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Additional Message: Here are numbers on firearm homicides from the National Vital Statistics Report, which is, I think a CDC publication.

Matt.

Alzheimer's disease, for which rates are higher for white than black females, prevented this difference from being greater.

Hispanic mortality

For the first time in this series, Hispanic mortality data are based on deaths to residents of all 50 States and the District of Columbia. Problems of race and Hispanic-origin classification affect the level of Hispanic death rates and the relative levels compared with the non-Hispanic population (see Technical notes). Mortality of Hispanics is somewhat understated because of net underreporting of Hispanic origin on the death certificate. Compared with the Current Population Survey, Hispanic origin on the death certificate may be underreported by an estimated 7 percent (see Technical notes). Mitigating this somewhat is undercoverage of the Hispanic population in the census and in annual population estimates based on the census. The age-adjusted death rate for the Hispanic population declined by 4.3 percent from 1996 to 1997 from 365.9 deaths per 100,000 U.S. standard population to 350.3, compared with a decline of 2.3 percent for the non-Hispanic population from 496.2 to 485.0.

Mortality for the Hispanic population can be compared with that of the non-Hispanic white and black populations (tables 3 and 9). The crude death rate for the Hispanic population was 67 percent below that of the non-Hispanic white population and 62 percent below that of the non-Hispanic black population. The age-adjusted death rate, which controls for age-composition differences, was 17 percent lower for the Hispanic population than for the non-Hispanic white population and nearly 52 percent lower than for the non-Hispanic black population. The larger difference in the crude death rates for the Hispanic and non-Hispanic black populations reflects a combination of the lower age-specific mortality, especially for the older age groups, and the younger age composition of the Hispanic population compared with that of the non-Hispanic black population. Part of the difference is also due to underreporting of Hispanic origin on the death certificate (see Technical notes).

Within the Hispanic population, the age-adjusted death rate for males was 1.7 times that for females, compared with 1.6 for non-Hispanic whites and 1.7 for non-Hispanic blacks. The male-to-female ratio differed substantially by age, with Hispanic males experiencing more than 2 times greater death rates than Hispanic females for ages 15-44 years. The ratio ranged between 1.1 and 1.2 for ages under 15 years and between 1.2 and 2.0 for ages 45 years and over.

The age-adjusted death rates were substantially lower for the Cuban (302.6), Central and South American and Other and unknown Hispanic (320.8), and Mexican populations (365.2) than for the Puerto Rican population (419.7). Among Hispanic males and females, the Cuban population had the lowest age-adjusted death rate, while the Puerto Rican population had the highest.

The 10 leading causes of death for the Hispanic population were the same from 1996 to 1997. The ranking also remained the same except that HIV infection, the 5th leading cause of death in 1996, dropped to 10th, while the 6th to 10th leading causes in 1996 moved to 5th to 9th in the same order.

Leading causes of death, for all age groups combined differed between the Hispanic and the total non-Hispanic, non-Hispanic white, and non-Hispanic black population (table 9). Although the two leading causes of death—heart disease and cancer—were the same, they accounted for 55 percent of all deaths in 1997 for the total non-Hispanic

population but for only 44 percent for the Hispanic population. These two causes accounted for 56 percent of the deaths for the non-Hispanic white population and 50 percent for the non-Hispanic black population. Of the 10 leading causes of death for the Hispanic population, homicide (the 6th leading cause) and HIV infection (the 10th leading cause) were not among the 10 leading causes for the total non-Hispanic population. Suicide and kidney disease, the 8th and 9th leading causes of death for the total non-Hispanic population, were not among the 10 leading causes for the Hispanic population (table 9).

Differences in the ranking of the leading causes of death for all ages combined between these population groups largely reflect differences in age composition; that is, the Hispanic population has a greater proportion of young persons, and, accordingly, a larger proportion of deaths due to causes that are more prevalent at younger ages. Within broad age groups, leading causes were similar between the population groups. However, even within age categories some differences exist. Homicide and HIV infection ranked higher for the Hispanic population than for the total non-Hispanic population for those aged 25-44 and 45-64 years. Chronic liver disease also ranked higher for the Hispanic population than for the total non-Hispanic population for ages 45-64 years. COPD ranked lower for the Hispanic population than for the total non-Hispanic population for ages 5-14, 15-24, 45-64, and 65 years and over. Suicide ranked lower for the Hispanic population than for the total non-Hispanic population for ages 25-44 and 45-64 years.

Firearm mortality

In 1997 a total of 32,436 persons died from firearm injuries in the United States (table 16). This number was 4.7 percent lower than the 34,040 deaths in 1996. Firearm suicide and homicide, the two major component causes, accounted for 54.2 and 41.7 percent, respectively, of all firearm injury deaths in 1997.

Of the firearm injury deaths in 1997, 60.7 percent were white males, 22.9 percent were black males, 11.1 percent were white females, and 3.0 percent were black females. The largest numbers of firearm deaths for males were for the age groups 15-24 and 25-34 years; the largest numbers of firearm deaths for females were for the age groups 25-34 and 35-44 years. Although the numbers of deaths were highest for white males, the age-adjusted and age-specific death rates for firearm injuries were generally highest for black males, followed by white males, black females, and white females. Over the age of 65, however, age-specific death rates for firearm injury were highest for white males (table 17).

In 1997 the age-adjusted death rate for firearm injuries was 12.2 deaths per 100,000 U.S. standard population, 5.4 percent lower than the rate of 12.9 in 1996. Since 1980 the trend in mortality due to firearms has changed directions several times. The age-adjusted death rate decreased by 14.2 percent between 1980 and 1985, increased by 16.9 percent between 1987 and 1991, decreased by 2 percent between 1991 and 1992, increased by 4.7 percent from 1992 to 1993, and has declined every year since 1993. Between 1993 and 1997 the age-adjusted death rate for firearm injuries declined by 21.8 percent (table 18).

Between 1996 and 1997 the age-adjusted death rate for firearm injuries decreased by 8.8 percent for black males, 5.0 percent for white males, and 13.8 percent for black females. The rate remained the same for white females. In 1997 the rate for males was 6.2 times that for females, and the rate for the black population was 2.6 times that of the white population.

The age-adjusted death rate decreased by 20.0 percent for firearm accidents, 8.7 percent for firearm homicide, and 4.8 percent for firearm suicide between 1996 and 1997. In 1997 the age-specific death rates for firearm homicide were highest for the age groups 15-24 and 25-34 years. Black males aged 15-24 years had the highest rate at 104.2 per 100,000 population. The highest rate for suicide by firearms was 45.9 for white males 85 years and over.

Injury mortality by mechanism and intent

For the first time in this series, injury data are presented using an alternative framework (12); the previously presented tabulations of firearm mortality are compatible with this framework. The framework shifts the focus from the traditional emphasis on manner of death or "intent," that is, on accidents, homicides, suicides, with subcategories showing "mechanism" (for example, drowning or falls) (13) to an emphasis on mechanism with subcategories showing manner of death, or "intent" (for example, accident, homicide, etc.) (12,14).

In 1997 a total of 146,400 deaths were classified as "injuries" using the alternative framework (table 19) compared with 149,691 deaths classified to "external causes" (95,844 accidents; 30,535 suicides; 19,846 homicides; and 3,668 other external causes) using the traditional vital statistics tabulation lists (table 10). The difference between counts of total injury deaths and total external cause deaths is that the injuries exclude 3,043 deaths from Misadventures during medical care, abnormal reactions, and late complications and the 248 deaths from Drugs, medicaments, and biological substances causing adverse effects in therapeutic use, which are classified as external causes in ICD-9 (5). Deaths from motor vehicle traffic-related injuries and firearm-related injuries were responsible for 29.0 and 22.1 percent of all injury deaths in 1997. Deaths from poisoning and falls accounted for an additional 12.1 and 8.6 percent of injury deaths. While nearly all motor vehicle traffic deaths are classified as unintentional, 3.0 percent of firearm deaths are so classified while 54.2 percent and 40.9 percent respectively are coded as suicides and homicides. Similarly, 57.4 percent of poisoning deaths are unintentional, 29.0 percent are suicides and for 13.2 percent the intent is undetermined.

Of the 146,400 injury deaths, the largest number of deaths were for the age groups 15-24, 25-34, and 35-44 years. Although numbers of deaths were highest for young persons, age-specific death rates for injuries were highest at older ages, with the highest rate (288.0 per 100,000) for persons 85 years and over. Patterns of injury mortality by age vary by mechanisms. Death rates associated with motor vehicle traffic injuries are highest at 15-24 years and age groups 75 years and over while firearm-related death rates peak at 15-24 years. Death rates for poisoning are highest at ages 35-44 years (14.9 per 100,000 population); about 80.7 percent of deaths at that age are unintentional and 23.7 percent are suicides. Fall mortality, on the other hand, is higher for the oldest persons in the population, 105.6 per 100,000 persons 85 years and over.

In 1997 the age-adjusted death rate for injuries was 49.1 per 100,000 U.S. standard population. For the four major mechanisms, the rates were as follows: Motor vehicle traffic, all (15.5); Firearm (12.2); Poisoning (8.2), and Fall (2.5).

Drug-induced mortality

In 1997 a total of 15,973 persons died of drug-induced causes in the United States (table 20). The category "drug-induced causes"

includes not only deaths from dependent and nondependent use of drugs (legal and illegal use), but also poisoning from medically prescribed and other drugs. It excludes accidents, homicides, and other causes indirectly related to drug use. Also excluded are newborn deaths due to mother's drug use. (For drug-induced causes, see Technical notes.) The age-adjusted death rate for drug-induced causes in 1997 was 5.6 deaths per 100,000 U.S. standard population, compared with the rate of 5.2 in 1996. The rate increased by 35 percent from 1983 to 1988, then declined 14 percent between 1988 and 1990, and increased every year since 1990. Between 1990 and 1997, the age-adjusted death rate for drug-induced causes increased by 56 percent. In 1997 the age-adjusted death rate for drug-induced causes for males was 2.4 times the rate for females. The rate for the black population was greater than that for the white population, but the difference was not statistically significant.

Alcohol-induced mortality

In 1997 a total of 19,576 persons died of alcohol-induced causes in the United States (table 21). The category "alcohol-induced causes" includes not only deaths from dependent and nondependent use of alcohol but also accidental poisoning by alcohol. It excludes accidents, homicides, and other causes indirectly related to alcohol use as well as deaths due to fetal alcohol syndrome. (For alcohol-induced causes, see Technical notes.) The age-adjusted death rate for alcohol-induced causes in 1997 was 6.3 deaths per 100,000 U.S. standard population, a decrease that is not statistically significant from the rate of 8.4 in 1996. The rate decreased 20 percent from 1980 to 1986, increased 9 percent from 1986 to 1989, and decreased 7 percent from 1989 to 1991. There was very little change in the age-adjusted rate between 1991 and 1995. Between 1995 and 1997 the age-adjusted death rate for alcohol-induced causes decreased 6 percent. In 1997 the age-adjusted death rate for alcohol-induced causes for males was 3.4 times the rate for females, and the rate for the black population was 1.5 times the rate for the white population.

Marital status

Among those aged 15 years and over, the number of deaths in 1997 of persons who were married was 938,886; widowed, 870,581; never married, 228,711; and divorced, 225,308 (table 22) (see Technical notes). Those never married had the highest age-adjusted death rate, followed by widowed, divorced, and married persons, respectively. The never-married group has an age-adjusted death rate 68 percent higher than the ever-married and 2.0 times the rate for the currently married. Age-adjusted death rates for widowed and divorced persons were 80 percent and 74 percent higher, respectively, than for those who were currently married at the time of death.

For all age groups 15 years and over, death rates for married persons were much lower than those for never-married persons. For ages 25-34 and 35-44 years, widowed persons had the highest death rates; but beginning at age 45, those who never married had the highest death rates.

For each marital status group, males had higher age-adjusted death rates than females, ranging from 73 to 93 percent greater in 1997. Black persons in each marital status group were more likely to die than white persons, with rates ranging from 12 to 47 percent greater.

Fig 48 (page 1 of 3). Death rates for firearm-related injuries, according to sex, detailed race, ethnic origin, and age: United States, selected years 1970-97

[Data are based on the National Vital Statistics System]

Sex, race, Hispanic origin, and age	1970	1980	1985	1988	1990	1993	1994	1995	1996	1997	1995-97
Deaths per 100,000 resident population											
All persons											
ages, age adjusted	14.0	14.8	12.8	13.4	14.6	15.6	15.1	13.9	12.9	12.2	13.0
ages, crude	13.0	14.9	13.3	13.9	14.9	15.4	14.8	13.7	12.8	12.1	12.9
per 1 year	-	-	-	-	-	-	-	-	-	-	0.2
4 years	1.6	1.4	1.4	1.5	1.5	1.8	1.6	1.6	1.3	1.1	1.3
14 years	1.0	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5
24 years	1.7	1.6	1.8	1.9	1.9	2.3	2.0	2.0	1.6	1.4	1.6
34 years	15.5	20.6	17.2	20.8	25.8	31.1	30.8	27.2	24.2	22.3	24.6
44 years	20.9	22.5	17.9	18.3	19.3	19.3	18.8	17.2	16.1	15.4	16.2
5-34 years	22.2	24.3	19.3	20.4	21.8	22.4	21.9	20.1	18.3	17.8	18.8
5-44 years	19.6	20.0	16.0	15.8	16.3	16.0	15.6	14.4	14.0	13.2	13.9
5-54 years	17.6	15.2	14.3	13.4	13.6	13.2	12.2	11.8	11.9	11.3	11.7
5-64 years	18.1	16.4	14.7	13.5	13.9	13.7	12.8	12.1	12.3	11.5	12.0
5-74 years	17.0	13.9	13.9	13.3	13.3	12.5	11.4	11.4	11.2	11.0	11.2
years and over	13.8	13.5	15.6	16.2	16.0	15.1	14.3	14.2	13.9	13.2	13.8
5-74 years	14.5	13.8	15.1	14.9	14.4	13.5	12.6	12.9	12.6	11.9	12.5
5-84 years	13.4	13.4	17.7	18.3	19.4	17.7	16.9	16.4	15.9	14.8	15.7
5 years and over	10.2	11.6	12.2	13.8	14.7	15.4	15.1	14.8	14.5	14.3	14.5
Male											
ages, age adjusted	23.8	25.3	21.9	23.0	25.4	26.9	26.2	24.1	22.4	21.1	22.5
ages, crude	22.2	25.7	22.8	24.1	26.2	26.8	26.0	23.9	22.5	21.2	22.5
per 1 year	-	-	-	-	-	-	-	-	-	-	-
4 years	2.3	2.0	2.1	2.2	2.2	2.6	2.3	2.3	1.8	1.7	1.9
14 years	1.2	0.9	0.8	0.8	0.7	0.8	0.7	0.8	0.5	0.5	0.6
24 years	2.7	2.5	2.7	2.8	2.9	3.4	3.0	2.9	2.4	2.1	2.5
34 years	28.4	34.8	29.1	35.5	44.7	54.0	54.0	47.6	42.2	38.9	42.9
44 years	34.1	38.1	29.7	30.5	32.6	32.2	31.7	28.9	27.0	25.8	27.2
5-34 years	36.5	41.4	32.1	34.2	37.0	37.8	37.4	34.3	31.4	30.5	32.1
5-44 years	31.6	33.2	26.6	26.0	27.4	26.4	26.0	23.7	22.9	21.5	22.7
5-54 years	31.0	25.9	24.5	22.9	23.4	22.7	21.0	20.2	20.4	19.4	20.0
5-64 years	30.7	27.3	24.4	22.4	23.2	23.1	21.3	20.4	20.5	19.3	20.1
5-74 years	31.3	24.5	24.6	23.5	23.7	22.2	20.5	20.0	20.2	19.7	19.9
years and over	29.7	29.7	34.2	35.5	35.3	32.8	31.2	30.9	30.2	28.5	29.8
5-74 years	29.5	27.8	30.0	29.4	28.2	26.2	24.8	25.3	24.8	23.1	24.4
5-84 years	31.0	33.0	42.7	47.0	48.9	41.9	39.9	37.7	36.4	34.1	36.0
5 years and over	28.2	34.9	35.2	43.1	49.3	50.5	49.7	47.4	46.7	45.8	46.6
Female											
ages, age adjusted	4.6	4.8	4.2	4.2	4.3	4.6	4.2	4.0	3.6	3.4	3.7
ages, crude	4.4	4.7	4.2	4.2	4.3	4.5	4.1	3.9	3.6	3.4	3.6
per 1 year	-	-	-	-	-	-	-	-	-	-	-
4 years	0.8	0.7	0.7	0.8	0.8	0.9	0.9	0.8	0.7	0.6	0.7
14 years	0.9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5
24 years	0.8	0.7	0.8	0.9	1.0	1.1	1.0	0.9	0.8	0.7	0.8
34 years	4.8	6.1	5.0	5.1	6.0	7.1	6.5	6.0	5.1	4.8	5.3
44 years	6.3	7.4	6.2	6.3	6.1	6.4	6.0	5.6	5.2	5.0	5.3
5-34 years	6.4	7.5	6.6	6.7	6.7	7.1	6.5	5.9	5.2	5.1	5.4
5-44 years	6.2	7.2	5.8	5.8	5.4	5.6	5.5	5.3	5.1	4.9	5.1
5-54 years	5.4	5.4	5.0	4.7	4.5	4.4	4.1	4.0	3.9	3.7	3.8
5-64 years	6.4	6.2	5.6	5.1	4.9	4.8	4.6	4.3	4.4	4.1	4.3
5-74 years	4.2	4.6	4.6	4.3	4.0	3.8	3.3	3.5	3.1	3.0	3.2
years and over	2.4	2.5	3.2	3.2	3.1	3.0	2.7	2.6	2.6	2.5	2.6
5-74 years	2.8	3.1	3.6	3.7	3.6	3.4	3.0	3.0	2.8	2.9	2.9
5-84 years	1.7	1.7	3.0	2.9	2.9	2.6	2.5	2.6	2.6	2.3	2.6
5 years and over	-	1.3	1.8	2.1	1.3	1.9	1.8	1.8	1.7	1.7	1.7
White male											
ages, age adjusted	18.2	21.1	19.4	19.3	20.5	20.7	20.4	19.3	18.0	17.1	18.1
ages, crude	17.6	21.6	20.7	20.7	21.6	21.5	21.1	20.1	19.0	18.1	18.0
4 years	1.3	1.9	2.1	1.9	1.9	2.0	1.8	1.9	1.5	1.4	1.6
24 years	16.9	20.4	24.1	25.3	29.5	33.0	34.2	31.4	28.9	24.8	27.7
44 years	24.2	29.5	25.0	24.4	25.7	25.1	24.9	23.6	22.0	21.2	22.3
5-34 years	24.3	31.1	26.3	26.0	27.6	27.9	27.6	26.1	23.6	23.1	24.3
5-44 years	24.1	27.1	23.3	22.5	23.3	22.2	22.3	21.2	20.6	19.5	20.4
5-54 years	27.4	23.3	23.6	22.5	22.6	22.0	20.6	19.7	20.2	19.4	19.8
years and over	29.9	30.1	35.4	37.0	36.8	34.4	32.5	32.3	31.6	30.0	31.4

[Footnotes at end of table.]

1997 United States Deaths and Rates Per 100,000
Firearm-Related
E922, E955.0-.4, E965.0-.4, E970, E985.0-.4

Age Group	Total		Male		Female	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
00-04	84	0.44	43	0.44	41	0.44
05-09	107	0.54	56	0.65	41	0.43
10-14	439	2.31	354	3.63	85	0.92
15-19	3,593	18.84	3,178	32.34	415	4.49
20-24	4,580	26.15	4,134	46.04	446	5.23
25-29	3,735	19.79	3,262	34.45	473	5.03
30-34	3,310	15.96	2,778	26.87	532	5.12
35-39	3,122	13.80	2,556	22.65	566	4.99
40-44	2,680	12.54	2,153	20.32	527	4.89
45-49	2,226	12.05	1,817	20.03	409	4.35
50-54	1,646	10.86	1,357	18.38	289	3.71
55-59	1,381	11.75	1,164	20.62	217	3.55
60-64	1,009	10.03	878	18.51	131	2.47
65-69	1,082	11.08	930	20.85	152	2.87
70-74	1,120	12.82	977	25.66	143	2.90
75-79	1,021	14.45	926	31.76	95	2.29
80-84	719	15.49	652	38.05	67	2.29
85+	555	14.34	509	45.78	46	1.67
Unknown	27		22		5	
Total	32,436	12.12	27,756	21.18	4,680	3.43
Age-Adj		12.20		21.15		3.45

1996 United States Deaths and Rates Per 100,000
Firearm-Related
E922, E955.0-.4, E965.0-.4, E970, E985.0-.4

Age Group	Total		Male		Female	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
00-04	88	0.46	49	0.50	39	0.41
05-09	95	0.49	57	0.57	38	0.40
10-14	510	2.69	406	4.17	104	1.12
15-19	3,950	21.17	3,492	36.30	458	5.06
20-24	4,816	27.43	4,370	48.56	446	5.21
25-29	3,989	20.99	3,465	36.33	524	5.53
30-34	3,414	15.98	2,882	27.05	532	4.97
35-39	3,318	14.70	2,710	24.07	608	5.37
40-44	2,746	13.19	2,231	21.64	515	4.90
45-49	2,289	12.42	1,887	20.83	402	4.29
50-54	1,693	12.15	1,364	20.13	329	4.60
55-59	1,317	11.59	1,140	20.90	177	3.00
60-64	1,077	10.77	912	19.36	165	3.12
65-69	1,191	12.04	1,029	22.83	162	3.01
70-74	1,161	13.23	1,033	27.06	128	2.58
75-79	1,027	14.94	927	32.87	100	2.47
80-84	785	17.22	704	42.26	81	2.80
85+	546	14.52	500	46.74	46	1.71
Unknown	28		25		3	
Total	34,040	12.83	29,183	22.48	4,857	3.39
Age-Adj		12.94		22.47		3.62

1995 United States Deaths and Rates Per 100,000
Firearm-Related
E922, E955.0-.4, E965.0-.4, E970, E985.0-.4

Age Group	Total		Male		Female	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
00-04	105	0.54	63	0.63	42	0.44
05-09	107	0.56	67	0.68	40	0.43
10-14	641	3.40	509	5.28	132	1.44
15-19	4,432	24.39	3,929	41.96	503	5.71
20-24	5,346	29.61	4,800	51.97	546	6.19
25-29	4,262	22.47	3,704	38.89	558	5.91
30-34	3,963	18.13	3,306	30.32	657	6.00
35-39	3,302	14.80	2,710	24.38	592	5.29
40-44	2,818	13.91	2,286	22.80	532	5.20
45-49	2,123	12.16	1,749	20.39	374	4.21
50-54	1,653	12.11	1,345	20.26	308	4.39
55-59	1,243	11.21	1,037	19.48	206	3.57
60-64	1,156	11.50	972	20.56	184	3.46
65-69	1,188	11.98	1,017	22.58	171	3.16
70-74	1,235	14.00	1,092	28.48	143	2.87
75-79	1,059	15.84	946	34.75	113	2.85
80-84	765	17.14	686	42.55	79	2.77
85+	529	14.48	482	46.77	47	1.79
Unknown	30		24		6	
Total	35,957	13.68	30,724	23.90	5,233	3.90
Age-Adj		13.87		23.99		3.96

1994 United States Deaths and Rates Per 100,000
Firearm-Related
E922, E955.0-.4, E965.0-.4, E970, E985.0-.4

Age Group	Total		Male		Female	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
00-04	107	0.54	62	0.62	45	0.47
05-09	105	0.56	57	0.59	48	0.52
10-14	660	3.53	517	5.40	143	1.57
15-19	4,961	28.00	4,442	48.66	519	6.04
20-24	6,095	33.03	5,467	58.00	628	6.96
25-29	4,725	24.67	4,096	42.61	629	6.60
30-34	4,349	19.63	3,632	32.86	717	6.46
35-39	3,670	16.70	2,991	27.33	679	6.15
40-44	2,849	14.45	2,369	24.30	480	4.82
45-49	2,192	13.14	1,801	21.99	391	4.61
50-54	1,624	12.30	1,307	20.36	317	4.68
55-59	1,243	11.37	1,067	20.34	176	3.09
60-64	1,161	11.52	978	20.64	183	3.43
65-69	1,144	11.48	984	21.87	160	2.93
70-74	1,209	13.84	1,059	27.96	150	3.03
75-79	1,100	16.73	996	37.47	104	2.66
80-84	749	17.22	682	43.90	67	2.40
85+	532	15.02	487	49.06	45	1.77
Unknown	30		27		3	
Total	38,505	14.79	33,021	25.95	5,484	4.12

Age-Adj 15.07 26.14 4.22

1993 United States Deaths and Rates Per 100,000
Firearm-Related
E922, E955.0-.4, E965.0-.4, E970, E985.0-.4

Age Group	Total		Male		Female	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
00-04	116	0.59	73	0.73	43	0.45
05-09	141	0.76	89	0.94	52	0.58
10-14	700	3.79	552	5.83	148	1.64
15-19	4,794	27.62	4,239	47.42	555	6.59
20-24	6,410	34.03	5,705	59.32	705	7.64
25-29	4,890	24.95	4,149	42.17	741	7.59
30-34	4,501	20.24	3,765	33.94	736	6.60
35-39	3,682	17.04	3,022	28.12	660	6.08
40-44	2,844	14.81	2,304	24.28	540	5.56
45-49	2,212	13.88	1,799	23.00	413	5.09
50-54	1,720	13.51	1,430	23.09	290	4.43
55-59	1,361	12.74	1,123	21.93	238	4.28
60-64	1,255	12.26	1,076	22.40	179	3.29
65-69	1,258	12.57	1,061	23.55	197	3.58
70-74	1,251	14.52	1,099	29.49	152	3.11
75-79	1,094	16.90	973	37.44	121	3.12
80-84	806	18.98	744	49.48	62	2.26
85+	526	15.33	478	49.95	48	1.94
Unknown	34		30		4	
Total	39,595	15.36	33,711	26.77	5,884	4.46
Age-Adj		15.54		26.77		4.58

