4	0.1
Chronic obstructive pulmonary diseases and allied conditions (490-496)	111,823	41.6	21.3	109,525	41.1	21.4
Bronchitis, chronic and unspecified (490-491)	3,101	1.2	0.6	3,119	1.2	0.6
Emphysema (492)	17,723	6.6	3.6	17,626	6.6	3.7
Asthma (493)	5,469	2.0	1.4	5,564	2.1	1.5
Other chronic obstructive pulmonary diseases and allied conditions (494-496)	85,530	31.8	15.7	83,216	31.2	15.7
Ulcer of stomach and duodenum (531-533)	4,799	1.8	0.8	5,164	1.9	0.9
Appendicitis (540-543)	413	0.2	0.1	406	0.2	0.1
Hernia of abdominal cavity and intestinal obstruction without mention of hernia (550-553,560)	6,449	2.4	1.0	6,576	2.5	1.0
Chronic liver disease and cirrhosis (571)	24,981	9.3	7.2	24,920	9.4	7.4
Cholelithiasis and other disorders of gallbladder (574-575)	2,805	1.0	0.4	2,864	1.1	0.5
Nephritis, nephrotic syndrome, and nephrosis (580-589)	25,755	9.6	4.4	25,204	9.5	4.4

See footnotes at end of table.

Table 5. Deaths, death rates, and age-adjusted death rates for 72 selected causes, Human immunodeficiency virus infection, Alzheimer's disease, Injury by firearms, Drug-induced deaths, Alcohol-induced deaths, and Injury at work: United States, preliminary data for 12 months ending June 1997 and 1998 - Con.

[Data are based on a continuous file of records received from the States. Rates per 100,000 population; age-adjusted rates per 100,000 U.S. standard population; see Technical notes. For explanation of asterisks preceding cause-of-death categories, see Technical notes. Figures for the 12 months ending with June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Cause of death (Based on the Ninth Revision, International Classification of Diseases, 1975)	12 months ending June					
	1998			1997		
	Number	Rate	Age-adjusted rate	Number	Rate	Age-adjusted rate
Acute glomerulonephritis and nephrotic syndrome (580-581)	355	0.1	0.1	310	0.1	0.0
Chronic glomerulonephritis, nephritis and nephropathy, not specified as acute or chronic, and renal sclerosis, unspecified (582-583,587)	1,702	0.6	0.3	1,678	0.6	0.3
Renal failure, disorders resulting from impaired renal function, and small kidney of unknown cause (584-586,588-589)	23,699	8.8	4.0	23,216	8.7	4.0
Infections of kidney (590)	794	0.3	0.1	861	0.3	0.2
Hyperplasia of prostate (600)	432	0.2	0.0	443	0.2	0.1
Complications of pregnancy, childbirth, and the puerperium (630-676)	276	0.1	0.1	298	0.1	0.1
Pregnancy with abortive outcome (630-638)	26	0.0	0.0	39	0.0	0.0
Other complications of pregnancy, childbirth, and the puerperium (640-676)	250	0.1	0.1	259	0.1	0.1
Congenital anomalies (740-759)	11,892	4.4	4.2	11,813	4.4	4.3
Certain conditions originating in the perinatal period (760-779)	13,037	4.8	5.3	13,054	4.9	5.3
Birth trauma, intrauterine hypoxia, birth asphyxia, and respiratory distress syndrome (767-769)	2,007	0.7	0.8	1,985	0.7	0.8
Other conditions originating in the perinatal period (760-766,770-779)	11,030	4.1	4.4	11,069	4.2	4.5
Symptoms, signs, and ill-defined conditions (780-799)	30,540	11.4	7.8	26,177	9.8	6.6
All other diseases (residual)	240,683	89.5	42.5	231,358	86.8	42.3
Accidents and adverse effects (E800-E949)	94,266	35.0	29.2	95,045	35.7	30.1
Motor vehicle accidents (E810-E825)	42,693	15.9	15.4	43,673	16.4	16.1
All other accidents and adverse effects (E800-E807,E826-E949)	51,572	19.2	13.7	51,372	19.3	14.1
Suicide (E950-E959)	29,732	11.1	10.2	30,751	11.5	10.7
Homicide and legal intervention (E960-E978)	18,890	7.0	7.5	20,406	7.7	8.2
All other external causes (E980-E999)	3,616	1.3	1.3	3,458	1.3	1.2
Human immunodeficiency virus infection ¹ (*042-*044)	13,930	5.2	4.9	22,089	8.3	7.8
Alzheimer's disease ² (331.0)	22,467	8.3	2.7	22,344	8.4	2.8
Injury by firearms ³ (E922,E955.0-E955.4,E965.0-E965.4,E970,E985.0-E985.4)	31,363	11.7	11.7	33,297	12.5	12.6
Drug-induced deaths ³ (292,304,305.2-305.9,E850-E858,E950.0-E950.5,E962.0,E980.0-E980.5)	15,073	5.6	5.2	15,043	5.6	5.3
Alcohol-induced deaths ³ (291,303,305.0,357.5,425.5,535.3,571.0-571.3,790.3,E860)	19,135	7.1	6.0	19,596	7.4	6.3
Injury at work ⁴	5,606	2.1	2.0	5,792	2.2	2.1

* Figure does not meet standards of reliability or precision (see Technical notes).

