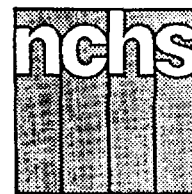


# Monthly Vital Statistics Report



Final Data From the National Center for Health Statistics

## Advance Report of Final Mortality Statistics, 1988

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### Highlights

In 1988, 2,167,999 deaths were registered in the United States, 44,676 more than in 1987 and the largest annual final number ever recorded. Contributing to the increased number of deaths were population growth, the "aging" of the U.S. population, that is, the increasing proportion of older persons, and an outbreak of influenza in 1988. The death rate for 1988 was 882.0 deaths per 100,000 population, up slightly from the rate of 872.4 in 1987. Provisional data for 1989 indicate that the death rate (868.1) declined somewhat from 1988.

The age-adjusted death rate, which eliminates the effects of the aging of the population, was 535.5 per 100,000 population, the same as the rate in 1987. The age-adjusted rate decreased for the white population but increased for the black population between 1987 and 1988. For about half of the 10-year age groups for males and females combined, death rates declined between 1987 and 1988, but for age groups between 5 and 44 years and for 75 years and over, death rates increased.

In 1988, life expectancy at birth was 74.9 years, slightly lower than the record high of 75.0 attained in 1987. For the white population, it remained unchanged from the previous year; but for the black population, it continued the downward trend observed since 1984. Although the difference in life expectancy for males and females has narrowed since the late 1970's, women are still expected to outlive men by an average of 6.8 years. The difference in life expectancy generally had been narrowing between the white and black populations; however, the difference has increased since 1984, from 5.6 to 6.4 years in 1988.

As in previous years, almost three out of four deaths in the United States were caused by the first four leading causes of death—Diseases of heart;

Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (cancer); Cerebrovascular diseases (stroke); and Accidents and adverse effects. The age-adjusted death rates for 6 of 15 leading causes of death declined between 1987 and 1988, led by reductions for Cerebrovascular diseases, Suicide, and Atherosclerosis. Diseases of heart, the leading cause of death in the United States, continued its long-term decline. The age-adjusted death rate for cancer declined slightly between 1987 and 1988 for the third consecutive year in contrast to the historic upward trend for this, the second leading cause of death in the United States.

Increases in age-adjusted death rates for leading causes of death between 1987 and 1988 were led by Human immunodeficiency virus infection (HIV infection), Pneumonia and influenza, and Homicide and legal intervention. Mortality from HIV infection, the 15th leading cause of death in the United States, increased by 20 percent; from Pneumonia and influenza, the 6th leading cause, by 8 percent; and from Homicide, the 12th leading cause, by 5 percent. A major outbreak of influenza in 1988 (1) was reflected in increases in mortality from Pneumonia and influenza and Chronic obstructive pulmonary diseases; such



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outbreaks can also influence mortality from chronic causes such as heart disease. Increases between 1987 and 1988 were also noted for Motor vehicle accidents—a component of the category Accidents and adverse effects, and for both Diabetes mellitus and Septicemia. Among other causes, the age-adjusted death rate for drug-induced causes increased by 11 percent and for alcohol-induced causes, by 3 percent between 1987 and 1988.

The age-adjusted death rate for males was about 70 percent higher than for females for all causes of death combined. For each of the 15 leading causes of death, male mortality was also higher. The greatest sex differential was for HIV infection, where the age-adjusted rate for males was 8.6 times that for females. The smallest sex differential was for Diabetes mellitus, with a male-to-female ratio of 1.1.

Overall, the black population had age-adjusted death rates that exceeded those of the white population by about 50 percent. Rates were also higher for most of the leading causes of death. The largest race differential continued to be for Homicide and legal intervention, for which the age-adjusted rate for the black population was about six times that of the white population. The two leading causes that had lower rates for the black population were Chronic obstructive pulmonary diseases and allied conditions and Suicide.

In 1988, there were differences in the leading causes of death between the Hispanic and the non-Hispanic white populations in a 26-State reporting area. While the two leading causes of death—Diseases of heart and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues—were the same for the two population groups, there were substantial differences in the ranking of other leading causes.

The infant mortality rate (10.0 infant deaths per 1,000 live births) was at a record low in 1988. Changes in rates between 1987 and 1988 for the total population and for the white and black populations considered separately were not statistically significant. For both the white and black populations, the downward trend in infant mortality

has slowed in recent years. Neonatal and postneonatal mortality rates also did not show statistically significant changes between 1987 and 1988 for the white or the black populations.

Maternal mortality increased sharply (27 percent) between 1987 and 1988, in contrast to the historic downward trend. However, provisional data indicate that the rate for 1989 declined to approximately the 1987 level based on final mortality data. Between 1987 and 1988, the maternal mortality rate increased for black women, but the change in the rate for white women between the 2 years was not statistically significant.

### Deaths and death rates

Death rates shown in this report are based on population estimates prepared by the U.S. Bureau of the Census. Because the population bases used for 1984, 1985, 1986, 1987, and 1988 incorporate new estimates of net migration and net undocumented immigration, death rates for these years are not strictly comparable with those for previous years. Although trends in death rates for the total population are not substantially affected, caution should be used in comparing differences in death rates for the period 1984–88 with those of previous years for certain age-race-sex subgroups. For further discussion, see the Technical notes.

In 1988, a total of 2,167,999 deaths occurred in the United States, 44,676 more than in 1987 and the largest final number ever recorded. Contributing to the increased number of deaths were

the continued increase in the size of the population, the increasing proportion of older persons, and an influenza outbreak in 1988 (1). The death rate for 1988, 882.0 per 100,000 population, was up slightly from the rate of 872.4 in 1987. The provisional death rate for 1989 (868.1) declined somewhat from that of 1988.

The age-adjusted death rate of 535.5 deaths per 100,000 population in 1988 was the same as the rate for 1987 (figure 1). Age-adjusted death rates show what the level of mortality would be if there were no changes in the age composition of the population from year to year. Thus, they are better indicators than unadjusted death rates for showing changes in the risk of death over a period of time when the age distribution of the population is changing. They are also better indicators of risk when comparisons of mortality are being made for sex or race subgroups of the population that have different age compositions. Since 1980, the age-adjusted death rate has decreased every year except 1985 and 1988, years when major influenza outbreaks increased mortality in the United States. The rate for 1988 was 8.6 percent below the rate for 1980 and matches the historic low level achieved in 1987.

*Death rates by age, sex, and race—* For both sexes combined, death rates declined for about half of the age groups between 1987 and 1988 (table A). They declined for each of the following: Under 1 year, 1–4 years, 45–54 years, 55–64 years, and 65–74 years. The largest increase (3 percent)

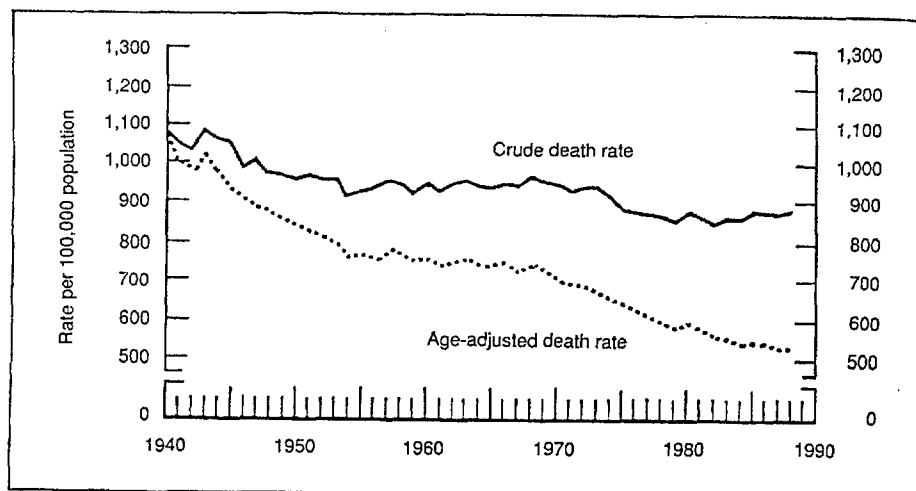


Figure 1. Crude and age-adjusted death rates: United States, 1940–88

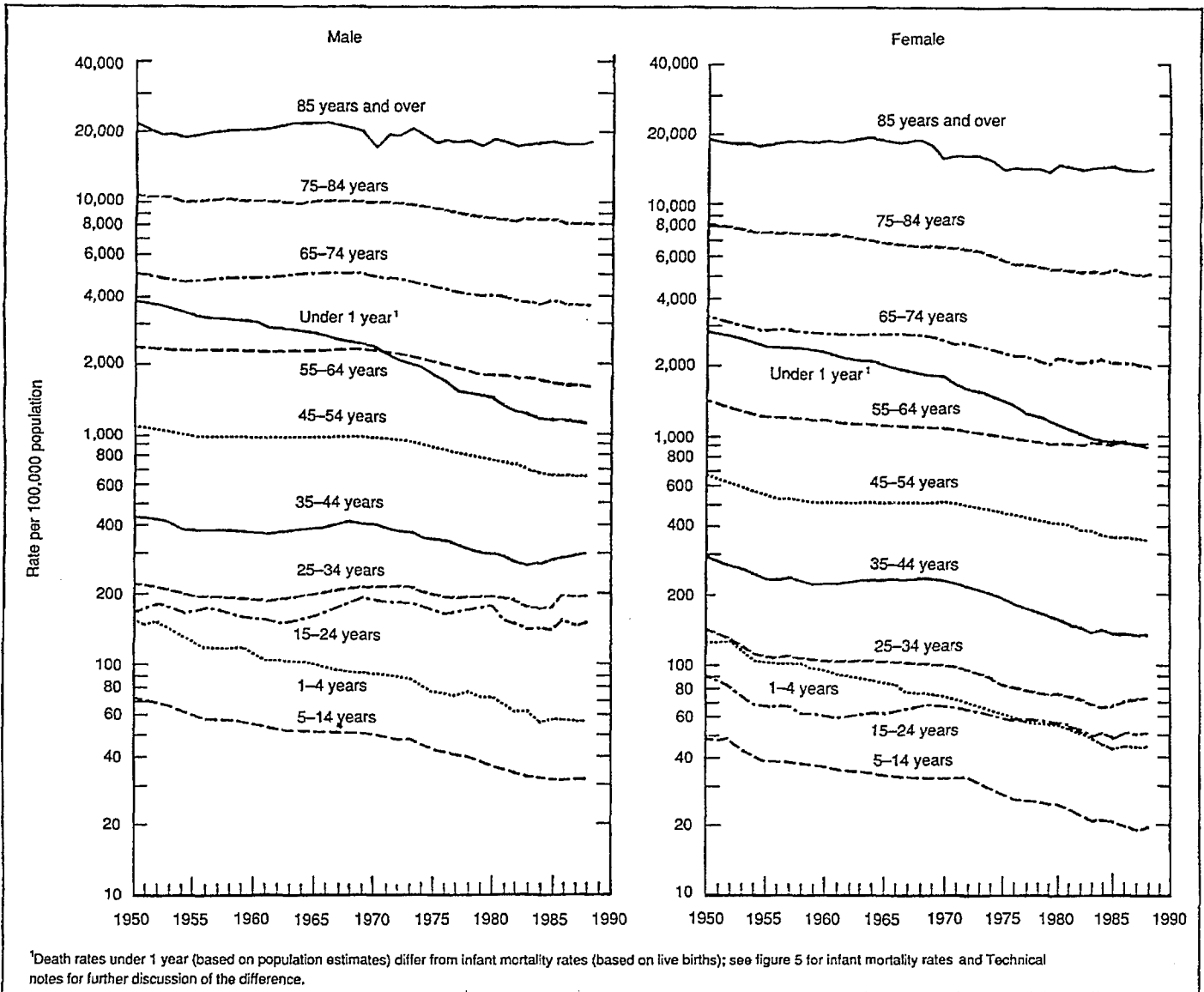
Table A. Percent change in death rates between 1987 and 1988 by age and sex: United States

Age	Total	Male	Female
	Percent change		
All ages . . . . .	1.1	0.6	1.7
Under 1 year <sup>1</sup> . . . . .	-1.0	-1.3	-0.5
1-4 years . . . . .	-1.4	-1.7	-0.9
5-14 years . . . . .	0.8	-3.1	7.4
15-24 years . . . . .	2.7	3.4	0.8
25-34 years . . . . .	1.7	2.1	0.3
35-44 years . . . . .	2.6	3.3	1.0
45-54 years . . . . .	-2.4	-2.4	-2.5
55-64 years . . . . .	-0.5	-1.1	0.5
65-74 years . . . . .	-0.8	-1.2	-0.3
75-84 years . . . . .	0.6	0.0	1.1
85 years and over . . . . .	1.8	1.9	1.7

<sup>1</sup> Death rates under 1 year (based on population estimates) differ from infant mortality rates (based on live births); see table E for 1988 infant mortality rates and Technical notes for further discussion of the difference.

occurred for the age group 15-24 years; the largest decrease (2 percent), for those aged 45-54 years.

For males aged under 1 year, 1-4 years, 5-14 years, 45-54 years, 55-64 years, and 65-74 years, death rates declined between 1987 and 1988. The increase in death rates between 1987 and 1988 for males aged 35-44 years (3 percent) continued the increase begun between 1983 and 1984, a reversal of the downward trend for this age group since the late 1960's (figure 2 and table A). The largest increase for males occurred for those aged 15-24 years; the largest decrease, for those aged 5-14 years. Death rates for the



<sup>1</sup>Death rates under 1 year (based on population estimates) differ from infant mortality rates (based on live births); see figure 5 for infant mortality rates and Technical notes for further discussion of the difference.

Figure 2. Death rates by age and sex: United States, 1950-88

younger population aged 1–14 years are subject to fluctuation from year to year because of the relatively small number of deaths occurring in these age groups. Death rates at these ages are very low compared with other ages.

For females aged under 1 year, 1–4 years, 45–54 years, and 65–74 years, death rates declined between 1987 and 1988. This pattern is consistent with the general downward trend in age-specific rates for females observed since 1950. The largest decrease in death rates between 1987 and 1988 occurred for females aged 45–54 years (3 percent). The largest increase between 1987 and 1988 was for females aged 5–14 years (7 percent), an age group that between 1986 and 1987 showed the largest decrease. This reversal may reflect random variation due to the relatively small number of deaths in this population group.

Age-adjusted death rates for white males decreased by 1 percent between 1987 and 1988; age-adjusted death rates for white females remained essentially the same. In contrast, for black males and black females the age-adjusted death rate increased by 1 percent between the two years. For white males and females, age-adjusted death rates have decreased almost every year since 1980, resulting in a record low rate for white males in 1988 and for white females in 1987. For black males, rates decreased from 1980 through 1984, but since then have increased every year except 1987. For black females, the rates decreased from 1980 to 1982 and have fluctuated since then.

In 1988, the age-adjusted death rate for males of all races was 1.7 times that for females, similar to the ratio in 1987. This ratio between male and female age-adjusted death rates was the same for the white and black populations. As in the past, the age-adjusted death rate for the black population in 1988 was 1.5 times that for the white population.

### Expectation of life at birth and at specified ages

In 1988 the average expectation of life at birth was 74.9, slightly lower than the average expectation of life at

birth of 75.0 years in 1987 (figure 3). This was the first year since 1985, also a year with high mortality associated with influenza outbreaks, that life expectancy in the United States did not rise.

The expectation of life at birth for 1988 represents the average number of years that a group of infants would live if they were to experience throughout life the age-specific death rates prevailing in 1988. In 1988, life expectancy for females was 78.3 compared with 71.5 years for males. For females life expectancy decreased slightly from life expectancy in 1987, and for males the life expectancy was the same as in 1987. The difference in life expectancy between the sexes, which had been widening from 1900 to 1972, has narrowed since 1979. The difference was 6.8 years in 1988 compared with 6.9 years in 1987, 7.4 years in 1980 and 1981, 7.7 and 7.8 years throughout the period 1972–79, 6.5 years in 1960, and 2.0 years in 1900. Major causes of death contributing to this narrowing differential between life expectancy for males and females between 1987 and 1988 are discussed in the Cause-of-death section below.

In 1988, life expectancy for the white population was 75.6, the same as the record high in 1987, while the black population experienced a decrease to 69.2 years from a life expectancy of 69.4 in 1987. While the difference in life expectancy between the white and black populations narrowed from 7.6

years in 1970 to 5.6 years in 1983 and 1984, it has increased since then, to 6.2 years in 1987 and 6.4 in 1988. For a discussion of the causes contributing to the widening differential between life expectancies for the black and white populations between 1987 and 1988, see the Cause-of-death section below.

Among the four race-sex groups, white females continued to have the highest life expectancy at birth (78.9 years), followed by black females (73.4 years), white males (72.3 years), and black males (64.9 years). The largest gain in life expectancy between 1980 and 1988 was for white males (1.6 years), followed by black males (1.1 years), black females (0.9 years), and white females (0.8 years).

The 1988 life table may be used to compare life expectancies at any age from birth onward. For example, a person who has reached age 65 years may look forward to living to an older age, on the average, than one who has reached 50 years. On the basis of mortality experienced in 1988, a person aged 50 years could expect to live an average of 28.6 more years for a total of 78.6 years, and a person aged 65 years could expect to live an average of 16.9 more years for a total of 81.9 years.