1992 United States Deaths and Rates Per 100,000
Firearm-Related
E922, E955.0-.4, E965.0-.4, E970, E985.0-.4

Age Group	Total		Male		Female	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
00-04	117	0.60	68	0.68	49	0.51
05-09	111	0.61	83	0.89	28	0.31
10-14	667	3.69	521	5.63	146	1.66
15-19	4,484	26.11	4,027	45.58	457	5.48
20-24	6,022	31.56	5,380	55.23	642	6.87
25-29	4,777	23.70	4,113	40.64	664	6.62
30-34	4,279	19.24	3,620	32.64	659	5.91
35-39	3,480	16.50	2,899	27.66	581	5.47
40-44	2,759	14.67	2,269	24.43	490	5.15
45-49	2,099	13.67	1,723	22.85	376	4.81
50-54	1,545	12.81	1,274	21.74	271	4.37
55-59	1,354	12.91	1,145	22.80	209	3.83
60-64	1,266	12.13	1,069	21.86	197	3.55
65-69	1,269	12.73	1,074	24.01	195	3.55
70-74	1,236	14.60	1,077	29.51	159	3.30
75-79	1,067	16.69	950	37.29	117	3.04
80-84	749	18.12	679	46.75	70	2.61

85+	468	14.16	430	46.75	38	1.59
Unknown	27		24		3	
Total	37,776	14.81	32,425	26.04	5,351	4.10
Age-Adj		14.88		25.88		4.15

1991 United States Deaths and Rates Per 100,000
Firearm-Related
E922, E955.0-.4, E965.0-.4, E970, E985.0-.4

Age Group	Total		Male		Female	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
00-04	105	0.55	57	0.58	48	0.51
05-09	94	0.52	63	0.68	31	0.35
10-14	614	3.48	505	5.58	109	1.27
15-19	4,543	26.37	4,059	45.85	484	5.78
20-24	5,959	31.08	5,318	54.46	641	6.81
25-29	4,990	24.09	4,320	41.55	670	6.49
30-34	4,465	20.15	3,735	33.84	730	6.57
35-39	3,484	16.98	2,884	28.33	600	5.80
40-44	2,705	14.42	2,231	24.08	474	4.99
45-49	2,128	15.09	1,717	24.84	411	5.72
50-54	1,562	13.41	1,312	23.18	250	4.17
55-59	1,377	13.21	1,171	23.49	206	3.79
60-64	1,324	12.51	1,124	22.73	200	3.55
65-69	1,317	13.14	1,094	24.36	223	4.03
70-74	1,234	14.97	1,087	30.72	147	3.12
75-79	1,109	17.67	1,008	40.58	101	2.66
80-84	771	19.11	709	50.42	62	2.36
85+	485	15.23	446	50.36	39	1.70
Unknown	51		42		9	
Total	38,317	15.20	32,882	26.74	5,435	4.21
Age-Adj		15.14		26.38		4.25

1990 United States Deaths and Rates Per 100,000
Firearm-Related
E922, E955.0-.4, E965.0-.4, E970, E985.0-.4

Age Group	Total		Male		Female	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
00-04	103	0.55	63	0.65	40	0.43
05-09	121	0.67	75	0.81	46	0.52
10-14	560	3.26	441	5.01	119	1.42
15-19	4,173	23.50	3,678	40.36	495	5.72
20-24	5,369	28.06	4,781	49.05	588	6.27
25-29	5,097	24.01	4,364	40.95	733	6.93
30-34	4,315	19.70	3,610	33.11	705	6.41
35-39	3,412	17.08	2,842	28.70	570	5.66
40-44	2,691	15.13	2,232	25.43	459	5.09
45-49	1,984	14.36	1,621	23.92	363	5.15
50-54	1,491	13.12	1,223	22.15	268	4.58
55-59	1,428	13.64	1,184	23.66	244	4.46
60-64	1,380	13.00	1,174	23.73	206	3.63
65-69	1,377	13.67	1,168	25.89	209	3.76

70-74	1,220	15.21	1,065	31.12	155	3.37
75-79	1,174	19.10	1,068	44.30	106	2.84
80-84	766	19.47	688	50.38	78	3.04
85+	443	14.48	415	48.74	28	1.27
Unknown	51		44		7	
Total	37,155	14.90	31,736	26.10	5,419	4.24
Age-Adj		14.62		25.38		4.26

1989 United States Deaths and Rates Per 100,000
Firearm-Related
E922, E955.0-.4, E965.0-.4, E970, E985.0-.4

Age Group	Total Deaths	Total Rate	Male Deaths	Male Rate	Female Deaths	Female Rate
00-04	121	0.65	72	0.76	49	0.54
05-09	138	0.77	90	0.98	48	0.55
10-14	557	3.32	458	5.32	99	1.21
15-19	3,597	19.84	3,160	34.00	437	4.94
20-24	4,838	25.12	4,255	43.49	583	6.15
25-29	4,718	21.88	4,036	37.30	682	6.35
30-34	4,100	18.91	3,433	31.83	667	6.13
35-39	3,172	16.30	2,659	27.61	513	5.22
40-44	2,477	14.61	2,005	23.99	472	5.49
45-49	1,856	13.83	1,521	23.12	335	4.90
50-54	1,534	13.68	1,272	23.37	262	4.54
55-59	1,382	13.12	1,125	22.36	257	4.67
60-64	1,398	13.06	1,156	23.25	242	4.22
65-69	1,433	14.38	1,241	27.79	192	3.49
70-74	1,256	15.89	1,117	33.27	139	3.06
75-79	1,061	17.60	954	40.51	107	2.91
80-84	666	17.42	606	45.80	60	2.40
85+	436	14.69	408	49.09	28	1.31
Unknown	36		28		8	
Total	34,776	14.09	29,596	24.61	5,180	4.09
Age-Adj		13.69		23.73		4.08

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MORBIDITY AND MORTALITY WEEKLY REPORT

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As part of its commemoration of CDC's 50th anniversary, MMWR is reprinting selected MMWR articles of historical interest to public health, accompanied by current editorial notes.

Reprinted below is a report published February 9, 1974, which described the investigation of a cluster of cases of angiosarcoma of the liver among polyvinyl chloride workers in Kentucky, followed by a contemporary editorial note. The report illustrates the public health process in occupational safety and health—progressing from the initial observation of a new problem by informed clinicians through follow-up epidemiologic and toxicologic investigations to a targeted regulatory response, which virtually eliminated the newly recognized problem.

EPIDEMIOLOGIC NOTES AND REPORTS ANGIOSARCOMA OF THE LIVER AMONG POLYVINYL CHLORIDE WORKERS — Kentucky

Between September 1967 and December 1973, 4 cases of angiosarcoma of the liver were diagnosed among men employed in the polyvinyl chloride polymerization section of a B.F. Goodrich plant near Louisville, Kentucky. This section of the plant began operations in 1938. It employs about 270 persons and produces polyvinyl chloride as well as a variety of copolymers by polymerization of vinyl chloride monomer. All 4 men had worked continuously in the section for at least 14 years prior to onset of illness (Table 1); all 4 had worked directly in various phases of the polymerization process.

Case 1 presented in August 1967 with an epigastric mass and thrombocytopenia. An exploratory laparotomy was performed in September 1967; liver biopsy revealed angiosarcoma. Case 2 presented in January 1970 with gastrointestinal (GI) bleeding. Recurrent bleeding in May 1970 led to an exploratory laparotomy at which time a diagnosis of angiosarcoma was made on liver biopsy. Case 3 presented in January 1964 with GI bleeding which recurred in May 1965 with signs of portal hypertension. A portacaval shunt was performed, and liver biopsy yielded a diagnosis of cirrhosis. Repeat biopsies in October 1970 and September 1972 confirmed this diagnosis. Autopsy in March 1973 revealed angiosarcoma. Case 4 presented in July 1973 with

ama — Continued

Epidemic Intelligence Service (EIS) officer in the Cancer and Birth Defects n CDC's Bureau of Epidemiology, was assigned by his Division Director, Clark t, Jr., M.D., to investigate this outbreak. Working with Richard Waxweiler, the National Institute for Occupational Safety and Health, Hans Popper, M.D., bunt Sinai School of Medicine, and Louis Thomas, M.D., of the National Can- ute, Dr. Falk confirmed the existence of the outbreak and also discovered a nant lesion—idiopathic hepatic fibrosis—in additional members of the popu- avily exposed to VCM (6). This work stimulated a major international confer- it was convened at the New York Academy of Sciences by Irving Selikoff, M.D. hich the carcinogenicity of VCM was confirmed. VCM is now universally con- to be a highly potent chemical carcinogen (7).

recognition of the carcinogenicity of VCM also stimulated intense regulatory (8). To prevent future cases of VCM-associated angiosarcoma, the Occupa- safety and Health Administration in 1974 proposed a 500-fold reduction in the tional exposure standard for VCM gas—from 500 parts per million (ppm) in air m. The plastics-manufacturing industry immediately objected that such reduc- is not possible and would drive the vinyl chloride polymerization industry over- an industry-sponsored study estimated that the costs to comply with the ed new standard would exceed \$25 billion (8). Within the year, however, a ma- stics manufacturer announced development of a novel closed-loop polymeriza- ocess that greatly reduced atmospheric releases of VCM and almost completely ated worker exposures. The manufacturer patented this system and sub- ntly licensed it to other manufacturers at substantial profit. The VCM standard of r remains in force today (9) and is readily achieved in the workplace. New cases atic angiosarcoma in vinyl chloride polymerization workers have been virtually ated (10).

is episode, one of the earliest reports of an occupational disease outbreak pub- l in the MMWR, underscores the importance of informed clinical observation in ecognition of work-related illness. Furthermore, the regulatory actions precipi- by this report and the ensuing investigation of this episode illustrate that a safe ing environment and economic progress are not mutually exclusive. When well- eived protective standards are accepted with good will and ingenuity is used to urage compliance with those standards, then job safety, economic advances, and althy environment can comfortably co-exist.

Editorial Note by Philip J. Landrigan, MD, MSc, Chairman, Department of Community icine, Mount Sinai School of Medicine, New York, and former Director, Division of Surveil- z, Hazard Evaluations, and Field Studies, National Institute for Occupational Safety and th, CDC.

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Rates of Homicide, Suicide, and Firearm-Related Death Among Children — 26 Industrialized Countries

During 1950-1993, the overall annual death rate for U.S. children aged <15 years declined substantially (1), primarily reflecting decreases in deaths associated with un- intentional injuries, pneumonia, influenza, cancer, and congenital anomalies. How- ever, during the same period, childhood homicide rates tripled, and suicide rates quadrupled (2). In 1994, among children aged 1-4 years, homicide was the fourth leading cause of death; among children aged 5-14 years, homicide was the third lead- ing cause of death, and suicide was the sixth (3). To compare patterns and the impact of violent deaths among children in the United States and other industrialized coun- tries, CDC analyzed data on childhood homicide, suicide, and firearm-related death in the United States and 25 other industrialized countries for the most recent year for which data were available in each country (4). This report presents the findings of this analysis, which indicate that the United States has the highest rates of childhood homicide, suicide, and firearm-related death among industrialized countries.

In the 1994 *World Development Report* (5), 208 nations were classified by gross national product; from that list, the United States and all 26 of the other countries in the high-income group and with populations of ≥1 million were selected because of their economic comparability and the likelihood that those countries maintained vital records most accurately. In January and February 1996, the ministry of health or the national statistics institute in each of the 26 countries were asked to provide denomi- nator data and counts by sex and by 5-year age groups for the most recent year data were available for the number of suicides (*International Classification of Diseases, Ninth Revision* [ICD-9], codes E950.0-E959), homicides (E960.0-E969), suicides by firearm (E955.0-E955.4), homicides by firearm (E965.0-E965.4), unintentional deaths caused by firearm (E922.0-E922.9), and firearm-related deaths for which intention was undetermined (E985.0-E985.4); 26 (96%) countries, including the United States, pro- vided complete data*. Twenty (77%) countries provided data for 1993 or 1994; the remaining countries provided data for 1990, 1991, 1992, or 1995. Cause-specific rates

*Complete data were provided by Australia, Austria, Belgium, Canada, Denmark, England and Wales, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Kuwait, Netherlands, New Zealand, Northern Ireland, Norway, Scotland, Singapore, Sweden, Spain, Switzerland, Taiwan, and the United States. In this analysis, Hong Kong, Northern Ireland, and Taiwan are considered as countries.

Homicide, Suicide, and Firearm-Related Deaths — Continued

100,000 population were calculated for three groups (children aged 0–4 years, 5–14 years, and 15–19 years). The rates for homicide and suicide by means other than firearms were calculated by subtracting the firearm-related homicide and firearm-related suicide rates from the overall homicide and suicide rates. Rates for the United States were compared with rates based on pooled data for the other 25 countries. Of 161 million children aged <15 years during the 1 year for which data were provided, 57 million (35%) were in the United States and 104 million (65%) were in the other 25 countries.

Overall, the data provided by the 26 countries included a total of 2872 deaths among children aged <15 years for a period of 1 year. Homicides accounted for 35 deaths, including 1177 (59%) in boys and 818 (41%) in girls. Of the homicides, 34 (73%) occurred among U.S. children. The homicide rate for children in the United States was five times higher than that for children in the other 25 countries combined (5.7 per 100,000 compared with 0.51) (Table 1).

Suicide accounted for the deaths of 599 children, including 431 (72%) in boys and 168 (28%) in girls. Of the suicides, 321 (54%) occurred among U.S. children. The suicide rate for children in the United States was two times higher than that in the other 25 countries combined (0.55 compared with 0.27) (Table 1). No suicides were reported among children aged <5 years.

A firearm was reported to have been involved in the deaths of 1107 children; 57 (86%) of those occurred in the United States. Of all firearm-related deaths, 45% were reported as homicides; 20%, as suicides; 22%, as unintentional; and 3%, as intention undetermined. The overall firearm-related death rate among U.S. children

TABLE 1. Rates* of homicide, suicide, and firearm-related death† among children aged <15 years — United States and 25 other industrialized countries‡

Age group (yrs)	Total homicide	Total suicide	Firearm-related deaths				Total
			Homicide	Suicide	Unintentional	Intention undetermined	
0–4							
U.S.	4.10	0	0.43	0	0.15	0.01	0.59
Non-U.S.	0.95	0	0.05	0	0.01	0.01	0.07
Ratio U.S./Non-U.S.	4.3:1		8.6:1		15.0:1	1.0:1	8.4:1
5–14							
U.S.	1.75	0.84	1.22	0.49	0.46	0.06	2.23
Non-U.S.	0.30	0.40	0.07	0.05	0.05	0.01	0.18
Ratio U.S./Non-U.S.	5.8:1	2.1:1	17.4:1	9.8:1	9.2:1	6.0:1	12.4:1
15–19							
U.S.	2.57	0.55	0.94	0.32	0.36	0.04	1.66
Non-U.S.	0.51	0.27	0.06	0.03	0.04	0.01	0.14
Ratio U.S./Non-U.S.	5.0:1	2.0:1	15.7:1	10.7:1	9.0:1	4.0:1	11.9:1

*Per 100,000 children in each age group and for 1 year during 1990–1995.

†Homicides (International Classification of Diseases, Ninth Revision, codes E960.0–E969), suicides (E950.0–E959), homicides by firearm (E965.0–E965.4), suicides by firearm (E955.0–E955.4), unintentional deaths caused by firearm (E922.0–E922.9), and firearm-related deaths for which intention was undetermined (E985.0–E985.4).

‡All countries classified in the high-income group with populations ≥1 million (5) that provided complete data (Australia, Austria, Belgium, Canada, Denmark, England and Wales, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Kuwait, Netherlands, New Zealand, Northern Ireland, Norway, Scotland, Singapore, Sweden, Spain, Switzerland, and Taiwan). In this analysis, Hong Kong, Northern Ireland, and Taiwan are considered as countries.

Homicide, Suicide, and Firearm-Related Deaths — Continued

aged <15 years was nearly 12 times higher than among children in the other 25 countries combined (1.66 compared with 0.14) (Table 1). The firearm-related homicide rate in the United States was nearly 16 times higher than that in all of the other countries combined (0.94 compared with 0.06); the firearm-related suicide rate was nearly 11 times higher (0.32 compared with 0.03); and the unintentional firearm-related death rate was nine times higher (0.36 compared with 0.04). For all countries, males accounted for most of the firearm-related homicides (67%), firearm-related suicides (77%), and unintentional firearm-related deaths (89%). The nonfirearm-related homicide rate in the United States was nearly four times the rate in all of the other countries (1.63 compared with 0.45), and nonfirearm-related suicide rates were similar in the United States and in all of the other countries combined (0.23 compared with 0.24).

The rate for firearm-related deaths among children in the United States (1.66) was 2.7-fold greater than that in the country with the next highest rate (Finland, 0.62) (Figure 1). Except for rates for firearm-related suicide in Northern Ireland and firearm-related fatalities of unknown intent in Austria, Belgium, and Israel, rates for all types of firearm-related deaths were higher in the United States than in the other countries. However, among all other countries, the impact of firearm-related deaths varied substantially. For example, five countries, including three of the four countries in Asia, reported no firearm-related deaths among children. In comparison, firearms were the primary cause of homicide in Finland, Israel, Australia, Italy, Germany, and England and Wales. Five countries (Denmark, Ireland, New Zealand, Scotland, and Taiwan) reported only unintentional firearm-related deaths.

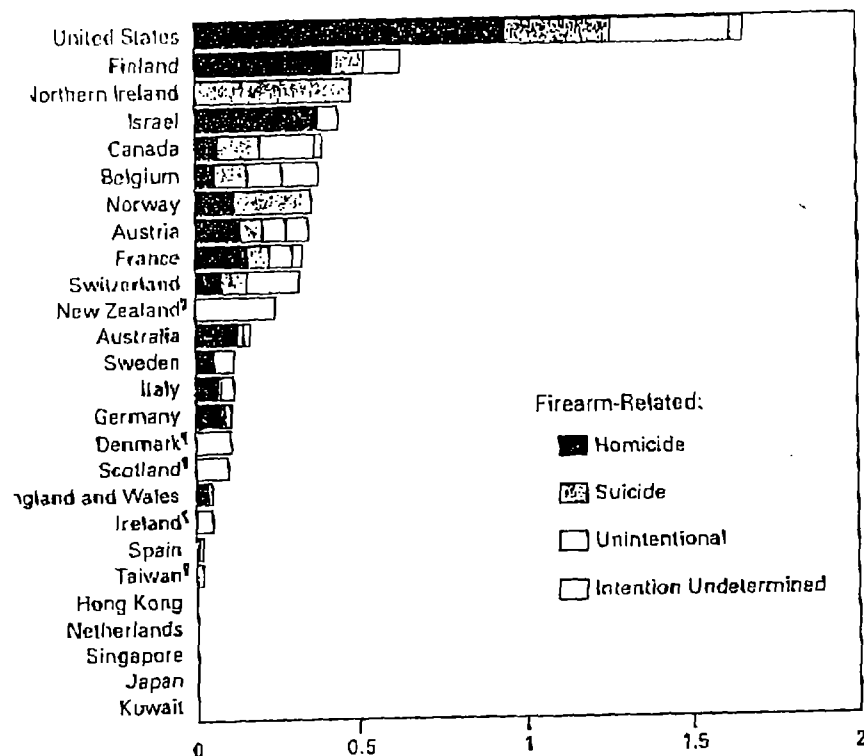
Reported by: Div of Violence Prevention, National Center for Injury Prevention and Control, CDC.
Editorial Note: The findings in this report document a high rate of death among U.S. children associated with violence and unintentional firearm-related injuries, particularly in comparison with other industrialized countries. Even though rates in all other countries were lower than those in the United States, rates among other countries varied substantially and were particularly low in some countries. Although specific reasons for the differences in rates among countries are unknown, previous studies have reported on the associations between rates of violent childhood death and low funding for social programs (6), economic stress related to participation of women in the labor force (7,8), divorce, ethnic-linguistic heterogeneity, and social acceptability of violence (9).

The findings of the analysis in this report are subject to at least three limitations. First, although the data were obtained from official sources and were based on ICD-9 codes, the sensitivity and specificity of the vital records and reporting systems may have varied by country. Second, because 21 (81%) countries each reported <10 firearm-related deaths among children aged 0–14 years, the firearm-related death rates for those countries, when not pooled, are unstable and may vary substantially for different years. Finally, only one half of the countries (including the United States) reported all four digits of the ICD-9 codes for firearm-related deaths; the fourth digit distinguishes whether deaths were caused by injuries from firearms or by other explosives. For countries in which this distinction could not be made, the firearm-related death rates may be overestimated slightly.

In May 1996, the 49th World Health Assembly adopted a resolution that declared violence a leading worldwide public health problem and urged all member states to assess the problem of violence and to communicate their findings to the World Health

Homicide, Suicide, and Firearm-Related Deaths — Continued

JRE 1. Rates* of firearm-related death† among children aged <15 years — 26 industrialized countries‡



*Per 100,000 children aged <15 years and for 1 year during 1990–1995.

†Homicides by firearm (International Classification of Diseases, Ninth Revision, codes E965.0–E965.4), suicides by firearm (E955.0–E955.4), unintentional deaths caused by firearm (E922.0–E922.9), and firearm-related deaths for which intention was undetermined (E985.0–E985.4).

‡All countries classified in the high-income group with populations ≥1 million (5) that provided complete data. In this analysis, Hong Kong, Northern Ireland, and Taiwan are considered as countries.

§Reported only unintentional firearm-related deaths.

Organization (10). Cross-cultural comparisons may identify key factors (e.g., attitudinal, behavioral, educational, socioeconomic, or regulatory) not evident from intra-national studies that could assist in the development of new country-specific strategies for preventing such deaths.

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Adult Blood Lead Epidemiology and Surveillance — United States, Third Quarter, 1996

CDC's National Institute for Occupational Safety and Health Adult Blood Lead Epidemiology and Surveillance program (ABLES) monitors laboratory-reported elevated blood lead levels (BLLs) among adults in 25 states.* This report presents ABLES data through the third quarter of 1996 and compares these data with the third quarter of 1995.

During July 1–September 30, 1996, the 4990 reports of BLLs ≥25 µg/dL represented a 15% decrease from the 5888 reports for the third quarter of 1995 (1), which now include previously unpublished data for Minnesota and an estimate for Ohio. For the first 3 quarters of 1996, the number of reports of BLLs ≥25 µg/dL decreased by 11% compared with the number reported for the first 3 quarters of 1995 (1), which also include previously unpublished data for Minnesota and an estimate for Ohio (Table 1). The cumulative number of reports in 1996 decreased at each reporting level compared with data for 1995. This overall trend of decreasing reports is consistent with the second quarter report for 1996 (2).

Of the 25 states currently participating in ABLES, 17 reported each year during 1993–1995. Among these 17, the overall number of reports of BLLs ≥25 µg/dL decreased by 3%; the largest decreases were reported in Oregon (–44%), New York (–40%), and Texas (–38%). However, the number of reports of BLLs ≥25 µg/dL increased in six of the 17 states; the largest increases were reported in Iowa (215%), Arizona (205%), and Washington (76%).

During 1993–1995, the number of persons with reported elevated BLLs decreased by 18% overall in the 17 states. Decreases occurred in nine of the 17 states; the largest decreases were in Texas (–66%), Illinois (–61%), and California (–42%). However, the number of persons increased in eight of the 17 states; the largest increases were in Wisconsin (216%), Arizona (174%), and Iowa (41%). The number of persons with new

*Alabama, Arizona, California, Connecticut, Illinois, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Texas, Utah, Vermont, Washington, and Wisconsin.

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11/19/99

**STATEMENT OF SARAH BRADY RE: GUN DEATHS,
INJURIES ON THE DECLINE**

"There's good news and bad news in the fight to reduce gun violence in America. The good news: strong gun control laws, such as the Brady Law and the federal assault weapons ban have helped reduce gun fatalities and injuries to their lowest level since the 1960's. According to a study recently published by the Centers for Disease Control and Prevention, gun death rates in the United States fell 21 percent between 1993 and 1997 and nonfatal firearm-related injuries dropped by almost 41 percent over the same period.

"It's easy to forget that, at the beginning of this decade, 32 states didn't even have laws requiring mandatory background checks on firearm purchasers and there was no federal assault weapons ban. Our nation's gun laws have saved lives by making it more difficult for criminals, juveniles and other prohibited purchasers to buy guns over-the-counter. The Brady Law, which Jim and I fought for over seven years to get passed by Congress, has stopped approximately 400,000 felons and other prohibited purchasers from buying handguns over-the-counter from federally licensed firearm dealers. As a result, thousands of murderers, spousal abusers, gun traffickers and fugitives from justice have been denied purchase of handguns and apprehended because of the background check required by the Brady Law. The assault weapons ban has worked too. After the 1994 ban went into effect, there were 18% fewer assault weapons traced to crime in the first eight months of 1995 than were traced in the same period in 1994, and the wholesale price of "grandfathered" assault rifles nearly tripled in the first post-ban year.

"It's more than fair to say that stronger gun control measures have been a major factor in the decline in gun deaths and injuries in America. Today, violent crime in America has fallen for six straight years, thanks, in large part, to tougher gun laws that provided mandatory background checks, banned the most dangerous types of assault weapons, and limited accessibility to kids and criminals.

"Then there's the bad news: guns are still the second leading cause of death in the United States after motor-vehicle related incidents. In 1997 alone, more than 32,000 Americans died from guns, of which over 4,000 of these victims were children. What's more, a more sobering study conducted by the Violence Prevention Research Program at the University of California-Davis found that suicide is the leading cause of death among gun buyers, especially women, in the first year after the weapon was purchased. In fact, the study -- which was published in the *New England Journal of Medicine* -- found that a person who purchases a handgun is 57 times more likely to commit suicide within a week of buying the weapon than the general population as a whole.

"What does this mean? While gun violence has dropped steadily in America, we cannot dismiss the fact that we are still not safe from the dangers of guns. This year's senseless shootings in Littleton, Colorado, Atlanta, Georgia, Granada Hills, California, Fort Worth, Texas, Honolulu, Hawaii, and Seattle, Washington, among others, illustrate that we are not safe in school, at work, in daycare centers or even in houses of worship. These tragedies prove that our current laws need to be strengthened, not weakened, and expose the gaping loopholes in

our firearms laws which enable criminals and children to get firearms. These loopholes exist, in large part, because the gun lobby continues to resist any attempt to close them.

"Our opponents argue that, since gun-related deaths are falling, there's no need to pass any new gun control laws at all. To that I say there are over 32,000 reasons to strengthen our existing gun laws and pass new laws that will help save lives by keeping guns out of the wrong hands, mainly children and criminals. Maybe the National Rifle Association and the gun lobby can ignore the fact that tens of thousands of people continue to die every year from guns, including more than 11 children per day, but it's unacceptable to me that the killings, many of them preventable, continue to go on.

"The overwhelming majority of Americans, gun owners included, want Congress to make it more difficult for children and criminals to get guns. Despite shooting after shooting after shooting and funeral after funeral, Congress is expected to adjourn for the year without sending the President the common-sense gun control measures adopted by the Senate this Spring. Sadly, Congress has put the special interests of the NRA above the interest of public safety.