- Quantity zero.

0.0 Quantity more than zero but less than 0.05.

¹ Included in All other infectious and parasitic diseases.

² Included in All other diseases.

³ Included in selected categories.

⁴ Injury at work described in 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 6. Deaths, death rates, and age-adjusted death rates: United States, each State, Puerto Rico, Virgin Islands, and Guam, preliminary data for 12 months ending June 1997 and 1998

[By place of residence. Data are based on a continuous file of records received from the States. Rates per 100,000 population; age-adjusted rates per 100,000 U.S. standard population; see Technical notes. Figures for the 12 months ending with June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Area	12 months ending with June					
	1998			1997		
	Number	Rate	Age-adjusted rate	Number	Rate	Age-adjusted rate
United States ¹	2,329,535	865.8	474.3	2,321,933	871.3	485.8
Alabama	44,030	1,019.4	576.4	42,927	1,004.6	578.1
Alaska	2,608	428.0	467.6	2,520	415.2	459.5
Arizona	37,684	827.3	473.2	36,900	833.3	475.7
Arkansas	27,898	1,105.8	567.2	27,282	1,087.0	564.6
California	227,014	703.5	432.7	223,329	700.6	442.8
Colorado	26,351	676.9	425.5	25,878	677.0	432.6
Connecticut	29,498	902.1	424.7	29,938	914.4	441.4
Delaware	6,541	894.1	507.5	6,557	904.6	524.3
District of Columbia	6,019	1,137.9	691.1	6,522	1,200.6	755.1
Florida	157,011	1,071.5	465.7	152,399	1,058.3	471.5
Georgia	60,115	803.0	552.3	58,668	797.9	556.9
Hawaii	8,042	677.7	377.3	7,903	667.6	383.9
Idaho	9,037	746.7	432.9	8,995	756.4	441.9
Illinois	103,767	872.3	487.9	104,948	885.9	499.3
Indiana	53,130	906.0	500.4	53,501	916.0	509.0
Iowa	28,079	984.4	422.7	28,014	982.3	430.6
Kansas	23,879	920.2	452.9	24,063	935.5	463.8
Kentucky	38,014	972.7	542.4	37,908	976.1	551.0
Louisiana	40,773	936.9	592.8	39,250	902.2	580.2
Maine	12,087	973.1	466.9	11,933	959.8	462.8
Maryland	42,006	824.6	506.2	42,466	837.3	520.6
Massachusetts	55,206	902.4	425.3	55,471	910.5	435.4
Michigan	83,455	853.9	480.9	83,550	870.8	500.7
Minnesota	37,015	790.0	399.2	37,180	798.2	411.3
Mississippi	27,868	1,020.6	616.0	26,942	991.9	605.5
Missouri	54,943	1,017.1	517.4	54,488	1,016.8	521.2
Montana	8,021	912.7	468.0	7,780	884.7	456.3
Nebraska	15,196	917.2	436.3	15,419	933.3	438.3
Nevada	13,865	826.9	544.5	13,388	835.1	556.7
New Hampshire	9,573	816.3	446.4	9,608	826.5	456.1
New Jersey	71,717	890.6	456.1	73,485	920.0	477.4
New Mexico	12,950	748.7	468.6	12,554	732.7	473.9
New York	157,194	866.7	451.5	162,744	894.9	476.8
North Carolina	67,744	912.4	530.8	66,073	902.3	534.2
North Dakota	5,820	908.1	407.0	6,095	947.1	424.4
Ohio	105,466	942.8	494.1	105,976	948.5	503.8
Oklahoma	34,060	1,026.8	543.0	33,580	1,017.3	542.2
Oregon	28,691	884.6	449.5	29,214	911.9	463.0
Pennsylvania	126,395	1,051.6	481.6	130,587	1,083.2	503.1
Rhode Island	9,667	979.0	438.3	9,907	1,000.5	452.8
South Carolina	34,556	919.0	567.0	33,785	913.4	576.1
South Dakota	6,842	927.1	434.7	6,828	932.3	445.8
Tennessee	53,756	1,001.4	572.1	52,007	977.6	562.6
Texas	143,135	736.3	489.9	140,470	734.4	492.7
Utah	11,875	576.7	416.1	11,318	565.8	411.0
Vermont	4,934	837.7	441.8	4,996	848.7	453.1
Virginia	53,929	800.8	488.1	54,365	814.4	502.9
Washington	41,967	748.0	426.2	42,403	766.4	440.3
West Virginia	20,697	1,139.8	547.5	20,854	1,142.2	551.4
Wisconsin	45,554	881.2	437.3	45,232	876.6	440.2
Wyoming	3,862	805.0	475.9	3,733	775.4	467.3
Puerto Rico ²	27,742	724.9	525.6	30,328	801.7	587.0
Virgin Islands ²	602	525.8	461.4	610	538.7	483.4
Guam ²	634	434.9	509.6	602	415.8	498.6

¹ Excludes data for Puerto Rico, Virgin Islands, and Guam.