### Cause of death

Deaths assigned to the 15 leading causes accounted for 87 percent of the total number of deaths in 1988 (table B). (For ranking procedures see

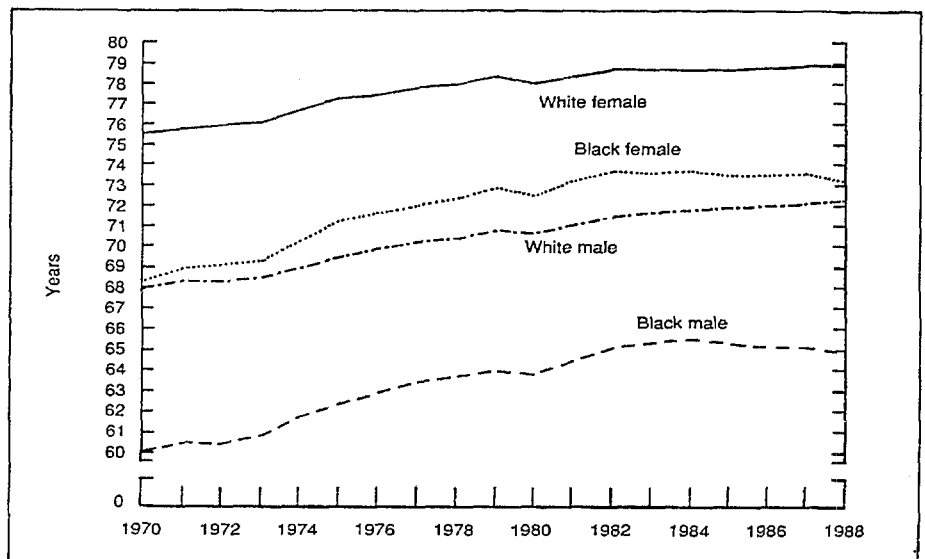


Figure 3. Life expectancy by sex: United States, 1940–88

**Table B. Death rates and percent of total deaths for the 15 leading causes of death: United States, 1988**

[Rates per 100,000 population]

Rank <sup>1</sup> order	Cause of death (Ninth Revision International Classification of Diseases, 1975)	Rate	Percent of total deaths
...	All causes . . . . .	882.0	100.0
1	Diseases of heart . . . . .	311.3	35.3
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .	197.3	22.4
3	Cerebrovascular diseases . . . . .	61.2	6.9
4	Accidents and adverse effects . . . . .	39.5	4.5
...	Motor vehicle accidents . . . . .	20.0	2.3
...	All other accidents and adverse effects . . . . .	19.5	2.2
5	Chronic obstructive pulmonary diseases and allied conditions . . . . .	33.7	3.8
6	Pneumonia and influenza . . . . .	31.6	3.6
7	Diabetes mellitus . . . . .	16.4	1.9
8	Suicide . . . . .	12.4	1.4
9	Chronic liver disease and cirrhosis . . . . .	10.7	1.2
10	Nephritis, nephrotic syndrome, and nephrosis . . . . .	9.1	1.0
11	Atherosclerosis . . . . .	9.0	1.0
12	Homicide and legal intervention . . . . .	9.0	1.0
13	Septicemia . . . . .	8.5	1.0
14	Certain conditions originating in the perinatal period . . . . .	7.4	0.8
15	Human immunodeficiency virus infection . . . . .	6.8	0.8
...	All other causes . . . . .	118.1	13.4

<sup>1</sup> Rank based on number of deaths; see Technical notes.

Technical notes.) The ranking of the leading causes of death for 1988 changed slightly from the list based on data for 1987. Nephritis, nephrotic syndrome, and nephrosis—the 11th leading cause in 1987—increased to 10th in 1988; Atherosclerosis decreased in rank from the 10th to the 11th. The ranking of Human immunodeficiency virus infection remained at 15th, as in 1987, which was the first time this condition was a rankable

cause of death. (See Technical notes and section below on HIV infection.)

Trends in mortality based on age-adjusted death rates are shown in figure 4 and table C for 14 of the 15 leading causes. Because deaths from Certain conditions originating in the perinatal period occur mainly among infants under 1 year of age, age-adjusted rates for this cause are not discussed.

For six of the leading causes of death, the age-adjusted death rates decreased between 1987 and 1988 (table C). These causes were Diseases of heart; Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues; Cerebrovascular diseases; Suicide; Chronic liver disease and cirrhosis; and Atherosclerosis. The largest declines were for Atherosclerosis (6 percent), Suicide (3 percent), and Cerebrovascular diseases (2 percent). The declines for Diseases of heart, Cerebrovascular diseases, and Atherosclerosis are consistent with the generally downward trends observed since 1950. Chronic liver disease and cirrhosis has exhibited a downward trend since 1979. For the third consecutive year the age-adjusted death rate for Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues declined slightly. This is in contrast to the generally increasing trend for this cause observed since 1950. This decrease in the age-adjusted rate reflects declines in death rates for this cause for most age groups under 65 years. For the second consecutive year the age-adjusted death rate for Suicide declined slightly.

Increases in the age-adjusted death rates between 1987 and 1988

**Table C. Age-adjusted death rates for 1988 and percent changes in age-adjusted death rates for the 15 leading causes of death from 1987 to 1988 and 1979 to 1988: United States**

[Rates per 100,000 population]

Rank <sup>1</sup> order	Cause of death (Ninth Revision International Classification of Diseases, 1975)	Age-adjusted death rates for 1988	Percent change from—	
			1987 to 1988	1979 to 1988
...	All causes . . . . .	535.5	—	-7.2
1	Diseases of heart . . . . .	166.3	-1.9	-16.6
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .	132.7	-0.2	1.5
3	Cerebrovascular diseases . . . . .	29.7	-2.0	-28.6
4	Accidents and adverse effects . . . . .	35.0	1.2	-18.4
...	Motor vehicle accidents . . . . .	19.7	1.0	-15.1
...	All other accidents and adverse effects . . . . .	15.3	0.7	-21.9
5	Chronic obstructive pulmonary diseases and allied conditions . . . . .	19.4	3.7	32.9
6	Pneumonia and influenza . . . . .	14.2	8.4	26.8
7	Diabetes mellitus . . . . .	10.1	3.1	3.1
8	Suicide . . . . .	11.4	-2.6	-2.6
9	Chronic liver disease and cirrhosis . . . . .	9.0	-1.1	-25.0
10	Nephritis, nephrotic syndrome, and nephrosis . . . . .	4.8	—	11.6
11	Atherosclerosis . . . . .	3.4	-5.6	-40.4
12	Homicide and legal intervention . . . . .	9.0	4.7	-11.8
13	Septicemia . . . . .	4.6	2.2	100.0
14	Certain conditions originating in the perinatal period <sup>2</sup> . . . . .	...	-2.8	-30.9
15	Human immunodeficiency virus infection . . . . .	6.6	20.0	—

<sup>1</sup> Rank based on number of deaths; see Technical notes.

<sup>2</sup> Inasmuch as deaths from this cause occur mainly among infants, percent changes are based on infant mortality rates instead of age-adjusted rates.

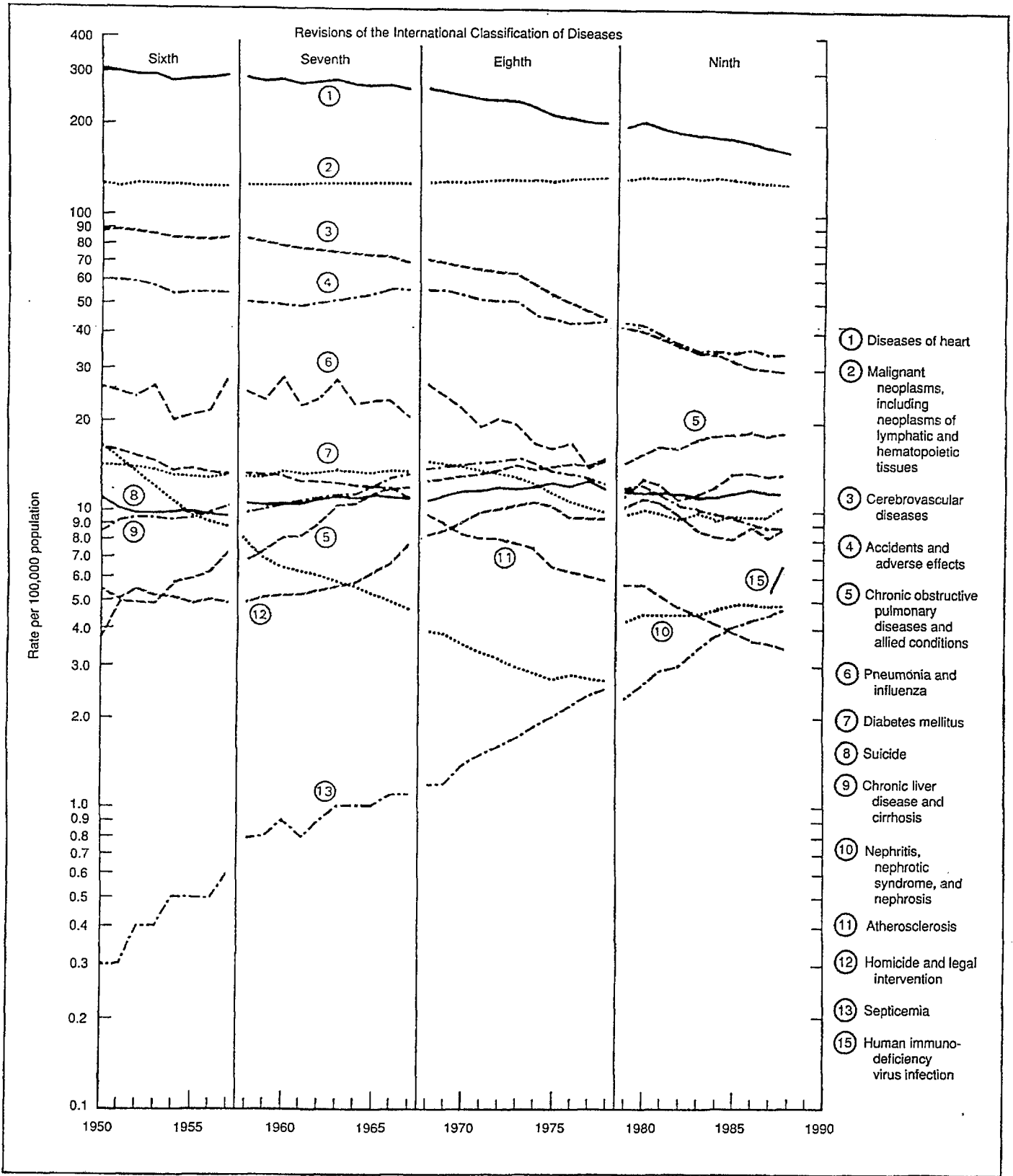


Figure 4. Age-adjusted death rates for 14 of the 15 leading causes of death, United States, 1950-88

occurred for seven of the leading causes of death—Accidents and adverse effects; Chronic obstructive pulmonary diseases and allied conditions; Pneumonia and influenza; Diabetes mellitus; Homicide and legal intervention; Septicemia; and HIV infection. The largest increase, 20 percent, was for Human immunodeficiency virus infection. The age-adjusted death rate for Homicide and legal intervention increased by 5 percent between 1987 and 1988, reaching a level higher than that of 1979 and only slightly lower than the record high of 1980. The age-adjusted death rate for Diabetes mellitus increased by 3 percent between 1987 and 1988, continuing the increase for the second consecutive year. Diabetes mortality decreased from the late 1960's throughout the 1970's and remained at a plateau through the early 1980's. Septicemia increased by 2 percent between 1987 and 1988, continuing the rapid rise observed for the past three decades (figure 4). The age-adjusted death rate for Accidents and adverse effects increased by 1 percent between 1987 and 1988. Increases for two causes, Chronic obstructive pulmonary diseases and allied conditions and Pneumonia and influenza, reflect the outbreak of influenza in 1988 (1). Outbreaks of influenza have occurred each year since 1982, except for 1987; they are associated with elevated mortality for a number of causes but especially for Pneumonia and influenza and for Chronic obstructive pulmonary diseases and allied conditions. Age-adjusted death rates did not change for one of the leading causes of death—Nephritis, nephrotic syndrome, and nephrosis.

Mortality levels for each of the 15 leading causes of death were higher for males than for females (table D). The largest differentials were for HIV infection, Suicide, and Homicide and legal intervention. Specifically, the age-adjusted death rate for HIV infection was 8.6 times higher for males than for females, somewhat lower than the ratio of 9.1 in 1987. Rates for Suicide and for Homicide and legal intervention were 4.0 and 3.3 times, respectively, higher for males than for

Table D. Ratio of age-adjusted death rates for the 15 leading causes of death by sex and race: United States, 1988

Rank <sup>1</sup> order	Cause of death (Ninth Revision International Classification of Diseases, 1975)	Ratio of—	
		Male to female	Black to white
...	All causes . . . . .	1.72	1.55
1	Diseases of heart . . . . .	1.87	1.40
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .	1.46	1.32
3	Cerebrovascular diseases . . . . .	1.17	1.87
4	Accidents and adverse effects . . . . .	2.70	1.28
...	Motor vehicle accidents . . . . .	2.50	0.94
...	All other accidents and adverse effects . . . . .	2.95	1.77
5	Chronic obstructive pulmonary diseases and allied conditions . . . . .	1.96	0.84
6	Pneumonia and influenza . . . . .	1.72	1.44
7	Diabetes mellitus . . . . .	1.07	2.36
8	Suicide . . . . .	3.98	0.56
9	Chronic liver disease and cirrhosis . . . . .	2.30	1.73
10	Nephritis, nephrotic syndrome, and nephrosis . . . . .	1.50	2.83
11	Atherosclerosis . . . . .	1.33	1.12
12	Homicide and legal intervention . . . . .	3.31	6.43
13	Septicemia . . . . .	1.27	2.60
14	Certain conditions originating in the perinatal period <sup>2</sup> . . . . .	1.26	2.69
15	Human immunodeficiency virus infection . . . . .	8.57	3.38

<sup>1</sup>Rank based on number of deaths; see Technical notes.

<sup>2</sup>Inasmuch as deaths from this cause occur mainly among infants, ratios are based on infant mortality rates instead of age-adjusted death rates.

females, and the rate for Accidents and adverse effects was 2.7 times higher for males than for females. The smallest sex difference in mortality was for Diabetes mellitus, with a male-to-female ratio of 1.1.

For females, the age-adjusted death rate for all causes combined increased slightly between 1987 and 1988. Decreases in rates occurred for Diseases of heart, Cerebrovascular diseases, Atherosclerosis, and Suicide. The decreases were offset, in part, by increases in rates for other leading causes, among them Pneumonia and influenza, Chronic obstructive pulmonary diseases and allied conditions, Diabetes mellitus, and Septicemia. Of the leading causes of death, Pneumonia and influenza had the largest increase in mortality between 1987 and 1988 for women; the age-adjusted rate from this cause increased 10 percent. Increases in death rates for females aged 5–14 years between 1987 and 1988 described earlier were principally due to increases for Accidents and adverse effects and for Congenital anomalies. Because of the relatively small numbers of deaths in the age groups 1–14 years, the annual increases or decreases in mortality for these age groups must be interpreted with caution.

For males, the age-adjusted death rate for all causes declined slightly between 1987 and 1988. Decreases occurred in the rates for seven of the leading causes of death—Diseases of heart; Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues; Cerebrovascular diseases; Suicide; Chronic liver disease and cirrhosis; Septicemia; and Atherosclerosis. Increases in the age-adjusted death rate occurred for Accidents and adverse effects, Chronic obstructive pulmonary diseases and allied conditions, Pneumonia and influenza, Diabetes mellitus, Homicide and legal intervention, and Human immunodeficiency virus infection. For males, the largest increase was for Human immunodeficiency virus infection (20 percent). In contrast to 1987, when the age-adjusted death rate for Motor vehicle accidents decreased from the previous year for males and increased for females, the rate increased for both sexes between 1987 and 1988. Increases between 1987 and 1988 in death rates for males aged 15–24 years, noted earlier, were due to increases for Homicide and legal intervention, Motor vehicle accidents, and Suicide.

Major causes of death contributing to the narrowing differential in mortality between males and females

between 1987 and 1988 were Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues and Diseases of heart. For cancer, the age-adjusted death rate for males decreased, while increasing slightly for females between these 2 years. For Diseases of heart, the rate for males decreased more than the rate for females between 1987 and 1988.

Mortality was higher for the black population than for the white population for most of the leading causes (table D). The largest differential was for Homicide and legal intervention, for which the age-adjusted death rate for the black population was 6.4 times that of the white population. Other causes for which the differential was large include HIV infection (3.4); Nephritis, nephrotic syndrome, and nephrosis (2.8); Septicemia (2.6); and Diabetes mellitus (2.4). Age-adjusted rates for the black population were lower than those for the white population for two leading causes of death—Chronic obstructive pulmonary diseases and allied conditions and Suicide.

For the white population, decreases in age-adjusted rates occurred in five leading causes of death. The largest decreases were for Atherosclerosis (6 percent), and for Suicide, Cerebrovascular diseases, and Diseases of heart (2 percent each). Of the leading causes that increased for the white population, the largest increase was for Human immunodeficiency virus infection (21 percent). Other increases were for Pneumonia and influenza (9 percent), and for Chronic obstructive pulmonary diseases and allied conditions, Diabetes mellitus, and Septicemia (3 percent each). Age-adjusted rates for Chronic liver disease and cirrhosis; Nephritis, nephrotic syndrome, and nephrosis; and Homicide and legal intervention were the same in 1987 and 1988.

For the black population, age-adjusted death rates were lower in 1988 than in 1987 for several of the leading causes including Chronic liver disease and cirrhosis (3 percent) and Septicemia (2 percent). Of the leading causes that increased for the black population, the largest increase was

for Human immunodeficiency virus infection (26 percent). Other increases were for Pneumonia and influenza (8 percent), Homicide and legal intervention and Chronic obstructive pulmonary diseases and allied conditions (7 percent each), and Diabetes mellitus (5 percent). Between 1987 and 1988 the age-adjusted death rate for Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, decreased slightly for both the black and white populations (less than 1 percent each).

Major causes of death contributing to the widening differential in mortality between the black and white populations between 1987 and 1988 were Diseases of heart, HIV infection, and Homicide and legal intervention. For Diseases of heart, the decrease in age-adjusted death rates was greater for the white than the black population. For HIV infection, the increase in the rate for the white population was smaller than for the black population between 1987 and 1988. For Homicide and legal intervention, the age-adjusted rate for the black population increased markedly but remained unchanged for the white population.

#### HIV infection

In 1988, there were 16,602 deaths due to HIV infection. Of these deaths, 63 percent were for white males, 25 percent for black males, 6 percent for black females, and 5 percent for white females (see table 25). The largest numbers for males and females of both races were for age groups 25–34 and 35–44 years. Although the numbers of deaths were greatest for white males, the age-adjusted death rates and almost all age-specific death rates were highest for black males, followed by white males, black females, and white females.

Overall, HIV infection was ranked as the 15th leading cause of death in 1988, the same rank as in 1987 when a new classification was introduced for this cause of death (see Technical notes). Among the 10 leading causes of death in 1988, it was the 10th leading cause for the black population but did not rank among the 10 leading

causes of death for the white population. It did not rank among the 10 leading causes of death for either males or females of all races combined.