"I am encouraged by the good news that the rate of gun deaths in the United States has been, in recent years, on the decline. But until we deal with the proliferation of guns in this country, there will, no doubt, always be more bad news than good news."

###

Handgun Control, chaired by Sarah Brady, is the nation's largest citizens' gun control lobbying organization. Based in Washington, DC, HCI works to enact stronger federal, state and local gun control laws, but does not seek to ban handguns. Founded in 1974, HCI has more than 400,000 members nationwide and works with local groups around the country to enact and protect reasonable gun control laws.

MEMORANDUM

TO: House Juvenile Crime Legislative Assistants

FROM: Liz Ryan, Children's Defense Fund

DATE: June 18, 1999

RE: Child gun deaths

Last night on the House floor, several comments were made regarding the figure, ***an average of nearly 13 children die every day due to gunfire***. This figure is based on the National Center for Health Statistics reports which found that gunfire killed 4,613 children (0-19) in 1996:

Under age 1: 11 Children died

This is one child death every 33 days, approximately one child death per month, and 2 infant day care groups per year.

Age 1-4: 77 Children died

This is one child death every 5 days, approximately 6 per month, and 10 preschool day care groups per year.

Under 5: 88 Children died

This is one child death every 4 days, approximately 7 per month, and 12 day care groups per year.

Age 5-9: 95 Children died

This is one child death every 4 days, approximately 8 every month, and 4 school classes per year.

Age 10-14: 510 Children died

This is 4 child deaths every 3 days, approximately 10 per week, 43 per month, more than 20 middle school classes per year, and one entire middle school per year.

Age 15-19: 3,921 Children died

This is almost 11 child deaths per day, 75 per week, 327 per month, more than 5 average secondary schools per year, and more than twice the total enrollment at Columbine High School per year.

For your information, I've also provided the attached briefing materials on Children and guns fact sheet, Child deaths by state, and CDF's statement on children and guns. If you have questions or need additional information, please feel free to contact me at 662-3586 or by email at: Lryan@childrensdefense.org.

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Subject: CDF gun data report

FYI - CDF released this report this week. Attached is the press release about the report. A copy of this press release is up on the CDF website at www.childrensdefense.org under 'what's happening'. Please let me know if you'd like the full report (send me an email. Thanks!)

FOR IMMEDIATE RELEASE

October 14, 1999

Contact: Peggy A. Lewis
 (202) 662-3620

CHILDREN'S DEFENSE FUND RELEASES REPORT

on Children Dying FROM GUNFIRE IN AMERICA

Edelman challenges America: "Protect children instead of guns!"

WASHINGTON, D.C.—The Children's Defense Fund (CDF) released today Children and Guns—A Children's Defense Fund Report on Children Dying From Gunfire in America. The report rates each state on its commitment to protect children from gun violence by its enactment of laws designed to keep guns out of the hands of children. It also suggests steps that parents, educators, religious and community leaders can take to protect children instead of guns.

"There is an undeclared war in America's neighborhoods and children are the casualties,"

said Marian Wright Edelman, President and Founder of the Children's Defense Fund.

"It is shameful that the richest nation in the world, the leading military spender, cannot protect it's own children from gun violence. We have to make this a top priority of our national agenda."

The report shows that the number of children dying from gunfire has declined. But the bad news is that 4,205 children and teens lost their lives in 1997. That's equivalent to:

- one child every 2 hours
- nearly 12 children every day
- and a classroom full every two days

"As a nation we have been horrified by the events in Littleton, Colorado; Conyers, Georgia; West Paducah, Kentucky; and elsewhere," said Edelman. "But these statistics show that the highly publicized tragedies are simply the latest wake-up calls for what has been happening in America every day for a very long time."

According to the report between 1979 and 1997, nearly 80,000 children and teens were killed in America—more than the total number of American soldiers killed in battle in Vietnam. Among the findings:

- Homicide is the third leading cause of death among children 14 years-old, and the second leading cause of death among young people and adults ages 15 to 24.

- The firearm death rate for Black males aged 15 to 24 is nearly three times that of the firearm death rate of White males in the same age bracket.

- Suicide is another disturbing trend among Black youths, although six times as many White children commit suicide. The overall suicide rate for Black youths is up more than 100% since 1980, and firearm suicides accounted for 96% of this increase.

- The estimated number of households with guns is as high as 40 more than half of those households keep their guns unlocked.

- Of the states studied that have enacted Child Firearm Access Prevention (CAP) laws since 1989, there was a 23 percent drop in accidental shootings of children. Seventeen states have now adopted these laws. A study in the Journal of the American Medical Association estimates that 216 children killed in unintentional shootings would still be alive today if CAP laws were in effect in every state.

The report rates California, Connecticut, Florida, Illinois, Iowa, Maryland, Massachusetts, New Jersey, and Rhode Island and the District of Columbia as the 10 states with the strongest laws protecting children instead of guns.

Arizona, Arkansas, Colorado, Delaware, Georgia, Hawaii, Idaho, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, and Wisconsin are noted as states that have passed some safety measures, but could do much more to make children's safety their highest priority.

Alabama, Alaska, Kentucky, Louisiana, Maine, Mississippi, Montana, New Hampshire, New York, Vermont, and Wyoming are rated as the states showing the least commitment to keeping guns safely out of the reach of children by failing to enact any basic protections.

The report calls on local, state and federal officials to support common-sense gun safety measures that will keep firearms out of the hands of children and those who would harm them. It also suggests ways in which parents, grandparents, educators and religious leaders can better protect children from gun violence.

These recommendations come at a time in which there is a national debate over gun control. The Senate recently passed a version of juvenile justice legislation that mandates unlicensed weapons dealers at gun shows conduct criminal background checks on buyers, outlaws the import of ammunition clips of more than 10 bullets, bans the purchase of assault weapons by juveniles, and requires child safety locks on all new handguns. The House passed its version of the bill without any gun provisions.

The mission of the Children's Defense Fund is to Leave No Child Behind* and to ensure every child a Healthy Start, a Head Start, a Fair Start, a Safe Start, and a Moral Start in life. CDF was founded by Edelman in 1973 and is a private, nonprofit organization supported by foundation and corporate grants, and individual donations. CDF has never accepted government funds.

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Births and Deaths: Preliminary Data for 1998

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

Abstract

Objectives—This report presents preliminary data for 1998 on births and deaths in the United States. 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 life expectancy, 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 85-percent sample of deaths in the United States for 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 in 1998. Comparisons are made with 1997 final data.

Results—The birth rate for teenagers continued to decline, dropping another 2 percent for 1997–98. The rate for young teens aged 15–17 years fell 5 percent, and the rate for teens aged 18–19 years declined 2 percent. Since 1991 rates have fallen 21 percent for teens aged 15–17 years and 13 percent for teens aged 18–19 years. Birth rates for women aged 20–29 years rose slightly. Among women in their thirties, birth rates rose 3 to 4 percent to the highest levels observed in three decades. The birth rate for women aged 40–44 years was the highest level reported since 1970. The birth rate for unmarried women was 44.3 per 1,000, 1 percent higher than 1997, but below the peak level reported for 1994 (46.9). The rate of prenatal care utilization continued to improve. The total cesarean rate increased to 21.2 percent. The low birthweight rate rose from 7.5 to 7.6 percent.

In 1998 the age-adjusted death rate reached a record low, 2 percent below the rate for 1997. Human immunodeficiency virus infection (HIV infection) moved off the list of the 15 leading causes of death for the first time since 1987. Declines in age-adjusted rates occurred for Homicide and legal intervention (homicide) (14 percent) and Atherosclerosis (10 percent), while rates for Septicemia and Pneumonia and influenza increased 5 percent. Mortality also decreased for drug-induced deaths, deaths from injury by firearms, and alcohol-induced deaths. The infant mortality rate was unchanged. Life expectancy reached a record high of 76.7 in 1998.

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 1998. The preliminary report series, which is published biannually by the National Center for Health Statistics (NCHS), includes detailed tabulations from the preliminary natality and mortality files. This report is the seventh in the series and shows preliminary data for 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).

Sources and methods

The preliminary data in this series are based on records of births and deaths that occurred during 1998 and were received and had undergone quality control by NCHS as of June 2, 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 90 percent of infant deaths and 93 percent of deaths to

Acknowledgments

This report was prepared in the Division of Vital Statistics under the general direction of Mary Anne Freedman, Director, Division of Vital Statistics; James A. Weed, Acting Chief, Reproductive Statistics Branch; Harry M. Rosenberg, Chief, Mortality Statistics Branch (MSB); and Nicholas F. Pace, Chief, Systems, Programming, and Statistical Resources Branch (SPSRB). Jordan S. Sacks, Gail Parr, Jaleh Mousavi, Thomas D. Dunn, Manju Sharma, and David Johnson of SPSRB provided computer programming support and statistical tables. Jeffrey D. Maurer, Robert N. Anderson, Kimberley D. Peters, and Arialdi Minino of MSB provided assistance in assessing data quality and with statistical methodology. Thomas D. Dunn of SPSRB provided content review. Staff of the Data Acquisition and Evaluation Branch carried out quality evaluation and acceptance procedures for the State data on which this report is based. Staff of the Division of Data Processing were responsible for receipt and processing of the basic data files. This report was edited by Patricia Keaton-Williams, typeset by Jacqueline M. Davis, and graphics were produced by Gail Ogburn of the Publications Branch, Division of Data Services.

persons aged 1 year or older. For these death records, medical or cause-of-death information was processed separately for 85 percent of infant deaths and 88 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 by State of occurrence. 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, and Sudden infant death syndrome (SIDS). Bias correction factors for these causes are shown in the Technical notes, table II, for illustrative purposes.

Life expectancy is shown in the preliminary report for the first time for age groups 85 years and older.

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. 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). Death rates for American Indian, API, and to a lesser extent, for Hispanic persons are believed to be underreported (see Technical notes).

Race and Hispanic origin are reported as separate items on the birth and death certificates. Therefore, births and deaths shown by race may be of Hispanic or non-Hispanic origin, and births and deaths of Hispanic origin may be of any race. All tabulations in this report show data separately for the non-Hispanic white population as well as for the white population as a whole. Although the overwhelming majority of Hispanic origin births (approximately 97 percent) are to white women, there are notable differences in childbearing patterns between Hispanic and non-Hispanic white women. About 1 in 5 white births are to Hispanic women. For this preliminary report, data are not shown separately for non-Hispanic black persons, because the great majority (more than 95 percent) of black births and deaths are to non-Hispanic persons and, thus, the difference in the statistics for the two groups are minimal (1,2). The reports *Births: Final Data for 1997*, and *Deaths: Final Data for 1997* show data for these groups separately.

State-specific preliminary data are shown only for those States and areas for which at least 75 percent of the records for 1998 were received and have undergone quality control (processed). (See Technical notes.) The proportion of records processed is shown by State in table I in the Technical notes. Because the number of death records processed for California was below the 75-percent criterion, mortality data for California are not shown in the State-specific tabulations but are included in the U.S. totals. Changes in death rates between 1997 and 1998 and differences in death rates across demographic groups for 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

Nativity trends and patterns

The preliminary number of **births** in the United States totaled 3,944,046 for 1998, 2 percent higher than the final number for 1997 (3,880,894) (table A). The **crude birth rate** increased from 14.5 births

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

Characteristic	All races ¹		White, total ²		White, non-Hispanic		Black ²		Hispanic ³	
	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997
Number										
Births	3,944,046	3,880,894	3,122,391	3,072,640	2,364,907	2,333,363	610,203	599,913	735,019	709,767
Percent										
Births to mothers under 20 years	12.5	12.7	11.1	11.2	9.4	9.5	21.5	22.2	16.9	17.0
Births to unmarried mothers	32.8	32.4	26.3	25.8	21.9	21.5	69.0	69.2	41.6	40.9
Low birthweight ⁴	7.6	7.5	6.5	6.5	6.6	6.5	13.0	13.0	6.4	6.4
Very low birthweight ⁵	1.45	1.42	1.15	1.13	1.15	1.12	3.08	3.04	1.15	1.13
Births delivered by cesarean	21.2	20.8	21.0	20.7	21.2	20.9	22.4	21.8	20.6	20.2
Prenatal care beginning in first trimester	82.8	82.5	84.8	84.7	87.9	87.9	73.3	72.3	74.3	73.7
Prenatal care beginning in third trimester or no care	3.9	3.9	3.3	3.2	2.4	2.4	7.0	7.3	6.3	6.2

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 data 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).

per 1,000 population in 1997 to a preliminary rate of 14.6 in 1998, the second lowest rate in the last 20 years. The **fertility rate**—defined as the number of births per 1,000 women aged 15–44 years—was 65.6 for 1998, an increase of 1 percent from 1997 (65.0). (See tables 1–4 for births, birth rates, and fertility rates.) Crude birth rates per 1,000 population increased in 34 States and declined in 7 States and the District of Columbia; there was no change in 9 States. State-specific fertility rates per 1,000 women aged 15–44 years increased in 43 States and declined in 6 States and the District of Columbia; there was no change in New York.

The 1998 fertility rate for American Indian women (70.5) increased 2 percent compared with the 1997 rate, the rate for white (64.7) and non-Hispanic white women (57.8) increased 1 percent each, and the rate for black women (71.0) increased very slightly. The rate for Asian or Pacific Islander (API) women (63.5) decreased 4 percent to its lowest level since first reported in 1980. The fertility rate for Hispanic women dropped 2 percent, to 101.1, the lowest rate reported since 1989 when national data became available for this group (1). Despite the decline in the Hispanic fertility rate, births to Hispanic women comprised 19 percent of all births in the United States for 1998, compared with 18 percent in 1997 and 14 percent in 1989.

The **birth rate for teenagers** in 1998 was 51.1 births per 1,000 women aged 15–19 years, 2 percent lower than the rate for 1997 (52.3) (table B, table 1, and figure 1). Birth rates for teenagers have been declining steadily since 1991. Overall, the rate fell 18 percent from 1991 (62.1) to 1998 (table B). The rate for the youngest group, **10–14 years**, was 1.0 per 1,000 for 1998, the lowest level since 1969. The number of births to females aged 10–14 years of age declined 6 percent from 10,121 to 9,481 for 1997–98, the lowest number in 30 years; this number has fallen 27 percent since 1994. (1, 5, 6). **Rates for teenage**

subgroups 15–17 and 18–19 years continued to fall in 1998. The rate for teenagers aged 15–17 years dropped 5 percent from 32.1 per 1,000 in 1997 to 30.4 in 1998, a record low. The rate for teenagers 18–19 years declined 2 percent, from 83.6 in 1997 to 82.0 per 1,000 in 1998. The decrease in the rates from 1991 was 21 percent for 15–17-year-olds and 13 percent for 18–19-year-olds.

Birth rates for 15–19-year-olds by race and Hispanic origin fell 4 percent for Hispanic teenagers (93.7 per 1,000), 3 percent for black (85.3) and API teenagers (23.1), and 2 percent for non-Hispanic white (35.2) and total white teenagers (45.4) between 1997 and 1998. The rate for American Indian teenagers (71.8) did not change. During the 1991–98 period, declines in teenage birth rates were largest for non-Hispanic white and black teenagers, 19 and 26 percent, respectively.

Birth rates for women in their twenties, the primary childbearing ages, rose in 1998. The birth rate for women aged 20–24 years increased 1 percent to 111.2 per 1,000 women, and the rate for women aged 25–29 increased 2 percent to 116.0. Rates for non-Hispanic white, black, and American Indian women aged 20–24 and 25–29 years rose 1 to 3 percent in 1998, while rates for Hispanic and API women in their twenties declined 1 to 3 percent (table 1).

The birth rate for women aged 30–34 years increased 3 percent to 87.5 per 1,000, and the rate for women **35–39 years** rose 4 percent, to 37.4. Birth rates for women in their thirties were higher in 1998 than any rate observed in about the past three decades (1,5). The **birth rate for women aged 40–44 years** increased from 7.1 to 7.3 per 1,000, the highest rate since 1970 (1).

The birth rate for women aged 45–54 years remained unchanged at 0.4 per 1,000, but the number of births to women in this age group increased 8 percent (from 3,477 in 1997 to 3,769 in 1998).

Table B. Birth rates for women aged 15–19 years, by age, race, and Hispanic origin: United States, final 1990–97 and preliminary 1998, and percent change in rates, 1991–98

[Rates per 1,000 women in specified group]

Age, race and Hispanic origin of mother	1998	1997	1996	1995	1994	1993	1992	1991	1990	Percent change 1991–98
15–19 years										
All races ¹	51.1	52.3	54.4	56.8	58.9	59.6	60.7	62.1	59.9	–17.7
White, total ²	45.4	46.3	48.1	50.1	51.1	51.1	51.8	52.8	50.8	–14.0
White, non-Hispanic	35.2	36.0	37.6	39.3	40.4	40.7	41.7	43.4	42.5	–18.9
Black, total ²	85.3	88.2	91.4	96.1	104.5	108.6	112.4	115.5	112.8	–26.1
Hispanic ³	93.7	97.4	101.8	106.7	107.7	106.8	107.1	106.7	100.3	–12.2
15–17 years										
All races ¹	30.4	32.1	33.8	36.0	37.6	37.8	37.8	38.7	37.5	–21.4
White, total ²	25.9	27.1	28.4	30.0	30.7	30.3	30.1	30.7	29.5	–15.6
White, non-Hispanic	18.4	19.4	20.6	22.0	22.8	22.7	22.7	23.6	23.2	–22.0
Black, total ²	56.8	60.8	64.7	69.7	76.3	79.8	81.3	84.1	82.3	–32.5
Hispanic ³	62.3	66.3	69.0	72.9	74.0	71.7	71.4	70.6	65.9	–11.8
18 years										
All races ¹	82.0	83.6	86.0	89.1	91.5	92.1	94.5	94.4	88.6	–13.1
White, total ²	74.7	75.9	78.4	81.2	82.1	82.1	83.8	83.5	78.0	–10.5
White, non-Hispanic	60.6	61.9	63.7	66.1	67.4	67.7	69.8	70.5	66.6	–14.0
Black, total ²	126.8	130.1	132.5	137.1	148.3	151.9	157.9	158.6	152.9	–20.1
Hispanic ³	140.2	144.3	151.1	157.9	158.0	159.1	159.7	158.5	147.7	–11.5

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 data 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.

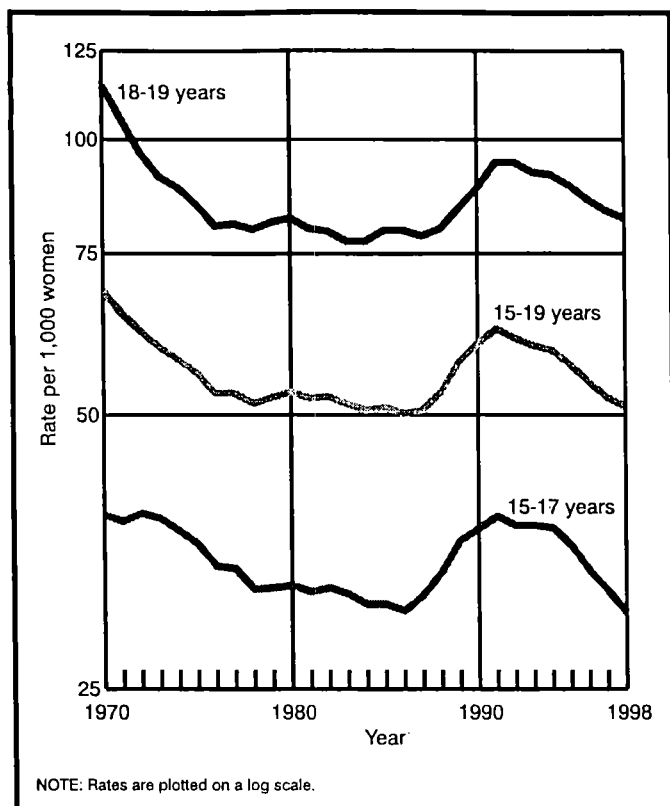


Figure 1. Birth rates for teenagers by age: United States, 1970-98

As a result of the declines in teenage birth rates and increases in birth rates for women aged 20 years and over, the proportion of all births occurring to women under age 20 years declined from 12.7 to 12.5 percent (table A). The proportions of births to teenagers by State for 1997 and 1998 are shown in table 5.

The **first birth rate** declined less than 1 percent in 1998 to 26.4 first births per 1,000 women aged 15-44 years (table 3). This was the lowest rate ever recorded. The first birth rate for teenagers 15-19 years fell 2 percent in 1998 to 39.9 per 1,000, the lowest level reported since 1987.

The **total fertility rate (TFR)** indicates the number of births that a hypothetical group of 1,000 women would have if they experienced throughout their childbearing years the age-specific birth rates observed in a given year. The TFR for 1998 was 2,059.5, 1 percent higher than the rate for 1997, 2,032.5. The TFR increased 1 percent for black women (2,171.5), and increased 2 percent each for total white (2,044.0), non-Hispanic white (1,839.5), and American Indian (2,086.0) women. The TFR declined for Hispanic women by 2 percent (2,949.0) and by 4 percent for API women (1,852.5) (tabular data not shown).

The **preliminary number of births to unmarried women** for 1998 was 1,292,534 about 3 percent higher than the number for 1997 (1,257,444) (table C). The **preliminary birth rate for unmarried women** in 1998 was 44.3 births per 1,000 unmarried women aged 15-44 years, about 1 percent higher than the rate in 1997 (44.0), but still nearly 6 percent lower than its highest level, 46.9 in 1994 (1). The number of births for 1998 is the highest ever reported in the United States, due mostly to continued increases in the number of unmarried women of childbearing age (up 6 percent since 1994) (7).

Table C. Number and percent of births to unmarried women, all ages and women under 20 years: United States, final 1997 and preliminary 1998

[Figures for 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age of mother	Number		Percent	
	1998	1997	1998	1997
All ages	1,292,534	1,257,444	32.8	32.4
Under 20 years	389,721	385,802	78.8	78.2
Under 15 years	9,152	9,685	96.5	95.7
15-19 years	380,569	376,117	78.5	77.8
15-17 years	151,445	156,253	87.4	86.7
18-19 years	229,124	219,864	73.5	72.5

The **proportion of all births to unmarried women** in 1998 increased to 32.8 percent, compared with 32.4 percent in 1997. This proportion has been relatively stable since 1994, ranging from 32.2 to 32.8 percent. The proportion for all white births increased from 25.8 to 26.3 percent, for non-Hispanic white births from 21.5 to 21.9 percent, and for Hispanic births from 40.9 to 41.6 percent. The proportion declined slightly for black births from 69.2 to 69.0 percent.

The preliminary number of births to unmarried teenagers (total under 20 years) was 1 percent higher in 1998 than in 1997 (table C). However, the numbers declined 6 percent for births to teenagers under 15 years and by 3 percent for births to teenagers 15-17 years. Births to older unmarried teenagers, 18-19 years, rose by 4 percent.

The percent of all teenage births that occurred to unmarried teenagers was higher in 1998 (78.8 percent) than in 1997 (78.2 percent). Increases in the percent unmarried were found for each teenage subgroup, even for age groups reporting fewer nonmarital births. The percent unmarried increased for births to teenagers under age 18 because total births to these teenagers declined even more than nonmarital births. Birth rates for unmarried teenagers for 1998 are not yet available; see Technical notes.

The procedures for reporting mother's marital status changed in only one State between 1997 and 1998. Connecticut added a direct question on marital status to the birth certificate in June 1998. Previously, Connecticut inferred the mother's marital status from information on the birth certificate (see Technical notes). Because the change in Connecticut was not implemented until June 1998 and because Connecticut accounts for only 1 percent of U.S. births, the change has essentially no impact on the national data. As of 1998 birth data on marital status for all but two States are based on a direct question on each State's birth certificate or electronic birth registration system (see Technical notes).

The percent of infants born **low birthweight (LBW)**, or less than 2,500 grams, rose from 7.5 to 7.6 percent for 1997-98. Low birthweight levels had declined during the 1970's and early 1980's but have risen 12 percent (from 6.8 percent) since 1986. The current level is the highest reported since 1972. The rate of **very low birthweight (VLBW)** also increased slightly from 1.42 to 1.45 percent between 1997 and 1998. Very low birthweight has also risen moderately during the 1980's and 1990's (from 1.15 percent in 1980). (See tables A and 7 for 1997 and 1998 data.)

The overall increase in LBW is largely the result of the continued increase in LBW among non-Hispanic white mothers (6.5 to 6.6 percent

for 1998–97); LBW levels among black (13.0 percent) and Hispanic infants (6.4 percent) were unchanged for 1998.

The downtrend in the rate of **cesarean deliveries**, observed for 1989–96, appears to have ended. For 1997–98, the rate of cesarean delivery rose from 20.8 to 21.2 percent as the result of an increase in the **primary cesarean rate** and a decline in the **rate of vaginal births after previous cesarean delivery** (VBAC) (see tables A and 8). The primary cesarean rate (the proportion of first cesareans among women with no previous cesarean) increased by 2 percent (from 14.6 to 14.9 percent) for 1997–98, the first such increase since these data have been reported on birth certificates (1989). The VBAC rate dropped 4 percent (from 27.4 to 26.3 percent), and has fallen 7 percent in only 2 years. The VBAC rate had risen 50 percent between 1989 and 1996 (from 18.9 percent) (1).

Timely prenatal care continued to improve in 1998; 82.8 percent of women began care in the first trimester of pregnancy, compared with 82.5 percent for 1997. First trimester care has risen steadily during the 1990's, from 75.5 percent in 1989 (1). No change was reported in the proportion of non-Hispanic white women with first trimester care (87.9), but utilization rose among black (73.3 percent) and Hispanic women (74.3 percent) for 1997–98. Since 1989 first trimester care has risen 22 and 25 percent, respectively, among these latter two racial/ethnic groups.

The overall percent of women with **late care** (beginning in the third trimester of pregnancy) or **no care prenatal care** was 3.9, unchanged from 1997. Since 1989 the proportion of women with late or no care prenatal care has declined from 6.4. For the current year, the percent of black women with late or no care declined slightly to 7.0; late or no care among Hispanic women was up very slightly to 6.3 percent. (See tables A and 9 for 1997 and 1998 data.)

Mortality trends and patterns

The **preliminary number of deaths** in the United States for 1998 totaled 2,338,070, an increase of 23,825 from the 1997 total. The **crude death rate** of 865.0 per 100,000 population was essentially the same as the rate of 864.7 per 100,000 in 1997. The estimated **age-adjusted death rate**, which accounts for changes in the age distribution of the population, was 470.8 per 100,000 U.S.

standard population, a record low for the United States and 2 percent below the rate for 1997. 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 1997 was 479.1 (2). (See tables D, E, F, and 10–18 and figure 2 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 by 4 percent, for Hispanic males by 3 percent, and for white males by 2 percent. The decline for API and Hispanic females was 5 percent, for black females 2 percent, and for white females less than 1 percent. Changes in the age-adjusted death rate for non-Hispanic white females and American Indians of either sex were not statistically significant.