² Age-adjusted death rates for Puerto Rico, Virgin Islands, and Guam are calculated using different age groups in the weighting procedure; 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 7. Infant deaths and infant mortality rates, by age and race and Hispanic origin: United States, preliminary data for 12 months ending June 1997 and 1998

[Data are based on a continuous file of records received from the States. Rates per 1,000 live births. Figures for the 12 months ending June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals. Rates for Hispanic origin should be interpreted with caution because of inconsistencies between reporting Hispanic origin on birth and death certificates; see Technical notes]

Age and race/Hispanic origin	12 months ending with June			
	1998		1997	
	Number	Rate	Number	Rate
All races ¹				
Under 1 year	28,089	7.2	28,078	7.2
Under 28 days	18,584	4.8	18,450	4.7
28 days-11 months	9,506	2.4	9,628	2.5
White, total ²				
Under 1 year	18,473	6.0	18,574	6.0
Under 28 days	12,258	4.0	12,265	4.0
28 days-11 months	6,215	2.0	6,309	2.0
White, non-Hispanic				
Under 1 year	14,093	6.0	14,202	6.1
Under 28 days	9,262	3.9	9,372	4.0
28 days-11 months	4,831	2.1	4,830	2.1
Black, total ²				
Under 1 year	8,518	14.1	8,536	14.2
Under 28 days	5,669	9.4	5,592	9.3
28 days-11 months	2,848	4.7	2,944	4.9
Hispanic ³				
Under 1 year	4,262	5.9	4,111	5.8
Under 28 days	2,860	4.0	2,667	3.8
28 days-11 months	1,402	2.0	1,444	2.0

¹ Includes races other than white and black.

² Race and Hispanic origin are reported separately on both the birth and death certificates. Data for all persons who report Hispanic origin are shown here. Data for Hispanic persons are also included above in the data for each race group, according to the decedent's reported race; see Technical notes.

³ 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 8. Infant deaths and infant mortality rates for 61 selected causes and Human immunodeficiency virus infection: United States, preliminary data for 12 months ending June 1997 and 1998

[Data are based on a continuous file of records received from the States. Rates per 100,000 live births. For explanation of asterisks preceding cause-of-death categories, see Technical notes. Figures for the 12 months ending June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Cause of death (Based on the Ninth Revision, International Classification of Diseases, 1975)	12 months ending with June			
	1998		1997	
	Number	Rate	Number	Rate
All causes	28,087	718.6	28,078	721.3
Certain intestinal infections (008-009)	234	6.0	193	5.0
Whooping cough (033)	6	*	5	*
Meningococcal infection (036)	35	0.9	38	1.0
Septicemia (038)	202	5.2	201	5.2
Viral diseases (045-079)	114	2.9	95	2.4
Congenital syphilis (090)	3	*	5	*
Remainder of infectious and parasitic diseases (001,007,010-032,034-035,037,039-041,*042-*044,080-088,091-139)	171	4.4	157	4.0
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	88	2.3	93	2.4
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature (210-239)	56	1.4	67	1.7
Diseases of thymus gland (254)	3	*	3	*
Cystic fibrosis (277.0)	14	*	9	*
Diseases of blood and blood-forming organs (280-289)	84	2.1	84	2.2
Meningitis (320-322)	98	2.5	109	2.8
Other diseases of nervous system and sense organs (323-389)	347	8.9	361	9.3
Acute upper respiratory infections (460-465)	7	*	14	*
Bronchitis and bronchiolitis (466,490-491)	87	2.2	100	2.6
Pneumonia and influenza (480-487)	392	10.0	427	11.0
Pneumonia (480-486)	387	9.9	410	10.5
Influenza (487)	4	*	17	*
Remainder of diseases of respiratory system (470-478,492-519)	248	6.3	285	7.3
Hernia of abdominal cavity and intestinal obstruction without mention of hernia (550-553,560)	76	1.9	75	1.9
Gastritis, duodenitis, and noninfective enteritis and colitis (535,555-558)	61	1.6	79	2.0
Remainder of diseases of digestive system (520-534,536-543,562-579)	192	4.9	206	5.3
Congenital anomalies (740-759)	6,228	159.3	6,217	159.7
Anencephalus and similar anomalies (740)	304	7.8	339	8.7
Spina bifida (741)	52	1.3	55	1.4
Congenital hydrocephalus (742.3)	129	3.3	145	3.7
Other congenital anomalies of central nervous system and eye (742.0-742.2,742.4-742.9,743)	299	7.7	286	7.3
Congenital anomalies of heart (745-746)	1,740	44.5	1,850	47.5
Other congenital anomalies of circulatory system (747)	340	8.7	317	8.1
Congenital anomalies of respiratory system (748)	982	25.1	968	24.9
Congenital anomalies of digestive system (749-751)	94	2.4	89	2.3
Congenital anomalies of genitourinary system (752-753)	331	8.5	325	8.3
Congenital anomalies of musculoskeletal system (754-756)	419	10.7	427	11.0
Down's syndrome (758.0)	100	2.6	111	2.9
Other chromosomal anomalies (758.1-758.9)	867	22.2	746	19.2
All other and unspecified congenital anomalies (744,757,759)	569	14.6	559	14.4
Certain conditions originating in the perinatal period (760-779)	12,850	328.8	12,910	331.7
Newborn affected by maternal conditions which may be unrelated to present pregnancy (760)	148	3.8	168	4.3
Newborn affected by maternal complications of pregnancy (761)	1,222	31.3	1,290	33.1
Newborn affected by complications of placenta, cord, and membranes (762)	931	23.8	961	24.7
Newborn affected by other complications of labor and delivery (763)	82	2.1	82	2.1
Slow fetal growth and fetal malnutrition (764)	30	0.8	49	1.3
Disorders relating to short gestation and unspecified low birthweight (765)	3,904	99.9	3,876	99.6
Disorders relating to long gestation and high birthweight (766)	-	*	-	*
Birth trauma (767)	158	4.0	186	4.8
Intrauterine hypoxia and birth asphyxia (768)	456	11.7	430	11.0
Fetal distress in liveborn infant (768.2-768.4)	120	3.1	114	2.9
Birth asphyxia (768.5-768.9)	336	8.6	316	8.1
Respiratory distress syndrome (769)	1,335	34.2	1,324	34.0
Other respiratory conditions of newborn (770)	1,718	44.0	1,718	44.1
Infections specific to the perinatal period (771)	797	20.4	799	20.5
Neonatal hemorrhage (772)	315	8.1	337	8.7
Hemolytic disease of newborn, due to isoimmunization, and other perinatal jaundice (773-774)	22	0.6	18	*
Syndrome of "infant of a diabetic mother" and neonatal diabetes mellitus (775.0-775.1)	7	*	15	*
Hemorrhagic disease of newborn (776.0)	1	*	1	*
All other and ill-defined conditions originating in the perinatal period (775.2-775.9,776.1-779)	1,725	44.1	1,656	42.5
Symptoms, signs, and ill-defined conditions (780-799)	3,918	100.2	3,727	95.7
Sudden infant death syndrome (798.0)	2,749	70.3	2,957	76.0
Symptoms, signs, and all other ill-defined conditions (780-797,798.1-799)	1,169	29.9	770	19.8