By age, HIV infection ranked among the 10 leading causes for four age groups: It was the 9th leading cause of death for ages 1–4 years, the 6th leading cause of death for ages 15–24 years, the 4th leading cause of death for ages 25–44 years, and the 10th leading cause of death for ages 45–64 years. Although it was the 9th leading cause for ages 1–4 years, the number of deaths due to HIV infection was relatively small—114 deaths or 2 percent of deaths from all causes for that age group.

#### Hispanic deaths

Leading causes of death for all age groups combined for the Hispanic population differ from those of the non-Hispanic white population in a 26-State reporting area (see Technical notes). While the two leading causes of death are the same for both groups—Diseases of heart and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues—for the non-Hispanic white population these two causes accounted for almost three-fifths of all deaths in 1988, but for the Hispanic population, only two-fifths of the deaths.

Major differences in leading causes of death between the two groups are as follows: 3 of the 10 leading causes of death for the Hispanic population are not among the 10 leading causes for the non-Hispanic white population. They are Homicide and legal intervention (5th leading cause), HIV infection (6th), and Certain conditions originating in the perinatal period (10th). Conversely, 3 leading causes for the non-Hispanic white population not among the 10 leading causes for the Hispanic population were Chronic obstructive pulmonary diseases and allied conditions (4th), Suicide (8th), and Atherosclerosis (10th).

Differences in ranking the leading causes of death between the two population groups largely reflect



differences in age composition between the two groups; within broad age groups leading causes are similar. However, even within age categories some differences exist. HIV infection and Homicide and legal intervention consistently ranked higher for Hispanics than the non-Hispanic white population for all age groups under 65 years, except for the age group 1-14 years in which Hispanics and non-Hispanic deaths from Homicide and legal intervention ranked the same. Chronic liver disease and cirrhosis also consistently ranked higher for Hispanics aged 25 years and over.

**Drug-induced deaths**

In 1988, a total of 10,917 persons died of drug-induced causes in the United States. The category drug-induced causes includes not only deaths from dependent and nondependent use of drugs (both 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. (For drug-induced causes, see Technical notes.) The age-adjusted death rate for drug-induced causes in 1988 was 4.2 deaths per 100,000 population, 11 percent higher than for the previous year. The rate increased by 35 percent from 1983 to 1988. The age-adjusted death rate for drug-induced causes for males was 1.9 times the rate for females and the rate for the black population was 2.2 times that for the white population.

**Alcohol-induced deaths**

In 1988, a total of 18,872 persons died of alcohol-induced causes in the United States. 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. (For alcohol-induced causes, see Technical notes.) The age-adjusted death rate for alcohol-induced causes in 1988 was 7.0 deaths per 100,000 population, higher than the rate of 6.8 for the previous year. The rate decreased by 15 percent from 1979 to 1988. 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 2.7 times the rate for the white population.

**Infant mortality**

In 1988, there were 38,910 deaths of infants under 1 year of age (table E). The infant mortality rate of 10.0 infant deaths per 1,000 live births was the lowest final rate ever recorded for the United States, and it compares with the rate for the previous year of 10.1. Among white infants, the rate was 8.5, compared with 8.6 in the previous year; the rate for black infants was 17.6 in 1988 compared with 17.9 in 1987. For all infants and for infants of both major race groups considered separately, the changes in infant mortality rates between 1987 and 1988

were not statistically significant. (For discussion of random variation and statistical significance, see Technical notes.)

Until recently, the absolute difference in infant mortality rates between black and white infants was narrowing; in 1960 the difference in rates was 21.4 infants per 1,000 live births compared with 9.3 in 1987 and 9.1 in 1988 (figure 5). However, because the infant mortality rates for the white and black populations have been decreasing by about the same average annual percent between 1960 and 1988, the black infant mortality rate in 1988 continued to be about twice the white rate. The downward trend in infant mortality has slowed for both the white and the black populations—since the late 1970's for white infants and since 1981 for black infants.

Between 1987 and 1988, the neonatal mortality rate declined from 6.5 to 6.3 deaths for infants under 28 days of age per 1,000 live births. By race, the rate in 1988 for the white population was 5.4 per 1,000 live births compared with 5.5 in 1987; and for the black population, 11.5 compared with 11.7 in 1987. The differences in the neonatal mortality rate between 1987 and 1988 for the white population and the black population considered separately were not statistically significant. Neonatal mortality rates have declined since 1960 for both races, but the rate for the white population has declined faster than that for the black population—an average annual decrease of 4 percent per year for white infants

**Table E. Infant, neonatal, and postneonatal deaths and mortality rates by race and sex: United States, 1988**

[Rates are infant (under 1 year), neonatal (under 28 days), and postneonatal (28 days-11 months) deaths per 100,000 live births in specified group]

Race and sex	Infant		Neonatal		Postneonatal	
	Number	Rate	Number	Rate	Number	Rate
All races . . . . .	38,910	995.3	24,690	631.5	14,220	363.7
Male . . . . .	22,007	1099.0	13,911	694.7	8,096	404.3
Female . . . . .	16,903	886.3	10,779	565.2	6,124	321.1
White . . . . .	25,925	851.1	16,346	536.6	9,579	314.5
Male . . . . .	14,878	952.1	9,296	594.9	5,582	357.2
Female . . . . .	11,047	744.7	7,050	475.2	3,997	269.4
All other . . . . .	12,985	1504.0	8,344	966.5	4,641	537.6
Male . . . . .	7,129	1621.2	4,615	1049.5	2,514	571.7
Female . . . . .	5,856	1382.4	3,729	880.3	2,127	502.1
Black . . . . .	11,840	1762.0	7,695	1145.1	4,145	616.8
Male . . . . .	6,503	1904.6	4,263	1248.5	2,240	656.0
Female . . . . .	5,337	1614.7	3,432	1038.3	1,905	576.3

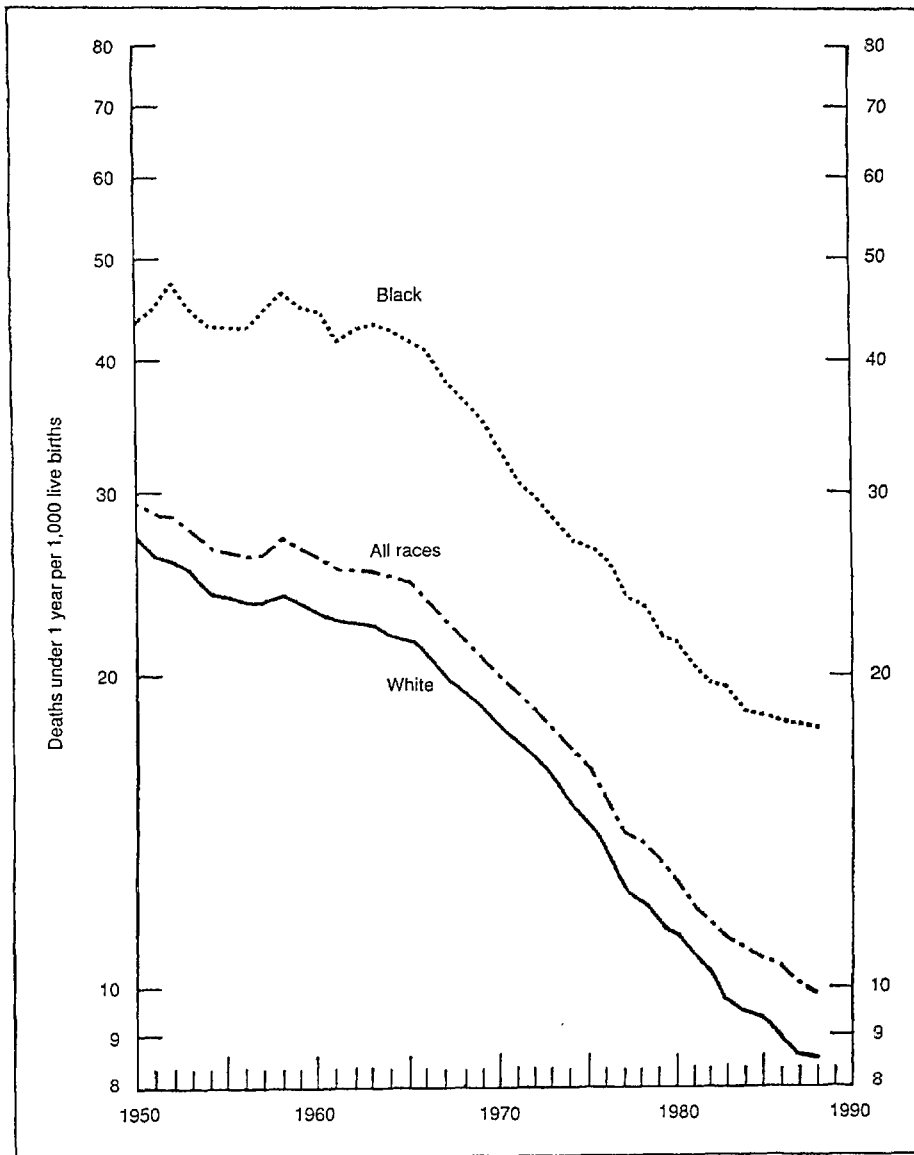


Figure 5. Infant mortality rates by race: United States, 1950-88

compared with 3 percent for black infants.

The postneonatal mortality rate—deaths to infants 28 days-11 months per 1,000 live births—for 1988 was 3.6 for the third consecutive year. For the white population, the postneonatal mortality rate in 1988 remained at 3.1, the same as in 1986 and 1987. For black infants, the rate in 1988 was 6.2 compared with a rate of 6.1 in 1987. For the black population, the change between the two years was not statistically significant. In contrast to the trend for neonatal mortality, between 1960 and 1988 the postneonatal rate decreased relatively faster for the black population than for the white population—an average annual decline

of 3 percent for black infants compared with 2 percent for white infants.

As was seen in the overall infant mortality rates, the downward trends in neonatal and postneonatal mortality rates have slowed recently for both the black and the white populations.

The ranking of the leading causes of infant mortality for 1988 changed slightly from 1987. Because of an increase in the number of deaths assigned to Newborn affected by complications of placenta, cord, and membranes, the rank of this cause changed from the 8th in 1987 to 7th in 1988, while the rank for Infections specific to the perinatal period changed from 7th in 1987 to 8th in 1988. Among the 10 leading causes of

infant death, the first 4—Congenital anomalies, Sudden infant death syndrome, Disorders relating to short gestation and unspecified low birthweight, and Respiratory distress syndrome—accounted for just over half of all deaths to infants under 1 year of age in 1988. The next six causes accounted for only 14 percent of all infant deaths.

The difference between infant mortality rates for white and black infants varied by cause, although the rate was higher for black infants than for white infants for all the leading causes, except Congenital anomalies. For Congenital anomalies, the leading cause of infant death, the difference between the rate for black infants (209.8 per 100,000 live births) and for white infants (211.5) was not statistically significant. Expressed as the ratio of the infant mortality rate for black infants to that for white infants, the other leading causes may be ranked, beginning with the highest ratio, as follows: Disorders relating to short gestation and unspecified low birthweight (3.9); Pneumonia and influenza and Newborn affected by maternal complications of pregnancy (2.6 each); Infections specific to the perinatal period (2.2); Respiratory distress syndrome, Accidents and adverse effects, Newborn affected by complications of placenta, cord, and membranes, and Intrauterine hypoxia (2.0 each); Sudden infant death syndrome (1.8); and Congenital anomalies (1.0).

### Hispanic infant deaths

The infant mortality rate for the Hispanic population in a reporting area of 23 States (see Technical notes) and the District of Columbia was 8.1 deaths to infants under 1 year of age per 1,000 live births. The difference between this rate for the Hispanic population and the corresponding rate for the non-Hispanic white population (8.3) was not statistically significant. Among specified subgroups of the Hispanic population, the infant mortality rate for Mexican infants was 7.8 deaths to infants under 1 year of age per 1,000 live births; for Puerto Rican infants, 7.7; and for Cuban infants, 7.6. Infant mortality rates by Hispanic origin and

race for the 23-State area may be somewhat understated (see Technical notes).

**Maternal mortality**

In 1988, 330 women were reported to have died of maternal causes (table F). As in previous years, the number does not include all deaths occurring to pregnant women, but only those deaths assigned to Complications of pregnancy, childbirth, and the puerperium (ICD-9 Nos. 630-676). The maternal mortality rate for 1988 was 8.4 deaths per 100,000 live births, 27 percent higher than the rate of 6.6 in the previous year. Provisional data indicate that the rate for 1989 (6.5) declined to approximately the 1987 level based on final data. Changes in the maternal mortality rate between 1987 and 1988 were statistically significant for black women, but not for white women. In 1988, black women were 3.3 times as likely as white women to die of causes associated with pregnancy, childbirth, and the puerperium.

**Report of autopsy**

For 1988 all States requested information for the death certificate about whether autopsies were performed. They were reported as performed on 251,095 deaths, or 11.6 percent of the deaths that occurred in 1988, a decrease from the 11.9 percent reported for the previous year. This continues the downward trend in the percent of deaths autopsied. The percent autopsied for all causes of death combined is heavily influenced by the low rates for the three leading causes

of death: Diseases of heart (7.8 percent); Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (4.1 percent); and Cerebrovascular diseases (3.9 percent). Among the 15 leading causes of death, the highest percents reported were for traumatic causes, that is, Homicide and legal intervention (96.5 percent), Suicide (54.3 percent), and Accidents and adverse effects (49.6 percent). For nontraumatic causes, the highest percents were for Certain conditions originating in the perinatal period (25.0), Chronic liver disease and cirrhosis (19.4), and HIV infection (12.3).

**Marital status**

Almost 90 percent (89.5) of the persons who died in 1988 had been married. The percent was larger for females (91.6) than for males (87.5) and for the white population (90.5) than for the black population (82.3). The proportion who were widowed at the time of death was considerably greater for women (57.7 percent) than for men (18.1 percent) but about the same for both major race groups—37.8 percent for the white population and 34.1 percent for the black population.

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**Table F. Maternal deaths and maternal mortality rates by race: United States, 1988**

[Maternal deaths are those assigned to Complications of pregnancy, childbirth, and the puerperium, category numbers 630-676 of the Ninth Revision International Classification of Diseases, 1975. Rates per 100,000 live births in specified group]

Race	Number	Rate
All races . . . . .	330	8.4
White . . . . .	180	5.9
All other . . . . .	150	17.4
Black . . . . .	131	19.5

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**Symbols**

- Data not available
  - . . . Category not applicable
  - Quantity zero
  - 0.0 Quantity more than zero but less than 0.05
  - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
  - \* Figure does not meet standard of reliability or precision
-

**Table 1. Deaths, death rates, and age-adjusted death rates, by race and sex: United States, 1940, 1950, 1960, 1970, and 1975-88**

[Rates per 100,000 population in specified group. Rates are based on populations enumerated as of April 1 for census years and estimated as of July 1 for all other years. Beginning 1970, excludes deaths of nonresidents of the United States]