Reductions in mortality for all ages combined between 1997 and 1998 resulted from declines in the death rate for **age groups** from 1–74 years and 85 years and over. The greatest declines (6 percent) occurred in the 15–24-year and 25–34-year age groups. The decline of less than 1 percent for the age group 75–84 years was not statistically significant. The only increase in the age-specific rates—the 2-percent increase shown in the death rate for under 1 year of age—is in contrast to absence of change between 1997 and 1998 in the **infant mortality rates** (tables 14 and 15). Infant death rates, whose denominators are population estimates, differ from infant mortality rates, whose denominators are live births. Infant mortality rates are the more commonly used and preferred index for measuring the risk of dying during the first year of life.

Preliminary estimates of **life expectancy** at birth in 1998 increased to another record high of 76.7 years, surpassing the previous record high of 76.5 recorded in 1997 (tables D and 16). Record high life expectancies were reached for white and black males and for black females (74.6 years, 67.8 years, and 75.0 years, respectively). For white females 1998 life expectancy was unchanged from the record high of 79.9 reached in 1997.

Table D. Deaths, age-adjusted death rates, and life expectancy at birth, by race and sex; and infant mortality rates, by race: United States, final 1997 and preliminary 1998

Measure and sex	All races ¹		White		Black	
	1998	1997	1998	1997	1998	1997
All deaths	2,338,070	2,314,245	2,020,230	1,996,393	275,469	276,520
Age-adjusted death rate ²	470.8	479.1	450.4	456.5	683.2	705.3
Male	587.9	602.8	561.9	573.8	874.6	911.9
Female	372.3	375.7	355.7	358.0	535.0	545.5
Life expectancy at birth ³	76.7	76.5	77.3	77.1	71.5	71.1
Male	73.9	73.6	74.6	74.3	67.8	67.2
Female	79.4	79.4	79.9	79.9	75.0	74.7
All infant deaths	28,486	28,045	18,795	18,539	8,579	8,496
Infant mortality rate ⁴	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.

³Life expectancy at birth stated in years.

⁴Infant mortality rates are deaths under 1 year per 1,000 live births in specified group.

Table E. Deaths and death rates for 1998 and age-adjusted death rates and percent changes in age-adjusted rates from 1997 to 1998 for the 15 leading causes of death: United States, final 1997 and preliminary 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 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		
				1998	1997	Percent change
...	All causes	2,338,075	865.0	470.6	479.1	-1.8
1	Diseases of heart (390-398, 402, 404-429)	724,269	268.0	126.0	130.5	-3.4
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	538,947	199.4	122.9	125.6	-2.1
3	Cerebrovascular diseases (430-438)	158,060	58.5	25.0	25.9	-3.4
4	Chronic obstructive pulmonary diseases and allied conditions (490-496)	114,381	42.3	21.6	21.1	2.3
5	Pneumonia and influenza (480-487)	94,828	35.1	13.5	12.9	4.6
6	Accidents and adverse effects (E800-E949)	93,207	34.5	28.5	30.1	-5.3
	Motor vehicle accidents (E810-E825)	41,826	15.5	15.0	15.9	-5.6
	All other accidents and adverse effects (E800-E807, E826-E949)	51,382	19.0	13.5	14.2	-4.9
7	Diabetes mellitus (250)	64,574	23.9	13.6	13.5	0.7
8	Suicide (E950-E959)	29,264	10.8	10.0	10.6	-5.6
9	Nephritis, nephrotic syndrome, and nephrosis (580-589)	26,295	9.7	4.5	4.4	2.2
10	Chronic liver disease and cirrhosis (571)	24,936	9.2	7.1	7.4	-4.0
11	Septicemia (038)	23,643	8.7	4.4	4.2	4.7
12	Alzheimer's disease (331.0)	22,824	8.4	2.7	2.7	-
13	Homicide and legal intervention (E960-E978)	17,350	6.4	6.9	8.0	-13.7
14	Atherosclerosis (440)	15,424	5.7	1.9	2.1	-9.5
15	Hypertension with or without renal disease (401, 403)	14,216	5.3	2.4	2.3	4.3
...	All other causes	375,857	139.1	---	---	---

... Category not applicable.

- Quantity zero.

--- Data not available.

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

Table F. Age-specific death rates and percent change by race and sex for Human immunodeficiency virus infection: United States, final 1997 and preliminary 1998

	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years
White male					
1998	0.3	6.5	12.5	8.2	3.9
1997	0.5	9.8	16.1	10.2	4.7
Percent change	-40.0	-33.7	-22.4	-19.6	-17.0
White female					
1998	*	1.6	2.2	1.1	0.6
1997	0.2	2.2	2.6	1.3	0.7
Percent change	*	-27.3	-15.4	-15.4	-14.3
Black male					
1998	2.1	38.8	77.1	75.3	38.6
1997	2.7	53.3	100.1	86.5	47.0
Percent change	-22.2	-27.2	-23.0	-12.9	-17.9
Black female					
1998	2.9	20.9	30.0	19.2	9.9
1997	3.5	23.1	35.3	23.0	9.2
Percent change	-17.1	-9.5	-15.0	-16.5	7.6

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

The list of 15 **leading causes of death** changed between 1997 and 1998. HIV infection moved off the list for the first time since 1987, when NCHS introduced categories *042-*044 for classifying and coding HIV infection (8). The other 14 leading causes, which were on the list for 1997 and 1998, were joined by Hypertension with or without renal disease (hypertension). Among the leading causes, the rank order

changed somewhat between the two years. Pneumonia and influenza rose from sixth to fifth, while accidents dropped to sixth. Septicemia rose from 12th to 11th; Alzheimer's disease dropped to 12th. Atherosclerosis replaced HIV infection as 14th leading cause of death, and hypertension was 15th. In order the 15 leading causes in 1998 were heart disease, 1st; cancer, 2d; stroke, 3d; Chronic obstructive pulmonary disease and

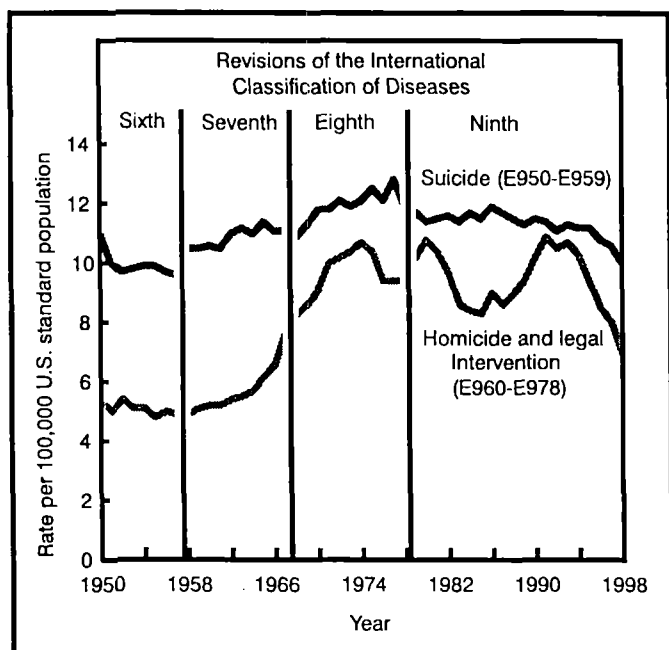


Figure 2. Age-adjusted death rates for suicide and homicide: United States, final 1950-97 and preliminary 1998

allied conditions (COPD), 4th; Pneumonia and influenza, 5th; accidents, 6th; Diabetes mellitus, 7th; Suicide, 8th; Nephritis, nephrotic syndrome, and nephrosis, 9th; Chronic liver disease and cirrhosis, 10th; Septicemia, 11th; Alzheimer's disease, 12th; homicide, 13th; Atherosclerosis, 14th; and hypertension, 15th.

Reductions in mortality occurred in a number of the leading causes of death. From 1997 to 1998, the preliminary age-adjusted death rate for **heart disease** declined by about 3 percent, while the age-adjusted death rate for **cancer** declined by 2 percent (tables E and 11). 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 1998. While heart disease mortality has exhibited a downward trend since 1950, cancer mortality has declined only since 1990.

The preliminary age-adjusted death rate for **HIV infection** again decreased substantially, by an estimated 21 percent from 1997 to 1998, the third consecutive decline for this cause. The rate decreased 29 percent from 1995 to 1996 and 48 percent from 1996 to 1997. In 1995 the rate for HIV infection was not significantly different from 1994. From 1987 until 1994, HIV infection mortality increased an average of 16 percent annually. Between 1997 and 1998 most age groups between 15-24 years and 55-64 years experienced sharp reductions in HIV infection mortality (table F). The pronounced declines were among the younger age groups. Despite the overall decline in mortality for HIV infection, this cause is still a ranking cause for the age group 25-44 years; it remains the leading cause of death for black men, the third for black women, and the fifth for white men.

The preliminary age-adjusted death rate dropped for **homicide** by 14 percent, the largest decline in over 40 years (figure 2). For the black and white populations, most age groups shared in the reduction of mortality from this cause. Homicide remained the leading cause of death for black males 15-24 years of age and the second leading cause for black males 25-44 years and black females 15-24 years. **Suicide**

declined by 6 percent. Virtually all race/sex groups participated in this decline. This cause of death remained second for white males aged 15-24 years and dropped from second to third for those aged 25-44 years. Suicide also dropped from second to third for white females 15-24 years of age. The decline in mortality due to homicide and suicide continued the downward trend reported in the final 1996 and 1997 data (figure 2) (2,4). The rate for **accidents** declined by 5 percent, continuing the general downward trend in accident mortality since the 1980's. Declines for homicide, suicide, and accidents may be somewhat overstated because of possible reporting biases in the preliminary data (see Technical notes).

The age-adjusted death rate for **atherosclerosis** was down 10 percent. Declines also occurred for **Chronic liver disease and cirrhosis** (4 percent) and **stroke** (3 percent). Increases in the age-adjusted rate occurred for **septicemia** (5 percent), **pneumonia and influenza** (5 percent), and **COPD** (2 percent). The 5-percent increase for pneumonia and influenza reflected the effect of the influenza outbreak during the 1997-98 winter season (9).

Preliminary age-adjusted death rates decreased appreciably for **drug-induced deaths** (14 percent), **firearm injuries** (11 percent), and **alcohol-induced causes** (6 percent). The rate for **injuries at work** did not change significantly between 1997 and 1998 (table 11).

The lowest mortality among the major **race and ethnic groups** was reported for the API and Hispanic populations; preliminary age-adjusted death rates were 43 and 26 percent lower, respectively, than those of the non-Hispanic white population. In contrast, the age-adjusted death rate for the black population was 51 percent higher than that of the non-Hispanic white population. However, mortality for races other than white and black and for Hispanic origin may be understated because of underreporting of race and Hispanic origin on death certificates and to undercounts of those population groups in the census (10,11).

The preliminary **infant mortality rate** for 1998 was 7.2 infant deaths per 1,000 live births, the same as 1997 (tables D and 14). Changes in the rates for the race and Hispanic origin groups were not statistically significant. Because of inconsistencies in reporting for some races and for Hispanic origin, infant mortality rates for some groups are likely to be underestimated (10,11). 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 (12).

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 between 1997 and 1998 (table 15). The rate for **Disorders relating to short gestation and unspecified low birthweight**, the second leading cause of death for all infants (accounting for 14.1 percent of infant deaths), also declined by less than 1 percent for 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. While deaths due to SIDS have been declining since 1988 (2), the sharp downturn of 17 percent in 1998 may be largely attributable to the absence of a more accurate final diagnosis in the preliminary file, rather than to a real reduction in risk from SIDS (see Technical notes).

By place of residence, **Hawaii** had the lowest mortality, with an age-adjusted death rate of 370.1 deaths per 100,000 U.S. standard population. Mortality was the highest for the **District of Columbia**, with an age-adjusted death rate of 672.5 per 100,000 U.S. standard population (table 13); however, inasmuch as the District of Columbia

is a metropolitan area, its rates are not comparable with those of States. The State with the highest rate was Mississippi with a rate of 606.9 (table 13).

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Table 1. Births and birth rates, by age, race and Hispanic origin of mother: United States, final 1997 and preliminary 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				
Total ¹	3,944,046	65.6	3,880,894	65.0
10-14 years	9,481	1.0	10,121	1.1
15-19 years	484,975	51.1	483,220	52.3
15-17 years	173,252	30.4	180,154	32.1
18-19 years	311,724	82.0	303,066	83.6
20-24 years	965,414	111.2	942,048	110.4
25-29 years	1,083,894	116.0	1,069,436	113.8
30-34 years	890,336	87.5	886,798	85.3
35-39 years	425,194	37.4	409,710	36.1
40-44 years	80,982	7.3	76,084	7.1
45-54 years ²	3,769	0.4	3,477	0.4
White, total ³				
Total ¹	3,122,391	64.7	3,072,640	63.9
10-14 years	4,821	0.7	5,021	0.7
15-19 years	340,894	45.4	338,272	46.3
15-17 years	116,699	25.9	120,165	27.1
18-19 years	224,195	74.7	218,107	75.9
20-24 years	737,137	107.3	720,546	106.7
25-29 years	881,904	119.3	871,636	116.6
30-34 years	738,882	90.7	735,571	87.8
35-39 years	350,244	37.8	337,423	36.4
40-44 years	65,461	7.2	61,417	6.9
45-54 years ²	3,049	0.4	2,754	0.4
White, non-Hispanic				
Total ¹	2,364,907	57.8	2,333,363	57.0
10-14 years	2,145	0.4	2,240	0.4
15-19 years	219,292	35.2	219,857	36.0
15-17 years	68,657	18.4	71,868	19.4
18-19 years	150,635	60.6	147,989	61.9
20-24 years	511,466	90.8	500,928	89.8
25-29 years	679,390	109.9	674,498	107.2
30-34 years	604,936	88.1	603,304	85.2
35-39 years	291,669	36.4	280,393	34.9
40-44 years	53,494	6.7	49,908	6.4
45-54 years ²	2,516	0.4	2,235	0.3
Black, total ³				
Total ¹	610,203	71.0	599,913	70.7
10-14 years	4,291	2.9	4,712	3.3
15-19 years	126,865	85.3	128,539	88.2
15-17 years	50,062	56.8	53,634	60.8
18-19 years	76,803	126.8	74,905	130.1
20-24 years	189,110	141.9	182,600	139.0
25-29 years	139,472	101.9	135,529	99.5
30-34 years	93,908	64.8	94,123	64.3
35-39 years	46,694	30.5	45,069	29.7
40-44 years	9,515	6.7	8,981	6.5
45-54 years ²	349	0.3	360	0.3
American Indian, total ^{3,4}				
Total ¹	40,167	70.5	38,572	69.1
10-14 years	195	1.6	202	1.7
15-19 years	8,174	71.8	7,810	71.8
15-17 years	3,155	44.3	3,118	45.3
18-19 years	5,019	118.0	4,692	117.6
20-24 years	13,017	139.0	12,316	134.9
25-29 years	9,512	102.0	9,168	100.8
30-34 years	5,913	66.1	5,812	64.2
35-39 years	2,789	30.1	2,694	29.3
40-44 years	548	6.3	542	6.4
45-54 years ²	19	.	28	0.4

See footnotes at end of table

Table 1. Births and birth rates, by age, race and Hispanic origin of mother: United States, final 1997 and preliminary 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 ³				
Total ¹	171,284	63.5	169,769	66.3
10-14 years	174	0.4	186	0.5
15-19 years	9,043	23.1	8,599	23.7
15-17 years	3,336	13.7	3,237	14.3
18-19 years	5,707	38.2	5,362	39.3
20-24 years	26,150	68.3	26,586	70.5
25-29 years	53,007	109.4	53,103	113.2
30-34 years	51,634	104.1	51,292	110.3
35-39 years	25,467	52.4	24,524	54.1
40-44 years	5,457	11.9	5,144	11.9
45-54 years ²	352	0.9	335	0.9
Hispanic ⁵				
Total ¹	735,019	101.1	709,767	102.8
10-14 years	2,721	2.1	2,833	2.3
15-19 years	121,455	93.7	118,122	97.3
15-17 years	48,265	62.3	48,416	66.3
18-19 years	73,189	140.2	69,706	144.3
20-24 years	223,200	178.4	216,152	184.2
25-29 years	196,109	160.3	188,669	161.7
30-34 years	125,770	99.0	121,539	97.9
35-39 years	54,225	44.9	51,601	45.0
40-44 years	11,064	10.8	10,405	10.8
45-54 years ²	474	0.6	446	0.6

* Figure does not meet standards of reliability or precision.

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

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

³ 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.

⁴ Includes births to 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 2. Live births by age of mother, live-birth order, and race and Hispanic origin of mother: United States, preliminary 1998

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

Live-birth order and race/Hispanic origin of mother	All ages	Age of mother							
		Under 15 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-54 years
All races	3,944,046	9,481	484,975	965,414	1,083,894	890,336	425,194	80,982	3,769
1st child	1,577,684	9,196	375,285	437,886	394,728	249,340	93,499	16,881	869
2d child	1,281,848	163	87,786	334,573	377,012	321,885	137,330	22,237	861
3d child	646,816	10	15,253	133,837	193,835	186,877	99,532	16,829	643
4th child and over	411,245	-	2,252	52,281	111,914	126,905	92,061	24,480	1,352
Not stated	26,452	112	4,398	6,837	6,404	5,329	2,771	554	45
White, total ¹	3,122,391	4,821	340,894	737,137	881,904	738,882	350,244	65,461	3,049
1st child	1,254,502	4,691	270,280	348,221	330,332	208,428	77,812	14,008	729
2d child	1,034,155	65	57,720	259,368	313,178	271,141	113,835	18,140	708
3d child	512,605	5	8,617	94,374	155,300	157,222	83,075	13,487	524
4th child and over	300,358	-	1,027	29,829	77,996	97,793	73,275	19,389	1,050
Not stated	20,771	59	3,250	5,344	5,098	4,298	2,248	437	37
White, non-Hispanic	2,364,907	2,145	219,292	511,466	679,390	604,936	291,669	53,494	2,516
1st child	974,503	2,104	178,974	252,765	276,385	182,366	68,825	12,425	658
2d child	803,376	19	33,827	178,606	243,578	231,478	99,378	15,872	618
3d child	375,088	1	4,307	60,232	108,156	122,331	68,641	10,989	432
4th child and over	199,128	-	447	16,892	48,003	65,793	53,280	13,926	787
Not stated	12,812	20	1,738	2,970	3,268	2,967	1,545	282	22
Black, total ¹	610,203	4,291	126,865	189,110	139,472	93,908	46,694	9,515	349
1st child	231,062	4,153	91,684	69,576	35,039	20,641	8,384	1,522	62
2d child	179,937	89	27,103	63,494	44,852	29,048	13,072	2,215	64
3d child	105,160	5	6,063	34,771	30,538	20,915	10,719	2,087	62
4th child and over	90,037	-	1,116	20,141	28,167	22,650	14,195	3,614	154
Not stated	4,007	43	899	1,129	875	654	323	78	6
American Indian, total ^{1,2}	40,167	195	8,174	13,017	9,512	5,913	2,789	548	19
1st child	14,014	184	6,128	4,641	1,875	837	303	46	1
2d child	10,853	3	1,587	4,642	2,675	1,335	527	81	2
3d child	7,080	-	263	2,484	2,345	1,299	580	105	4
4th child and over	7,729	-	35	1,108	2,538	2,375	1,352	311	11
Not stated	491	8	160	142	79	67	27	5	1
Asian or Pacific Islander, total ¹	171,284	174	9,043	26,150	53,007	51,634	25,467	5,457	352
1st child	78,105	167	7,193	15,448	27,482	19,434	7,000	1,305	76
2d child	56,903	5	1,377	7,069	16,307	20,362	9,896	1,800	86
3d child	21,971	-	310	2,207	5,652	7,441	5,159	1,150	52
4th child and over	13,121	-	74	1,204	3,214	4,087	3,239	1,167	136
Not stated	1,183	2	89	222	352	310	173	35	1
Hispanic ³	735,019	2,721	121,455	223,200	196,109	125,770	54,225	11,064	474
1st child	272,142	2,632	91,215	94,533	50,933	23,477	7,913	1,378	60
2d child	223,182	47	23,936	79,823	67,711	36,552	13,024	2,005	83
3d child	134,383	4	4,343	33,884	46,519	33,602	13,571	2,378	82
4th child and over	99,344	-	590	12,954	29,616	31,318	19,390	5,228	248
Not stated	5,967	38	1,370	2,005	1,330	822	327	75	-

- Quantity zero.

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.

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

Table 3. Birth rates by age of mother, live-birth order, and race and Hispanic origin of mother: United States, preliminary 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 ²
All races	65.6	1.0	51.1	111.2	116.0	87.5	37.4	7.3	0.4
1st child	26.4	1.0	39.9	50.8	42.5	24.6	8.3	1.5	0.1
2d child	21.5	0.0	9.3	38.8	40.6	31.8	12.2	2.0	0.1
3d child	10.8	*	1.6	15.5	20.9	18.5	8.8	1.5	0.1
4th child and over	6.9	*	0.2	6.1	12.1	12.5	8.2	2.2	0.1
White, total ³	64.7	0.7	45.4	107.3	119.3	90.7	37.8	7.2	0.4
1st child	26.2	0.6	36.4	51.1	44.9	25.7	8.5	1.6	0.1
2d child	21.6	0.0	7.8	38.0	42.6	33.5	12.4	2.0	0.1
3d child	10.7	*	1.2	13.8	21.1	19.4	9.0	1.5	0.1
4th child and over	6.3	*	0.1	4.4	10.6	12.1	8.0	2.1	0.1
White, non-Hispanic	57.8	0.4	35.2	90.8	109.9	88.1	36.4	6.7	0.4
1st child	23.9	0.3	29.0	45.1	44.9	26.7	8.6	1.6	0.1
2d child	19.7	0.0	5.5	31.9	39.6	33.9	12.5	2.0	0.1
3d child	9.2	*	0.7	10.8	17.6	17.9	8.6	1.4	0.1
4th child and over	4.9	*	0.1	3.0	7.8	9.6	6.7	1.8	0.1
Black, total ³	71.0	2.9	85.3	141.9	101.9	64.8	30.5	6.7	0.3
1st child	27.1	2.8	62.1	52.5	25.8	14.3	5.5	1.1	0.1
2d child	21.1	0.1	18.4	47.9	33.0	20.2	8.6	1.6	0.1
3d child	12.3	*	4.1	26.2	22.4	14.5	7.1	1.5	0.1
4th child and over	10.5	*	0.8	15.2	20.7	15.7	9.3	2.6	0.1
American Indian, total ^{3,4}	70.5	1.6	71.8	139.0	102.0	66.1	30.1	6.3	*
1st child	24.9	1.6	54.9	50.1	20.3	9.5	3.3	0.5	*
2d child	19.3	*	14.2	50.1	28.9	15.1	5.8	0.9	*
3d child	12.6	*	2.4	26.8	25.4	14.7	6.3	1.2	*
4th child and over	13.7	*	0.3	12.0	27.4	26.9	14.8	3.6	*
Asian or Pacific Islander, total ³	63.5	0.4	23.1	68.3	109.4	104.1	52.4	11.9	0.9
1st child	29.1	0.4	18.5	40.7	57.1	39.4	14.5	2.9	0.2
2d child	21.2	*	3.5	18.6	33.9	41.3	20.5	3.9	0.2
3d child	8.2	*	0.8	5.8	11.7	15.1	10.7	2.5	0.1
4th child and over	4.9	*	0.2	3.2	6.7	8.3	6.7	2.6	0.3
Hispanic ⁵	101.1	2.1	93.7	178.4	160.3	99.0	44.9	10.8	0.6
1st child	37.7	2.1	71.2	76.3	41.9	18.6	6.6	1.4	0.1
2d child	31.0	0.0	18.7	64.4	55.7	29.0	10.8	2.0	0.1
3d child	18.6	*	3.4	27.3	38.3	26.6	11.3	2.3	0.1
4th child and over	13.8	*	0.5	10.4	24.4	24.8	16.2	5.2	0.3

0.0 Quantity more than zero but less than 0.05.

* Figure does not meet standards of reliability or precision.