See footnotes at end of table.

Table 8. Infant deaths and infant mortality rates for 61 selected causes and Human immunodeficiency virus infection: United States, preliminary data for 12 months ending June 1997 and 1998 - Con.

[Data are based on a continuous file of records received from the States. Rates per 100,000 live births. For explanation of asterisks preceding cause-of-death categories, see Technical notes. Figures for the 12 months ending June 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Cause of death (Based on the Ninth Revision, International Classification of Diseases, 1975)	12 months ending with June			
	1998		1997	
	Number	Rate	Number	Rate
Accidents and adverse effects (E800-E949)	744	19.0	780	20.0
Inhalation and ingestion of food or other object causing obstruction of respiratory tract or suffocation (E911-E912)	68	1.7	77	2.0
Accidental mechanical suffocation (E913)	286	7.3	295	7.6
Other accidental causes and adverse effects (E800-E910,E914-E949)	390	10.0	408	10.5
Homicide (E960-E969)	303	7.8	332	8.5
Child battering and other maltreatment (E967)	99	2.5	106	2.7
Other homicide (E960-E966,E968-E969)	204	5.2	226	5.8
All other causes (residual)	1,525	39.0	1,506	38.7
Human immunodeficiency virus infection ¹ (*042-*044)	18	*	26	0.7

* Figure does not meet standards of reliability or precision (see Technical notes).

- Quantity zero.

¹ Included in Remainder of infectious and parasitic diseases.

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.

Technical notes

Nature and sources of data

The preliminary data for July 1997–June 1998 are based on a substantial proportion of vital records for that period. The data for the 12 months ending June 1998 are based on a continuous receipt of statistical records through February 10, 1999, by the National Center for Health Statistics (NCHS). NCHS received 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.

For the 12 months ending June 1998, individual records of births, infant deaths (deaths under 1 year of age), and deaths of persons 1 year and over are weighted to independent counts of vital events received 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. For deaths two separate files are processed: The medical file, or cause-of-death file, containing records that include demographic and medical information that is used to generate tables showing cause of death and the demographic file, which includes records in the medical file as well as additional records containing demographic information only, that is used to generate tables showing mortality by demographic characteristics only. A State-specific weight is computed for each file by dividing the State control total by the number of records in the preliminary sample. Because there are two separate files with two separate sets of weights, slight inconsistencies may occur between the demographic and medical tables. [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. Although the criterion for showing State data is at least 75 percent, mortality data are shown for California ([table 6](#)), which had 72 percent completeness in its demographic and medical files.

For selected variables in the natality and mortality files, 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 2.6 percent for month prenatal care began. The percent not stated in the mortality files was less than 1 percent for all variables discussed in this report. Detailed information on reporting completeness and imputation procedures may be found in Technical Appendix, *Vital Statistics of the United States: Natality, 1997* (11), and in Technical Appendix, *Vital Statistics of the United States: Mortality, 1995* (12).

Race and Hispanic origin are reported separately on the birth and death certificates. Therefore, data shown by race may be of Hispanic or non-Hispanic origin, and data for Hispanic origin may be of any race. In this report births and deaths 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 or the decedent's race as reported on the death certificate. Data shown for Hispanic persons include all persons of Hispanic origin of any race.

Natality

As noted above race and Hispanic origin of the mother are reported separately on the birth certificate. In 1997, 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. About 1 in 5 white births were to Hispanic women in 1997.