Year	All races			White			Total			All other		
	Both sexes		Female	Both sexes		Female	Both sexes		Female	Both sexes		Female
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Female	
Number												
1988	2,167,999	1,125,540	1,042,459	1,876,906	965,419	911,487	291,093	160,121	130,972	264,019	144,228	119,791
1987	2,123,323	1,107,958	1,015,365	1,843,067	953,382	889,685	280,256	154,576	125,680	254,814	139,551	115,263
1986	2,105,361	1,104,005	1,001,356	1,831,083	952,554	878,529	274,278	151,451	122,827	250,326	137,214	113,112
1985	2,086,440	1,097,758	988,682	1,819,054	950,455	868,599	267,386	147,303	120,083	244,207	133,610	110,597
1984	2,039,369	1,076,514	962,855	1,781,897	934,529	847,368	257,472	141,985	115,487	235,884	129,147	106,737
1983	2,019,201	1,071,923	947,278	1,765,582	931,779	833,803	253,619	140,144	113,475	233,124	127,911	105,213
1982	1,974,797	1,056,440	918,357	1,729,085	919,239	809,846	245,712	137,201	108,511	226,513	125,610	100,903
1981	1,977,981	1,063,772	914,209	1,731,233	925,490	805,743	246,748	138,282	108,466	228,560	127,296	101,264
1980	1,989,841	1,075,078	914,763	1,738,607	933,878	804,729	251,234	141,200	110,034	233,135	130,138	102,997
1979	1,913,841	1,044,959	868,882	1,676,145	910,137	766,008	237,696	135,822	102,874	220,818	124,433	96,385
1978	1,927,788	1,055,290	872,498	1,689,722	920,123	769,599	238,066	135,167	102,899	221,340	124,663	96,677
1977	1,899,597	1,046,243	853,354	1,664,100	912,670	751,430	235,497	133,573	101,924	220,076	123,894	96,182
1976	1,909,440	1,051,983	857,457	1,674,989	918,589	756,400	234,451	133,394	101,057	219,442	123,977	95,465
1975	1,892,879	1,050,819	842,060	1,660,366	917,804	742,562	232,513	133,015	99,498	217,932	123,770	94,162
1970	1,921,031	1,078,478	842,553	1,682,096	942,437	739,659	238,935	136,041	102,894	225,647	127,540	98,107
1960	1,711,982	975,648	736,334	1,505,335	860,857	644,478	206,647	114,791	91,856	196,010	107,701	88,309
1950	1,452,454	827,749	624,705	1,276,085	731,366	544,719	176,369	96,383	79,986	169,606	92,004	77,602
1940	1,417,269	791,003	626,266	1,231,223	690,901	540,322	186,046	100,102	85,944	178,743	95,517	83,226
Death rate												
1988	882.0	940.0	826.9	905.1	952.2	860.0	757.5	872.7	652.2	874.2	1,006.8	754.5
1987	872.4	934.7	813.1	895.5	947.8	845.5	745.8	861.5	640.0	856.9	989.5	737.3
1986	873.2	940.7	809.3	896.2	954.4	840.7	745.6	862.7	638.8	854.2	987.7	733.9
1985	873.9	945.0	806.6	897.1	960.0	837.1	743.3	858.6	638.1	845.7	976.8	727.7
1984	862.3	935.9	792.7	885.2	951.1	822.3	731.5	846.4	627.0	828.5	958.1	712.0
1983	862.8	942.6	787.4	884.6	957.4	815.3	736.6	854.9	629.2	830.5	963.3	711.2
1982	852.0	938.0	770.7	872.9	951.8	797.9	728.9	854.8	614.5	819.2	960.4	692.4
1981	862.4	954.5	775.4	880.3	965.1	799.6	755.0	889.4	633.0	841.7	991.6	707.3
1980	878.3	976.9	785.3	892.5	983.3	806.1	791.7	936.5	660.6	875.4	1,034.1	733.3
1979	852.2	957.5	752.7	865.2	963.3	771.8	771.0	920.3	635.7	839.3	999.6	695.3
1978	868.0	977.5	764.5	880.2	982.7	782.7	790.0	943.2	651.0	855.1	1,016.8	709.5
1977	864.4	978.9	756.0	874.6	983.0	771.3	798.6	951.7	659.6	864.0	1,026.0	718.0
1976	877.6	993.8	767.6	887.7	997.3	783.1	812.1	969.8	668.6	875.0	1,041.6	724.5
1975	878.5	1,002.0	761.4	886.9	1,004.1	775.1	823.1	987.6	673.1	882.5	1,055.4	726.1
1970	945.3	1,090.3	807.8	946.3	1,086.7	812.6	938.4	1,115.9	775.3	999.3	1,186.6	829.2
1960	954.7	1,104.5	809.2	947.8	1,098.5	800.9	1,008.5	1,152.0	872.6	1,038.6	1,181.7	905.0
1950	963.8	1,106.1	823.5	945.7	1,089.5	803.3	1,119.4	1,251.1	993.5	---	---	---
1940	1,076.4	1,197.4	954.6	1,041.5	1,162.2	919.4	1,382.8	1,513.7	1,256.2	---	---	---
Age-adjusted death rate <sup>1</sup>												
1988	535.5	696.7	404.4	509.8	664.3	384.4	692.5	904.3	523.5	788.8	1,037.8	593.1
1987	535.5	698.6	403.3	511.1	668.2	384.1	688.0	898.1	520.1	778.6	1,023.2	586.2
1986	541.7	709.1	406.6	518.0	679.8	387.7	693.1	905.7	524.0	781.0	1,026.9	588.2
1985	546.1	716.8	409.4	523.1	688.7	390.6	697.8	910.4	530.0	779.9	1,024.0	589.1
1984	545.9	716.7	409.6	523.6	689.9	391.3	694.5	904.4	529.0	771.9	1,011.7	585.3
1983	550.5	725.3	411.5	528.0	698.4	392.7	703.1	916.3	535.2	777.9	1,019.6	590.4
1982	553.8	733.1	411.2	531.8	706.0	393.3	704.6	928.4	529.3	778.7	1,035.0	581.4
1981	568.2	753.3	420.4	544.6	724.4	401.4	732.6	964.3	549.3	803.9	1,067.7	599.1
1980	585.8	777.2	432.6	559.4	745.3	411.1	774.2	1,015.1	582.6	842.5	1,112.8	631.1
1979	577.0	768.6	423.1	551.9	738.4	402.5	757.1	994.8	566.9	812.1	1,073.3	605.0
1978	595.0	791.4	437.4	569.5	761.1	416.4	780.0	1,021.0	585.8	831.8	1,093.9	622.7
1977	602.1	801.3	441.8	575.7	770.6	419.6	796.7	1,036.1	601.8	849.3	1,112.1	639.6
1976	618.5	820.9	455.0	591.3	789.3	432.5	818.5	1,063.4	618.3	870.5	1,138.3	654.5
1975	630.4	837.2	462.5	602.2	804.3	439.0	840.6	1,090.1	634.5	890.8	1,163.0	670.6
1970	714.3	931.6	532.5	679.6	893.4	501.7	983.4	1,231.4	770.8	1,044.0	1,318.6	814.4
1960	760.9	949.3	590.6	727.0	917.7	555.0	1,046.1	1,211.0	893.3	1,073.3	1,246.1	916.9
1950	841.5	1,001.6	688.4	800.4	963.1	645.0	1,225.7	1,358.5	1,095.7	---	---	---
1940	1,076.1	1,213.0	938.9	1,017.2	1,155.1	879.0	1,634.7	1,764.4	1,504.7	---	---	---

<sup>1</sup> For method of computation, see Technical notes.

Table 2. Deaths and death rates, by age, race, and sex: United States, 1988

[Rates per 100,000 population in specified group]

Age	All races			White			Total			All other		
	Both sexes		Female	Both sexes		Female	Both sexes		Female	Both sexes		Female
	Male	Female		Male	Female		Male	Female		Male	Female	
	Number											
All ages . . . . .	2,167,999	1,125,540	1,042,459	1,876,906	965,419	911,487	291,093	160,121	130,972	264,019	144,228	119,791
Under 1 year . . . . .	38,910	22,007	16,903	25,925	14,878	11,047	12,985	7,129	5,856	11,840	6,503	5,337
1-4 years . . . . .	7,429	4,221	3,208	5,380	3,073	2,307	2,049	1,148	901	1,784	1,016	768
5-9 years . . . . .	4,357	2,574	1,783	3,193	1,889	1,304	1,164	685	479	997	592	405
10-14 years . . . . .	4,568	2,907	1,661	3,460	2,248	1,212	1,108	659	449	947	561	386
15-19 years . . . . .	16,031	11,687	4,344	12,538	9,033	3,505	3,493	2,654	839	2,998	2,312	686
20-24 years . . . . .	22,136	16,844	5,292	16,502	12,589	3,913	5,634	4,255	1,379	4,977	3,744	1,233
25-29 years . . . . .	26,809	19,653	7,156	19,510	14,485	5,025	7,299	5,168	2,131	6,606	4,677	1,929
30-34 years . . . . .	32,328	23,332	8,996	23,031	16,869	6,162	9,297	6,463	2,834	8,556	5,967	2,589
35-39 years . . . . .	36,616	25,433	11,183	26,043	18,285	7,758	10,573	7,148	3,425	9,763	6,632	3,131
40-44 years . . . . .	40,838	27,001	13,837	30,717	20,454	10,263	10,121	6,547	3,574	9,262	6,011	3,251
45-49 years . . . . .	49,684	31,597	18,087	38,143	24,324	13,819	11,541	7,273	4,268	10,481	6,641	3,840
50-54 years . . . . .	67,788	42,318	25,470	53,296	33,489	19,807	14,492	8,829	5,663	13,151	8,040	5,111
55-59 years . . . . .	105,363	65,194	40,169	86,289	53,910	32,379	19,074	11,284	7,790	17,384	10,280	7,104
60-64 years . . . . .	164,386	100,174	64,212	138,357	85,141	53,216	26,029	15,033	10,996	23,769	13,727	10,042
65-69 years . . . . .	221,504	131,931	89,573	190,770	114,474	76,296	30,734	17,457	13,277	28,084	15,850	12,234
70-74 years . . . . .	267,041	151,970	115,071	235,866	135,187	100,679	31,175	16,783	14,392	28,377	15,139	13,238
75-79 years . . . . .	302,580	158,662	143,918	269,922	142,069	127,853	32,658	16,593	16,065	29,622	14,811	14,811
80-84 years . . . . .	299,334	136,059	163,275	272,232	123,668	148,564	27,102	12,391	14,711	24,399	10,811	13,588
85 years and over . . . . .	459,710	151,559	308,151	425,306	139,042	286,264	34,404	12,517	21,887	30,875	10,818	20,057
Not stated . . . . .	587	417	170	426	312	114	161	105	56	147	96	51
	Rate											
All ages <sup>1</sup> . . . . .	882.0	940.0	826.9	905.1	952.2	860.0	757.5	872.7	652.2	874.2	1,006.8	754.5
Under 1 year <sup>2</sup> . . . . .	1,008.3	1,113.7	897.7	832.0	930.5	728.2	1,745.3	1,891.0	1,600.0	1,996.6	2,167.7	1,821.5
1-4 years . . . . .	50.9	56.5	45.0	45.7	51.0	40.2	72.3	79.8	64.6	80.8	90.5	70.7
5-9 years . . . . .	24.2	27.9	20.3	22.0	25.4	18.5	33.0	38.4	27.5	35.8	41.9	29.5
10-14 years . . . . .	27.5	34.1	20.5	25.9	32.8	18.7	33.8	39.5	27.8	36.2	42.3	30.0
15-19 years . . . . .	88.0	125.8	48.7	85.1	120.0	48.6	100.5	150.4	49.1	107.5	164.3	49.6
20-24 years . . . . .	115.4	175.3	55.3	104.4	158.3	49.8	166.7	257.3	79.9	184.1	286.9	88.1
25-29 years . . . . .	122.5	179.5	65.5	106.7	156.8	55.5	203.7	301.3	114.0	233.6	348.5	129.8
30-34 years . . . . .	148.3	214.0	82.6	125.7	182.2	67.9	267.7	392.6	155.1	319.6	475.1	182.3
35-39 years . . . . .	191.3	266.3	115.8	160.2	224.5	95.7	366.5	535.4	221.0	446.6	662.5	264.2
40-44 years . . . . .	253.3	341.1	168.6	220.3	295.7	146.1	463.8	656.7	301.6	570.3	817.8	365.7
45-49 years . . . . .	381.4	496.9	271.3	339.4	438.9	242.6	645.8	891.3	439.5	769.5	1,085.1	511.3
50-54 years . . . . .	608.7	784.7	443.4	555.1	712.8	404.0	944.1	1,270.4	674.2	1,101.4	1,508.4	773.2
55-59 years . . . . .	966.9	1,254.9	704.6	908.8	1,181.7	656.5	1,360.5	1,782.6	1,013.0	1,559.1	2,027.6	1,168.4
60-64 years . . . . .	1,503.4	1,965.7	1,100.1	1,432.7	1,881.6	1,036.9	2,039.9	2,632.7	1,559.7	2,321.2	2,971.2	1,786.8
65-69 years . . . . .	2,216.6	2,903.4	1,643.8	2,146.1	2,820.3	1,580.0	2,783.9	3,599.4	2,144.9	3,137.9	4,053.7	2,432.2
70-74 years . . . . .	3,378.6	4,469.7	2,554.9	3,320.2	4,410.7	2,493.3	3,892.0	5,009.9	3,088.4	4,352.3	5,627.9	3,456.4
75-79 years . . . . .	5,125.9	6,833.0	4,018.9	5,075.6	6,794.3	3,962.0	5,582.6	7,152.2	4,551.0	6,223.1	8,093.4	5,054.9
80-84 years . . . . .	8,271.2	10,781.2	6,927.2	8,222.0	10,763.1	6,871.6	8,799.4	10,965.5	7,583.0	9,759.6	12,147.2	8,439.8
85 years and over . . . . .	15,594.0	18,370.8	14,508.1	15,875.6	18,814.9	14,755.9	12,789.6	14,554.7	11,960.1	13,482.5	15,454.3	12,694.3

<sup>1</sup> Figures for age not stated are included in All ages but not distributed among age groups.

<sup>2</sup> Death rates under 1 year (based on population estimates) differ from infant mortality rates (based on live births); see tables E, 13, 14, 15, 17, and 21 for infant mortality rates, and Technical notes for further discussion of the difference.

Table 3. Abridged life table for the total population, 1988

[For explanation of the columns of the life table, see section 6 of *Vital Statistics of the United States, 1987, Volume II*]

Age interval	Proportion dying	Of 100,000 born alive		Stationary population		Average remaining lifetime
	Proportion of persons alive at beginning of age interval dying during interval (2)	Number living at beginning of age interval (3)	Number dying during age interval (4)	In the age interval (5)	In this and all subsequent age intervals (6)	Average number of years of life remaining at beginning of age interval (7)
						$nq_x$
Period of life between 2 exact ages stated in years (1)						
x to x+n						
0-1	0.0100	100,000	999	99,147	7,494,642	74.9
1-5	0.0020	99,001	198	395,540	7,395,495	74.7
5-10	0.0012	98,803	120	493,688	6,999,955	70.8
10-15	0.0014	98,683	134	493,155	6,506,267	65.9
15-20	0.0044	98,549	431	491,767	6,013,112	61.0
20-25	0.0058	98,118	565	489,206	5,521,345	56.3
25-30	0.0061	97,553	596	486,274	5,032,139	51.6
30-35	0.0074	96,957	717	483,035	4,545,865	46.9
35-40	0.0096	96,240	924	479,021	4,062,830	42.2
40-45	0.0126	95,316	1,204	473,785	3,583,809	37.6
45-50	0.0189	94,112	1,777	466,443	3,110,024	33.0
50-55	0.0300	92,335	2,766	455,194	2,643,581	28.6
55-60	0.0473	89,569	4,238	437,859	2,188,387	24.4
60-65	0.0728	85,331	6,203	411,976	1,750,528	20.5
65-70	0.1055	79,123	8,344	375,656	1,338,552	16.9
70-75	0.1568	70,779	11,096	327,120	962,896	13.6
75-80	0.2288	59,683	13,654	265,113	635,776	10.7
80-85	0.3445	46,029	15,858	190,715	370,663	8.1
85 and over	1.0000	30,171	30,171	179,948	179,948	6.0

Table 4. Life expectancy at birth by race and sex: United States, 1940, 1950, 1960, and 1970-88

Year	All races			White			All other			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
1988	74.9	71.5	78.3	75.6	72.3	78.9	71.2	67.1	75.1	69.2	64.9	73.4
1987	75.0	71.5	78.4	75.6	72.2	78.9	71.3	67.3	75.2	69.4	65.2	73.6
1986	74.8	71.3	78.3	75.4	72.0	78.8	71.2	67.2	75.1	69.4	65.2	73.5
1985	74.7	71.2	78.2	75.3	71.9	78.7	71.2	67.2	75.0	69.5	65.3	73.5
1984	74.7	71.2	78.2	75.3	71.8	78.7	71.3	67.4	75.0	69.7	65.6	73.7
1983	74.6	71.0	78.1	75.2	71.7	78.7	71.1	67.2	74.9	69.6	65.4	73.6
1982	74.5	70.9	78.1	75.1	71.5	78.7	71.0	66.8	75.0	69.4	65.1	73.7
1981	74.2	70.4	77.8	74.8	71.1	78.4	70.3	66.1	74.4	68.9	64.5	73.2
1980	73.7	70.0	77.4	74.4	70.7	78.1	69.5	65.3	73.6	68.1	63.8	72.5
1979	73.9	70.0	77.8	74.6	70.8	78.4	69.8	65.4	74.1	68.5	64.0	72.9
1978	73.5	69.6	77.3	74.1	70.4	78.0	69.3	65.0	73.5	68.1	63.7	72.4
1977	73.3	69.5	77.2	74.0	70.2	77.9	68.9	64.7	73.2	67.7	63.4	72.0
1976	72.9	69.1	76.8	73.6	69.9	77.5	68.4	64.2	72.7	67.2	62.9	71.6
1975	72.6	68.8	76.6	73.4	69.5	77.3	68.0	63.7	72.4	66.8	62.4	71.3
1974	72.0	68.2	75.9	72.8	69.0	76.7	67.1	62.9	71.3	66.0	61.7	70.3
1973	71.4	67.6	75.3	72.2	68.5	76.1	66.1	62.0	70.3	65.0	60.9	69.3
1972 <sup>1</sup>	71.2	67.4	75.1	72.0	68.3	75.9	65.7	61.5	70.1	64.7	60.4	69.1
1971	71.1	67.4	75.0	72.0	68.3	75.8	65.6	61.6	69.8	64.6	60.5	68.9
1970	70.8	67.1	74.7	71.7	68.0	75.6	65.3	61.3	69.4	64.1	60.0	68.3
1960	69.7	66.6	73.1	70.6	67.4	74.1	63.6	61.1	66.3	---	---	---
1950	68.2	65.6	71.1	69.1	66.5	72.2	60.8	59.1	62.9	---	---	---
1940	62.9	60.8	65.2	64.2	62.1	66.6	53.1	51.5	54.9	---	---	---

<sup>1</sup>Deaths based on a 50-percent sample.