¹ The rate shown is the fertility rate, which is defined as the total number of births, regardless of age of mother, per 1,000 women aged 15-44 years.² The birth rate for ages 45-49 years is computed by relating births to women aged 45-54 years to women aged 45-49 years, because most of the births in this group are to women aged 45-49.³ 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.⁴ Includes births to 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 4. Live births by race and Hispanic origin of mother: United States, each State, Puerto Rico, Virgin Islands, and Guam, preliminary 1998, and birth and fertility rates, final 1997 and preliminary 1998

[By place of residence. Data are based on a continuous file of records received from the States. Birth rates are total births per 1,000 total population; fertility rates are total births per 1,000 women aged 15-44 years. Figures for 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	3,944,046	3,122,391	2,364,907	610,203	40,167	171,284	735,019	14.6	14.5	65.6	65.0
Alabama	62,126	41,564	40,242	20,041	143	378	1,317	14.3	14.1	63.3	62.1
Alaska	9,935	6,684	6,180	405	2,388	458	595	16.2	16.3	73.2	72.4
Arizona	78,296	68,428	38,729	2,663	5,437	1,768	29,792	16.8	16.6	78.3	78.1
Arkansas	36,891	28,311	26,553	7,990	219	371	1,730	14.5	14.5	67.6	67.3
California	521,801	424,662	177,152	36,738	3,380	57,020	247,668	16.0	16.3	70.7	72.3
Colorado	59,800	54,527	40,086	2,880	654	1,739	14,710	15.1	14.5	67.4	64.2
Connecticut	43,812	36,938	28,957	5,375	110	1,389	6,183	13.4	13.2	61.3	60.3
Delaware	10,583	7,703	6,939	2,623	34	222	748	14.2	14.0	61.2	60.3
District of Columbia	7,694	2,054	1,321	5,467	8	164	734	14.7	15.0	60.9	61.7
Florida	195,636	146,218	107,758	44,386	910	4,121	39,541	13.1	13.1	65.1	64.9
Georgia	122,372	78,194	69,495	41,252	240	2,687	8,241	16.0	15.8	67.2	66.1
Hawaii	17,586	4,175	3,527	558	187	12,666	2,239	14.7	14.7	69.7	69.0
Idaho	19,392	18,774	16,092	82	315	221	2,428	15.8	15.4	72.3	70.3
Illinois	182,491	140,144	105,538	35,713	251	6,383	34,749	15.2	15.2	68.2	68.4
Indiana	84,131	73,884	70,025	9,035	110	1,102	3,690	14.3	14.2	63.5	62.9
Iowa	37,282	35,229	33,188	1,093	195	764	1,739	13.0	12.9	61.4	60.4
Kansas	38,412	34,288	30,013	2,787	393	944	3,962	14.6	14.4	67.1	65.7
Kentucky	54,301	48,815	48,064	4,862	96	528	761	13.8	13.6	61.5	59.9
Louisiana	66,884	38,124	36,757	27,452	325	983	1,326	15.3	15.2	66.7	65.7
Maine	13,748	13,382	12,688	91	104	171	131	11.0	11.0	49.8	49.5
Maryland	72,029	44,913	41,238	24,176	189	2,751	3,581	14.0	13.8	60.2	58.9
Massachusetts	81,548	69,578	62,148	7,907	138	3,925	8,701	13.3	13.1	58.6	57.8
Michigan	133,681	105,603	92,978	24,277	726	3,076	5,942	13.6	13.7	60.4	60.0
Minnesota	65,202	57,290	51,089	3,665	1,174	3,073	2,967	13.8	13.8	61.8	61.4
Mississippi	42,931	22,953	22,487	19,359	236	382	401	15.6	15.2	68.3	66.3
Missouri	75,382	62,527	60,570	11,406	275	1,174	1,970	13.9	13.7	62.9	62.2
Montana	10,679	9,389	8,876	43	1,141	106	335	12.1	12.3	58.4	59.1
Nebraska	23,537	21,445	18,755	1,236	406	450	2,192	14.2	14.1	65.2	64.6
Nevada	28,669	24,322	15,598	2,253	449	1,644	8,699	16.4	16.0	77.8	75.4
New Hampshire	14,611	14,253	13,508	137	41	181	260	12.3	12.2	53.0	52.4
New Jersey	116,519	86,486	67,381	21,848	176	8,009	20,866	14.4	14.1	65.4	64.1
New Mexico	27,801	23,409	9,617	519	3,480	393	13,956	16.0	15.5	73.4	70.4
New York	258,132	186,144	124,114	54,497	671	16,820	52,241	14.2	14.2	63.9	63.9
North Carolina	111,683	79,336	71,298	28,244	1,732	2,370	8,101	14.8	14.4	66.6	64.3
North Dakota	7,932	7,035	6,707	87	737	73	152	12.4	13.0	58.3	61.0
Ohio	152,900	127,376	123,885	22,813	293	2,418	3,472	13.6	13.6	61.2	60.7
Oklahoma	49,479	38,924	35,068	4,804	4,874	877	3,613	14.8	14.6	69.0	67.8
Oregon	45,277	41,614	35,143	966	752	1,945	6,501	13.8	13.5	64.7	62.7
Pennsylvania	146,059	121,830	114,679	20,530	369	3,330	6,879	12.2	12.0	57.0	55.9
Rhode Island	12,600	11,030	7,744	967	147	456	1,865	12.7	12.6	57.6	56.6
South Carolina	53,888	34,209	32,938	18,839	147	694	1,266	14.0	13.9	61.3	60.4
South Dakota	10,289	8,392	8,252	85	1,720	92	153	13.9	13.8	65.1	63.6
Tennessee	77,386	59,299	57,336	16,883	126	1,077	1,996	14.2	13.9	63.1	61.2
Texas	342,280	291,831	140,005	40,202	771	9,476	151,490	17.3	17.2	76.2	75.3
Utah	45,157	42,930	37,979	281	669	1,277	4,878	21.5	20.9	91.4	88.5
Vermont	6,580	6,494	6,295	27	17	41	38	11.1	11.2	49.1	49.6
Virginia	94,512	68,728	63,013	22,190	216	3,378	5,820	13.9	13.6	59.2	58.0
Washington	79,659	69,018	57,203	3,112	1,830	5,700	10,076	14.0	13.9	62.3	61.8
West Virginia	20,755	19,857	19,736	762	12	124	91	11.5	11.4	53.7	53.1
Wisconsin	67,454	58,187	54,639	6,541	881	1,844	3,642	12.9	12.9	58.5	58.1
Wyoming	6,260	5,888	5,324	54	271	47	587	13.0	13.3	61.0	61.8
Puerto Rico	59,015	54,530	---	4,485	---	---	---	15.3	16.8	65.2	71.1
Virgin Islands	1,784	351	102	1,390	42	1	337	15.1	17.6	69.0	80.3
Guam	4,313	348	306	46	4	3,915	45	28.9	29.6	138.9	138.9

--- 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 5. Percent of live births to mothers under 20 years of age by race and Hispanic origin of mother: United States, each State, Puerto Rico, Virgin Islands, and Guam, final 1997 and preliminary 1998

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

Area	All races ¹		White, total ²		White, non-Hispanic		Black, total ²		Hispanic ³	
	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997
United States ⁴	12.5	12.7	11.1	11.2	9.4	9.5	21.5	22.2	16.9	17.0
Alabama	17.1	17.6	13.3	13.7	13.3	13.7	25.2	25.8	14.0	14.4
Alaska	11.2	11.2	8.8	9.1	8.6	8.9	13.9	15.5	12.0	12.3
Arizona	15.1	14.9	14.7	14.6	10.1	10.2	22.3	21.0	20.8	20.7
Arkansas	18.6	19.2	15.9	16.3	15.9	16.3	28.4	30.2	16.1	17.6
California	11.3	11.7	11.6	11.9	6.9	7.0	16.9	18.1	15.2	15.5
Colorado	12.1	11.9	11.7	11.6	8.2	8.3	20.8	19.7	21.4	21.8
Connecticut	8.3	8.3	7.1	7.0	4.1	4.2	17.7	18.2	21.9	22.4
Delaware	13.1	13.4	9.5	9.6	8.6	9.0	24.9	26.0	17.0	14.8
District of Columbia	15.3	15.6	5.7	5.7	1.5	2.1	19.3	19.2	12.7	13.4
Florida	13.2	13.4	10.9	10.9	10.4	10.4	21.5	22.3	12.5	12.7
Georgia	15.0	15.5	12.0	12.0	11.7	11.6	21.4	23.0	15.0	15.2
Hawaii	10.7	10.1	5.1	5.8	4.1	5.0	9.0	9.2	18.7	18.5
Idaho	12.8	12.7	12.7	12.7	11.7	11.5	*	*	20.3	20.0
Illinois	12.4	12.5	9.5	9.6	7.5	7.6	25.6	25.8	15.7	16.0
Indiana	13.7	14.1	12.4	12.9	12.1	12.6	25.2	25.5	18.3	18.1
Iowa	10.6	10.7	10.2	10.2	9.7	9.9	25.4	27.2	18.2	15.2
Kansas	12.6	12.9	11.7	12.0	10.8	11.2	25.3	26.4	18.7	19.0
Kentucky	15.4	16.3	14.6	15.5	14.7	15.4	24.3	26.0	12.7	16.8
Louisiana	18.4	18.6	12.9	13.5	12.9	13.5	26.5	26.0	12.4	12.9
Maine	9.8	10.1	9.7	10.1	9.5	9.9	*	*	*	*
Maryland	10.2	10.3	7.0	6.8	6.6	6.5	17.1	17.7	10.9	10.2
Massachusetts	7.2	7.4	6.6	6.6	4.9	4.8	14.0	14.8	20.4	22.0
Michigan	11.6	11.7	9.6	9.6	8.7	8.8	21.0	21.8	18.8	18.2
Minnesota	8.6	8.8	7.1	7.4	6.8	7.1	21.2	22.6	17.9	19.4
Mississippi	20.0	20.7	14.1	14.1	14.1	14.1	27.3	28.5	15.2	12.8
Missouri	13.8	13.9	12.1	12.1	12.0	12.0	23.9	24.4	16.6	16.9
Montana	12.3	12.2	10.8	10.5	10.4	10.1	*	*	20.9	20.9
Nebraska	10.6	10.5	9.7	9.4	8.7	8.6	23.0	26.8	16.8	16.8
Nevada	13.1	13.5	12.7	12.8	10.5	10.8	20.2	23.8	16.5	16.6
New Hampshire	7.7	7.8	7.7	7.8	7.4	7.4	*	*	16.2	15.4
New Jersey	7.8	7.8	5.7	5.8	3.2	3.3	18.1	18.3	14.7	15.0
New Mexico	18.2	17.9	18.2	17.9	11.7	11.8	24.1	22.3	23.0	22.5
New York	8.8	8.8	7.7	7.5	5.3	5.3	14.5	14.9	14.7	14.5
North Carolina	14.0	14.4	11.1	11.4	10.4	10.8	22.0	22.5	17.1	17.8
North Dakota	9.8	9.1	8.3	7.8	8.0	7.4	*	*	14.5	17.1
Ohio	13.0	13.3	11.1	11.4	10.9	11.2	24.4	25.1	19.8	19.3
Oklahoma	16.3	17.0	14.7	15.2	14.2	14.8	23.5	25.9	20.3	19.1
Oregon	12.5	12.5	12.4	12.3	11.5	11.1	21.4	21.7	17.3	19.5
Pennsylvania	10.3	10.4	8.5	8.4	7.6	7.5	22.3	23.0	24.1	24.4
Rhode Island	10.5	10.7	9.6	9.8	7.9	7.7	16.9	18.4	18.9	20.8
South Carolina	16.0	16.4	12.0	12.1	11.9	12.0	23.6	24.3	13.6	15.9
South Dakota	12.0	12.2	9.5	9.8	9.5	9.6	*	*	16.3	20.6
Tennessee	15.9	16.3	13.5	13.9	13.4	13.8	24.7	25.4	16.1	16.8
Texas	16.1	16.1	15.6	15.5	11.3	11.3	22.5	23.5	19.6	19.5
Utah	9.8	10.6	9.7	10.5	8.5	9.5	19.9	23.8	19.0	19.2
Vermont	7.9	8.4	7.9	8.5	7.8	8.3	*	*	*	*
Virginia	10.8	11.0	8.3	8.5	8.0	8.2	19.6	20.4	11.2	11.9
Washington	10.9	11.0	10.7	10.7	9.6	9.6	18.5	18.5	17.8	18.3
West Virginia	15.7	15.9	15.4	15.6	15.4	15.6	25.2	26.1	*	*
Wisconsin	10.5	10.7	8.1	8.3	7.4	7.7	28.3	28.9	19.4	20.4
Wyoming	16.2	14.2	15.8	13.9	15.1	13.4	*	*	23.8	20.6
Puerto Rico	20.5	20.8	20.4	20.7	---	---	22.7	22.6	---	---
Virgin Islands	18.0	16.9	20.2	17.9	*	*	17.7	16.9	25.2	20.0
Guam	14.2	14.1	6.3	6.9	*	7.0	*	*	*	*

* Figure does not meet standards of reliability or precision

--- Data not available.

¹ Includes races other than white and black.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 all persons of Hispanic origin of any race; see Technical notes⁴ 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 6. Percent of live births to unmarried mothers by race and Hispanic origin of mother: United States, each State, Puerto Rico, Virgin Islands, and Guam, final 1997 and preliminary 1998

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

Area	All races ¹		White, total ²		White, non-Hispanic		Black, total ²		Hispanic ³	
	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997
United States ⁴	32.8	32.4	26.3	25.8	21.9	21.5	69.0	69.2	41.6	40.9
Alabama	34.1	33.9	17.3	16.9	17.1	16.8	69.3	69.0	22.4	23.1
Alaska	31.1	30.6	21.8	21.6	21.2	21.2	40.2	41.6	28.8	28.1
Arizona	38.4	37.6	35.7	34.6	25.0	24.6	63.0	64.6	49.9	48.4
Arkansas	35.1	34.2	24.1	23.1	23.5	22.6	74.4	74.6	34.1	33.1
California	32.7	32.8	32.5	32.4	21.4	21.6	61.8	62.3	40.7	40.4
Colorado	25.6	25.2	24.1	23.9	18.5	18.3	54.6	55.1	39.7	40.6
Connecticut	31.3	32.7	26.1	27.0	18.6	19.7	68.9	70.2	64.4	66.3
Delaware	37.1	36.0	25.8	25.1	23.4	22.7	72.5	71.5	47.9	51.0
District of Columbia	62.8	63.6	23.3	24.0	8.2	8.8	79.0	77.9	50.6	55.3
Florida	36.6	36.0	27.9	27.1	25.7	24.9	67.1	67.3	34.8	34.4
Georgia	36.2	35.4	20.8	19.6	19.5	18.6	67.1	67.2	32.4	29.8
Hawaii	31.4	29.9	15.4	17.1	14.4	15.9	21.7	21.1	45.3	44.8
Idaho	22.0	20.7	21.3	20.2	19.6	18.8	40.2	46.3	32.1	29.0
Illinois	34.1	33.4	24.1	23.5	19.2	18.8	77.8	77.0	39.4	38.6
Indiana	33.4	32.6	28.4	27.7	27.6	27.1	76.7	75.9	42.3	40.4
Iowa	27.2	26.2	25.8	24.6	24.9	24.1	72.4	75.3	41.0	35.6
Kansas	27.8	27.6	24.5	24.1	22.8	22.6	69.1	69.5	38.7	38.1
Kentucky	29.9	29.5	26.0	25.5	25.9	25.4	71.3	71.9	29.0	31.6
Louisiana	44.9	43.9	24.4	23.5	24.2	23.4	74.2	73.2	31.9	27.2
Maine	30.6	29.7	30.4	29.5	30.2	29.2	49.4	42.0	32.9	29.8
Maryland	34.4	33.5	21.3	20.5	19.9	19.2	61.5	61.3	37.8	36.7
Massachusetts	26.1	25.9	22.9	22.6	18.6	18.4	58.4	59.2	60.0	60.6
Michigan	32.9	33.2	24.2	24.1	22.5	22.6	73.1	75.3	40.4	40.4
Minnesota	25.6	25.0	22.1	21.5	21.5	20.9	65.8	66.5	47.8	46.9
Mississippi	45.5	45.4	20.4	19.6	20.3	19.5	75.5	75.7	31.2	27.7
Missouri	34.1	33.1	26.5	25.3	26.1	25.0	77.0	77.7	37.9	37.9
Montana	29.9	28.7	25.1	23.2	24.4	22.6	48.8	•	39.4	41.7
Nebraska	26.2	25.8	23.2	22.5	21.1	20.6	68.9	72.4	39.3	39.9
Nevada	34.7	35.5	32.2	32.7	27.4	28.2	66.1	68.6	40.8	41.4
New Hampshire	24.1	23.8	24.0	23.8	23.5	23.1	44.1	51.0	37.4	38.6
New Jersey	28.3	28.0	20.9	20.5	12.8	12.8	65.9	66.3	49.9	48.8
New Mexico	44.1	43.5	40.0	39.6	25.7	26.1	61.0	56.7	50.2	49.5
New York	34.9	35.2	27.5	27.7	17.5	18.3	66.3	66.8	57.9	57.5
North Carolina	32.8	32.2	20.8	19.9	18.6	18.0	66.7	66.6	40.7	39.3
North Dakota	27.0	26.0	22.4	21.3	22.1	20.9	28.7	28.6	29.6	26.5
Ohio	34.0	33.9	26.8	26.6	26.2	26.1	76.7	77.2	49.1	46.4
Oklahoma	33.2	32.4	27.2	26.2	26.4	25.7	69.1	71.5	35.5	33.0
Oregon	29.7	28.8	28.9	27.9	27.2	26.4	65.4	66.8	38.3	37.4
Pennsylvania	32.8	32.8	25.7	25.6	23.6	23.4	77.5	77.8	61.0	63.5
Rhode Island	33.9	33.1	30.6	29.9	25.6	25.2	66.4	64.8	57.2	56.6
South Carolina	38.7	38.0	22.0	20.8	21.5	20.4	69.8	69.9	35.2	32.4
South Dakota	32.0	31.1	23.2	22.8	22.9	22.6	37.6	39.6	42.5	31.9
Tennessee	34.9	34.1	24.1	23.1	23.7	22.8	73.8	73.5	37.5	32.9
Texas	31.5	30.7	27.8	26.9	20.0	19.6	63.0	63.0	35.1	33.8
Utah	17.1	16.6	16.3	15.8	13.5	13.4	49.5	55.8	38.6	36.3
Vermont	28.0	26.1	27.9	26.2	27.7	26.0	•	•	•	•
Virginia	29.8	29.3	20.0	19.6	18.5	18.3	63.2	63.5	36.4	35.7
Washington	27.9	27.1	26.4	25.6	24.5	23.9	54.4	54.4	38.3	37.3
West Virginia	32.4	31.3	30.8	29.8	30.7	29.8	76.8	76.0	33.0	30.5
Wisconsin	28.5	28.1	22.4	22.0	21.0	20.7	82.1	82.4	44.8	44.4
Wyoming	29.6	27.4	27.9	26.2	26.5	24.6	50.0	41.9	42.6	44.1
Puerto Rico	47.0	45.8	45.8	44.5	---	---	62.5	62.4	---	---
Virgin Islands	69.8	67.8	57.6	56.7	43.1	29.4	74.3	71.8	66.8	64.5
Guam	54.2	49.3	19.3	17.3	19.3	17.2	•	•	•	•

* Figure does not meet standards of reliability or precision.

--- Data not available.

¹ Includes races other than white and black.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 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 7. Percent low birthweight by race and Hispanic origin of mother: United States, each State, Puerto Rico, Virgin Islands, and Guam, final 1997 and preliminary 1998

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

Area	All races ¹		White, total ²		White, non-Hispanic		Black, total ²		Hispanic ³	
	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997
United States ⁴	7.6	7.5	6.5	6.5	6.6	6.5	13.0	13.0	6.4	6.4
Alabama	9.3	9.2	7.3	7.4	7.4	7.4	13.3	13.1	6.2	7.3
Alaska	5.9	5.9	5.6	5.5	5.6	5.3	10.4	12.3	6.4	7.1
Arizona	6.8	6.9	6.6	6.6	6.6	6.7	12.1	13.6	6.6	6.6
Arkansas	8.9	8.4	7.5	7.2	7.6	7.2	13.9	12.7	6.5	6.5
California	6.2	6.2	5.7	5.6	5.7	5.5	11.6	12.0	5.6	5.6
Colorado	8.6	8.8	8.3	8.5	8.3	8.3	13.3	15.1	8.4	9.1
Connecticut	7.7	7.3	7.0	6.5	6.4	6.2	13.2	12.3	9.8	8.3
Delaware	8.4	8.7	6.3	6.9	6.1	6.8	14.8	14.1	7.9	8.0
District of Columbia	13.1	13.4	6.0	5.9	5.8	5.7	15.8	16.1	6.0	6.2
Florida	8.1	8.0	6.8	6.8	6.9	6.8	12.2	12.3	6.5	6.7
Georgia	8.5	8.8	6.4	6.6	6.6	6.7	12.7	13.0	5.4	5.4
Hawaii	8.0	7.2	6.3	5.1	6.3	5.1	10.5	10.2	8.0	7.4
Idaho	6.0	6.3	6.0	6.3	5.9	6.1	*	*	6.8	7.4
Illinois	8.0	7.9	6.4	6.4	6.5	6.4	14.2	13.9	6.3	6.2
Indiana	8.0	7.7	7.3	7.0	7.3	7.0	13.6	13.6	6.9	7.0
Iowa	6.4	6.4	6.2	6.2	6.2	6.1	12.8	10.4	6.1	6.6
Kansas	7.0	6.9	6.5	6.4	6.5	6.4	13.0	12.9	5.9	5.9
Kentucky	8.2	7.8	7.6	7.4	7.6	7.4	13.7	12.0	7.1	7.2
Louisiana	10.1	10.2	7.0	7.0	7.0	7.1	14.6	14.6	7.3	5.5
Maine	5.8	5.9	5.8	5.9	5.9	6.0	*	*	*	*
Maryland	8.7	8.8	6.4	6.4	6.4	6.4	12.9	13.6	6.1	6.6
Massachusetts	6.9	7.0	6.5	6.6	6.3	6.4	10.1	10.6	7.8	8.3
Michigan	7.8	7.7	6.5	6.5	6.3	6.4	13.8	13.2	6.6	6.7
Minnesota	5.8	5.9	5.4	5.5	5.6	5.6	11.0	11.1	5.7	6.8
Mississippi	10.1	10.1	7.2	7.4	7.3	7.4	13.7	13.4	*	6.1
Missouri	7.8	7.7	6.7	6.7	6.7	6.7	14.0	13.5	6.2	6.1
Montana	7.0	6.3	6.9	6.1	6.8	6.0	*	*	7.5	7.6
Nebraska	6.5	7.0	6.2	6.7	6.1	6.8	12.2	11.7	6.6	5.2
Nevada	7.6	7.6	6.9	7.0	7.3	7.4	13.3	13.7	6.3	6.3
New Hampshire	5.7	5.8	5.6	5.9	5.6	5.8	*	*	*	8.8
New Jersey	8.0	7.9	6.7	6.5	6.4	6.2	13.3	13.7	7.4	7.4
New Mexico	7.6	7.8	7.7	7.8	8.1	7.7	11.4	15.4	7.5	7.9
New York	7.8	7.8	6.7	6.7	6.3	6.2	11.9	11.8	7.8	7.6
North Carolina	8.8	8.8	7.0	7.1	7.1	7.2	13.9	13.6	6.2	6.1
North Dakota	6.5	6.2	6.5	6.2	6.5	6.2	*	*	*	*
Ohio	7.7	7.7	6.8	6.7	6.7	6.7	13.2	13.6	7.7	7.5
Oklahoma	7.2	7.3	6.7	6.8	6.7	6.9	12.5	12.3	6.0	5.7
Oregon	5.4	5.5	5.2	5.3	5.1	5.3	9.8	11.0	5.8	5.4
Pennsylvania	7.6	7.6	6.6	6.5	6.4	6.4	13.5	13.9	9.4	9.2
Rhode Island	7.6	7.4	7.1	6.9	6.9	6.4	11.4	11.9	7.9	7.8
South Carolina	9.5	9.2	7.1	6.8	7.1	6.8	14.0	13.5	5.7	5.9
South Dakota	5.8	5.5	5.7	5.6	5.7	5.6	*	*	*	*
Tennessee	9.1	8.8	7.6	7.4	7.6	7.4	14.3	13.7	6.6	6.3
Texas	7.4	7.3	6.7	6.5	6.7	6.5	12.6	12.4	6.7	6.6
Utah	6.7	6.6	6.6	6.5	6.6	6.4	15.0	13.8	7.2	7.4
Vermont	6.7	6.3	6.8	6.3	6.8	6.1	*	*	*	*
Virginia	7.9	7.7	6.4	6.2	6.4	6.2	12.6	12.6	6.5	6.3
Washington	5.7	5.6	5.4	5.3	5.3	5.3	10.0	10.2	5.7	5.4
West Virginia	8.1	8.3	7.8	8.1	7.9	8.1	13.5	12.8	*	*
Wisconsin	6.5	6.4	5.7	5.6	5.6	5.6	13.6	13.3	6.5	6.7
Wyoming	8.9	9.0	8.8	9.0	8.9	9.0	*	*	7.5	8.0
Puerto Rico	10.9	10.7	10.9	10.7	---	---	10.7	9.8	---	---
Virgin Islands	9.1	8.1	*	*	*	*	10.2	9.3	*	5.9
Guam	7.6	7.1	6.1	5.0	*	*	*	*	*	*

* Figure does not meet standards of reliability or precision

--- Data not available.