National estimates of births to unmarried women are based on two methods of determining marital status. For 1994–96, birth certificates in 45 States and the District of Columbia included a question about the mother's marital status. Beginning January 1, 1997, California added a direct question to its birth certificate. Also since January 1997, Nevada asks for the mother's marital status through the electronic birth registration process, but this item is not included on paper copies of the birth certificate. Beginning June 15, 1998, Connecticut added a direct question on the mother's marital status to the birth certificate.

In the two of the three States that used inferential procedures to compile birth statistics by marital status in 1997 (Connecticut and Michigan), a birth is inferred as nonmarital if any of these factors, listed in priority-of-use order, is present: A paternity acknowledgment was received, the father's name is missing, or the father's and mother's current surnames are different. In New York, only the first two of these factors are considered. In addition, criteria that are particularly applicable for a given State are also applied as necessary. For example, special procedures were used in California before 1997 to compare the parents' surnames when hyphenated if the parents were born in countries where naming practices can identify the parents' marital status. This procedure was in effect for many years for Asian mothers and for 1995–96 for Hispanic mothers (1). Beginning with the enactment of the Family Support Act of 1988, States have extended their efforts to identify the fathers when the parents are not married to enforce child support obligations. Provisions were strengthened with the enactment of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996. 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.

Up to January 1, 1997, the mother's marital status was inferred in California by comparing the surnames of the mother, father, and child. Beginning in 1997 two changes were implemented. First, a law went into effect mandating that the father's name could not be included on the birth certificate unless the parents were married or a paternity affidavit was filed. Second, the marital status of women giving birth in California is now determined by a direct question on the birth certificate, "Mother married at any time during this pregnancy?"—similar to the question asked in most other States. Reporting procedures for marital status in California are now essentially the same as those currently in effect in all other States except Michigan and New York.

Procedures for inferring marital status for births in New York City changed effective in 1997; New York City is a separate registration area. Beginning in 1997 the mother is assumed to be unmarried if the father's name is missing from the birth certificate, or if a paternity affidavit was

Table I. Total count of records and percent completeness of preliminary files of live births, infant deaths, and deaths 1 year and over: United States, each State, Puerto Rico, Virgin Islands, and Guam, preliminary data for 12 months ending June 1998

[By place of occurrence]

Area	Live births		Infant deaths (under 1 year)			Deaths 1 year and over		
	Count of records	Percent completeness	Count of records	Percent completeness		Count of records	Percent completeness	
				Demographic file	Medical file		Demographic file	Medical file
United States ¹	3,911,976	99.8	28,156	94.7	89.4	2,304,826	97.1	92.9
Alabama	61,057	100.0	617	99.4	98.5	42,845	100.0	99.9
Alaska	9,814	100.0	63	100.0	98.4	2,545	100.0	99.0
Arizona	76,396	100.0	570	100.0	73.9	38,042	100.0	76.6
Arkansas	35,485	100.0	303	98.7	94.4	26,872	100.0	99.6
California	522,876	100.0	3,151	69.5	69.5	224,686	71.7	71.7
Colorado	58,040	100.0	409	99.8	99.8	26,415	100.0	100.0
Connecticut	43,094	100.0	298	100.0	100.0	29,281	100.0	100.0
Delaware	10,904	100.0	98	99.0	99.0	6,406	100.0	100.0
District of Columbia	15,053	100.0	211	99.5	78.2	7,073	99.3	81.7
Florida	193,498	100.0	1,414	99.8	99.7	156,933	100.0	100.0
Georgia	120,837	100.0	992	92.9	92.8	59,693	100.0	100.0
Hawaii	17,496	100.0	121	100.0	99.2	8,112	100.0	99.5
Idaho	18,604	100.0	97	100.0	100.0	8,733	100.0	100.0
Illinois	178,504	100.0	1,432	100.0	81.1	99,468	100.0	83.8
Indiana	83,170	97.9	661	99.2	95.2	53,101	100.0	96.1
Iowa	37,171	100.0	219	100.0	100.0	27,556	100.0	100.0
Kansas	36,753	100.0	260	97.7	97.7	22,891	100.0	100.0
Kentucky	52,454	100.0	340	100.0	72.6	37,279	100.0	81.1
Louisiana	66,580	99.9	646	99.7	99.7	40,498	100.0	100.0
Maine	13,484	100.0	82	100.0	96.3	11,905	98.1	94.8
Maryland	66,482	100.0	508	99.2	99.2	41,286	100.0	100.0
Massachusetts	82,198	100.0	453	100.0	94.7	55,598	100.0	93.3
Michigan	131,972	99.6	1,056	65.2	65.2	81,178	98.4	98.3
Minnesota	64,452	100.0	416	99.5	98.8	36,700	100.0	99.8
Mississippi	41,477	100.0	394	97.0	97.0	26,666	100.0	100.0
Missouri	77,363	100.0	666	99.8	68.5	55,811	100.0	81.0
Montana	10,627	99.9	67	100.0	92.5	7,916	100.0	99.2
Nebraska	23,919	100.0	184	100.0	100.0	15,154	100.0	100.0
Nevada	27,277	100.0	200	99.0	99.0	14,273	100.0	100.0
New Hampshire	14,000	100.0	64	98.4	93.8	9,480	100.0	99.1
New Jersey	110,495	100.0	644	99.4	84.9	69,319	100.0	87.9
New Mexico	26,606	100.0	158	100.0	100.0	12,723	100.0	100.0
New York	261,654	98.1	1,676	99.5	93.8	154,599	99.7	95.7
New York excluding New York City ...	137,780	96.5	819	99.1	99.0	94,077	99.5	98.9
New York City	123,874	100.0	857	99.8	88.8	60,522	100.0	90.7
North Carolina	110,264	100.0	995	99.6	99.6	67,379	99.1	99.1
North Dakota	9,423	100.0	63	100.0	100.0	6,156	100.0	100.0
Ohio	152,939	100.0	1,229	99.7	70.6	103,971	100.0	74.2
Oklahoma	47,979	100.0	373	99.7	97.6	32,716	100.0	100.0
Oregon	45,747	100.0	267	100.0	99.3	28,432	100.0	100.0
Pennsylvania	146,238	100.0	1,124	99.7	99.7	126,020	100.0	100.0
Rhode Island	13,283	100.0	94	100.0	100.0	9,668	100.0	100.0
South Carolina	50,878	100.0	473	99.8	93.2	33,311	100.0	92.0
South Dakota	10,266	100.0	88	98.9	98.9	6,861	100.0	100.0
Tennessee	81,080	100.0	732	96.7	96.7	56,189	100.0	100.0
Texas	339,734	100.0	2,145	99.9	99.9	142,933	100.0	100.0
Utah	45,178	100.0	281	100.0	100.0	11,906	100.0	100.0
Vermont	6,254	100.0	47	100.0	100.0	4,904	100.0	99.9
Virginia	90,700	100.0	683	99.6	96.8	52,722	100.0	99.0
Washington	78,657	100.0	443	100.0	100.0	41,647	100.0	100.0
West Virginia	21,648	100.0	184	100.0	84.8	20,349	99.1	87.7
Wisconsin	66,037	100.0	443	100.0	98.9	44,972	100.0	99.9
Wyoming	5,879	100.0	22	100.0	100.0	3,653	100.0	100.0
Puerto Rico	63,330	100.0	647	98.8	84.2	27,246	99.1	80.7
Virgin Islands	2,021	100.0	23	100.0	95.7	559	100.0	98.9
Guam	4,273	100.0	31	100.0	100.0	845	100.0	99.8