**Table 5. Age-specific and age-adjusted death rates for the 15 leading causes in 1988 and selected components: United States, 1979, 1987, and 1988**

[Rates per 100,000 population in specified group. For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	Year	Age											Age-adjusted rate <sup>3</sup>	
		All ages <sup>1</sup>	Under 1 year <sup>2</sup>	1-4 years	5-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years		85 years and over
All causes . . . . .	1988	882.0	1,008.3	50.9	25.8	102.1	135.4	219.6	486.2	1,235.6	2,729.8	6,321.3	15,594.0	535.5
	1987	872.4	1,018.5	51.6	25.6	99.4	133.2	214.1	498.0	1,241.3	2,751.3	6,282.5	15,320.8	535.5
	1979	852.2	1,332.9	64.2	31.5	114.8	133.0	229.8	589.7	1,338.0	2,929.0	6,496.6	14,962.4	577.0
Diseases of heart. . . . .	1988	311.3	22.6	2.4	0.9	2.9	8.2	34.2	131.4	400.9	984.1	2,542.7	7,098.1	166.3
	1987	312.4	25.2	2.2	0.9	2.8	8.4	35.6	140.5	408.8	1,007.9	2,560.0	7,074.2	169.6
	1979	326.5	20.2	2.1	0.8	2.6	8.4	45.3	184.6	499.0	1,199.8	2,925.2	7,310.9	199.5
Rheumatic fever and rheumatic heart disease . . .390-398	1988	2.6	0.2	0.0	0.0	0.1	0.3	0.6	1.8	4.6	10.2	20.5	27.4	1.7
	1987	2.6	0.1	0.1	0.0	0.1	0.4	0.7	1.9	4.7	10.6	20.0	26.2	1.7
	1979	3.5	0.1	0.0	0.0	0.2	0.4	1.4	3.9	8.0	16.0	20.6	25.2	2.6
Hypertensive heart disease. . . . .402	1988	8.5	0.0	0.0	0.0	0.1	0.3	1.5	5.7	13.9	27.5	63.3	160.0	4.9
	1987	8.5	0.0	-	0.0	0.0	0.3	1.6	5.9	14.2	28.4	64.0	157.9	5.0
	1979	9.3	0.0	-	0.0	0.0	0.4	1.9	7.0	16.2	35.7	79.6	170.3	6.0
Hypertensive heart and renal disease . . . . .404	1988	1.0	0.0	-	0.0	0.0	0.1	0.3	1.0	2.6	9.2	25.4	60.5	0.5
	1987	1.0	-	-	0.0	0.0	0.2	0.3	1.0	2.8	9.4	27.3	60.5	0.5
	1979	1.6	-	-	0.0	0.0	0.2	0.4	1.4	5.1	16.8	50.9	109.9	0.9
Ischemic heart disease . . . . .410-414	1988	207.3	0.8	0.1	0.0	0.3	2.7	19.3	84.3	266.9	676.7	1,738.5	4,616.9	110.2
	1987	210.4	0.7	0.1	0.0	0.3	2.8	20.8	92.0	278.6	699.6	1,763.9	4,643.7	113.9
	1979	245.5	0.7	0.1	0.0	0.3	3.6	30.1	136.1	381.0	926.6	2,224.8	5,376.1	149.7
Acute myocardial infarction . . . . .410	1988	100.9	0.4	0.0	0.0	0.2	1.5	11.4	50.4	155.2	374.6	854.3	1,652.2	57.8
	1987	104.2	0.4	0.0	0.0	0.2	1.6	12.3	56.6	165.2	394.4	880.7	1,652.0	60.9
	1979	133.8	0.4	0.0	0.0	0.2	2.4	21.1	94.6	258.9	577.2	1,135.2	1,916.3	88.2
Other acute and subacute forms of ischemic heart disease. . . . .411	1988	1.4	0.1	0.0	-	0.0	0.1	0.3	1.1	2.5	4.8	9.3	24.0	0.8
	1987	1.5	0.0	-	-	0.0	0.1	0.3	1.3	2.9	4.9	10.2	22.8	0.9
	1979	2.1	0.1	-	-	0.0	0.1	0.5	2.0	4.8	8.2	15.3	30.2	1.5
Angina pectoris. . . . .413	1988	0.4	-	-	-	-	0.0	0.0	0.1	0.4	1.4	3.7	10.0	0.2
	1987	0.4	-	-	-	-	0.0	0.0	0.1	0.5	1.3	3.9	10.0	0.2
	1979	0.2	0.0	-	-	0.0	0.0	0.1	0.1	0.3	0.9	2.1	4.6	0.1
Old myocardial infarction and other forms of chronic ischemic heart disease . . . . .412,414	1988	104.6	0.2	0.0	0.0	0.1	1.1	7.5	32.7	108.8	296.0	871.2	2,930.7	51.4
	1987	104.4	0.2	0.0	0.0	0.1	1.1	8.2	34.0	110.1	299.0	869.2	2,958.8	51.9
	1979	109.4	0.2	0.0	0.0	0.1	1.0	8.4	39.3	117.0	340.3	1,072.2	3,424.9	59.9
Other diseases of endocardium . . . . .424	1988	4.8	0.4	0.1	0.0	0.1	0.3	0.7	1.4	4.4	13.5	43.3	117.9	2.4
	1987	4.5	0.5	0.1	0.0	0.1	0.3	0.7	1.6	4.2	12.6	41.7	108.5	2.3
	1979	2.9	0.4	0.0	0.0	0.1	0.2	0.6	1.5	4.3	11.6	27.5	47.1	1.8
All other forms of heart disease . . . . .415-423,425-429	1988	87.1	21.2	2.2	0.8	2.3	4.6	12.0	37.9	110.1	253.6	667.9	2,150.5	46.5
	1987	85.3	23.9	2.0	0.8	2.2	4.7	11.8	38.9	106.1	253.8	660.9	2,110.6	46.1
	1979	63.7	19.0	2.0	0.7	1.9	3.7	11.0	35.7	88.1	204.8	555.9	1,641.4	38.4
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues. . . . .140-208	1988	197.3	2.3	3.7	3.2	5.1	11.9	44.2	160.4	447.3	842.7	1,313.3	1,638.9	132.7
	1987	195.9	2.7	3.8	3.3	5.1	12.4	43.5	164.3	447.0	843.6	1,298.4	1,618.0	132.9
	1979	179.6	3.4	4.6	4.4	6.1	13.3	48.3	181.4	429.4	800.0	1,207.6	1,522.9	130.8
Malignant neoplasms of lip, oral cavity, and pharynx. . . . .140-149	1988	3.3	0.0	-	0.0	0.1	0.1	0.8	4.2	9.9	13.9	16.6	19.6	2.5
	1987	3.3	-	-	0.0	0.1	0.1	0.8	4.0	9.9	13.9	15.7	20.5	2.4
	1979	3.8	-	0.0	0.0	0.1	0.2	1.1	5.6	11.8	16.3	18.1	23.7	3.0
Malignant neoplasms of digestive organs and peritoneum. . . . .150-159	1988	47.8	0.2	0.1	0.0	0.3	1.4	7.3	30.7	96.2	200.7	357.2	532.4	30.0
	1987	48.2	0.1	0.2	0.1	0.3	1.6	7.4	32.0	97.9	204.5	363.0	528.8	30.7
	1979	48.6	0.3	0.1	0.1	0.3	1.8	8.2	36.3	103.9	221.9	388.7	547.8	33.1
Malignant neoplasms of respiratory and intrathoracic organs. . . . .160-165	1988	56.2	0.1	0.0	0.0	0.1	0.7	7.6	50.0	162.2	280.0	324.2	228.5	39.9
	1987	55.5	0.1	0.0	0.0	0.1	0.8	7.7	51.6	160.4	278.1	313.3	221.8	39.7
	1979	45.9	0.0	0.0	0.0	0.1	0.8	9.8	56.0	140.9	231.0	238.1	170.3	35.2

See footnotes at end of table.

**Table 5. Age-specific and age-adjusted death rates for the 15 leading causes in 1988 and selected components: United States, 1979, 1987, and 1988—Con.**

[Rates per 100,000 population in specified group. For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	Year	Age											Age-adjusted rate <sup>3</sup>	
		All ages <sup>1</sup>	Under 1 year <sup>2</sup>	1-4 years	5-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years		85 years and over
Malignant neoplasm of breast . . . . .174-175	1988	17.3	0.0	-	-	0.0	1.5	8.9	23.4	43.4	61.3	90.1	133.6	12.6
	1987	16.9	-	-	-	0.0	1.6	8.9	23.4	43.1	60.9	87.1	127.9	12.5
	1979	15.4	-	-	-	0.0	1.6	9.1	25.3	41.3	56.6	77.4	114.2	12.2
Malignant neoplasms of genital organs . . . . .179-187	1988	21.7	0.1	0.0	0.0	0.3	1.3	3.7	11.0	33.7	89.3	184.6	262.7	13.0
	1987	21.3	-	0.0	0.0	0.3	1.5	3.7	11.5	32.8	88.3	181.1	258.9	12.9
	1979	20.2	0.0	0.0	0.1	0.5	1.6	4.7	14.5	35.6	88.3	176.0	252.0	13.6
Malignant neoplasms of urinary organs . . . . .188-189	1988	7.9	0.1	0.1	0.1	0.1	0.2	1.0	4.9	14.6	33.2	61.6	92.8	4.9
	1987	8.0	0.1	0.1	0.1	0.1	0.2	1.0	5.2	15.3	32.6	63.1	94.1	5.0
	1979	7.8	0.2	0.2	0.2	0.1	0.2	1.1	5.7	15.1	34.6	65.6	97.0	5.2
Malignant neoplasms of all other and unspecified sites . . . . .170-173,190-199	1988	24.9	1.2	1.9	1.5	1.9	3.5	8.8	23.3	55.5	95.4	148.8	201.4	17.5
	1987	24.9	1.4	2.0	1.5	1.9	3.6	8.6	23.5	56.1	96.3	148.7	200.3	17.6
	1979	21.6	1.7	2.2	1.7	2.3	3.7	8.6	24.0	49.8	86.4	130.2	175.8	16.4
Leukemia . . . . .204-208	1988	7.2	0.5	1.3	1.2	1.4	1.3	2.5	4.7	11.0	24.4	50.6	75.7	4.8
	1987	7.1	0.8	1.3	1.4	1.3	1.5	2.4	4.8	11.2	24.5	48.9	75.4	4.9
	1979	7.3	0.8	1.3	1.5	1.3	1.5	2.5	5.0	11.7	25.7	50.2	77.3	5.3
Other malignant neoplasms of lymphatic and hematopoietic tissues . . . . .200-203	1988	11.1	0.1	0.2	0.3	0.8	1.8	3.4	8.2	20.8	44.5	79.6	92.2	7.4
	1987	10.8	0.2	0.1	0.2	0.9	1.7	3.0	8.2	20.5	44.6	77.6	90.3	7.3
	1979	9.1	0.1	0.3	0.4	0.9	1.8	3.0	8.6	19.5	39.5	63.1	66.0	6.7
Cerebrovascular diseases . . . . .430-438	1988	61.2	3.9	0.4	0.2	0.7	2.2	6.9	19.2	51.3	154.7	553.6	1,707.4	29.7
	1987	61.6	3.4	0.4	0.2	0.6	2.2	7.0	20.1	52.2	157.2	562.6	1,733.1	30.3
	1979	75.5	4.6	0.3	0.3	0.9	2.6	9.1	26.4	68.1	226.9	793.8	2,264.9	41.6
Accidents and adverse effects . . . . .E800-E949	1988	39.5	24.3	19.6	12.2	49.5	38.3	32.8	31.1	35.1	50.1	106.5	267.3	35.0
	1987	39.0	25.2	20.2	12.3	48.9	38.4	31.7	30.0	35.5	49.2	106.8	251.9	34.6
	1979	46.9	31.5	26.5	16.1	62.6	45.7	38.4	39.4	43.5	58.8	117.8	276.0	42.9
Motor vehicle accidents . . . . .E810-E825	1988	20.0	5.6	6.9	7.0	38.5	23.9	17.4	15.8	15.7	19.2	30.2	29.1	19.7
	1987	19.8	5.3	6.8	7.0	37.8	24.2	17.3	15.4	15.6	18.5	29.3	27.1	19.5
	1979	23.8	6.5	9.8	8.3	45.6	28.8	21.0	18.6	18.2	20.7	28.7	24.4	23.2
All other accidents and adverse effects . . . . .E800-E807,E826-E949	1988	19.5	18.7	12.7	5.2	11.0	14.4	15.3	15.3	19.4	31.0	76.4	238.2	15.3
	1987	19.2	19.9	13.3	5.3	11.1	14.2	14.4	14.6	19.9	30.6	77.4	224.8	15.2
	1979	23.1	25.0	16.7	7.7	17.0	16.9	17.4	20.8	25.2	38.1	89.2	251.6	19.6
Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	1988	33.7	1.4	0.3	0.3	0.5	0.7	1.8	9.3	48.8	151.9	313.0	394.3	19.4
	1987	32.2	1.4	0.3	0.3	0.5	0.6	1.8	9.2	47.4	145.5	300.4	376.9	18.7
	1979	22.2	1.9	0.5	0.2	0.3	0.5	1.7	9.3	40.2	117.0	200.6	230.2	14.6
Pneumonia and influenza . . . . .480-487	1988	31.6	16.6	1.3	0.4	0.7	1.9	3.8	7.3	18.9	59.9	257.1	1,124.5	14.2
	1987	28.4	17.9	1.4	0.3	0.7	1.8	3.4	7.0	17.6	56.7	234.1	1,002.4	13.1
	1979	20.1	33.0	2.0	0.6	0.8	1.5	3.2	7.1	16.4	47.8	184.2	694.9	11.2
Diabetes mellitus . . . . .250	1988	16.4	0.0	0.1	0.1	0.3	1.5	4.0	10.4	28.0	62.0	125.0	222.1	10.1
	1987	15.8	-	0.1	0.1	0.3	1.4	3.5	9.7	26.9	61.1	123.3	213.4	9.8
	1979	14.8	0.1	0.1	0.1	0.4	1.4	3.6	9.0	25.8	61.3	130.3	211.6	9.8
Suicide . . . . .E950-E959	1988	12.4	...	...	0.7	13.2	15.4	14.8	14.6	15.6	18.4	25.9	20.5	11.4
	1987	12.7	...	...	0.7	12.9	15.4	15.0	15.9	16.6	19.4	25.8	22.1	11.7
	1979	12.1	...	...	0.4	12.4	16.3	15.4	16.5	16.6	17.8	20.8	17.9	11.7
Chronic liver disease and cirrhosis . . . . .571	1988	10.7	0.5	0.0	0.0	0.1	2.4	10.1	19.8	32.0	35.0	32.4	20.0	9.0
	1987	10.8	0.4	0.0	0.0	0.2	2.6	10.0	19.8	32.1	35.1	32.6	20.9	9.1
	1979	13.2	1.0	0.1	0.0	0.2	3.4	13.9	31.0	40.9	41.8	28.3	18.1	12.0
Nephritis, nephrotic syndrome, and nephrosis . . . .580-589	1988	9.1	5.6	0.1	0.1	0.2	0.6	1.4	3.3	9.4	25.6	78.4	217.0	4.8
	1987	9.1	5.8	0.1	0.1	0.2	0.6	1.2	3.3	9.2	26.4	78.9	218.1	4.8
	1979	7.0	6.4	0.2	0.2	0.3	0.7	1.5	3.7	8.5	23.7	64.7	155.2	4.3
Atherosclerosis . . . . .440	1988	9.0	0.0	0.0	-	0.0	0.0	0.2	0.7	3.6	15.1	70.1	396.1	3.4
	1987	9.2	0.0	-	-	0.0	0.0	0.1	0.7	4.0	16.3	73.6	406.5	3.6
	1979	12.8	0.1	-	-	0.0	0.0	0.1	0.9	4.8	24.4	125.3	649.1	5.7

Homicide and legal intervention . . . . .E960-E978	1988	9.0	8.2	2.6	1.3	15.4	16.0	10.9	7.1	5.2	4.2	4.5	4.7	9.0
	1987	8.7	7.2	2.3	1.2	14.0	15.1	10.8	7.7	5.5	4.3	4.8	5.1	8.6
	1979	10.0	5.0	2.5	1.1	14.5	18.2	14.3	10.8	7.0	5.4	4.8	5.0	10.2
Septicemia . . . . .038	1988	8.5	6.3	0.6	0.1	0.3	0.7	1.5	3.2	9.0	23.9	70.7	198.8	4.6
	1987	8.2	6.7	0.6	0.1	0.3	0.7	1.4	3.2	9.1	24.2	66.5	188.8	4.5
	1979	3.6	7.6	0.5	0.1	0.2	0.4	0.8	2.2	4.9	12.4	29.7	70.3	2.3
Certain conditions originating in the perinatal period . . . . .760-779	1988	7.4	467.4	0.9	0.1	0.0	0.0	0.0	0.0	-	-	0.0	0.0	( <sup>4</sup> )
	1987	7.5	479.2	0.8	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	( <sup>4</sup> )
	1979	10.4	680.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	( <sup>4</sup> )
Human immunodeficiency virus infection . . . . .*042-*044	1988	6.8	2.1	0.8	0.2	1.4	13.8	17.5	9.7	4.0	1.6	0.8	0.4	6.6
	1987	5.5	2.3	0.7	0.1	1.3	11.6	14.0	7.9	3.5	1.3	0.8	0.5	5.5
	1979	---	---	---	---	---	---	---	---	---	---	---	---	---

<sup>1</sup>Figures for age not stated are included in "All ages" but not distributed among age groups.

<sup>2</sup>Death rates under 1 year (based on population estimates) differ from infant mortality rates (based on live births); see tables E, 13, 14, 15, 17, and 21 for infant mortality rates, and Technical notes for discussion of the difference.

<sup>3</sup>For method of computation, see Technical notes.

<sup>4</sup>Because deaths from this cause occur primarily among infants, age-adjusted rates are not shown.

Table 6. Deaths and death rates for the 10 leading causes of death in specified race-sex groups: United States, 1988