¹ Includes races other than white and black.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 all persons of Hispanic origin of any race; see Technical notes⁴ 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 8. Percent of live births by cesarean delivery by race and Hispanic origin of mother: United States, each State, Puerto Rico, Virgin Islands, and Guam, final 1997 and preliminary 1998

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

Area	All races ¹		White, total ²		White, non-Hispanic		Black, total ²		Hispanic ³	
	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997
United States ⁴	21.2	20.8	21.0	20.7	21.2	20.9	22.4	21.8	20.6	20.2
Alabama	24.0	23.9	24.7	24.5	24.8	24.6	22.8	22.6	20.7	20.9
Alaska	14.7	16.8	16.4	19.2	16.4	19.1	17.9	22.8	17.6	21.4
Arizona	17.1	16.8	17.2	16.8	18.3	18.1	20.2	19.9	15.7	15.1
Arkansas	24.9	24.5	24.7	24.3	25.0	24.6	26.1	25.6	20.9	18.8
California	21.7	21.0	21.6	21.0	22.5	21.9	24.8	23.3	20.9	20.3
Colorado	16.4	15.3	16.4	15.2	16.7	15.4	16.9	17.8	15.7	14.4
Connecticut	20.0	19.8	20.0	19.7	20.3	20.1	20.5	20.2	18.6	17.2
Delaware	23.3	21.0	22.8	20.9	23.3	21.3	24.8	20.9	18.5	15.4
District of Columbia	20.8	21.2	17.7	20.3	21.2	22.1	22.1	21.7	12.1	16.5
Florida	22.4	22.2	22.9	22.6	22.1	21.9	21.2	20.9	24.9	24.5
Georgia	20.9	20.8	20.7	20.6	21.4	21.1	21.5	21.2	15.1	16.3
Hawaii	15.6	16.7	16.9	19.8	16.4	19.7	18.7	20.8	17.1	17.5
Idaho	15.7	16.4	15.6	16.4	15.5	16.2	*	*	16.5	17.7
Illinois	19.4	19.1	19.4	19.2	20.3	19.9	19.5	19.0	16.9	16.8
Indiana	20.0	19.7	20.1	19.6	20.1	19.6	19.7	20.2	20.2	19.9
Iowa	19.6	18.9	19.7	19.0	19.7	19.2	19.9	17.7	19.8	16.2
Kansas	18.6	18.5	18.5	18.6	18.7	18.8	20.6	18.5	17.2	16.4
Kentucky	22.7	22.4	22.7	22.4	22.8	22.5	22.5	22.0	17.9	17.5
Louisiana	26.0	25.4	26.8	26.4	26.8	26.5	25.1	24.2	26.3	24.4
Maine	19.7	20.8	19.8	20.8	19.8	20.8	23.1	*	22.1	20.7
Maryland	21.3	21.0	20.7	20.6	21.0	21.0	22.6	21.9	17.9	16.7
Massachusetts	20.9	19.7	21.1	19.8	21.5	20.2	21.6	21.0	17.9	17.7
Michigan	20.6	20.1	20.6	20.2	20.7	20.3	20.6	19.8	19.3	19.9
Minnesota	18.0	17.1	18.4	17.6	18.5	17.7	17.1	16.3	17.4	17.5
Mississippi	27.1	26.7	27.9	27.8	28.0	27.9	26.0	25.5	25.1	22.3
Missouri	20.6	20.1	20.8	20.4	20.8	20.5	20.0	18.0	19.3	19.9
Montana	19.0	19.0	18.7	18.5	18.6	18.5	*	*	21.4	18.6
Nebraska	20.6	20.2	20.7	20.3	21.0	20.5	21.8	18.9	18.3	18.6
Nevada	21.5	20.1	20.9	19.6	22.1	20.9	25.7	23.2	18.7	17.0
New Hampshire	18.5	19.3	18.5	19.3	18.6	19.5	16.9	19.4	18.5	15.8
New Jersey	25.4	24.9	25.5	25.0	25.4	25.0	25.5	24.4	26.3	25.2
New Mexico	16.4	16.6	16.8	17.2	17.7	17.5	20.5	21.9	16.1	16.9
New York	22.9	23.0	22.9	23.0	23.5	23.5	23.5	23.4	22.0	22.2
North Carolina	21.5	21.2	21.3	21.2	21.8	21.6	22.3	21.6	16.7	16.6
North Dakota	19.4	18.4	19.2	18.2	18.9	18.2	23.0	*	30.3	21.2
Ohio	18.9	19.0	18.9	19.1	18.9	19.1	19.0	18.9	17.9	20.1
Oklahoma	22.8	22.3	22.6	22.1	22.9	22.3	24.1	23.0	20.3	20.8
Oregon	17.8	16.9	17.6	16.9	17.9	17.1	21.6	19.3	16.6	15.5
Pennsylvania	19.7	19.4	19.8	19.5	19.9	19.7	19.4	18.9	18.0	17.1
Rhode Island	19.5	18.6	19.9	18.8	21.3	19.5	19.4	19.5	16.7	16.5
South Carolina	23.4	22.8	23.4	23.0	23.6	23.1	23.4	22.5	19.2	18.0
South Dakota	21.5	20.0	21.5	19.8	21.5	19.8	29.8	22.2	27.0	20.6
Tennessee	22.6	21.9	22.5	21.9	22.7	22.0	23.0	21.7	18.4	19.2
Texas	23.5	23.1	23.3	23.0	24.1	23.7	25.1	24.8	22.7	22.3
Utah	16.0	15.8	15.9	15.7	15.9	15.6	23.9	18.8	16.4	17.1
Vermont	16.5	15.6	16.5	15.6	16.7	15.6	*	*	*	*
Virginia	21.2	21.5	20.8	21.1	21.1	21.1	22.5	22.8	17.9	20.3
Washington	17.9	17.2	17.7	17.0	17.8	17.0	22.8	21.4	17.2	17.1
West Virginia	24.1	24.4	24.1	24.2	24.1	24.3	23.5	28.9	22.7	*
Wisconsin	16.0	15.7	16.5	16.2	16.5	16.3	14.1	13.1	15.4	15.3
Wyoming	18.6	18.6	18.4	18.5	18.2	18.3	*	*	19.6	20.4
Puerto Rico	35.0	33.4	35.3	33.8	---	---	30.8	28.7	---	---
Virgin Islands	22.8	22.8	27.4	24.3	30.6	26.2	21.5	22.7	24.9	21.8
Guam	14.7	15.8	20.8	15.4	20.6	15.1	*	*	*	*

* Figure does not meet standards of reliability or precision.

--- Data not available.

¹ Includes races other than white and black.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 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 9. Percent of mothers receiving prenatal care in first trimester of pregnancy by race and Hispanic origin of mother: United States, each State, Puerto Rico, Virgin Islands, and Guam, final 1997 and preliminary 1998

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

Area	All races ¹		White, total ²		White, non-Hispanic		Black, total ²		Hispanic ³	
	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997
United States ⁴	82.8	82.5	84.8	84.7	87.9	87.9	73.3	72.3	74.3	73.7
Alabama	82.4	82.2	88.3	88.0	89.1	88.7	70.1	70.3	63.0	62.4
Alaska	81.4	80.4	83.5	82.4	83.7	82.8	82.6	81.3	81.2	77.6
Arizona	75.2	75.4	76.0	76.5	84.6	85.0	73.5	70.9	64.7	65.1
Arkansas	77.8	75.7	80.8	79.4	82.0	80.5	67.6	62.6	61.7	60.1
California	82.3	81.8	82.3	81.8	88.1	87.9	79.5	78.6	78.1	77.3
Colorado	82.2	82.9	82.7	83.3	87.9	87.9	75.9	77.3	68.3	69.7
Connecticut	88.0	89.2	89.3	90.6	91.3	92.7	79.0	80.1	78.1	79.1
Delaware	83.4	82.5	86.5	86.2	88.2	87.7	74.2	71.4	69.6	69.0
District of Columbia	71.9	66.6	84.5	81.0	90.9	89.3	66.9	61.4	69.1	63.2
Florida	83.7	83.9	86.9	87.1	88.6	88.9	72.8	72.8	81.9	81.7
Georgia	86.4	85.8	90.0	89.5	91.4	90.9	79.4	78.5	78.2	75.8
Hawaii	85.4	83.4	90.1	88.9	90.8	89.9	91.7	89.2	83.5	82.0
Idaho	78.7	78.6	79.1	78.9	81.7	81.4	69.1	71.0	61.5	62.1
Illinois	82.7	82.4	85.7	85.6	89.6	89.5	70.1	69.7	73.7	72.8
Indiana	79.4	80.1	81.1	81.8	82.1	82.6	64.6	66.1	63.7	66.6
Iowa	87.4	87.4	87.9	88.1	88.7	88.9	74.8	73.5	73.0	70.7
Kansas	85.8	85.6	86.7	86.6	89.1	89.2	76.0	75.9	68.2	64.5
Kentucky	86.5	85.8	87.4	86.8	87.6	87.1	78.1	75.3	73.8	72.9
Louisiana	82.2	81.3	89.4	88.6	89.6	88.8	72.1	71.1	85.3	84.0
Maine	88.9	88.9	89.1	89.3	89.3	89.4	85.6	79.0	77.8	83.9
Maryland	87.8	88.8	91.5	92.6	92.3	93.3	80.4	80.3	82.3	80.7
Massachusetts	89.5	88.9	90.9	90.4	92.3	91.9	80.0	78.0	79.2	77.8
Michigan	84.3	84.2	87.1	87.2	88.4	88.4	71.1	70.6	72.8	73.8
Minnesota	84.5	84.1	87.1	86.7	87.9	87.5	66.7	63.8	63.8	61.1
Mississippi	80.6	80.1	89.3	89.2	89.6	89.4	70.3	69.6	73.7	78.6
Missouri	86.1	86.0	88.2	88.2	88.5	88.6	74.5	73.6	77.6	74.8
Montana	82.4	82.6	84.8	84.8	85.0	84.9	79.1	74.2	78.5	77.3
Nebraska	83.9	83.9	84.9	85.0	86.9	87.0	71.0	72.0	68.8	67.1
Nevada	74.6	76.1	75.3	76.9	82.4	83.3	66.3	66.6	62.3	64.3
New Hampshire	89.7	89.6	89.9	89.8	90.1	90.1	76.5	78.0	78.6	77.9
New Jersey	81.6	81.3	85.5	85.5	89.5	89.4	65.1	63.9	71.0	71.2
New Mexico	67.6	70.2	69.1	72.5	75.1	79.1	58.4	64.2	64.8	67.6
New York	81.2	80.6	84.5	84.1	88.2	87.9	70.9	69.8	72.1	71.1
North Carolina	84.5	83.9	88.1	88.1	90.3	90.0	75.2	73.2	68.5	69.3
North Dakota	85.6	84.8	87.3	86.7	87.7	87.0	78.8	75.0	73.6	75.7
Ohio	85.5	85.1	87.6	87.4	87.9	87.7	73.2	72.2	77.4	76.6
Oklahoma	78.6	78.5	80.7	81.1	81.8	82.1	69.6	67.7	68.4	67.5
Oregon	80.2	81.1	80.4	81.4	82.8	83.9	79.4	79.4	67.2	66.7
Pennsylvania	84.8	83.8	87.3	86.6	88.2	87.5	70.9	68.0	72.3	71.5
Rhode Island	89.7	89.5	90.9	90.6	92.1	92.2	79.3	79.9	82.4	81.3
South Carolina	81.5	80.5	87.2	87.0	88.0	87.6	71.1	68.8	66.0	67.6
South Dakota	82.7	82.1	86.6	85.2	86.8	85.5	75.3	69.2	74.3	70.8
Tennessee	84.1	83.7	87.3	87.1	88.1	87.9	72.7	71.8	64.7	63.2
Texas	79.3	78.5	79.6	78.8	86.9	86.8	75.7	74.6	72.7	71.2
Utah	82.1	83.7	82.9	84.6	85.3	87.0	64.6	70.2	64.9	63.7
Vermont	87.4	88.0	87.5	88.2	87.6	88.3	-	-	87.8	-
Virginia	85.2	85.1	88.8	88.8	90.2	90.2	74.5	73.5	73.2	72.6
Washington	83.0	83.3	83.6	84.1	85.8	86.2	77.1	77.1	71.0	70.7
West Virginia	83.7	82.0	84.2	82.6	84.2	82.7	70.2	65.3	83.5	72.6
Wisconsin	84.3	84.6	87.0	87.3	88.0	88.2	67.5	68.9	71.9	72.6
Wyoming	81.3	82.5	82.2	83.2	83.4	84.0	67.3	75.8	70.2	73.9
Puerto Rico	78.9	78.3	79.5	79.0	---	---	70.5	69.7	---	---
Virgin Islands	58.9	56.9	60.2	61.3	77.5	80.0	58.2	55.7	54.3	53.2
Guam	63.0	64.2	86.0	86.2	86.7	86.3	81.8	87.9	84.1	78.0

* Figure does not meet standards of reliability or precision.

--- Data not available.

¹ Includes races other than white and black.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 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 10. 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, final 1997 and preliminary 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 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race, and sex	1998		1997	
	Number	Rate	Number	Rate
All races, both sexes				
All ages	2,338,070	865.0	2,314,245	864.7
Under 1 year ¹	28,486	754.3	28,045	738.7
1-4 years	5,224	34.4	5,501	35.8
5-14 years	7,750	19.8	8,061	20.8
15-24 years	30,286	81.4	31,544	86.2
25-34 years	42,031	108.4	45,538	115.0
35-44 years	87,833	197.3	89,408	203.2
45-54 years	145,354	420.3	144,882	430.8
55-64 years	233,116	1,028.0	231,993	1,063.6
65-74 years	458,763	2,493.9	464,274	2,509.8
75-84 years	683,553	5,719.1	670,530	5,728.2
85 years and over	615,223	15,177.0	594,068	15,345.2
Not stated	453	...	401	...
Age-adjusted rate ²	...	470.8	...	479.1
All races, male				
All ages	1,156,040	875.5	1,154,039	880.8
Under 1 year ¹	15,851	821.6	15,788	812.8
1-4 years	2,909	37.5	3,121	39.7
5-14 years	4,617	23.0	4,763	24.0
15-24 years	22,451	117.9	23,312	124.0
25-34 years	28,835	149.8	31,707	160.1
35-44 years	56,477	255.5	58,141	265.7
45-54 years	91,014	538.5	90,587	550.5
55-64 years	139,754	1,293.3	138,876	1,336.6
65-74 years	258,879	3,138.1	263,875	3,191.2
75-84 years	335,103	7,037.9	329,391	7,116.1
85 years and over	199,808	16,826.5	194,161	17,461.9
Not stated	342	...	317	...
Age-adjusted rate ²	...	587.9	...	602.8
All races, female				
All ages	1,182,031	855.0	1,160,206	849.2
Under 1 year ¹	12,634	684.0	12,257	661.1
1-4 years	2,316	31.2	2,380	31.8
5-14 years	3,133	16.4	3,298	17.4
15-24 years	7,835	43.1	8,232	46.3
25-34 years	13,196	67.6	13,831	69.9
35-44 years	31,357	139.9	31,267	141.4
45-54 years	54,340	307.3	54,295	316.1
55-64 years	93,361	786.5	93,117	815.2
65-74 years	199,883	1,970.1	200,399	1,959.0
75-84 years	348,450	4,845.8	341,139	4,820.5
85 years and over	415,414	14,493.6	399,907	14,492.3
Not stated	111	...	84	...
Age-adjusted rate ²	...	372.3	...	375.7

See footnotes at end of table.

Table 10. 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, final 1997 and preliminary 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 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race, and sex	1998		1997	
	Number	Rate	Number	Rate
White, total ³, both sexes				
All ages	2,020,230	905.9	1,996,393	902.0
Under 1 year ¹	18,795	627.9	18,539	613.7
1-4 years	3,605	29.9	3,849	31.6
5-14 years	5,618	18.2	5,806	18.9
15-24 years	22,063	74.6	22,567	77.5
25-34 years	29,784	95.4	32,260	100.6
35-44 years	64,747	175.9	65,155	178.4
45-54 years	111,453	380.3	111,404	389.3
55-64 years	189,237	969.2	187,847	1,000.5
65-74 years	395,111	2,444.6	399,798	2,451.2
75-84 years	614,683	5,693.6	603,603	5,699.0
85 years and over	564,818	15,407.6	545,264	15,559.7
Not stated	318	...	301	...
Age-adjusted rate ²	...	450.4	...	456.5
White ³, male				
All ages	990,755	904.9	986,884	906.3
Under 1 year ¹	10,459	682.4	10,503	678.1
1-4 years	2,003	32.4	2,193	35.1
5-14 years	3,324	21.0	3,479	22.1
15-24 years	16,186	106.4	16,414	109.0
25-34 years	20,764	132.5	22,748	140.3
35-44 years	42,564	230.5	43,192	235.3
45-54 years	70,419	486.2	70,200	495.8
55-64 years	114,418	1,215.6	113,303	1,252.4
65-74 years	225,273	3,081.9	229,501	3,122.7
75-84 years	302,613	7,012.2	297,875	7,086.0
85 years and over	182,476	17,121.5	177,227	17,767.1
Not stated	255	...	249	...
Age-adjusted rate ²	...	561.9	...	573.8
White ³, female				
All ages	1,029,476	906.9	1,009,509	897.8
Under 1 year ¹	8,335	570.6	8,036	546.0
1-4 years	1,602	27.2	1,656	28.0
5-14 years	2,294	15.2	2,327	15.6
15-24 years	5,877	40.9	6,153	43.8
25-34 years	9,020	58.0	9,512	60.0
35-44 years	22,183	120.9	21,963	120.9
45-54 years	41,034	276.8	41,204	285.0
55-64 years	74,819	739.8	74,544	766.3
65-74 years	169,838	1,918.3	170,297	1,900.5
75-84 years	312,070	4,815.6	305,728	4,786.3
85 years and over	382,342	14,705.1	368,037	14,681.4
Not stated	63	...	52	...
Age-adjusted rate ²	...	355.7	...	358.0

See footnotes at end of table.

Table 10. 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, final 1997 and preliminary 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 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race, and sex	1998		1997	
	Number	Rate	Number	Rate
White, non-Hispanic, both sexes				
All ages	1,918,541	981.7	1,895,461	974.2
Under 1 year ¹	14,299	607.6	14,170	592.8
1-4 years	2,813	29.3	3,032	31.1
5-14 years	4,638	18.1	4,878	19.0
15-24 years	17,859	72.2	18,105	74.2
25-34 years	24,649	93.0	26,564	97.3
35-44 years	57,417	175.7	57,449	176.6
45-54 years	102,232	381.3	102,199	389.5
55-64 years	177,233	981.1	175,932	1,011.7
65-74 years	375,543	2,473.5	380,666	2,476.9
75-84 years	593,961	5,760.3	583,570	5,753.1
85 years and over	547,772	15,653.5	528,799	15,768.2
Not stated	126	...	97	...
Age-adjusted rate ²	...	453.5	...	458.5
White, non-Hispanic, male				
All ages	933,512	976.5	929,703	977.3
Under 1 year ¹	7,952	659.4	8,118	662.4
1-4 years	1,554	31.6	1,737	34.8
5-14 years	2,753	20.9	2,959	22.4
15-24 years	12,830	101.0	12,863	102.7
25-34 years	16,878	127.6	18,368	134.8
35-44 years	37,386	228.5	37,679	231.4
45-54 years	64,357	485.2	64,114	494.0
55-64 years	107,050	1,225.7	106,156	1,264.7
65-74 years	214,143	3,114.5	218,613	3,154.6
75-84 years	292,303	7,097.5	287,971	7,154.7
85 years and over	176,221	17,445.7	171,052	18,066.9
Not stated	86	...	73	...
Age-adjusted rate ²	...	564.1	...	575.3
White, non-Hispanic, female				
All ages	985,029	986.6	965,758	971.2
Under 1 year ¹	6,346	553.1	6,052	519.6
1-4 years	1,259	26.9	1,295	27.3
5-14 years	1,885	15.1	1,919	15.3
15-24 years	5,029	41.7	5,242	44.1
25-34 years	7,771	58.5	8,196	60.0
35-44 years	20,031	122.7	19,770	121.7
45-54 years	37,875	279.6	38,085	287.3
55-64 years	70,183	752.1	69,776	775.7
65-74 years	161,400	1,942.9	162,053	1,920.3
75-84 years	301,658	4,871.0	295,599	4,831.1
85 years and over	371,551	14,926.3	357,747	14,864.0
Not stated	40	...	24	...
Age-adjusted rate ²	...	360.0	...	360.9

See footnotes at end of table.

Table 10. 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, final 1997 and preliminary 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 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race, and sex	1998		1997	
	Number	Rate	Number	Rate
Black, total³, both sexes				
All ages	275,469	800.1	276,520	814.6
Under 1 year ¹	8,579	1,530.0	8,496	1,529.8
1-4 years	1,392	61.4	1,383	59.2
5-14 years	1,788	29.0	1,890	31.1
15-24 years	7,103	125.5	7,738	139.2
25-34 years	10,633	198.7	11,675	217.1
35-44 years	20,645	371.3	21,647	397.9
45-54 years	29,951	800.5	29,614	827.8
55-64 years	38,368	1,684.6	38,644	1,746.6
65-74 years	55,039	3,304.0	55,901	3,392.4
75-84 years	58,880	6,685.0	57,327	6,640.3
85 years and over	42,970	14,034.6	42,115	14,398.7
Not stated	122	...	90	...
Age-adjusted rate ²	...	683.2	...	705.3
Black ³, male				
All ages	141,887	868.3	144,110	893.9
Under 1 year ¹	4,811	1,692.5	4,710	1,671.6
1-4 years	790	68.8	796	67.2
5-14 years	1,093	34.9	1,076	34.8
15-24 years	5,492	193.5	6,021	215.8
25-34 years	7,015	276.9	7,870	308.6
35-44 years	12,369	474.6	13,345	523.7
45-54 years	18,213	1,073.9	18,067	1,114.1
55-64 years	22,080	2,237.9	22,265	2,320.0
65-74 years	28,924	4,136.0	29,660	4,298.3
75-84 years	27,142	8,258.5	26,471	8,296.8
85 years and over	13,875	15,441.9	13,767	16,083.5
Not stated	81	...	62	...
Age-adjusted rate ²	...	874.6	...	911.9
Black ³, female				
All ages	133,582	738.4	132,410	742.8
Under 1 year ¹	3,768	1,363.0	3,786	1,383.9
1-4 years	602	53.9	587	51.0
5-14 years	695	22.9	814	27.2
15-24 years	1,611	57.1	1,717	62.0
25-34 years	3,618	128.4	3,805	134.6
35-44 years	8,276	280.2	8,302	287.1
45-54 years	11,738	573.9	11,547	590.4
55-64 years	16,288	1,261.8	16,379	1,307.3
65-74 years	26,115	2,702.1	26,241	2,739.7
75-84 years	31,737	5,748.2	30,856	5,669.3
85 years and over	29,095	13,450.1	28,348	13,701.7
Not stated	41	...	28	...
Age-adjusted rate ²	...	535.0	...	545.5

See footnotes at end of table.

Table 10. 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, final 1997 and preliminary 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 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race, and sex	1998		1997	
	Number	Rate	Number	Rate
American Indian, total ^{3, 4} , both sexes				
All ages	10,867	460.5	10,576	455.5
Under 1 year ¹	386	944.1	317	775.5
1-4 years	96	60.4	95	59.1
5-14 years	116	24.8	119	25.5
15-24 years	467	111.8	486	119.8
25-34 years	670	179.1	684	182.8
35-44 years	993	279.9	1,015	291.1
45-54 years	1,294	524.5	1,250	526.1
55-64 years	1,595	1,114.1	1,546	1,122.4
65-74 years	2,004	2,248.4	2,030	2,338.1
75-84 years	1,903	3,922.7	1,853	4,052.3
85 years and over	1,343	7,090.8	1,177	6,462.4
Not stated	1	...	4	...
Age-adjusted rate ²	...	458.6	...	465.3
American Indian ^{3, 4} , male				
All ages	5,994	513.2	5,985	519.2
Under 1 year ¹	207	1,008.6	186	903.0
1-4 years	54	67.2	42	51.6
5-14 years	70	29.5	68	28.7
15-24 years	340	161.6	371	180.3
25-34 years	453	236.7	473	245.4
35-44 years	647	369.1	669	389.3
45-54 years	790	662.5	776	673.4
55-64 years	931	1,382.9	914	1,409.6
65-74 years	1,071	2,672.8	1,114	2,847.2
75-84 years	920	4,560.6	903	4,796.3
85 years and over	510	8,502.8	468	7,888.1
Not stated	-	...	1	...
Age-adjusted rate ²	...	564.9	...	584.1
American Indian ^{3, 4} , female				
All ages	4,874	408.9	4,591	392.6
Under 1 year ¹	179	879.0	131	646.1
1-4 years	41	52.2	53	66.8
5-14 years	46	20.0	51	22.2
15-24 years	126	60.7	115	57.5
25-34 years	216	118.3	211	116.3
35-44 years	346	192.9	346	195.6
45-54 years	504	395.4	474	387.4
55-64 years	664	875.5	632	866.9
65-74 years	934	1,903.8	916	1,920.5
75-84 years	984	3,472.2	950	3,531.6
85 years and over	832	6,428.7	709	5,773.6
Not stated	1	...	3	...
Age-adjusted rate ²	...	364.3	...	359.9

See footnotes at end of table.

Table 10. 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, final 1997 and preliminary 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 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race, and sex	1998		1997	
	Number	Rate	Number	Rate
Asian or Pacific Islander, total ³ , both sexes				
All ages	31,503	299.8	30,756	306.6
Under 1 year ¹	726	400.3	693	385.6
1-4 years	132	18.7	174	25.1
5-14 years	227	13.8	246	15.6
15-24 years	653	42.1	753	50.5
25-34 years	945	51.5	919	51.3
35-44 years	1,449	80.4	1,591	93.9
45-54 years	2,656	205.5	2,614	217.1
55-64 years	3,916	536.9	3,956	575.2
65-74 years	6,609	1,384.2	6,545	1,442.3
75-84 years	8,087	3,563.7	7,747	3,772.9
85 years and over	6,092	9,716.4	5,512	9,788.3
Not stated	12	...	6	...
Age-adjusted rate ²	...	259.8	...	274.8
Asian or Pacific Islander ³ , male				
All ages	17,404	344.7	17,060	351.7
Under 1 year ¹	374	406.8	389	426.3
1-4 years	62	17.3	90	25.5
5-14 years	129	15.3	140	17.3
15-24 years	432	55.6	506	67.2
25-34 years	602	70.4	616	71.8
35-44 years	897	104.7	935	115.7
45-54 years	1,591	264.3	1,544	274.8
55-64 years	2,325	685.5	2,394	750.8
65-74 years	3,612	1,799.8	3,600	1,892.6
75-84 years	4,428	4,562.6	4,142	4,749.1
85 years and over	2,946	11,403.1	2,699	11,796.3
Not stated	6	...	5	...
Age-adjusted rate ²	...	329.9	...	350.3
Asian or Pacific Islander ³ , female				
All ages	14,099	258.3	13,696	264.3
Under 1 year ¹	352	393.7	304	343.7
1-4 years	70	20.2	84	24.7
5-14 years	98	12.3	106	13.8
15-24 years	221	28.5	247	33.4
25-34 years	342	34.9	303	32.4
35-44 years	552	58.4	656	74.1
45-54 years	1,065	154.3	1,070	166.6
55-64 years	1,591	407.7	1,562	423.4
65-74 years	2,997	1,082.8	2,945	1,117.3
75-84 years	3,659	2,817.3	3,605	3,052.1
85 years and over	3,146	8,534.3	2,813	8,414.1
Not stated	6	...	1	...
Age-adjusted rate ²	...	204.1	...	214.7

See footnotes at end of table.

Table 10. 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, final 1997 and preliminary 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 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Age, race, and sex	1998		1997	
	Number	Rate	Number	Rate
Hispanic ⁵ , both sexes				
All ages	96,751	319.8	95,460	325.3
Under 1 year ¹	4,397	628.5	4,240	614.3
1-4 years	807	30.0	832	31.3
5-14 years	979	17.1	934	17.2
15-24 years	4,207	79.4	4,482	87.0
25-34 years	5,063	97.8	5,678	108.5
35-44 years	7,164	157.5	7,508	171.0
45-54 years	8,881	323.6	8,901	341.0
55-64 years	11,506	720.3	11,464	757.8
65-74 years	18,660	1,752.6	18,052	1,768.4
75-84 years	19,372	3,717.7	18,416	3,830.2
85 years and over	15,650	8,840.8	14,903	9,309.4
Not stated	63	...	50	...
Age-adjusted rate ²	...	336.3	...	350.3
Hispanic ⁵ , male				
All ages	54,665	358.9	54,348	360.5
Under 1 year ¹	2,450	686.4	2,316	654.3
1-4 years	456	33.1	465	34.1
5-14 years	575	19.7	520	18.7
15-24 years	3,366	122.4	3,569	129.1
25-34 years	3,835	143.0	4,363	154.5
35-44 years	5,046	217.5	5,375	235.7
45-54 years	5,803	433.3	5,891	456.1
55-64 years	7,020	946.9	6,814	957.8
65-74 years	10,570	2,248.3	10,214	2,251.7
75-84 years	9,635	4,555.6	9,103	4,750.3
85 years and over	5,847	9,835.7	5,671	10,487.3
Not stated	62	...	47	...
Age-adjusted rate ²	...	433.8	...	447.7
Hispanic ⁵ , female				
All ages	42,086	280.3	41,112	288.0
Under 1 year ¹	1,947	568.1	1,924	572.3
1-4 years	351	26.7	367	28.4
5-14 years	405	14.4	414	15.6
15-24 years	841	33.0	913	38.3
25-34 years	1,228	49.2	1,315	54.6
35-44 years	2,118	95.1	2,133	101.1
45-54 years	3,078	219.0	3,010	228.3
55-64 years	4,486	524.0	4,650	580.3
65-74 years	8,090	1,360.6	7,838	1,381.9
75-84 years	9,737	3,145.3	9,313	3,220.5
85 years and over	9,803	8,337.7	9,232	8,708.6
Not stated	1	...	3	...
Age-adjusted rate ²	...	251.4	...	263.4

... Category not applicable.