¹ Excludes data for Puerto Rico, Virgin Islands, Guam.NOTE: Percent completeness = $\frac{\text{Number of records in preliminary file} \times 100}{\text{Count of records}}$

filed; these are the same procedures that have been in effect in the balance of New York State for many years. Through 1996 the inferential criteria had included a comparison of the surnames of the mother and father (3). Data on marital status for Nevada before 1997 are based on inferential procedures with the key criterion relying on a comparison of parental surnames.

Mortality

Mortality statistics in this report were compiled in accordance with the World Health Organization regulations that specify that member nations classify and code causes of death in accordance with the current revision of the *International Statistical Classification of Diseases, Injuries, and Causes of Death*. The current revision in use is the Ninth Revision (ICD-9) (13). Causes of death for data presented in this publication were coded by procedures described in annual issues of part 2a of the *NCHS Instruction Manual* (14). Beginning with data for 1987, NCHS introduced categories *042-~044 for classifying and coding Human immunodeficiency virus (HIV) infection. The asterisks indicate that these codes are not part of ICD-9.

Cause of death is sometimes not available when preliminary data are sent to NCHS, but is available later when final data are processed. As a result, estimates based on the preliminary mortality file for certain causes may be underestimated. Causes that are reported unknown in the preliminary data are coded to Other unknown and unspecified cause (ICD-9, 799.9), a subcategory of Symptoms, signs, and ill-defined conditions (ICD-9, 780-799). In the final data, some of these are reallocated to specified causes if further, more specific cause-of-death information is provided. The preliminary cause-of-death data in this report have not been adjusted to correct for this type of bias. In [table II](#) are a set of factors that may be used to estimate the impact of this bias on selected causes of death. These factors are illustrative and are constructed by comparing the 10-percent Current Mortality Sample data with the final data for 1990-97. The selected causes include HIV infection, Diseases of heart, Accidents and adverse effects, Suicide, Homicide and legal intervention, All other external causes, and Sudden

infant death syndrome. Because in the preliminary data some deaths for these causes are coded as Symptoms, signs, and ill-defined conditions (ICD-9, 780-799), a factor for this category is included as well. When more years of data from the preliminary file are available, NCHS may have an adequate statistical basis for evaluating the effects of bias in the preliminary data.

Cause-of-death ranking is based on the number of deaths classified according to the List of 72 Selected Causes of Death and the categories for HIV infection and for Alzheimer's disease. HIV infection was added to the list of rankable causes effective with the data year 1987, and Alzheimer's disease was added with final mortality data for 1994. For infant deaths ranking is based on the List of 61 Selected Causes of Infant Death and HIV infection.

Mortality data on the Hispanic-origin population are based on deaths in all States. Oklahoma only began including an item to identify Hispanic or ethnic origin on its death certificate in January 1997. The lack of this identification for the period July 1996-December 1996 has but a negligible effect on mortality rates for Hispanic origin for the 12-month period ending June 1997. Death rates for Hispanic, American Indian, and Asian or Pacific Islander persons should be interpreted with caution because of inconsistencies in reporting race on the death certificate as compared to race on censuses, surveys, and birth certificates (8,9).