[Rates per 100,000 population in specified group. For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Rank order <sup>1</sup>	Cause of death, race, and sex (Ninth Revision International Classification of Diseases, 1975)	Number	Rate	Rank order <sup>1</sup>	Cause of death, race, and sex (Ninth Revision International Classification of Diseases, 1975)	Number	Rate
All races, both sexes				All other, male—Con.			
...	All causes	2,167,999	882.0	6	Pneumonia and influenza . . . . .480-487	4,572	24.9
1	Diseases of heart. . . . .390-398,402,404-429	765,156	311.3	7	Human immunodeficiency virus infection. . . . . *042-*044	4,332	23.6
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	485,048	197.3	8	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	4,112	22.4
3	Cerebrovascular diseases . . . . .430-438	150,517	61.2	9	Certain conditions originating in the perinatal period . . . . .760-779	3,908	21.3
4	Accidents and adverse effects . . . . .E800-E949	97,100	39.5	10	Diabetes mellitus . . . . .250	2,967	16.2
...	Motor vehicle accidents . . . . .E810-E825	49,078	20.0	...	All other causes . . . . .Residual	33,602	183.1
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	48,022	19.5	All other, female			
5	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	82,853	33.7	...	All causes	130,972	652.2
6	Pneumonia and influenza . . . . .480-487	77,662	31.6	1	Diseases of heart. . . . .390-398,402,404-429	42,747	212.9
7	Diabetes mellitus . . . . .250	40,368	16.4	2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	26,334	131.1
8	Suicide. . . . .E950-E959	30,407	12.4	3	Cerebrovascular diseases . . . . .430-438	11,375	56.6
9	Chronic liver disease and cirrhosis . . . . .571	26,409	10.7	4	Diabetes mellitus . . . . .250	4,709	23.5
10	Nephritis, nephrotic syndrome, and nephrosis . . . . .580-589	22,392	9.1	5	Accidents and adverse effects . . . . .E800-E949	4,623	23.0
...	All other causes . . . . .Residual	390,087	158.7	...	Motor vehicle accidents . . . . .E810-E825	1,973	9.8
White, male				...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	2,650	13.2
...	All causes	965,419	952.2	6	Pneumonia and influenza . . . . .480-487	3,520	17.5
1	Diseases of heart. . . . .390-398,402,404-429	341,519	336.8	7	Certain conditions originating in the perinatal period . . . . .760-779	3,120	15.5
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	224,514	221.4	8	Nephritis, nephrotic syndrome, and nephrosis . . . . .580-589	2,383	11.9
3	Accidents and adverse effects . . . . .E800-E949	54,435	53.7	9	Homicide and legal intervention . . . . .E960-E978	2,248	11.2
...	Motor vehicle accidents . . . . .E810-E825	29,127	28.7	10	Septicemia . . . . .038	2,120	10.6
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	25,308	25.0	...	All other causes . . . . .Residual	27,793	138.4
4	Cerebrovascular diseases . . . . .430-438	50,692	50.0	Black, male <sup>2</sup>			
5	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	44,827	44.2	...	All causes	144,228	1,006.8
6	Pneumonia and influenza . . . . .480-487	32,262	31.8	1	Diseases of heart. . . . .390-398,402,404-429	39,584	276.3
7	Suicide. . . . .E950-E959	21,980	21.7	2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	30,321	211.7
8	Chronic liver disease and cirrhosis . . . . .571	14,381	14.2	3	Accidents and adverse effects . . . . .E800-E949	9,608	67.1
9	Diabetes mellitus . . . . .250	14,008	13.8	...	Motor vehicle accidents . . . . .E810-E825	4,139	28.9
10	Human immunodeficiency virus infection . . . . . *042-*044	10,479	10.3	...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	5,469	38.2
...	All other causes . . . . .Residual	156,322	154.2	4	Homicide and legal intervention . . . . .E960-E978	8,314	58.0
White, female				5	Cerebrovascular diseases . . . . .430-438	8,098	56.5
...	All causes	911,487	860.0	6	Human immunodeficiency virus infection . . . . . *042-*044	4,202	29.3
1	Diseases of heart. . . . .390-398,402,404-429	337,007	318.0	7	Pneumonia and influenza . . . . .480-487	4,047	28.3
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	200,626	189.3	8	Certain conditions originating in the perinatal period . . . . .760-779	3,693	25.8
3	Cerebrovascular diseases . . . . .430-438	79,383	74.9	9	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	3,644	25.4
4	Pneumonia and influenza . . . . .480-487	37,308	35.2	10	Diabetes mellitus . . . . .250	2,640	18.4
5	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	31,846	30.0	...	All other causes . . . . .Residual	30,077	210.0
6	Accidents and adverse effects . . . . .E800-E949	26,656	25.2	Black, female <sup>2</sup>			
...	Motor vehicle accidents . . . . .E810-E825	12,847	12.1	...	All causes	119,791	754.5
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	13,809	13.0	1	Diseases of heart. . . . .390-398,402,404-429	39,882	251.2
7	Diabetes mellitus . . . . .250	18,684	17.6	2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	23,647	148.9
8	Atherosclerosis . . . . .440	12,732	12.0	3	Cerebrovascular diseases . . . . .430-438	10,381	65.4
9	Septicemia . . . . .038	9,673	9.1	4	Diabetes mellitus . . . . .250	4,332	27.3
10	Nephritis, nephrotic syndrome, and nephrosis . . . . .580-589	9,129	8.6	5	Accidents and adverse effects . . . . .E800-E949	3,879	24.4
...	All other causes . . . . .Residual	148,443	140.1	...	Motor vehicle accidents . . . . .E810-E825	1,484	9.3
All other, male				...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	2,395	15.1
...	All causes	160,121	872.7	6	Pneumonia and influenza . . . . .480-487	3,144	19.8
1	Diseases of heart. . . . .390-398,402,404-429	43,883	239.2	7	Certain conditions originating in the perinatal period . . . . .760-779	2,921	18.4
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	33,574	183.0	8	Nephritis, nephrotic syndrome, and nephrosis . . . . .580-589	2,249	14.2
3	Accidents and adverse effects . . . . .E800-E949	11,386	62.1	9	Homicide and legal intervention . . . . .E960-E978	2,089	13.2
...	Motor vehicle accidents . . . . .E810-E825	5,131	28.0	10	Septicemia . . . . .038	2,011	12.7
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	6,255	34.1	...	All other causes . . . . .Residual	25,256	159.1
4	Cerebrovascular diseases . . . . .430-438	9,067	49.4				
5	Homicide and legal intervention . . . . .E960-E978	8,718	47.5				

<sup>1</sup>Rank based on number of deaths; see Technical notes.

<sup>2</sup>Black included in All other.

Table 7. Deaths and death rates for the 10 leading causes of death in specified age groups: United States, 1988

[Rates per 100,000 population in specified group. For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Rank order <sup>1</sup>	Cause of death and age (Ninth Revision International Classification of Diseases, 1975)	Number	Rate	Rank order <sup>1</sup>	Cause of death and age (Ninth Revision International Classification of Diseases, 1975)	Number	Rate
1-4 years				25-44 years			
...	All causes	7,429	50.9	...	All causes	136,591	173.0
1	Accidents and adverse effects . . . . .E800-E949	2,858	19.6	1	Accidents and adverse effects . . . . .E800-E949	28,279	35.8
...	Motor vehicle accidents . . . . .E810-E825	1,005	6.9	...	Motor vehicle accidents . . . . .E810-E825	16,580	21.0
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	1,853	12.7	...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	11,699	14.8
2	Congenital anomalies . . . . .740-759	913	6.3	2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	20,792	26.3
3	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	542	3.7	3	Diseases of heart. . . . .390-398,402,404-429	15,645	19.8
4	Homicide and legal intervention . . . . .E960-E978	381	2.6	4	Human immunodeficiency virus infection. . . . .*042-*044	12,220	15.5
5	Diseases of heart. . . . .390-398,402,404-429	352	2.4	5	Suicide. . . . .E950-E959	11,915	15.1
6	Pneumonia and influenza . . . . .480-487	186	1.3	6	Homicide and legal intervention . . . . .E960-E978	10,826	13.7
7	Certain conditions originating in the perinatal period . . . . .760-779	129	0.9	7	Chronic liver disease and cirrhosis . . . . .571	4,620	5.9
7	Meningitis . . . . .320-322	129	0.9	8	Cerebrovascular diseases. . . . .430-438	3,392	4.3
9	Human immunodeficiency virus infection. . . . .*042-*044	114	0.8	9	Pneumonia and influenza . . . . .480-487	2,193	2.8
10	Septicemia . . . . .038	89	0.6	10	Diabetes mellitus . . . . .250	2,051	2.6
...	All other causes . . . . .Residual	1,736	11.9	...	All other causes . . . . .Residual	24,658	31.2
5-14 years				45-64 years			
...	All causes	8,925	25.8	...	All causes	387,221	841.9
1	Accidents and adverse effects . . . . .E800-E949	4,215	12.2	1	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	136,422	296.6
...	Motor vehicle accidents . . . . .E810-E825	2,423	7.0	2	Diseases of heart. . . . .390-398,402,404-429	119,272	259.3
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	1,792	5.2	3	Cerebrovascular diseases. . . . .430-438	15,826	34.4
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	1,096	3.2	...	Accidents and adverse effects . . . . .E800-E949	15,177	33.0
3	Congenital anomalies . . . . .740-759	499	1.4	...	Motor vehicle accidents . . . . .E810-E825	7,245	15.8
4	Homicide and legal intervention . . . . .E960-E978	459	1.3	...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	7,932	17.2
5	Diseases of heart. . . . .390-398,402,404-429	324	0.9	5	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	12,918	28.1
6	Suicide. . . . .E950-E959	243	0.7	6	Chronic liver disease and cirrhosis . . . . .571	11,760	25.6
7	Pneumonia and influenza . . . . .480-487	127	0.4	7	Diabetes mellitus . . . . .250	8,611	18.7
8	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	103	0.3	8	Suicide. . . . .E950-E959	6,938	15.1
8	Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature. . . . .210-239	103	0.3	9	Pneumonia and influenza . . . . .480-487	5,895	12.8
10	Cerebrovascular diseases. . . . .430-438	72	0.2	10	Human immunodeficiency virus infection. . . . .*042-*044	3,219	7.0
...	All other causes . . . . .Residual	1,684	4.9	...	All other causes . . . . .Residual	51,183	111.3
15-24 years				65 years and over			
...	All causes	38,167	102.1	...	All causes	1,550,169	5,104.8
1	Accidents and adverse effects . . . . .E800-E949	18,507	49.5	1	Diseases of heart. . . . .390-398,402,404-429	627,494	2,066.4
...	Motor vehicle accidents . . . . .E810-E825	14,406	38.5	2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	324,187	1,067.6
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	4,101	11.0	3	Cerebrovascular diseases. . . . .430-438	130,745	430.5
2	Homicide and legal intervention . . . . .E960-E978	5,771	15.4	4	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	68,614	225.9
3	Suicide. . . . .E950-E959	4,929	13.2	5	Pneumonia and influenza . . . . .480-487	68,343	225.1
4	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . .140-208	1,894	5.1	6	Diabetes mellitus . . . . .250	29,547	97.3
5	Diseases of heart. . . . .390-398,402,404-429	1,090	2.9	...	Accidents and adverse effects . . . . .E800-E949	26,996	88.9
6	Human immunodeficiency virus infection. . . . .*042-*044	535	1.4	...	Motor vehicle accidents . . . . .E810-E825	7,159	23.6
7	Congenital anomalies . . . . .740-759	474	1.3	...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	19,837	65.3
8	Cerebrovascular diseases. . . . .430-438	266	0.7	8	Atherosclerosis. . . . .440	21,055	69.3
8	Pneumonia and influenza . . . . .480-487	266	0.7	9	Nephritis, nephrotic syndrome, and nephrosis . . . . .580-589	18,453	60.8
10	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	178	0.5	10	Septicemia . . . . .038	16,876	55.6
...	All other causes . . . . .Residual	4,257	11.4	...	All other causes . . . . .Residual	217,859	717.4

<sup>1</sup>Rank based on number of deaths; see Technical notes.

Table 8. Deaths from 72 selected causes by age: United States, 1988

[For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	All ages	Under 1 year	1-4 years	5-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85 years and over	Not stated
All causes . . . . .	2,167,999	38,910	7,429	8,925	38,167	59,137	77,454	117,472	269,749	488,545	601,914	459,710	587
Shigellosis and amebiasis . . . . .004,006	15	1	1	3	-	-	1	3	-	-	3	3	-
Certain other intestinal infections . . . . .007-009	305	85	8	2	5	4	4	7	16	40	65	69	-
Tuberculosis . . . . .010-018	1,921	2	3	1	28	106	193	195	278	404	453	256	2
Tuberculosis of respiratory system . . . . .010-012	1,488	-	1	-	12	60	139	154	216	323	367	215	1
Other tuberculosis . . . . .013-018	433	2	2	1	16	46	54	41	62	81	86	41	1
Whooping cough . . . . .033	4	4	-	-	-	-	-	-	-	-	-	-	-
Streptococcal sore throat, scarlatina, and erysipelas . . . . .034-035	13	1	-	1	-	1	-	1	2	3	2	2	-
Meningococcal infection . . . . .036	278	72	68	19	24	20	17	18	12	10	13	5	-
Septicemia . . . . .038	20,925	245	89	51	97	286	543	781	1,954	4,282	6,732	5,862	3
Acute poliomyelitis . . . . .045	1	1	-	-	-	-	-	-	-	-	-	-	-
Measles . . . . .055	3	1	-	-	-	1	1	-	-	-	-	-	-
Viral hepatitis . . . . .070	1,290	6	6	3	32	117	145	156	253	303	212	57	-
Syphilis . . . . .090-097	85	17	-	-	-	5	5	5	7	10	24	12	-
All other infectious and parasitic diseases . . . . .001-003,005,020-032,037,039-041,*042-*044,046-054,056-066,071-088,098-139	23,253	305	219	169	715	6,585	6,895	2,958	1,786	1,625	1,293	699	4
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	485,048	89	542	1,096	1,894	5,211	15,581	38,766	97,656	150,824	125,049	48,314	26
Malignant neoplasms of lip, oral cavity, and pharynx . . . . .140-149	8,199	1	-	5	27	63	288	1,011	2,154	2,487	1,585	577	1
Malignant neoplasms of digestive organs and peritoneum . . . . .150-159	117,416	6	18	16	113	622	2,576	7,424	21,008	35,924	34,012	15,694	3
Malignant neoplasms of respiratory and intrathoracic organs . . . . .160-165	138,253	3	4	9	45	312	2,673	12,069	35,403	50,120	30,870	6,735	10
Malignant neoplasm of breast . . . . .174-175	42,461	1	-	-	13	665	3,148	5,652	9,484	10,978	8,578	3,939	3
Malignant neoplasms of genital organs . . . . .179-187	53,353	2	4	6	114	578	1,321	2,662	7,358	15,984	17,576	7,744	4
Malignant neoplasms of urinary organs . . . . .188-189	19,474	5	20	41	32	96	369	1,184	3,188	5,937	5,865	2,737	-
Malignant neoplasms of all other and unspecified sites . . . . .170-173,190-199	61,130	47	284	513	722	1,518	3,120	5,638	12,114	17,068	14,165	5,937	4
Leukemia . . . . .204-208	17,577	21	187	416	518	580	899	1,134	2,409	4,366	4,814	2,233	-
Other malignant neoplasms of lymphatic and hematopoietic tissues . . . . .200-203	27,185	3	25	90	310	777	1,187	1,992	4,538	7,960	7,584	2,718	1
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . . . . .210-239	6,735	60	69	103	100	194	273	413	842	1,566	1,974	1,140	1
Diabetes mellitus . . . . .250	40,368	1	8	31	119	656	1,395	2,502	6,109	11,092	11,907	6,548	-
Nutritional deficiencies . . . . .260-269	2,985	27	4	4	5	19	40	36	120	355	907	1,468	-
Anemias . . . . .280-285	3,816	27	43	54	110	144	145	135	265	579	1,128	1,186	-
Meningitis . . . . .320-322	1,156	205	129	53	33	62	46	75	122	189	162	80	-
Major cardiovascular diseases . . . . .390-448	969,400	1,033	412	410	1,434	4,802	15,055	37,636	103,090	215,326	312,054	278,026	122
Diseases of heart . . . . .390-398,402,404-429	765,156	871	352	324	1,090	3,575	12,070	31,758	87,514	176,126	242,116	209,252	108
Rheumatic fever and rheumatic heart disease . . . . .390-398	6,421	6	4	10	54	110	222	436	994	1,823	1,952	809	1
Hypertensive heart disease . . . . .402	20,788	1	1	1	25	146	533	1,374	3,031	4,923	6,032	4,716	5
Hypertensive heart and renal disease . . . . .404	2,450	1	-	1	9	13	43	65	225	468	877	748	-
Ischemic heart disease . . . . .410-414	509,592	29	12	14	125	1,165	6,793	20,380	58,267	121,112	165,537	136,106	52
Acute myocardial infarction . . . . .410	247,950	17	4	5	78	655	4,025	12,184	33,875	67,039	81,343	48,706	19
Other acute and subacute forms of ischemic heart disease . . . . .411	3,408	4	1	-	5	26	109	269	541	856	887	708	2
Angina pectoris . . . . .413	1,021	-	-	-	-	1	6	28	95	242	355	294	-
Old myocardial infarction and other forms of chronic ischemic heart disease . . . . .412,414	257,213	8	7	9	42	483	2,653	7,899	23,756	52,975	82,952	86,398	31
Other diseases of endocardium . . . . .424	11,731	16	8	8	30	129	234	338	953	2,413	4,124	3,477	1
All other forms of heart disease . . . . .415-423,425-429	214,174	818	327	290	847	2,012	4,245	9,165	24,044	45,387	63,594	63,396	49
Hypertension with or without renal disease . . . . .401,403	8,456	1	1	1	9	62	159	371	908	1,896	2,735	2,312	1
Cerebrovascular diseases . . . . .430-438	150,517	152	55	72	266	969	2,423	4,630	11,196	27,694	52,716	50,335	9