¹ Quantity zero.

² 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."

³ For method of computation, see Technical notes.

⁴ 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.

⁵ Includes deaths among Aleuts and Eskimos.

⁶ 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 11. 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, final 1997 and preliminary 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 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)	1998			1997		
	Number	Rate	Age-adjusted rate	Number	Rate	Age-adjusted rate
All causes	2,338,075	865.0	470.7	2,314,245	864.7	479.1
Shigellosis and amebiasis (004.006)	10	*	*	6	*	*
Certain other intestinal infections (007-009)	1,092	0.4	0.2	1,023	0.4	0.2
Tuberculosis (010-018)	1,110	0.4	0.2	1,166	0.4	0.3
Tuberculosis of respiratory system (010-012)	816	0.3	0.2	875	0.3	0.2
Other tuberculosis (013-018)	295	0.1	0.1	291	0.1	0.1
Whooping cough (033)	7	*	*	6	*	*
Streptococcal sore throat, scarlatina, and erysipelas (034-035)	7	*	*	8	*	*
Meningococcal infection (036)	244	0.1	0.1	309	0.1	0.1
Septicemia (038)	23,643	8.7	4.4	22,396	8.4	4.2
Acute poliomyelitis (045)	3	*	*	*	*	*
Measles (055)	3	*	*	2	*	*
Viral hepatitis (070)	4,729	1.7	1.4	4,057	1.5	1.2
Syphilis (090-097)	44	0.0	0.0	62	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)	19,988	7.4	6.3	23,336	8.7	7.6
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	538,947	199.4	122.9	539,577	201.6	125.6
Malignant neoplasms of lip, oral cavity, and pharynx (140-149)	7,902	2.9	2.0	7,894	2.9	2.0
Malignant neoplasms of digestive organs and peritoneum (150-159)	127,685	47.2	27.9	127,054	47.5	28.2
Malignant neoplasms of respiratory and intrathoracic organs (160-165)	159,207	58.9	38.2	158,465	59.2	38.7
Malignant neoplasm of breast (174-175)	41,862	15.5	10.2	42,297	15.8	10.5
Malignant neoplasms of genital organs (179-187)	58,097	21.5	11.6	59,010	22.0	12.0
Malignant neoplasms of urinary organs (188-189)	23,722	8.8	5.0	23,395	8.7	5.0
Malignant neoplasms of all other and unspecified sites (170-173,190-199)	65,305	24.2	15.7	65,627	24.5	16.1
Leukemia (204-208)	20,160	7.5	4.6	20,313	7.6	4.7
Other malignant neoplasms of lymphatic and hematopoietic tissues (200-203)	35,007	13.0	7.9	35,522	13.3	8.2
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature (210-239)	7,909	2.9	1.6	7,659	2.9	1.6
Diabetes mellitus (250)	64,574	23.9	13.6	62,636	23.4	13.5
Nutritional deficiencies (260-269)	4,088	1.5	0.5	3,928	1.5	0.5
Anemias (280-285)	4,509	1.7	0.8	4,471	1.7	0.8
Meningitis (320-322)	767	0.3	0.3	781	0.3	0.3
Major cardiovascular diseases (390-448)	939,610	347.6	160.4	944,148	352.8	166.1
Diseases of heart (390-398,402,404-429)	724,269	268.0	126.0	726,974	271.6	130.5
Rheumatic fever and rheumatic heart disease (390-398)	4,833	1.8	1.0	5,014	1.9	1.0
Hypertensive heart disease (402)	27,304	10.1	5.2	26,607	9.9	5.2
Hypertensive heart and renal disease (404)	2,396	0.9	0.4	2,424	0.9	0.4
Ischemic heart disease (410-414)	460,390	170.3	79.4	466,101	174.2	82.9
Acute myocardial infarction (410)	203,835	75.4	38.0	206,212	77.0	39.7
Other acute and subacute forms of ischemic heart disease (411)	2,824	1.0	0.6	3,046	1.1	0.6
Angina pectoris (413)	657	0.2	0.1	735	0.3	0.1
Old myocardial infarction and other forms of chronic ischemic heart disease (412,414)	253,074	93.6	40.8	256,108	95.7	42.5
Other diseases of endocardium (424)	18,526	6.9	2.7	17,661	6.6	2.7
All other forms of heart disease (415-423,425-429)	210,820	78.0	37.3	209,167	78.2	38.2
Hypertension with or without renal disease (401,403)	14,216	5.3	2.4	13,534	5.1	2.3
Cerebrovascular diseases (430-438)	158,060	58.5	25.0	159,791	59.7	25.9
Intracerebral and other intracranial hemorrhage (431-432)	26,010	9.6	5.4	25,858	9.7	5.6
Cerebral thrombosis and unspecified occlusion of cerebral arteries (434.0,434.9)	11,024	4.1	1.6	12,045	4.5	1.8
Cerebral embolism (434.1)	566	0.2	0.1	617	0.2	0.1
All other and late effects of cerebrovascular diseases (430,433,435-438)	120,461	44.6	17.8	121,271	45.3	18.4
Atherosclerosis (440)	15,424	5.7	1.9	16,057	6.0	2.1
Other diseases of arteries, arterioles, and capillaries (441-448)	27,641	10.2	5.1	27,792	10.4	5.3
Acute bronchitis and bronchiolitis (466)	446	0.2	0.1	465	0.2	0.1
Pneumonia and influenza (480-487)	94,828	35.1	13.5	86,449	32.3	12.9
Pneumonia (480-486)	92,718	34.3	13.2	85,729	32.0	12.8
Influenza (487)	2,109	0.8	0.3	720	0.3	0.1
Chronic obstructive pulmonary diseases and allied conditions (490-496)	114,381	42.3	21.6	109,029	40.7	21.1
Bronchitis, chronic and unspecified (490-491)	3,120	1.2	0.6	3,055	1.1	0.6
Emphysema (492)	17,918	6.6	3.6	17,518	6.5	3.6
Asthma (493)	5,344	2.0	1.3	5,434	2.0	1.4
Other chronic obstructive pulmonary diseases and allied conditions (494-496)	87,999	32.6	16.0	83,022	31.0	15.5
Ulcer of stomach and duodenum (531-533)	4,665	1.7	0.8	5,115	1.9	0.9
Appendicitis (540-543)	444	0.2	0.1	395	0.1	0.1
Hernia of abdominal cavity and intestinal obstruction without mention of hernia (550-553,560)	6,620	2.4	1.0	6,498	2.4	1.0
Chronic liver disease and cirrhosis (571)	24,936	9.2	7.1	25,175	9.4	7.4

See footnotes at end of table.

Table 11. 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, final 1997 and preliminary 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 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)	1998			1997		
	Number	Rate	Age-adjusted rate	Number	Rate	Age-adjusted rate
Cholelithiasis and other disorders of gallbladder (574-575)	2,746	1.0	0.5	2,757	1.0	0.5
Nephritis, nephrotic syndrome, and nephrosis (580-589)	26,295	9.7	4.5	25,331	9.5	4.4
Acute glomerulonephritis and nephrotic syndrome (580-581)	316	0.1	0.0	324	0.1	0.0
Chronic glomerulonephritis, nephritis and nephropathy, not specified as acute or chronic, and renal sclerosis, unspecified (582-583,587)	1,706	0.6	0.3	1,652	0.6	0.3
Renal failure, disorders resulting from impaired renal function, and small kidney of unknown cause (584-586,588-589)	24,274	9.0	4.1	23,355	8.7	4.1
Infections of kidney (590)	810	0.3	0.1	831	0.3	0.1
Hyperplasia of prostate (600)	412	0.2	0.1	420	0.2	0.1
Complications of pregnancy, childbirth, and the puerperium (630-676)	247	0.1	0.1	327	0.1	0.1
Pregnancy with abortive outcome (630-638)	30	0.0	0.0	41	0.0	0.0
Other complications of pregnancy, childbirth, and the puerperium (640-676)	217	0.1	0.1	286	0.1	0.1
Congenital anomalies (740-759)	11,910	4.4	4.2	11,912	4.5	4.2
Certain conditions originating in the perinatal period (760-779)	13,323	4.9	5.4	13,092	4.9	5.3
Birth trauma, intrauterine hypoxia, birth asphyxia, and respiratory distress syndrome (767-769)	2,039	0.8	0.8	1,990	0.7	0.8
Other conditions originating in the perinatal period (760-766,770-779)	11,284	4.2	4.6	11,102	4.1	4.5
Symptoms, signs, and ill-defined conditions (780-799)	35,491	13.1	9.4	25,752	9.6	6.4
All other diseases (Residual)	246,099	91.0	42.9	235,435	88.0	42.5
Accidents and adverse effects (E800-E949)	93,207	34.5	28.5	95,644	35.7	30.1
Motor vehicle accidents (E810-E825)	41,826	15.5	15.0	43,458	16.2	15.9
All other accidents and adverse effects (E800-E807,E826-E949)	51,382	19.0	13.5	52,186	19.5	14.2
Suicide (E950-E959)	29,264	10.8	10.0	30,535	11.4	10.6
Homicide and legal intervention (E960-E978)	17,350	6.4	6.9	19,846	7.4	8.0
All other external causes (E980-E999)	3,315	1.2	1.2	3,666	1.4	1.3
Human immunodeficiency virus infection ¹ (*042-*044)	13,210	4.9	4.6	16,516	6.2	5.8
Alzheimer's disease ² (331.0)	22,824	8.4	2.7	22,475	8.4	2.7
Injury by firearms ³ (E922,E955.0-E955.4,E965.0-E965.4,E970,E985.0-E985.4)	29,849	11.0	10.9	32,436	12.1	12.2
Drug-induced deaths ³ (292,304,305.2-305.9,E850-E858,E950.0-E950.5,E962.0,E980.0-E980.5)	13,929	5.2	4.8	15,973	6.0	5.6
Alcohol-induced deaths ³ (291,303,305.0,357.5,425.5,535.3,571.0-571.3,790.3,E860)	18,971	7.0	5.9	19,576	7.3	6.3
Injury at work ⁴	5,504	2.6	2.6	5,666	2.7	2.7

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

- Quantity zero.

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 12. Deaths, death rates, and age-adjusted death rates for 16 selected subcategories of Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues: United States, final 1997 and preliminary 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. Figures for 1998 are based on weighted data rounded to the nearest individual]

Cause of death (Based on the Ninth Revision, International Classification of Diseases, 1975)	1998			1997		
	Number	Rate	Age-adjusted rate	Number	Rate	Age-adjusted rate
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues ¹ (140-208)	538,947	199.4	122.9	539,577	201.6	125.6
Malignant neoplasm of esophagus (150)	11,674	4.3	2.9	11,277	4.2	2.9
Malignant neoplasm of stomach (151)	12,917	4.8	2.8	13,062	4.9	2.9
Malignant neoplasms of colon, rectum, rectosigmoid junction, and anus (153,154)	56,448	20.9	11.8	56,503	21.1	12.0
Malignant neoplasm of pancreas (157)	28,111	10.4	6.2	27,675	10.3	6.2
Malignant neoplasms of trachea, bronchus, and lung (162)	154,039	57.0	36.9	153,310	57.3	37.3
Malignant neoplasm of skin (172)	7,384	2.7	1.9	7,238	2.7	1.9
Malignant neoplasm of cervix uteri (180)	4,282	1.6	1.2	4,499	1.7	1.3
Malignant neoplasms of body of uterus and of uterus, part unspecified (179,182)	6,378	2.4	1.4	6,189	2.3	1.4
Malignant neoplasm of ovary (183.0)	13,280	4.9	3.1	13,507	5.0	3.2
Malignant neoplasm of prostate (185)	32,188	11.9	5.4	32,891	12.3	5.7
Malignant neoplasm of bladder (188)	11,713	4.3	2.2	11,582	4.3	2.2
Malignant neoplasms of kidney and other and unspecified urinary organs (189)	12,009	4.4	2.9	11,813	4.4	2.9
Malignant neoplasms of brain and other and unspecified parts of nervous system (191,192)	12,545	4.6	3.5	12,474	4.7	3.5
Hodgkin's disease (201)	1,297	0.5	0.4	1,443	0.5	0.4
Malignant lymphoma other than Hodgkin's disease (200,202)	23,468	8.7	5.3	23,693	8.9	5.5
Multiple myeloma and other immunoproliferative neoplasms (203)	10,242	3.8	2.2	10,386	3.9	2.3

¹ Includes figures for subcategories not shown.

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 13. Deaths, death rates, and age-adjusted death rates: United States, each State, Puerto Rico, Virgin Islands, and Guam, final 1997 and preliminary 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 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Area	1998			1997		
	Number	Rate	Age-adjusted rate	Number	Rate	Age-adjusted rate
United States ¹	2,338,070	865.0	470.8	2,314,245	864.7	479.1
Alabama	43,930	1,009.4	565.7	43,258	1,001.5	568.1
Alaska	2,559	416.8	440.0	2,575	422.6	461.0
Arizona	38,329	821.0	461.9	37,066	813.7	466.9
Arkansas	27,528	1,084.5	551.4	27,844	1,103.7	572.2
California ²				224,592	696.0	433.5
Colorado	26,695	672.3	420.2	25,626	658.3	416.6
Connecticut	29,736	908.2	426.0	29,415	899.6	429.0
Delaware	6,587	885.8	496.7	6,510	889.9	509.3
District of Columbia	5,968	1,140.8	672.5	6,129	1,158.7	716.3
Florida	158,224	1,060.8	458.8	154,497	1,054.3	462.7
Georgia	60,485	791.5	540.2	59,351	792.8	547.9
Hawaii	8,096	678.6	370.1	7,892	665.1	374.7
Idaho	9,167	746.1	424.8	8,976	741.7	431.1
Illinois	104,501	867.6	480.9	102,914	865.1	486.3
Indiana	52,774	894.6	489.5	53,130	906.0	501.4
Iowa	28,359	990.7	421.3	27,694	970.9	422.0
Kansas	24,192	920.2	450.6	23,750	915.3	451.4
Kentucky	37,861	961.8	532.9	37,998	972.3	544.8
Louisiana	40,390	924.5	576.3	40,006	919.3	582.6
Maine	12,155	976.9	463.5	11,993	965.6	465.4
Maryland	42,068	819.3	495.0	41,794	820.4	503.3
Massachusetts	55,235	898.5	421.0	54,685	893.9	424.9
Michigan	85,222	868.1	484.9	83,301	852.3	484.4
Minnesota	37,233	787.9	395.1	36,913	787.8	399.9
Mississippi	27,858	1,012.2	606.9	27,503	1,007.3	609.8
Missouri	55,110	1,013.3	511.4	54,322	1,005.6	515.4
Montana	7,911	898.5	445.1	7,769	884.0	457.0
Nebraska	15,194	913.8	431.4	15,282	922.3	438.2
Nevada	14,499	830.0	540.2	13,380	797.9	526.6
New Hampshire	9,550	805.9	440.4	9,458	806.5	441.1
New Jersey	71,127	876.5	442.2	72,137	895.8	461.0
New Mexico	13,412	772.2	475.1	12,653	731.5	464.8
New York	156,517	861.2	443.2	158,653	874.7	460.2
North Carolina	67,976	900.8	518.1	66,022	889.2	520.7
North Dakota	5,928	928.8	415.6	5,893	919.5	411.3
Ohio	106,077	946.3	489.8	105,345	941.7	496.2
Oklahoma	33,983	1,015.4	530.2	33,944	1,023.3	542.9
Oregon	29,392	895.6	452.1	28,771	887.0	449.7
Pennsylvania	126,765	1,056.2	474.6	127,925	1,064.3	492.1
Rhode Island	9,618	973.0	434.1	9,820	994.5	450.3
South Carolina	34,826	907.9	550.7	33,690	896.0	558.6
South Dakota	6,872	930.9	443.1	6,865	930.3	437.2
Tennessee	54,122	996.6	564.9	52,665	981.1	562.1
Texas	142,494	721.1	474.6	142,776	734.5	489.9
Utah	11,849	564.3	405.5	11,578	562.3	404.7
Vermont	4,951	837.9	433.2	5,053	857.9	450.1
Virginia	54,546	803.2	480.9	53,852	799.7	489.4
Washington	42,731	751.1	423.4	41,463	739.0	424.3
West Virginia	20,760	1,146.2	547.4	20,881	1,150.0	552.0
Wisconsin	46,007	880.8	434.6	44,891	868.4	432.5
Wyoming	3,856	801.8	465.3	3,745	780.6	463.7
Puerto Rico ³	28,961	750.9	531.2	28,963	756.8	548.3
Virgin Islands ³	622	525.4	457.4	620	541.6	442.8
Guam ³	632	423.9	479.5	615	421.9	457.4

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

² Due to data processing problems, California data are not shown separately but are included in U.S. totals, see Technical notes.

³ 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 14. Infant deaths and infant mortality rates, by age and race and Hispanic origin: United States, final 1997 and preliminary 1998

[Data are based on a continuous file of records received from the States. Rates per 1,000 live births. Figures for 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]

<i>Age and race/Hispanic origin</i>	<i>1998</i>		<i>1997</i>	
	<i>Number</i>	<i>Rate</i>	<i>Number</i>	<i>Rate</i>
All races ¹				
Under 1 year	28,486	7.2	28,045	7.2
Under 28 days	18,832	4.8	18,524	4.8
28 days-11 months	9,654	2.4	9,521	2.5
White, total ²				
Under 1 year	18,795	6.0	18,539	6.0
Under 28 days	12,479	4.0	12,269	4.0
28 days-11 months	6,316	2.0	6,270	2.0
White, non-Hispanic				
Under 1 year	14,299	6.0	14,170	6.1
Under 28 days	9,390	4.0	9,340	4.0
28 days-11 months	4,908	2.1	4,830	2.1
Black, total ²				
Under 1 year	8,579	14.1	8,496	14.2
Under 28 days	5,661	9.3	5,637	9.4
28 days-11 months	2,918	4.8	2,859	4.8
Hispanic ³				
Under 1 year	4,397	6.0	4,240	6.0
Under 28 days	2,965	4.0	2,785	3.9
28 days-11 months	1,432	1.9	1,455	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 persons of Hispanic origin are included 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 15. Infant deaths and infant mortality rates for 61 selected causes and Human immunodeficiency virus infection: United States, final 1997 and preliminary 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 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)	1998		1997	
	Number	Rate	Number	Rate
All causes	28,488	722.3	28,045	722.6
Certain intestinal infections (008-009)	235	6.0	200	5.2
Whooping cough (033)	6	*	6	*
Meningococcal infection (036)	31	0.8	46	1.2
Septicemia (038)	201	5.1	196	5.1
Viral diseases (045-079)	96	2.4	111	2.9
Congenital syphilis (090)	2	*	4	*
Remainder of infectious and parasitic diseases (001,007,010-032,034-035,037,039-041,*042-*044,080-088,091-139)	172	4.4	158	4.1
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	86	2.2	91	2.3
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature (210-239)	56	1.4	63	1.6
Diseases of thymus gland (254)	1	*	3	*
Cystic fibrosis (277.0)	12	*	10	*
Diseases of blood and blood-forming organs (280-289)	88	2.2	81	2.1
Meningitis (320-322)	105	2.7	97	2.5
Other diseases of nervous system and sense organs (323-389)	348	8.8	334	8.6
Acute upper respiratory infections (460-465)	6	*	12	*
Bronchitis and bronchiolitis (466,490-491)	65	1.6	106	2.7
Pneumonia and influenza (480-487)	400	10.1	421	10.8
Pneumonia (480-486)	391	9.9	409	10.5
Influenza (487)	9	*	12	*
Remainder of diseases of respiratory system (470-478,492-519)	283	7.2	274	7.1
Hernia of abdominal cavity and intestinal obstruction without mention of hernia (550-553,560)	67	1.7	77	2.0
Gastritis, duodenitis, and noninfective enteritis and colitis (535,555-558)	70	1.8	76	2.0
Remainder of diseases of digestive system (520-534,536-543,562-579)	175	4.4	187	4.8
Congenital anomalies (740-759)	6,266	158.9	6,178	159.2
Anencephalus and similar anomalies (740)	285	7.2	344	8.9
Spina bifida (741)	41	1.0	48	1.2
Congenital hydrocephalus (742.3)	117	3.0	146	3.8
Other congenital anomalies of central nervous system and eye (742.0-742.2,742.4-742.9,743)	308	7.8	290	7.5
Congenital anomalies of heart (745-746)	1,820	46.1	1,760	45.4
Other congenital anomalies of circulatory system (747)	309	7.8	332	8.6
Congenital anomalies of respiratory system (748)	962	24.4	973	25.1
Congenital anomalies of digestive system (749-751)	101	2.6	94	2.4
Congenital anomalies of genitourinary system (752-753)	372	9.4	302	7.8
Congenital anomalies of musculoskeletal system (754-756)	449	11.4	424	10.9
Down's syndrome (758.0)	122	3.1	102	2.6
Other chromosomal anomalies (758.1-758.9)	832	21.1	805	20.7
All other and unspecified congenital anomalies (744,757,759)	547	13.9	558	14.4
Certain conditions originating in the perinatal period (760-779)	13,133	333.0	12,935	333.3
Newborn affected by maternal conditions which may be unrelated to present pregnancy (760)	150	3.8	164	4.2
Newborn affected by maternal complications of pregnancy (761)	1,328	33.7	1,244	32.1
Newborn affected by complications of placenta, cord, and membranes (762)	932	23.6	960	24.7
Newborn affected by other complications of labor and delivery (763)	84	2.1	76	2.0
Slow fetal growth and fetal malnutrition (764)	34	0.9	39	1.0
Disorders relating to short gestation and unspecified low birthweight (765)	4,011	101.7	3,925	101.1
Disorders relating to long gestation and high birthweight (766)	1	*	-	*
Birth trauma (767)	191	4.8	185	4.8
Intrauterine hypoxia and birth asphyxia (768)	459	11.6	452	11.6
Fetal distress in liveborn infant (768.2-768.4)	122	3.1	123	3.2
Birth asphyxia (768.5-768.9)	337	8.5	329	8.5
Respiratory distress syndrome (769)	1,328	33.7	1,301	33.5
Other respiratory conditions of newborn (770)	1,744	44.2	1,734	44.7
Infections specific to the perinatal period (771)	815	20.7	777	20.0
Neonatal hemorrhage (772)	341	8.6	339	8.7
Hemolytic disease of newborn, due to isoimmunization, and other perinatal jaundice (773-774)	31	0.8	14	*
Syndrome of "infant of a diabetic mother" and neonatal diabetes mellitus (775.0-775.1)	9	*	11	*
Hemorrhagic disease of newborn (776.0)	4	*	1	*
All other and ill-defined conditions originating in the perinatal period (775.2-775.9,776.1-779)	1,670	42.3	1,713	44.1
Symptoms, signs, and ill-defined conditions (780-799)	4,038	102.4	3,773	97.2
Sudden infant death syndrome (798.0)	2,529	64.1	2,991	77.1
Symptoms, signs, and all other ill-defined conditions (780-797,798.1-799)	1,508	38.2	782	20.1
Accidents and adverse effects (E800-E949)	726	18.4	765	19.7
Inhalation and ingestion of food or other object causing obstruction of respiratory tract or suffocation (E911-E912)	69	1.7	76	2.0
Accidental mechanical suffocation (E913)	282	7.2	303	7.8
Other accidental causes and adverse effects (E800-E910,E914-E949)	374	9.5	386	9.9

See footnotes at end of table.

Table 15. Infant deaths and infant mortality rates for 61 selected causes and Human Immunodeficiency virus infection: United States, final 1997 and preliminary 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 1998 are based on weighted data rounded to the nearest individual, so categories may not add to totals]

<i>Cause of death (Based on the Ninth Revision, International Classification of Diseases, 1975)</i>	<i>1998</i>		<i>1997</i>	
	<i>Number</i>	<i>Rate</i>	<i>Number</i>	<i>Rate</i>
Homicide (E960-E969)	299	7.6	317	8.2
Child battering and other maltreatment (E967)	106	2.7	98	2.5
Other homicide (E960-E966,E968-E969)	193	4.9	219	5.6
All other causes (Residual)	1,522	38.6	1,524	39.3
Human immunodeficiency virus infection [†] (*042-*044)	15	*	19	*

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

- Quantity zero.

[†] 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.