Infant mortality rates are the most commonly used index for measuring the risk of dying during the first year of life. The rates for this report are calculated by dividing the number of infant deaths that occurred in a 12-month period by the preliminary number of live births for the same period and are presented as rates per 1,000 or per 100,000 live births. In contrast to infant mortality rates based on live births, infant death rates are based on the estimated population under 1 year of age ([table 4](#)). Infant death rates that appear in tabulations of age-specific death rates in this report are calculated by dividing the number of infant deaths in the 12-month period by the estimated population of persons under 1 year of age on January 1 of that period and are presented as rates per 100,000 population in this age group. Because of differences in the denominators, infant death rates may differ from infant mortality

Table II. Bias correction factors for selected causes of death: United States, preliminary data for 12 months ending June 1998

Cause and age	Bias correction factor	Number	Preliminary			Corrected preliminary data			
			Death rate	Age-adjusted rate	Infant mortality rate	Number	Death rate	Age-adjusted rate	Infant mortality rate
All ages									
Human immunodeficiency virus infection.	1.0063	13,930	5.2	4.9	...	14,018	5.2	4.9	...
Diseases of heart	1.0016	727,624	270.4	128.1	...	728,788	270.8	128.3	...
Symptoms, signs, and ill-defined causes	0.8899	30,540	11.4	7.8	...	27,178	10.1	6.9	...
Accidents and adverse effects.	1.0088	94,266	35.0	29.2	...	95,096	35.3	29.5	...
Motor vehicle accidents	1.0010	42,693	15.9	15.4	...	42,736	15.9	15.4	...
All other accidents and adverse effects.	1.0153	51,572	19.2	13.7	...	52,361	19.5	13.9	...
Suicide	1.0052	29,732	11.1	10.2	...	29,887	11.2	10.3	...
Homicide and legal intervention.	1.0061	18,890	7.0	7.5	...	19,005	7.0	7.5	...
All other external causes	1.0503	3,616	1.3	1.3	...	3,798	1.4	1.4	...
Under 1 year									
Sudden infant death syndrome	1.0617	2,749	...	...	70.3	2,919	...	...	74.6
Symptoms, signs, and all other ill-defined conditions	0.8550	1,169	...	...	29.9	999	...	...	25.6

... Category not applicable.

rates. The linked birth/infant death data set (linked file) provides a better source of data for infant deaths and mortality rates by race and ethnicity (10).

Information on deaths attributed to injuries at work is derived from a separate item on the death certificate that asks the medical certifier whether the death resulted from an injury sustained at work. The item is on the death certificate of all States.

Computing rates and percents

Except for infant mortality rates, rates are on an annual basis per 1,000 or per 100,000 estimated population residing in the specified area as of January 1, 1997, and July 1, 1998, and are based on populations furnished by the U.S. Bureau of the Census (15,16). Infant mortality rates are per 1,000 or per 100,000 live births. Rates by State are computed on the basis of populations on July 1, 1996, and July 1, 1997 (17,18).

Age-adjusted rates are used to compare relative mortality risks among groups and over time. However, they should be viewed as relative indexes rather than as actual measures of mortality risk. They were computed by the direct method, that is, by applying age-specific death rates to the U.S. standard population (relative age distribution of the 1940 enumerated population of the United States) using the following age groups:

Age	Number	Weights (<i>w</i>)
All ages	1,000,000	1.000000
Under 1 year	15,343	0.015343
1-4 years	64,718	0.064718
5-14 years	170,355	0.170355
15-24 years	181,677	0.181677
25-34 years	162,066	0.162066
35-44 years	139,237	0.139237
45-54 years	117,811	0.117811
55-64 years	80,294	0.080294
65-74 years	48,426	0.048426
75-84 years	17,303	0.017303
85 years and over	2,770	0.002770

Age-adjusted death rates for Puerto Rico, the Virgin Islands, and Guam were computed using the following age groups:

Age	Number	Weights (<i>w</i>)
All ages	1,000,000	1.000000
Under 1 year	15,343	0.015343
1-4 years	64,718	0.064718
5-14 years	170,355	0.170355
15-24 years	181,677	0.181677
25-34 years	162,066	0.162066
35-44 years	139,237	0.139237
45-54 years	117,811	0.117811
55-64 years	80,294	0.080294
65-74 years	48,426	0.048426
75 years and over	20,073	0.020073

For calculating birth rates, age and race of mother are imputed if they are not stated (0.02 percent and 0.7 percent for 1997). 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 (0.05 percent for 1997) 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, prenatal care, and method of delivery. Birth and death 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. For calculating death rates, deaths with age not stated are not distributed.

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). See earlier note on California deaths.
- 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 or deaths in the numerator or denominator.

Rates based on fewer than 20 births or deaths have a relative standard error (RSE) of about 23 percent or more and, therefore, are considered highly variable. For age-adjusted death rates, this criterion is applied to the sum of the age-specific deaths. However, some birth and death rates (based on data files that are less than 100-percent complete and based on 20 to 31 births or deaths) 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 to 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 and deaths 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 and death records.