Intracerebral and other intracranial hemorrhage . . . . .	.431-432	21,242	53	19	31	91	343	909	1,747	3,087	5,265	6,468	3,226	3
Cerebral thrombosis and unspecified occlusion of cerebral arteries . . . . .	.434.0,434.9	21,265	30	10	5	15	66	136	390	1,304	3,782	7,717	7,808	2
Cerebral embolism . . . . .	.434.1	741	1	-	-	-	4	11	14	62	184	262	203	-
All other and late effects of cerebrovascular diseases . . . . .	.430,433,435-438	107,269	68	26	36	160	556	1,367	2,479	6,743	18,463	38,269	39,098	4
Atherosclerosis . . . . .	.440	22,086	1	1	-	2	7	54	176	787	2,699	6,679	11,677	3
Other diseases of arteries, arterioles, and capillaries . . . . .	.441-448	23,185	8	3	13	67	189	349	701	2,685	6,911	7,808	4,450	1
Acute bronchitis and bronchiolitis . . . . .	.466	635	72	22	5	5	8	11	25	44	101	149	193	-
Pneumonia and influenza . . . . .	.480-487	77,662	641	186	127	266	845	1,348	1,771	4,124	10,713	24,481	33,149	11
Pneumonia . . . . .	.480-486	75,719	635	177	122	258	834	1,332	1,739	4,065	10,521	23,915	32,110	11
Influenza . . . . .	.487	1,943	6	9	5	8	11	16	32	59	192	566	1,039	-
Chronic obstructive pulmonary diseases and allied conditions . . . . .	.490-496	82,853	55	44	103	178	300	630	2,259	10,659	27,185	29,806	11,623	11
Bronchitis, chronic and unspecified . . . . .	.490-491	3,720	43	18	4	5	22	35	92	422	1,029	1,249	799	2
Emphysema . . . . .	.492	15,513	3	-	-	1	16	74	402	2,294	5,738	5,369	1,614	2
Asthma . . . . .	.493	4,597	7	19	93	162	231	343	440	785	1,097	991	429	-
Other chronic obstructive pulmonary diseases and allied conditions . . . . .	.494-496	59,023	2	7	6	10	31	178	1,325	7,158	19,321	22,197	8,781	7
Ulcer of stomach and duodenum . . . . .	.531-533	6,435	16	3	5	17	48	144	257	657	1,416	2,140	1,731	1
Appendicitis . . . . .	.540-543	473	3	7	19	7	13	23	25	68	103	123	82	-
Hernia of abdominal cavity and intestinal obstruction without mention of hernia . . . . .	.550-553,560	5,599	77	25	19	19	39	75	156	368	903	1,850	2,066	2
Chronic liver disease and cirrhosis . . . . .	.571	26,409	21	6	2	53	1,057	3,563	4,780	6,980	6,266	3,083	590	8
Cholelithiasis and other disorders of gallbladder . . . . .	.574-575	3,115	4	1	1	5	23	47	83	226	624	1,020	1,081	-
Nephritis, nephrotic syndrome, and nephrosis . . . . .	.580-589	22,392	218	21	20	83	271	479	788	2,058	4,590	7,467	6,396	1
Acute glomerulonephritis and nephrotic syndrome . . . . .	.580-581	310	4	4	1	4	4	9	14	35	68	97	70	-
Chronic glomerulonephritis, nephritis and nephropathy, not specified as acute or chronic, and renal sclerosis, unspecified . . . . .	.582-583,587	1,521	2	4	2	11	43	55	60	137	310	486	411	-
Renal failure, disorders resulting from impaired renal function, and small kidney of unknown cause . . . . .	.584-586,588-589	20,561	212	13	17	68	224	415	714	1,886	4,212	6,884	5,915	1
Infections of kidney . . . . .	.590	1,610	5	3	2	6	18	37	56	91	236	564	591	1
Hyperplasia of prostate . . . . .	.600	454	-	-	-	-	-	-	1	26	71	177	179	-
Complications of pregnancy, childbirth, and the puerperium . . . . .	.630-676	330	...	...	-	111	151	66	2	...	...	...	...	-
Pregnancy with abortive outcome . . . . .	.630-638	61	...	...	-	23	25	13	-	...	...	...	...	-
Other complications of pregnancy, childbirth, and the puerperium . . . . .	.640-676	269	...	...	-	88	126	53	2	...	...	...	...	-
Congenital anomalies . . . . .	.740-759	12,753	8,141	913	499	474	465	411	336	433	490	421	165	5
Certain conditions originating in the perinatal period . . . . .	.760-779	18,220	18,036	129	22	9	9	2	3	-	-	1	1	8
Birth trauma, intrauterine hypoxia, birth asphyxia, and respiratory distress syndrome . . . . .	.767-769	4,222	4,174	29	9	4	3	1	1	-	-	-	-	1
Other conditions originating in the perinatal period . . . . .	.760-766,770-779	13,998	13,862	100	13	5	6	1	2	-	-	1	1	7
Symptoms, signs, and ill-defined conditions . . . . .	.780-799	30,951	6,486	298	168	852	2,117	2,198	1,631	2,578	4,147	5,188	5,198	90
All other diseases . . . . .	.Residual	167,935	1,660	876	943	1,830	4,232	6,855	8,551	16,520	31,868	50,322	44,253	25
Accidents and adverse effects . . . . .	.E800-E949	97,100	936	2,858	4,215	18,507	16,728	11,551	7,514	7,663	8,971	10,145	7,880	132
Motor vehicle accidents . . . . .	.E810-E825	49,078	215	1,005	2,423	14,406	10,433	6,147	3,825	3,420	3,429	2,872	858	45
All other accidents and adverse effects . . . . .	.E800-E807,E826-E949	48,022	721	1,853	1,792	4,101	6,295	5,404	3,689	4,243	5,542	7,273	7,022	87
Suicide . . . . .	.E950-E959	30,407	...	...	243	4,929	6,710	5,205	3,532	3,406	3,296	2,462	605	19
Homicide and legal intervention . . . . .	.E960-E978	22,032	315	381	459	5,771	6,992	3,834	1,727	1,130	760	433	139	91
All other external causes . . . . .	.E980-E999	3,033	42	55	73	449	898	636	288	206	197	104	61	24

**Table 9. Death rates for 72 selected causes by age: United States, 1988**

[Rates per 100,000 population in specified group. For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	All ages <sup>1</sup>	Under 1 year <sup>2</sup>	1-4 years	5-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85 years and over
All causes . . . . .	882.0	1,008.3	50.9	25.8	102.1	135.4	219.6	486.2	1,235.6	2,729.8	6,321.3	15,594.0
Shigellosis and amebiasis . . . . .004,006	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	-	0.0	0.1
Certain other intestinal infections . . . . .007-009	0.1	2.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.7	2.3
Tuberculosis . . . . .010-018	0.8	0.1	0.0	0.0	0.1	0.2	0.5	0.8	1.3	2.3	4.8	8.7
Tuberculosis of respiratory system . . . . .010-012	0.6	-	0.0	-	0.0	0.1	0.4	0.6	1.0	1.8	3.9	7.3
Other tuberculosis . . . . .013-018	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.5	0.9	1.4
Whooping cough . . . . .033	0.0	0.1	-	-	-	-	-	-	-	-	-	-
Streptococcal sore throat, scarlatina, and erysipelas . . . . .034-035	0.0	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.1
Meningococcal infection . . . . .036	0.1	1.9	0.5	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2
Septicemia . . . . .038	8.5	6.3	0.6	0.1	0.3	0.7	1.5	3.2	9.0	23.9	70.7	198.8
Acute poliomyelitis . . . . .045	0.0	0.0	-	-	-	-	-	-	-	-	-	-
Measles . . . . .055	0.0	0.0	-	-	-	0.0	0.0	-	-	-	-	-
Viral hepatitis . . . . .070	0.5	0.2	0.0	0.0	0.1	0.3	0.4	0.6	1.2	1.7	2.2	1.9
Syphilis . . . . .090-097	0.0	0.4	-	-	-	0.0	0.0	0.0	0.0	0.1	0.3	0.4
All other infectious and parasitic diseases . . . . .001-003,005,020-032,037,039-041,*042-*044,046-054,056-066,071-088,098-139	9.5	7.9	1.5	0.5	1.9	15.1	19.6	12.2	8.2	9.1	13.6	23.7
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	197.3	2.3	3.7	3.2	5.1	11.9	44.2	160.4	447.3	842.7	1,313.3	1,638.9
Malignant neoplasms of lip, oral cavity, and pharynx . . . . .140-149	3.3	0.0	-	0.0	0.1	0.1	0.8	4.2	9.9	13.9	16.6	19.6
Malignant neoplasms of digestive organs and peritoneum . . . . .150-159	47.8	0.2	0.1	0.0	0.3	1.4	7.3	30.7	96.2	200.7	357.2	532.4
Malignant neoplasms of respiratory and intrathoracic organs . . . . .160-165	56.2	0.1	0.0	0.0	0.1	0.7	7.6	50.0	162.2	280.0	324.2	228.5
Malignant neoplasm of breast . . . . .174-175	17.3	0.0	-	-	0.0	1.5	8.9	23.4	43.4	61.3	90.1	133.6
Malignant neoplasms of genital organs . . . . .179-187	21.7	0.1	0.0	0.0	0.3	1.3	3.7	11.0	33.7	89.3	184.6	262.7
Malignant neoplasms of urinary organs . . . . .188-189	7.9	0.1	0.1	0.1	0.1	0.2	1.0	4.9	14.6	33.2	61.6	92.8
Malignant neoplasms of all other and unspecified sites . . . . .170-173,190-199	24.9	1.2	1.9	1.5	1.9	3.5	8.8	23.3	55.5	95.4	148.8	201.4
Leukemia . . . . .204-208	7.2	0.5	1.3	1.2	1.4	1.3	2.5	4.7	11.0	24.4	50.6	75.7
Other malignant neoplasms of lymphatic and hematopoietic tissues . . . . .200-203	11.1	0.1	0.2	0.3	0.8	1.8	3.4	8.2	20.8	44.5	79.6	92.2
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . . . . .210-239	2.7	1.6	0.5	0.3	0.3	0.4	0.8	1.7	3.9	8.8	20.7	38.7
Diabetes mellitus . . . . .250	16.4	0.0	0.1	0.1	0.3	1.5	4.0	10.4	28.0	62.0	125.0	222.1
Nutritional deficiencies . . . . .260-269	1.2	0.7	0.0	0.0	0.0	0.0	0.1	0.1	0.5	2.0	9.5	49.8
Anemias . . . . .280-285	1.6	0.7	0.3	0.2	0.3	0.3	0.4	0.6	1.2	3.2	11.8	40.2
Meningitis . . . . .320-322	0.5	5.3	0.9	0.2	0.1	0.1	0.1	0.3	0.6	1.1	1.7	2.7
Major cardiovascular diseases . . . . .390-448	394.4	26.8	2.8	1.2	3.8	11.0	42.7	155.8	472.2	1,203.1	3,277.2	9,431.0
Diseases of heart . . . . .390-398,402,404-429	311.3	22.6	2.4	0.9	2.9	8.2	34.2	131.4	400.9	984.1	2,542.7	7,098.1
Rheumatic fever and rheumatic heart disease . . . . .390-398	2.6	0.2	0.0	0.0	0.1	0.3	0.6	1.8	4.6	10.2	20.5	27.4
Hypertensive heart disease . . . . .402	8.5	0.0	0.0	0.0	0.1	0.3	1.5	5.7	13.9	27.5	63.3	160.0
Hypertensive heart and renal disease . . . . .404	1.0	0.0	-	0.0	0.0	0.0	0.1	0.3	1.0	2.6	9.2	25.4
Ischemic heart disease . . . . .410-414	207.3	0.8	0.1	0.0	0.3	2.7	19.3	84.3	266.9	676.7	1,738.5	4,616.9
Acute myocardial infarction . . . . .410	100.9	0.4	0.0	0.0	0.2	1.5	11.4	50.4	155.2	374.6	854.3	1,652.2
Other acute and subacute forms of ischemic heart disease . . . . .411	1.4	0.1	0.0	-	0.0	0.1	0.3	1.1	2.5	4.8	9.3	24.0
Angina pectoris . . . . .413	0.4	-	-	-	-	0.0	0.0	0.1	0.4	1.4	3.7	10.0
Old myocardial infarction and other forms of chronic ischemic heart disease . . . . .412,414	104.6	0.2	0.0	0.0	0.1	1.1	7.5	32.7	108.8	296.0	871.2	2,930.7
Other diseases of endocardium . . . . .424	4.8	0.4	0.1	0.0	0.1	0.3	0.7	1.4	4.4	13.5	43.3	117.9
All other forms of heart disease . . . . .415-423,425-429	87.1	21.2	2.2	0.8	2.3	4.6	12.0	37.9	110.1	253.6	667.9	2,150.5
Hypertension with or without renal disease . . . . .401,403	3.4	0.0	0.0	0.0	0.0	0.1	0.5	1.5	4.2	10.6	28.7	78.4
Cerebrovascular diseases . . . . .430-438	61.2	3.9	0.4	0.2	0.7	2.2	6.9	19.2	51.3	154.7	553.6	1,707.4



Intracerebral and other intracranial hemorrhage . . . . .	.431-432	8.6	1.4	0.1	0.1	0.2	0.8	2.6	7.2	14.1	29.4	67.9	109.4
Cerebral thrombosis and unspecified occlusion of cerebral arteries . . . . .	.434,0,434.9	8.7	0.8	0.1	0.0	0.0	0.2	0.4	1.6	6.0	21.1	81.0	264.9
Cerebral embolism . . . . .	.434.1	0.3	0.0	-	-	-	0.0	0.0	0.1	0.3	1.0	2.8	6.9
All other and late effects of cerebrovascular diseases . . . . .	.430,433,435-438	43.6	1.8	0.2	0.1	0.4	1.3	3.9	10.3	30.9	103.2	401.9	1,326.3
Atherosclerosis . . . . .	.440	9.0	0.0	0.0	-	0.0	0.0	0.2	0.7	3.6	15.1	70.1	396.1
Other diseases of arteries, arterioles, and capillaries . . . . .	.441-448	9.4	0.2	0.0	0.0	0.2	0.4	1.0	2.9	12.3	38.6	82.0	150.9
Acute bronchitis and bronchiolitis . . . . .	.466	0.3	1.9	0.2	0.0	0.0	0.0	0.1	0.2	0.6	1.6	6.5	6.5
Pneumonia and influenza . . . . .	.480-487	31.6	16.6	1.3	0.4	0.7	1.9	3.8	7.3	18.9	59.9	257.1	1,124.5
Pneumonia . . . . .	.480-486	30.8	16.5	1.2	0.4	0.7	1.9	3.8	7.2	18.6	58.8	251.2	1,089.2
Influenza . . . . .	.487	0.8	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.3	1.1	5.9	35.2
Chronic obstructive pulmonary diseases and allied conditions . . . . .	.490-496	33.7	1.4	0.3	0.3	0.5	0.7	1.8	9.3	48.8	151.9	313.0	394.3
Bronchitis, chronic and unspecified . . . . .	.490-491	1.5	1.1	0.1	0.0	0.0	0.1	0.1	0.4	1.9	5.7	13.1	27.1
Emphysema . . . . .	.492	6.3	0.1	-	-	0.0	0.0	0.2	1.7	10.5	32.1	56.4	54.7
Asthma . . . . .	.493	1.9	0.2	0.1	0.3	0.4	0.5	1.0	1.8	3.6	6.1	10.4	14.6
Other chronic obstructive pulmonary diseases and allied conditions . . . . .	.494-496	24.0	0.1	0.0	0.0	0.0	0.1	0.5	5.5	32.8	108.0	233.1	297.9
Ulcer of stomach and duodenum . . . . .	.531-533	2.6	0.4	0.0	0.0	0.0	0.1	0.4	1.1	3.0	7.9	22.5	58.7
Appendicitis . . . . .	.540-543	0.2	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.3	0.6	1.3	2.8
Hernia of abdominal cavity and intestinal obstruction without mention of hernia . . . . .	.550-553,560	2.3	2.0	0.2	0.1	0.1	0.1	0.2	0.6	1.7	5.0	19.4	70.1
Chronic liver disease and cirrhosis . . . . .	.571	10.7	0.5	0.0	0.0	0.1	2.4	10.1	19.8	32.0	35.0	32.4	20.0
Cholelithiasis and other disorders of gallbladder . . . . .	.574-575	1.3	0.1	0.0	0.0	0.0	0.1	0.1	0.3	1.0	3.5	10.7	36.7
Nephritis, nephrotic syndrome, and nephrosis . . . . .	.580-589	9.1	5.6	0.1	0.1	0.2	0.6	1.4	3.3	9.4	25.6	78.4	217.0
Acute glomerulonephritis and nephrotic syndrome . . . . .	.580-581	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	1.0	2.4
Chronic glomerulonephritis, nephritis and nephropathy, not specified as acute or chronic, and renal sclerosis, unspecified . . . . .	.582-583,587	0.6	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.6	1.7	5.1	13.9
Renal failure, disorders resulting from impaired renal function, and small kidney of unknown cause . . . . .	.584-586,588-589	8.4	5.5	0.1	0.0	0.2	0.5	1.2	3.0	8.6	23.5	72.3	200.6
Infections of kidney . . . . .	.590	0.7	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.4	1.3	5.9	20.0
Hyperplasia of prostate . . . . .	.600	0.2	-	-	-	-	-	-	0.0	0.1	0.4	1.9	6.1
Complications of pregnancy, childbirth, and the puerperium . . . . .	.630-676	0.1	...	...	-	0.3	0.3	0.2	0.0	...	...	...	...
Pregnancy with abortive outcome . . . . .	.630-638	0.0	...	...	-	0.1	0.1	0.0	-	...	...	...	...
Other complications of pregnancy, childbirth, and the puerperium . . . . .	.640-676	0.1	...	...	-	0.2	0.3	0.2	0.0	...	...	...	...
Congenital anomalies . . . . .	.740-759	5.2	211.0	6.3	1.4	1.3	1.1	1.2	1.4	2.0	2.7	4.4	5.6
Certain conditions originating in the perinatal period . . . . .	.760-779	7.4	467.4	0.9	0.1	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Birth trauma, intrauterine hypoxia, birth asphyxia, and respiratory distress syndrome . . . . .	.767-769	1.7	108.2	0.2	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Other conditions originating in the perinatal period . . . . .	.760-766,770-779	5.7	359.2	0.7	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Symptoms, signs, and ill-defined conditions . . . . .	.780-799	12.6	168.1	2.0	0.5	2.3	4.8	6.2	6.8	11.8	23.2	54.5	176.3
All other diseases . . . . .	.Residual	68.3	43.0	6.0	2.7	4.9	9.7	19.4	35.4	75.7	178.1	528.5	1,501.1
Accidents and adverse effects . . . . .	.E800-E949	39.5	24.3	19.6	12.2	49.5	38.3	32.8	31.1	35.1	50.1	106.5	267.3
Motor vehicle accidents . . . . .	.E810-E825	20.0	5.6	6.9	7.0	38.5	23.9	17.4	15.8	15.7	19.2	30.2	29.1
All other accidents and adverse effects . . . . .	.E800-E807,E826-E949	19.5	18.7	12.7	5.2	11.0	14.4	15.3	15.3	19.4	31.0	76.4	238.2
Suicide . . . . .	.E950-E959	12.4	...	...	0.7	13.2	15.4	14.8	14.6	15.6	18.4	25.9	20.5
Homicide and legal intervention . . . . .	.E960-E978	9.0	8.2	2.6	1.3	15.4	16.0	10.9	7.1	5.2	4.2	4.5	4.7
All other external causes . . . . .	.E980-E999	1.2	1.1	0.4	0.2	1.2	2.1	1.8	1.2	0.9	1.1	1.1	2.1

<sup>1</sup>Figures for age not stated included in All ages but not distributed among age groups.

<sup>2</sup>Death rates under 1 year (based on population estimates) differ from infant mortality rates (based on live births); see tables E, 13, 14, 15, 17, and 21 for infant mortality rates, and Technical notes for further discussion of the difference.