Table 16. Expectation of life by age, race, and sex: United States, final 1997 and preliminary 1998

[Data are based on a continuous file of records received from the States]

Age (Years) and race	Both sexes		Male		Female	
	1998	1997	1998	1997	1998	1997
All races ¹						
0	76.7	76.5	73.9	73.6	79.4	79.4
1	76.3	76.1	73.5	73.1	78.9	78.9
5	72.4	72.2	69.6	69.3	75.0	75.0
10	67.4	67.2	64.6	64.3	70.1	70.0
15	62.5	62.3	59.7	59.4	65.2	65.1
20	57.7	57.5	55.0	54.7	60.3	60.2
25	53.0	52.8	50.4	50.1	55.4	55.4
30	48.2	48.1	45.7	45.4	50.6	50.5
35	43.5	43.4	41.0	40.8	45.7	45.7
40	38.8	38.7	36.5	36.2	41.0	40.9
45	34.2	34.1	32.0	31.8	36.3	36.3
50	29.8	29.7	27.6	27.4	31.7	31.7
55	25.5	25.4	23.5	23.3	27.3	27.3
60	21.5	21.4	19.6	19.4	23.1	23.1
65	17.7	17.7	16.0	15.9	19.1	19.2
70	14.3	14.3	12.8	12.7	15.4	15.5
75	11.2	11.2	10.0	9.9	12.1	12.1
80	8.5	8.5	7.5	7.5	9.0	9.1
85	6.2	6.3	5.5	5.5	6.5	6.6
90	4.5	4.5	4.1	4.0	4.6	4.7
95	3.3	3.3	3.1	3.0	3.3	3.4
100	2.5	2.5	2.4	2.4	2.5	2.5
White						
0	77.3	77.1	74.6	74.3	79.9	79.9
1	76.8	76.6	74.0	73.8	79.4	79.3
5	72.9	72.7	70.1	69.9	75.5	75.4
10	67.9	67.8	65.2	65.0	70.5	70.5
15	63.0	62.8	60.3	60.0	65.6	65.5
20	58.2	58.0	55.5	55.3	60.7	60.7
25	53.4	53.3	50.9	50.6	55.8	55.8
30	48.6	48.5	46.2	45.9	50.9	50.9
35	43.9	43.8	41.5	41.3	46.1	46.1
40	39.2	39.1	36.8	36.7	41.3	41.3
45	34.6	34.5	32.3	32.1	36.6	36.6
50	30.0	30.0	27.9	27.7	32.0	32.0
55	25.7	25.6	23.7	23.5	27.5	27.5
60	21.6	21.5	19.7	19.6	23.2	23.2
65	17.8	17.8	16.1	16.0	19.2	19.3
70	14.3	14.3	12.8	12.7	15.5	15.5
75	11.2	11.2	10.0	9.9	12.1	12.1
80	8.5	8.5	7.5	7.4	9.0	9.1
85	6.2	6.2	5.5	5.4	6.5	6.6
90	4.5	4.5	4.0	3.9	4.6	4.6
95	3.2	3.2	3.0	2.9	3.2	3.3
100	2.3	2.4	2.3	2.2	2.3	2.4
Black						
0	71.5	71.1	67.8	67.2	75.0	74.7
1	71.5	71.1	67.9	67.2	74.9	74.7
5	67.7	67.3	64.1	63.4	71.1	70.9
10	62.8	62.4	59.2	58.5	66.2	66.0
15	57.9	57.5	54.3	53.6	61.2	61.0
20	53.2	52.8	49.6	49.0	56.3	56.2
25	48.6	48.2	45.2	44.7	51.5	51.4
30	44.0	43.6	40.8	40.3	46.8	46.7
35	39.4	39.1	36.4	35.9	42.1	42.0
40	35.0	34.7	32.0	31.6	37.6	37.5
45	30.7	30.5	27.9	27.5	33.2	33.1
50	26.7	26.5	24.1	23.8	28.9	28.8
55	22.9	22.8	20.5	20.3	24.9	24.8
60	19.4	19.3	17.3	17.0	21.1	21.0
65	16.2	16.1	14.4	14.2	17.5	17.6
70	13.1	13.1	11.6	11.5	14.2	14.3
75	10.6	10.7	9.3	9.3	11.4	11.5
80	8.3	8.3	7.2	7.3	8.8	8.9
85	6.4	6.4	5.6	5.7	6.7	6.7
90	4.9	5.0	4.5	4.5	5.0	5.1
95	3.8	3.9	3.7	3.7	3.8	3.8
100	3.0	3.0	3.0	3.1	2.9	2.9

¹ Includes races other than white and black.

NOTE: Data are subject to sampling and/or random variation.

Table 17. Deaths and death rates for the 10 leading causes of death in specified age groups: United States, preliminary 1998

[Data are based on a continuous file of records received from the States. Rates per 100,000 population in specified group. For explanation of asterisks preceding cause-of-death categories, see Technical notes. Figures are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Rank ¹	Cause of death and age (Based on Ninth Revision, International Classification of Diseases, 1975)	Number	Rate
All ages ²			
...	All causes	2,338,075	865.0
1	Diseases of heart (390-398, 402, 404-429)	724,269	268.0
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	538,947	199.4
3	Cerebrovascular diseases (430-438)	158,060	58.5
4	Chronic obstructive pulmonary diseases and allied conditions (490-496)	114,381	42.3
5	Pneumonia and influenza (480-487)	94,828	35.1
6	Accidents and adverse effects (E800-E949)	93,207	34.5
...	Motor vehicle accidents (E810-E825)	41,826	15.5
...	All other accidents and adverse effects (E800-E807, E826-E949)	51,382	19.0
7	Diabetes mellitus (250)	64,574	23.9
8	Suicide (E950-E959)	29,264	10.8
9	Nephritis, nephrotic syndrome, and nephrosis (580-589)	26,295	9.7
10	Chronic liver disease and cirrhosis (571)	24,936	9.2
...	All other causes (Residual)	469,314	173.6
1-4 years			
...	All causes	5,195	34.2
1	Accidents and adverse effects (E800-E949)	1,881	12.4
...	Motor vehicle accidents (E810-E825)	750	4.9
...	All other accidents and adverse effects (E800-E807, E826-E949)	1,131	7.4
2	Congenital anomalies (740-759)	531	3.5
3	Homicide and legal intervention (E960-E978)	368	2.4
4	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	355	2.3
5	Diseases of heart (390-398, 402, 404-429)	198	1.3
6	Pneumonia and influenza (480-487)	133	0.9
7	Septicemia (038)	81	0.5
8	Certain conditions originating in the perinatal period (760-779)	75	0.5
9	Cerebrovascular diseases (430-438)	54	0.4
10	Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature (210-239)	50	0.3
...	All other causes (Residual)	1,469	9.7
5-14 years			
...	All causes	7,700	19.7
1	Accidents and adverse effects (E800-E949)	3,115	8.0
...	Motor vehicle accidents (E810-E825)	1,773	4.5
...	All other accidents and adverse effects (E800-E807, E826-E949)	1,342	3.4
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	1,025	2.6
3	Homicide and legal intervention (E960-E978)	423	1.1
4	Congenital anomalies (740-759)	355	0.9
5	Suicide (E950-E959)	318	0.8
6	Diseases of heart (390-398, 402, 404-429)	304	0.8
7	Chronic obstructive pulmonary diseases and allied conditions (490-496)	145	0.4
8	Pneumonia and influenza (480-487)	125	0.3
9	Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature (210-239)	80	0.2
10	Cerebrovascular diseases (430-438)	76	0.2
...	All other causes (Residual)	1,734	4.4
15-24 years			
...	All causes	30,211	81.2
1	Accidents and adverse effects (E800-E949)	12,752	34.3
...	Motor vehicle accidents (E810-E825)	9,635	25.9
...	All other accidents and adverse effects (E800-E807, E826-E949)	3,117	8.4
2	Homicide and legal intervention (E960-E978)	5,233	14.1
3	Suicide (E950-E959)	4,003	10.8
4	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	1,670	4.5
5	Diseases of heart (390-398, 402, 404-429)	961	2.6
6	Congenital anomalies (740-759)	429	1.2
7	Chronic obstructive pulmonary diseases and allied conditions (490-496)	224	0.6
8	Pneumonia and influenza (480-487)	211	0.6
9	Human immunodeficiency virus infection (*042-*044)	208	0.6
10	Cerebrovascular diseases (430-438)	182	0.5
...	All other causes (Residual)	4,338	11.7

See footnotes at end of table.

Table 17. Deaths and death rates for the 10 leading causes of death in specified age groups: United States, preliminary 1998 - Con.

[Data are based on a continuous file of records received from the States. Rates per 100,000 population in specified group. For explanation of asterisks preceding cause-of-death categories, see Technical notes. Figures are based on weighted data rounded to the nearest individual, so categories may not add to totals]

Rank ¹	Cause of death and age (Based on Ninth Revision, International Classification of Diseases, 1975)	Number	Rate
25-44 years			
...	All causes	129,309	155.2
1	Accidents and adverse effects (E800-E949)	25,153	30.2
...	Motor vehicle accidents (E810-E825)	13,585	16.3
...	All other accidents and adverse effects (E800-E807, E826-E949)	11,568	13.9
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	21,130	25.4
3	Diseases of heart (390-398, 402, 404-429)	16,022	19.2
4	Suicide (E950-E959)	11,602	13.9
5	Human immunodeficiency virus infection (*042-*044)	8,529	10.2
6	Homicide and legal intervention (E960-E978)	7,743	9.3
7	Chronic liver disease and cirrhosis (571)	3,785	4.5
8	Cerebrovascular diseases (430-438)	3,219	3.9
9	Diabetes mellitus (250)	2,432	2.9
10	Pneumonia and influenza (480-487)	1,913	2.3
...	All other causes (Residual)	27,781	33.4
45-64 years			
...	All causes	378,197	660.5
1	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	132,197	230.9
2	Diseases of heart (390-398, 402, 404-429)	98,700	172.4
3	Accidents and adverse effects (E800-E949)	17,141	29.9
...	Motor vehicle accidents (E810-E825)	8,112	14.2
...	All other accidents and adverse effects (E800-E807, E826-E949)	9,029	15.8
4	Cerebrovascular diseases (430-438)	15,319	26.8
5	Chronic obstructive pulmonary diseases and allied conditions (490-496)	13,102	22.9
6	Diabetes mellitus (250)	13,062	22.8
7	Chronic liver disease and cirrhosis (571)	10,829	18.9
8	Suicide (E950-E959)	7,718	13.5
9	Pneumonia and influenza (480-487)	6,130	10.7
10	Human immunodeficiency virus infection (*042-*044)	3,994	7.0
...	All other causes (Residual)	60,005	104.8
65 years and over			
...	All causes	1,758,530	5,111.8
1	Diseases of heart (390-398, 402, 404-429)	607,422	1,765.7
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	382,468	1,111.8
3	Cerebrovascular diseases (430-438)	138,891	403.7
4	Chronic obstructive pulmonary diseases and allied conditions (490-496)	99,697	289.8
5	Pneumonia and influenza (480-487)	85,909	249.7
6	Diabetes mellitus (250)	48,917	142.2
7	Accidents and adverse effects (E800-E949)	32,343	94.0
...	Motor vehicle accidents (E810-E825)	7,788	22.6
...	All other accidents and adverse effects (E800-E807, E826-E949)	24,555	71.4
8	Nephritis, nephrotic syndrome, and nephrosis (580-589)	22,749	66.1
9	Alzheimer's disease (331.0)	22,510	65.4
10	Septicemia (038)	19,024	55.3
...	All other causes (Residual)	298,600	868.0

... Category not applicable.

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

² Includes deaths under 1 year of age.

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 18. Infant deaths and infant mortality rates for the 10 leading causes of infant death, by race and Hispanic origin: United States, preliminary 1998

[Data are based on a continuous file of records received from the States. Rates per 100,000 live births. Figures 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]

Rank ¹	Cause of death and race (Based on the Ninth Revision, International Classification of Diseases, 1975)	Number	Rate
All races ²			
...	All causes	28,488	722.3
1	Congenital anomalies (740-759)	6,266	158.9
2	Disorders relating to short gestation and unspecified low birthweight (765)	4,011	101.7
3	Sudden infant death syndrome (798.0)	2,529	64.1
4	Respiratory distress syndrome (769)	1,328	33.7
4	Newborn affected by maternal complications of pregnancy (761)	1,328	33.7
6	Newborn affected by complications of placenta, cord, and membranes (762)	932	23.6
7	Infections specific to the perinatal period (771)	815	20.7
8	Accidents and adverse effects (E800-E949)	726	18.4
9	Intrauterine hypoxia and birth asphyxia (768)	459	11.6
10	Pneumonia and influenza (480-487)	400	10.1
...	All other causes (Residual)	9,694	245.8
White, total ³			
...	All causes	18,838	603.3
1	Congenital anomalies (740-759)	4,868	155.9
2	Disorders relating to short gestation and unspecified low birthweight (765)	2,221	71.1
3	Sudden infant death syndrome (798.0)	1,645	52.7
4	Respiratory distress syndrome (769)	863	27.6
5	Newborn affected by maternal complications of pregnancy (761)	826	26.5
6	Newborn affected by complications of placenta, cord, and membranes (762)	616	19.7
7	Infections specific to the perinatal period (771)	548	17.6
8	Accidents and adverse effects (E800-E949)	498	15.9
9	Intrauterine hypoxia and birth asphyxia (768)	322	10.3
10	Pneumonia and influenza (480-487)	245	7.8
...	All other causes (Residual)	6,186	198.1
White, non-Hispanic			
...	All causes	14,351	606.8
1	Congenital anomalies (740-759)	3,740	158.1
2	Disorders relating to short gestation and unspecified low birthweight (765)	1,622	68.6
3	Sudden infant death syndrome (798.0)	1,407	59.5
4	Newborn affected by maternal complications of pregnancy (761)	637	26.9
5	Respiratory distress syndrome (769)	625	26.4
6	Newborn affected by complications of placenta, cord, and membranes (762)	482	20.4
7	Infections specific to the perinatal period (771)	411	17.4
8	Accidents and adverse effects (E800-E949)	384	16.2
9	Intrauterine hypoxia and birth asphyxia (768)	260	11.0
10	Neonatal hemorrhage (772)	175	7.4
...	All other causes (Residual)	4,608	194.8
Black, total ³			
...	All causes	8,545	1,400.4
1	Disorders relating to short gestation and unspecified low birthweight (765)	1,656	271.4
2	Congenital anomalies (740-759)	1,121	183.7
3	Sudden infant death syndrome (798.0)	782	128.2
4	Newborn affected by maternal complications of pregnancy (761)	451	73.9
5	Respiratory distress syndrome (769)	432	70.8
6	Newborn affected by complications of placenta, cord, and membranes (762)	286	46.9
7	Infections specific to the perinatal period (771)	248	40.6
8	Accidents and adverse effects (E800-E949)	210	34.4
9	Intrauterine hypoxia and birth asphyxia (768)	122	20.0
10	Pneumonia and influenza (480-487)	121	19.8
...	All other causes (Residual)	3,116	510.6

See footnotes at end of table.

Table 18. Infant deaths and infant mortality rates for the 10 leading causes of infant death, by race and Hispanic origin: United States, preliminary 1998 - Con.

[Data are based on a continuous file of records received from the States. Rates per 100,000 live births. Figures 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]

Rank ¹	Cause of death and race (Based on the Ninth Revision, International Classification of Diseases, 1975)	Number	Rate
	Hispanic ⁴		
...	All causes	4,382	596.2
1	Congenital anomalies (740-759)	1,105	150.3
2	Disorders relating to short gestation and unspecified low birthweight (765)	556	75.6
3	Sudden infant death syndrome (798.0)	251	34.1
4	Respiratory distress syndrome (769)	228	31.0
5	Newborn affected by maternal complications of pregnancy (761)	185	25.2
6	Infections specific to the perinatal period (771)	131	17.8
7	Newborn affected by complications of placenta, cord, and membranes (762)	127	17.3
8	Accidents and adverse effects (E800-E949)	120	16.3
9	Pneumonia and influenza (480-487)	76	10.3
10	Intrauterine hypoxia and birth asphyxia (768)	61	8.3
...	All other causes (Residual)	1,542	209.8

... Category not applicable.

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

² Includes races other than white and black.

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

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.

Technical notes

Nature and sources of data

Preliminary data for 1998 are based on a substantial proportion of vital records for that year. The data for 1998 are based on a continuous receipt and processing of statistical records through June 2, 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. Data for American Samoa were not available by June 2, 1999, and are not presented in this report.

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

Each birth record has one weight specific to the State where the birth occurred. For deaths two separate files are processed: The medical file, or cause-of-death file, containing records which 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, and 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.

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 2.7 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* (13), and in Technical Appendix, *Vital Statistics of the United States: Mortality, 1995* (8).

Race and Hispanic origin are reported separately on the birth and death certificates. Therefore, data shown by race include persons of Hispanic or non-Hispanic origin, and data for Hispanic origin include persons of any race. In this report births 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 1998 approximately 97 percent of Hispanic-origin births were to white women. Data are shown separately for non-Hispanic white women, because there are substantial differences in childbearing patterns between Hispanic and non-Hispanic white women. More than 1 in 5 white births were to Hispanic women in 1998.

From 1964 to 1996, mother's age was edited for ages other than 10–49 years. Births reported to occur to mothers younger than age 10 or older than 49 years had age imputed according to the same race and total birth order (total of live births and fetal deaths). Beginning in 1997 age of mother is edited for ages 10–54 years. A review and verification of unedited birth data for 1996 showed that the vast majority of births reported as occurring to women aged 50 years and over were to women aged 50–54 years. The numbers of births to women aged 50–54 years are too small for computing age-specific birth rates and have been included with births to women aged 45–49 years for computing birth rates.

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

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

Marital status is now reported in Connecticut based on a direct question on the birth certificate. This change went into effect in June 1998. Previously, marital status was inferred for Connecticut births on the basis of one of these factors: A paternity acknowledgment was filed, the father's name is missing, or the parents' and child's surnames were different. The impact of the change was to reduce the numbers and proportions of births to unmarried women in the State. During the first 6 months of 1998, 33.4 percent of Connecticut births were nonmarital; during the last 6 months, 29.1 percent were nonmarital. The inferential procedures evidently had resulted in overstatement of births to unmarried women, because of the reliance on the comparison of the parents' and child's surnames. Many births were erroneously inferred as nonmarital, because the surnames did not match, or because the parents and/or child had a hyphenated surname. With the adoption of a direct question on marital status, data on nonmarital births for Connecticut are much more accurate in 1998 than in previous years.

The birth rate for unmarried women for 1998 is estimated on the basis of population distributions by marital status provided by the U.S. Bureau of the Census as of March 1998 (7) applied to the national population estimates as of July 1 (14). The birth rate shown here for 1998 thus differs from those regularly published by NCHS, which are based on populations estimated from 3-year averages of the marital status distributions, rather than a single year as shown here (1,15). These population estimates for a single year are not an adequate basis for computing comparable age-specific birth rates.

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 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	3,947,923	99.5	28,545	90.1	84.6	2,313,009	93.3	88.3
Alabama	61,213	100.0	631	99.0	90.8	42,738	100.0	97.1
Alaska	9,831	99.6	53	90.6	90.6	2,479	92.6	92.1
Arizona	78,084	97.9	627	95.5	86.4	38,601	100.0	91.5
Arkansas	35,793	100.0	302	97.7	97.0	26,553	100.0	99.9
California	522,524	99.6	3,183	35.4	35.4	224,546	42.0	42.0
Colorado	60,041	99.6	437	96.6	96.3	26,675	100.0	99.9
Connecticut	43,691	97.2	301	100.0	93.4	29,593	100.0	97.9
Delaware	11,023	100.0	124	100.0	90.3	6,460	99.7	99.4
District of Columbia	15,129	99.9	192	83.9	78.6	7,057	93.1	81.1
Florida	195,735	100.0	1,460	99.9	99.9	158,010	100.0	100.0
Georgia	123,269	100.0	1,028	99.1	95.6	59,902	99.7	99.5
Hawaii	17,621	99.9	118	100.0	100.0	8,176	99.9	99.9
Idaho	18,960	100.0	111	100.0	100.0	8,808	100.0	100.0
Illinois	179,470	100.0	1,473	89.0	70.4	100,140	90.4	72.5
Indiana	84,000	96.1	617	98.9	98.9	52,720	100.0	99.9
Iowa	37,434	100.0	217	100.0	100.0	27,798	100.0	100.0
Kansas	37,430	100.0	236	92.8	92.8	23,171	99.6	99.6
Kentucky	52,901	90.0	378	86.8	74.3	37,157	96.1	84.1
Louisiana	67,102	100.0	666	94.0	94.0	40,068	100.0	100.0
Maine	13,539	99.9	83	98.8	74.7	11,976	99.9	69.1
Maryland	67,472	100.0	495	98.4	98.4	41,366	100.0	100.0
Massachusetts	82,351	100.0	433	89.6	86.6	55,503	93.8	93.0
Michigan	132,516	100.0	1,128	97.7	96.5	83,063	100.0	99.7
Minnesota	65,094	100.0	414	98.3	97.8	36,962	100.0	99.8
Mississippi	41,951	100.0	383	95.3	95.3	26,692	99.7	99.7
Missouri	77,737	100.0	693	99.7	69.7	56,038	100.0	74.6
Montana	10,624	99.9	70	100.0	100.0	7,784	99.9	99.9
Nebraska	23,917	100.0	203	95.6	95.6	15,158	99.8	99.8
Nevada	28,191	99.7	199	99.0	99.0	15,031	99.4	99.4
New Hampshire	14,121	99.7	56	98.2	96.4	9,479	100.0	99.9
New Jersey	113,833	98.2	642	99.8	81.9	68,800	100.0	79.6
New Mexico	27,453	98.2	179	100.0	87.7	13,169	96.4	89.9
New York	259,546	99.5	1,632	98.5	90.3	153,874	99.5	92.6
New York excluding New York City ..	135,300	99.1	790	98.1	92.4	93,710	99.2	93.3
New York City	124,246	99.9	842	98.8	88.4	60,164	100.0	91.5
North Carolina	112,778	100.0	1,045	98.8	98.8	67,667	100.0	100.0
North Dakota	9,156	100.0	69	100.0	100.0	6,243	100.0	100.0
Ohio	153,516	99.9	1,172	99.0	78.8	104,539	97.2	77.1
Oklahoma	48,463	99.7	417	98.8	98.6	32,560	100.0	99.9
Oregon	46,283	100.0	280	95.7	93.2	29,050	100.0	99.8
Pennsylvania	146,617	99.0	1,020	99.6	99.5	126,610	97.6	97.5
Rhode Island	13,489	100.0	103	99.0	99.0	9,618	99.9	99.9
South Carolina	51,717	99.3	502	85.5	85.5	33,578	98.0	98.0
South Dakota	10,395	100.0	93	96.8	89.2	6,951	100.0	99.8
Tennessee	82,419	100.0	801	93.0	93.0	56,542	98.9	98.9
Texas	346,102	99.9	2,154	99.8	99.7	142,344	99.4	99.4
Utah	46,128	100.0	280	100.0	100.0	11,865	100.0	100.0
Vermont	6,257	91.0	38	100.0	100.0	4,951	97.9	97.9
Virginia	92,189	99.9	710	92.7	57.9	53,175	99.8	65.7
Washington	78,980	100.0	444	100.0	100.0	42,408	100.0	100.0
West Virginia	21,571	100.0	164	98.8	86.0	20,440	100.0	87.7
Wisconsin	66,426	100.0	471	99.8	95.8	45,278	100.0	99.5
Wyoming	5,841	100.0	18	100.0	100.0	3,643	100.0	100.0
Puerto Rico	59,118	100.0	585	99.3	82.2	28,491	98.1	76.8
Virgin Islands	1,901	100.0	27	70.4	66.7	594	100.0	98.7
Guam	4,323	100.0	34	100.0	100.0	617	99.8	99.8

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

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) (16). 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* (17). 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, category 799.9), a subcategory of Symptoms, signs, and ill-defined conditions (ICD-9, categories 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, which are illustrative, are constructed by using the preliminary and final data for 1996 and 1997. The selected causes include accidents, suicide, homicide, all other external causes, and SIDS. Because in the preliminary data some deaths for these causes are coded as Symptoms, signs, and ill-defined conditions (ICD-9, categories 780-799), a factor for this category is included as well.

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. Death rates for Hispanic, American Indian, and API persons should be interpreted with caution because of inconsistencies in reporting race on the death certificate as compared with race on censuses, surveys, and birth certificates. Studies have shown under-reporting on death certificates of American Indian, API, and Hispanic decedents; and undercounts of these groups in the censuses (10,11).

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 10). 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 July 1, 1998, 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 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 (12).

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. Number of deaths, crude death rates, and age-adjusted death rates for injury at work are shown in table 11. Deaths, crude death rates, and age-adjusted death rates for injury at work are shown for ages 15 years and over. Age-adjusted death rates for injury at work were computed using age-specific death rates and the standard population for ages 15 years and over.

The life table provides a comprehensive measure of the effect of mortality on life expectancy. It is composed of sets of values showing the mortality experience of a hypothetical group of infants born at the same time and subject throughout their lifetime to the age-specific mortality rates of a particular period, usually a given year. Beginning with final data reported for 1997, the life table methodology was changed

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

Cause and age	Bias correction factor	Preliminary data				Corrected preliminary data			
		Number	Death rate	Age- adjusted rate	Infant mortality rate	Number	Death rate	Age- adjusted rate	Infant mortality rate
All ages									
Symptoms, signs, and ill-defined causes	0.8599	35,491	13.1	9.4	...	30,519	11.3	8.1	...
Accidents and adverse effects.	1.0330	93,207	34.5	28.5	...	96,283	35.6	29.4	...
Motor vehicle accidents	1.0190	41,826	15.5	15.0	...	42,621	15.8	15.3	...
All other accidents and adverse effects	1.0443	51,382	19.0	13.5	...	53,658	19.8	14.1	...
Suicide	1.0170	29,264	10.8	10.0	...	29,761	11.0	10.2	...
Homicide and legal intervention.	1.0498	17,350	6.4	6.9	...	18,214	6.7	7.2	...
All other external causes	1.1623	3,315	1.2	1.2	...	3,853	1.4	1.4	...
Under 1 year									
Sudden infant death syndrome	1.1369	2,529	...	...	64.1	2,875	...	...	72.9
Symptoms, signs, and all other ill-defined conditions	0.7704	1,508	...	...	29.9	1,162	...	...	23.0

... Category not applicable.

from previous annual reports. Previously, U.S. life tables were abridged and constructed by reference to a standard table (18). In addition, the age range for these life tables was limited to 5-year age groups ending with the age group 85 years and over.

Beginning with 1997 mortality data, a revised life table methodology was used to construct complete life tables by single years of age that extend to age 100 (19), using a methodology similar to that of the decennial life tables (20). The advantages of the new methodology over the previous methodology are its comparability with decennial life table methodology, greater accuracy, and greater age detail. A comparison of the two methods shows small differences in resulting values for life expectancy (19). Although the new method produces complete life tables, that is, life tables by single years of age, life table data shown in this report are summarized in 5-year age groupings. Life expectancy by age is shown in table 16. To calculate the probability of dying at each age, the revised methodology uses vital statistics death rates for ages under 85 years and mortality data from the Medicare program for ages over 85 years. Medicare data were used to model the probability of dying at ages 85 and over because the data are shown to be significantly more reliable than vital statistics data at the oldest ages (21).

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 July 1, 1998, and July 1, 1997, and are based on populations furnished by the U.S. Bureau of the Census (14,22). 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, 1998, and July 1, 1997 (23,24).

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 1940 enumerated population of the United States) using the following age groups:

Age	Number	Weights (w)
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 (w)
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 0.2 percent for 1998). 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 (0.04 percent for 1998) 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).
- 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, and SIDS; 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 earlier 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 1997 final data, the preliminary 1998 control totals, and the preliminary 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:

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

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:

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

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

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

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

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

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

This means that the chances are 95 times 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 $|z| < 1.96$, then the difference would be considered not statistically significant at the 0.05 level.

As a hypothetical example, assume R_1 is the same as the 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

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

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

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

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 may be used.

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FIRST CLASS MAIL
POSTAGE & FEES PAID
CDC/NCHS
PERMIT NO. G-284