In addition, the natality and mortality files are 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. However, this assumption may be violated in the relatively small number of records where cause of death is pending investigation (for example, homicides, suicides, accidents, HIV infection, and Sudden infant death syndrome; see discussion of the bias in "Mortality") or in the causes of death that were rejected by the automated mortality coding systems for manual processing. 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 III](#) shows the estimated RSE's of a file that is nearly 100-percent complete. The estimated RSE's of the July 1996–June 1997 data, the preliminary July 1997–June 1998 control totals, and the preliminary July 1997–June 1998 data (based on nearly 100 percent of a file) are shown in the first column of [table III](#).

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 III](#) 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 III](#) were computed using this formula:

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

where

f = the sampling fraction or the percent of file completeness/100 from [table I](#). For mortality data based on deaths under 1 year of age, use the *f* for "infant deaths" for either the demographic or medical file as appropriate. For mortality data based on all ages combined or any age group that is 1 year and over, use the *f* for "deaths 1 year of age and

over" for either the demographic or medical files as appropriate.

X = the estimated number of live births, infant deaths, or deaths.
N = the total count of live births, infant deaths, or deaths for the United States or any State. (NOTE: The RSE's shown in [table III](#) 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 or deaths, 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 deaths, *X*₁, is 70 from a file with 80-percent completeness. Then

Table III. Relative standard errors for preliminary number of live births or deaths by percent of file completeness

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

Estimated number of live births or deaths	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

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

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

This means that the chances are 95 times in 100 that the confidence interval (51.6–88.4) will cover the “true” number of deaths.

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

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

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

As a hypothetical example, assume the death rate, R_1 , is 20.0, which is based on 70 deaths from a file with 80-percent completeness. Then

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

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

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

For age-adjusted death rates, R' , the 95-percent confidence interval may be computed as follows:

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

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

where

$$\text{RSE}(R') = 100 \frac{\sqrt{\sum_i \left[w_i^2 R_i^2 \left\{ \frac{1}{X_i} + \frac{(1-f_i)(N_i - X_i)}{f_i X_i (N_i - 1/f_i)} \right\} \right]}}{R'}$$

where

i = each age group where $i=1$ for infant deaths, $i=2$ for 1–4 years, $i=3$ for 5–14 years, . . . and $i=11$ for 85 years and over.

R_i = age-specific rate for the i th age group.

w_i = i th age-specific U.S. standard population such that $\sum w_i = 1.000000$ (see “Computing rates and percents”).

X_i = the estimated number of deaths for the i th age group.

N_i = the total count of deaths from table I for each i th age group. (For infant deaths, use the count of records as shown; for all age groups 1–4 through 85 years and over, use the count of records as shown for deaths 1 year and over.)

f_i = percent of file completeness/100 from table I (for infant deaths, use the percent completeness for the demographic or medical file as appropriate for deaths under age 1 year; for all age groups 1–4 through 85 years and over, use the percent completeness for the demographic or medical file as appropriate for deaths 1 year and over).

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 $|z| < 1.96$, 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 previous example for the current 12-month period and that R_2 , 15.0, is based on 50 deaths 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.

For rates or percents based on denominators having random variation only or random and sampling variation, the RSE must take into account the variation in the numerator and denominator. For example, for a rate, R_3 , based on the number of live births in the denominator, the RSE is computed as follows:

$$\text{RSE}(R_3) = 100 \sqrt{\left(\frac{\text{RSE}(D)}{100} \right)^2 + \left(\frac{\text{RSE}(B)}{100} \right)^2}$$

where

$\text{RSE}(D)$ = RSE of the number of deaths D

$\text{RSE}(B)$ = RSE of the number of births B

The 95-percent confidence interval of R_3 may be computed as follows:

$$\text{Lower limit: } R_3 - 1.96 \cdot R_3 \cdot \frac{\text{RSE}(R_3)}{100}$$

$$\text{Upper limit: } R_3 + 1.96 \cdot R_3 \cdot \frac{\text{RSE}(R_3)}{100}$$

As a hypothetical example, assume the infant mortality rate, R_3 , is 15.0, which is based on 30 infant deaths (D) from a file with 70-percent completeness and 2,000 live births (B) from a file with 80-percent completeness. Then

$$\text{RSE}(R_3) = 100 \sqrt{\left(\frac{21.8}{100} \right)^2 + \left(\frac{2.5}{100} \right)^2} = 21.9$$

$$\text{Lower limit: } 15.0 - 1.96 \cdot 15.0 \cdot \frac{21.9}{100} = 8.6$$

$$\text{Upper limit: } 15.0 + 1.96 \cdot 15.0 \cdot \frac{21.9}{100} = 21.4$$

This means that the chances are 95 times in 100 that the confidence interval (8.6–21.4) will cover the “true” rate. The same formulas are applicable to a percent (P_1) that has variation in the numerator and denominator. To compare the equality of two infant mortality rates or two percents that have variation in the numerator and denominator, the previously mentioned z-test maybe used.

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National Center for Health Statistics

Director, Edward J. Sondik, Ph.D.
Deputy Director, Jack R. Anderson

Division of Vital Statistics

Director, Mary Anne Freedman

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National Center for Health Statistics
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