**Table 10. Deaths from 72 selected causes by race and sex: United States, 1988**

[For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	All races			White			All other					
	Both sexes		Female	Both sexes		Female	Total			Black		
	Male	Female		Male	Female		Both sexes	Male	Female	Both sexes	Male	Female
All causes . . . . .	2,167,999	1,125,540	1,042,459	1,876,906	965,419	911,487	291,093	160,121	130,972	264,019	144,228	119,791
Shigellosis and amebiasis . . . . .004,006	15	5	10	8	2	6	7	3	4	2	-	2
Certain other intestinal infections . . . . .007-009	305	133	172	239	99	140	66	34	32	57	29	28
Tuberculosis . . . . .010-018	1,921	1,221	700	1,172	730	442	749	491	258	641	422	219
Tuberculosis of respiratory system . . . . .010-012	1,488	986	502	957	611	346	531	375	156	454	319	135
Other tuberculosis . . . . .013-018	433	235	198	215	119	96	218	116	102	187	103	84
Whooping cough . . . . .033	4	2	2	3	2	1	1	-	1	1	-	1
Streptococcal sore throat, scarlatina, and erysipelas . . . . .034-035	13	6	7	12	6	6	1	-	1	1	-	1
Meningococcal infection . . . . .036	278	143	135	198	102	96	80	41	39	71	37	34
Septicemia . . . . .038	20,925	9,132	11,793	16,943	7,270	9,673	3,982	1,862	2,120	3,740	1,729	2,011
Acute poliomyelitis . . . . .045	1	1	-	1	1	-	-	-	-	-	-	-
Measles . . . . .055	3	1	2	3	1	2	-	-	-	-	-	-
Viral hepatitis . . . . .070	1,290	768	522	1,056	647	409	234	121	113	162	79	83
Syphilis . . . . .090-097	85	51	34	40	25	15	45	26	19	45	26	19
All other infectious and parasitic diseases . .001-003,005,020-032,037,039-041,*042-*044, 046-054,056-066,071-088,098-139	23,253	18,459	4,794	16,496	13,322	3,174	6,757	5,137	1,620	6,491	4,941	1,550
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	485,048	258,088	226,960	425,140	224,514	200,626	59,908	33,574	26,334	53,968	30,321	23,647
Malignant neoplasms of lip, oral cavity, and pharynx . . . . .140-149	8,199	5,497	2,702	6,816	4,462	2,354	1,383	1,035	348	1,242	939	303
Malignant neoplasms of digestive organs and peritoneum . . . . .150-159	117,416	61,875	55,541	101,206	52,903	48,303	16,210	8,972	7,238	14,141	7,732	6,409
Malignant neoplasms of respiratory and intrathoracic organs . . . . .160-165	138,253	91,873	46,380	121,941	80,166	41,775	16,312	11,707	4,605	14,938	10,784	4,154
Malignant neoplasm of breast . . . . .174-175	42,461	289	42,172	37,556	229	37,327	4,905	60	4,845	4,525	58	4,467
Malignant neoplasms of genital organs . . . . .179-187	53,353	29,560	23,793	45,214	24,694	20,520	8,139	4,866	3,273	7,564	4,631	2,933
Malignant neoplasms of urinary organs . . . . .188-189	19,474	12,389	7,085	17,700	11,366	6,334	1,774	1,023	751	1,602	912	690
Malignant neoplasms of all other and unspecified sites . . . . .170-173,190-199	61,130	32,813	28,317	54,510	29,319	25,191	6,620	3,494	3,126	5,934	3,144	2,790
Leukemia . . . . .204-208	17,577	9,724	7,853	15,854	8,785	7,069	1,723	939	784	1,478	806	672
Other malignant neoplasms of lymphatic and hematopoietic tissues . . . . .200-203	27,185	14,068	13,117	24,343	12,590	11,753	2,842	1,478	1,364	2,544	1,315	1,229
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . . . . .210-239	6,735	3,012	3,723	5,870	2,639	3,231	865	373	492	784	330	454
Diabetes mellitus . . . . .250	40,368	16,975	23,393	32,692	14,008	18,684	7,676	2,967	4,709	6,972	2,640	4,332
Nutritional deficiencies . . . . .260-269	2,985	1,096	1,889	2,526	884	1,642	459	212	247	420	195	225
Anemias . . . . .280-285	3,816	1,614	2,202	3,034	1,247	1,787	782	367	415	731	337	394
Meningitis . . . . .320-322	1,156	601	555	808	402	406	348	199	149	326	185	141
Major cardiovascular diseases . . . . .390-448	969,400	470,857	498,543	856,367	415,222	441,145	113,033	55,635	57,398	103,426	50,087	53,339
Diseases of heart . . . . .390-398,402,404-429	765,156	385,402	379,754	678,526	341,519	337,007	86,630	43,883	42,747	79,466	39,584	39,882
Rheumatic fever and rheumatic heart disease . .390-398	6,421	1,945	4,476	5,874	1,746	4,128	547	199	348	426	154	272
Hypertensive heart disease . . . . .402	20,788	8,850	11,938	14,901	6,099	8,802	5,887	2,751	3,136	5,626	2,607	3,019
Hypertensive heart and renal disease . . . . .404	2,450	994	1,456	1,771	702	1,069	679	292	387	658	277	381
Ischemic heart disease . . . . .410-414	509,592	264,505	245,087	463,674	241,284	222,390	45,918	23,221	22,697	41,419	20,430	20,989
Acute myocardial infarction . . . . .410	247,950	135,884	112,066	225,262	124,278	100,984	22,688	11,606	11,082	20,393	10,197	10,196
Other acute and subacute forms of ischemic heart disease . . . . .411	3,408	1,955	1,453	2,915	1,661	1,254	493	294	199	465	274	191
Angina pectoris . . . . .413	1,021	455	566	927	413	514	94	42	52	91	41	50
Old myocardial infarction and other forms of chronic ischemic heart disease . . . . .412,414	257,213	126,211	131,002	234,570	114,932	119,638	22,643	11,279	11,364	20,470	9,918	10,552
Other diseases of endocardium . . . . .424	11,731	5,185	6,546	10,687	4,680	6,007	1,044	505	539	904	428	476
All other forms of heart disease . . . . .415-423,425-429	214,174	103,923	110,251	181,619	87,008	94,611	32,555	16,915	15,640	30,433	15,688	14,745
Hypertension with or without renal disease . . . .401,403	8,456	3,555	4,901	6,433	2,749	3,684	2,023	806	1,217	1,926	747	1,179

Cerebrovascular diseases . . . . .	.430-438	150,517	59,759	90,758	130,075	50,692	79,383	20,442	9,067	11,375	18,479	8,098	10,381
Intracerebral and other intracranial hemorrhage . . . . .	.431-432	21,242	9,736	11,506	17,288	7,687	9,601	3,954	2,049	1,905	3,450	1,787	1,663
Cerebral thrombosis and unspecified occlusion of cerebral arteries . . . . .	.434.0,434.9	21,265	8,303	12,962	18,825	7,237	11,588	2,440	1,066	1,374	2,233	965	1,268
Cerebral embolism . . . . .	.434.1	741	309	432	682	280	402	59	29	30	49	23	26
All other and late effects of cerebrovascular diseases . . . . .	.430,433,435-438	107,269	41,411	65,858	93,280	35,488	57,792	13,989	5,923	8,066	12,747	5,323	7,424
Atherosclerosis . . . . .	.440	22,086	8,327	13,759	20,261	7,529	12,732	1,825	798	1,027	1,694	739	955
Other diseases of arteries, arterioles, and capillaries . . . . .	.441-448	23,185	13,814	9,371	21,072	12,733	8,339	2,113	1,081	1,032	1,861	919	942
Acute bronchitis and bronchiolitis . . . . .	.466	635	281	354	564	246	318	71	35	36	62	32	30
Pneumonia and influenza . . . . .	.480-487	77,662	36,834	40,828	69,570	32,262	37,308	8,092	4,572	3,520	7,191	4,047	3,144
Pneumonia . . . . .	.480-486	75,719	36,161	39,558	67,705	31,622	36,083	8,014	4,539	3,475	7,122	4,019	3,103
Influenza . . . . .	.487	1,943	673	1,270	1,865	640	1,225	78	33	45	69	28	41
Chronic obstructive pulmonary diseases and allied conditions . . . . .	.490-496	82,853	48,939	33,914	76,673	44,827	31,846	6,180	4,112	2,068	5,476	3,644	1,832
Bronchitis, chronic and unspecified . . . . .	.490-491	3,720	1,992	1,728	3,491	1,850	1,641	229	142	87	193	121	72
Emphysema . . . . .	.492	15,513	9,686	5,827	14,589	8,953	5,636	924	733	191	816	648	168
Asthma . . . . .	.493	4,597	1,822	2,775	3,473	1,299	2,174	1,124	523	601	1,012	460	552
Other chronic obstructive pulmonary diseases and allied conditions . . . . .	.494-496	59,023	35,439	23,584	55,120	32,725	22,395	3,903	2,714	1,189	3,455	2,415	1,040
Ulcer of stomach and duodenum . . . . .	.531-533	6,435	3,182	3,253	5,787	2,807	2,980	648	375	273	560	324	236
Appendicitis . . . . .	.540-543	473	241	232	368	181	187	105	60	45	99	57	42
Hernia of abdominal cavity and intestinal obstruction without mention of hernia . . . . .	.550-553,560	5,599	2,041	3,558	4,866	1,706	3,160	733	335	398	695	312	383
Chronic liver disease and cirrhosis . . . . .	.571	26,409	17,196	9,213	21,924	14,381	7,543	4,485	2,815	1,670	3,903	2,476	1,427
Cholelithiasis and other disorders of gallbladder . . . . .	.574-575	3,115	1,385	1,730	2,789	1,243	1,546	326	142	184	264	107	157
Nephritis, nephrotic syndrome, and nephrosis . . . . .	.580-589	22,392	10,880	11,512	17,915	8,786	9,129	4,477	2,094	2,383	4,157	1,908	2,249
Acute glomerulonephritis and nephrotic syndrome . . . . .	.580-581	310	158	152	249	131	118	61	27	34	59	27	32
Chronic glomerulonephritis, nephritis and nephropathy, not specified as acute or chronic, and renal sclerosis, unspecified . . . . .	.582-583,587	1,521	793	728	1,250	644	606	271	149	122	241	133	108
Renal failure, disorders resulting from impaired renal function, and small kidney of unknown cause . . . . .	.584-586,588-589	20,561	9,929	10,632	16,416	8,011	8,405	4,145	1,918	2,227	3,857	1,748	2,109
Infections of kidney . . . . .	.590	1,610	496	1,114	1,415	414	1,001	195	82	113	175	74	101
Hyperplasia of prostate . . . . .	.600	454	454	...	391	391	...	63	63	...	58	58	...
Complications of pregnancy, childbirth, and the puerperium . . . . .	.630-676	330	...	330	180	...	180	150	...	150	131	...	131
Pregnancy with abortive outcome . . . . .	.630-638	61	...	61	23	...	23	38	...	38	35	...	35
Other complications of pregnancy, childbirth, and the puerperium . . . . .	.640-676	269	...	269	157	...	157	112	...	112	96	...	96
Congenital anomalies . . . . .	.740-759	12,753	6,775	5,978	10,334	5,491	4,843	2,419	1,284	1,135	2,019	1,069	950
Certain conditions originating in the perinatal period . . . . .	.760-779	18,220	10,393	7,827	11,192	6,485	4,707	7,028	3,908	3,120	6,614	3,693	2,921
Birth trauma, intrauterine hypoxia, birth asphyxia, and respiratory distress syndrome . . . . .	.767-769	4,222	2,508	1,714	2,861	1,747	1,114	1,361	761	600	1,256	703	553
Other conditions originating in the perinatal period . . . . .	.760-766,770-779	13,998	7,885	6,113	8,331	4,738	3,593	5,667	3,147	2,520	5,358	2,990	2,368
Symptoms, signs, and ill-defined conditions . . . . .	.780-799	30,951	16,969	13,982	24,060	12,947	11,113	6,891	4,022	2,869	6,353	3,692	2,661
All other diseases . . . . .	.Residual	167,935	78,490	89,445	144,073	66,100	77,973	23,862	12,390	11,472	21,797	11,263	10,534
Accidents and adverse effects . . . . .	.E800-E949	97,100	65,821	31,279	81,091	54,435	26,656	16,009	11,386	4,623	13,487	9,608	3,879
Motor vehicle accidents . . . . .	.E810-E825	49,078	34,258	14,820	41,974	29,127	12,847	7,104	5,131	1,973	5,623	4,139	1,484
All other accidents and adverse effects . . . . .	.E800-E807,E826-E949	48,022	31,563	16,459	39,117	25,308	13,809	8,905	6,255	2,650	7,864	5,469	2,395
Suicide . . . . .	.E950-E959	30,407	24,078	6,329	27,790	21,980	5,810	2,617	2,098	519	2,022	1,648	374
Homicide and legal intervention . . . . .	.E960-E978	22,032	16,712	5,320	11,066	7,994	3,072	10,966	8,718	2,248	10,403	8,314	2,089
All other external causes . . . . .	.E980-E999	3,033	2,208	825	2,250	1,620	630	783	588	195	715	544	171

Table 11. Death rates for 72 selected causes by race and sex: United States, 1988

[Rates per 100,000 population in specified group. For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	All races						All other					
				White			Total			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All causes	882.0	940.0	826.9	905.1	952.2	860.0	757.5	872.7	652.2	874.2	1,006.8	754.5
Shigellosis and amebiasis . . . . .004,006	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—	0.0
Certain other intestinal infections . . . . .007-009	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Tuberculosis . . . . .010-018	0.8	1.0	0.6	0.6	0.7	0.4	1.9	2.7	1.3	2.1	2.9	1.4
Tuberculosis of respiratory system . . . . .010-012	0.6	0.8	0.4	0.5	0.6	0.3	1.4	2.0	0.8	1.5	2.2	0.9
Other tuberculosis . . . . .013-018	0.2	0.2	0.2	0.1	0.1	0.1	0.6	0.6	0.5	0.6	0.7	0.5
Whooping cough . . . . .033	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—	0.0	0.0	—	0.0
Streptococcal sore throat, scarlatina, and erysipelas . . . . .034-035	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—	0.0	0.0	—	0.0
Meningococcal infection . . . . .036	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2
Septicemia . . . . .038	8.5	7.6	9.4	8.2	7.2	9.1	10.4	10.1	10.6	12.4	12.1	12.7
Acute poliomyelitis . . . . .045	0.0	0.0	—	0.0	0.0	—	—	—	—	—	—	—
Measles . . . . .055	0.0	0.0	0.0	0.0	0.0	0.0	—	—	—	—	—	—
Viral hepatitis . . . . .070	0.5	0.6	0.4	0.5	0.6	0.4	0.6	0.7	0.6	0.5	0.6	0.5
Syphilis . . . . .090-097	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1
All other infectious and parasitic diseases . . . . .001-003,005,020-032,037,039-041,*042-*044, 046-054,056-066,071-088,098-139	9.5	15.4	3.8	8.0	13.1	3.0	17.6	28.0	8.1	21.5	34.5	9.8
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	197.3	215.5	180.0	205.0	221.4	189.3	155.9	183.0	131.1	178.7	211.7	148.9
Malignant neoplasms of lip, oral cavity, and pharynx . . . . .140-149	3.3	4.6	2.1	3.3	4.4	2.2	3.6	5.6	1.7	4.1	6.6	1.9
Malignant neoplasms of digestive organs and peritoneum . . . . .150-159	47.8	51.7	44.1	48.8	52.2	45.6	42.2	48.9	36.0	46.8	54.0	40.4
Malignant neoplasms of respiratory and intrathoracic organs . . . . .160-165	56.2	76.7	36.8	58.8	79.1	39.4	42.4	63.8	22.9	49.5	75.3	26.2
Malignant neoplasm of breast . . . . .174-175	17.3	0.2	33.5	18.1	0.2	35.2	12.8	0.3	24.1	15.0	0.4	28.1
Malignant neoplasms of genital organs . . . . .179-187	21.7	24.7	18.9	21.8	24.4	19.4	21.2	26.5	16.3	25.0	32.3	18.5
Malignant neoplasms of urinary organs . . . . .188-189	7.9	10.3	5.6	8.5	11.2	6.0	4.6	5.6	3.7	5.3	6.4	4.3
Malignant neoplasms of all other and unspecified sites . . . . .170-173,190-199	24.9	27.4	22.5	26.3	28.9	23.8	17.2	19.0	15.6	19.6	21.9	17.6
Leukemia . . . . .204-208	7.2	8.1	6.2	7.6	8.7	6.7	4.5	5.1	3.9	4.9	5.6	4.2
Other malignant neoplasms of lymphatic and hematopoietic tissues . . . . .200-203	11.1	11.7	10.4	11.7	12.4	11.1	7.4	8.1	6.8	8.4	9.2	7.7
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . . . . .210-239	2.7	2.5	3.0	2.8 <sup>6</sup>	2.6	3.0	2.3	2.0	2.5	2.6	2.3	2.9
Diabetes mellitus . . . . .250	16.4	14.2	18.6	15.8	13.8	17.6	20.0	16.2	23.5	23.1	18.4	27.3
Nutritional deficiencies . . . . .260-269	1.2	0.9	1.5	1.2	0.9	1.5	1.2	1.2	1.2	1.4	1.4	1.4
Anemias . . . . .280-285	1.6	1.3	1.7	1.5	1.2	1.7	2.0	2.0	2.1	2.4	2.4	2.5
Meningitis . . . . .320-322	0.5	0.5	0.4	0.4	0.4	0.4	0.9	1.1	0.7	1.1	1.3	0.9
Major cardiovascular diseases . . . . .390-448	394.4	393.2	395.5	413.0	409.5	416.2	294.1	303.2	285.8	342.4	349.6	336.0
Diseases of heart . . . . .390-398,402,404-429	311.3	321.9	301.2	327.2	336.8	318.0	225.4	239.2	212.9	263.1	276.3	251.2
Rheumatic fever and rheumatic heart disease . . . . .390-398	2.6	1.6	3.6	2.8	1.7	3.9	1.4	1.1	1.7	1.4	1.1	1.7
Hypertensive heart disease . . . . .402	8.5	7.4	9.5	7.2	6.0	8.3	15.3	15.0	15.6	18.6	18.2	19.0
Hypertensive heart and renal disease . . . . .404	1.0	0.8	1.2	0.9	0.7	1.0	1.8	1.6	1.9	2.2	1.9	2.4
Ischemic heart disease . . . . .410-414	207.3	220.9	194.4	223.6	238.0	209.8	119.5	126.6	113.0	137.1	142.6	132.2
Acute myocardial infarction . . . . .410	100.9	113.5	88.9	108.6	122.6	95.3	59.0	63.3	55.2	67.5	71.2	64.2
Other acute and subacute forms of ischemic heart disease . . . . .411	1.4	1.6	1.2	1.4	1.6	1.2	1.3	1.6	1.0	1.5	1.9	1.2
Angina pectoris . . . . .413	0.4	0.4	0.4	0.4	0.4	0.5	0.2	0.2	0.3	0.3	0.3	0.3
Old myocardial infarction and other forms of chronic ischemic heart disease . . . . .412,414	104.6	105.4	103.9	113.1	113.4	112.9	58.9	61.5	56.6	67.8	69.2	66.5
Other diseases of endocardium . . . . .424	4.8	4.3	5.2	5.2	4.6	5.7	2.7	2.8	2.7	3.0	3.0	3.0
All other forms of heart disease . . . . .415-423,425-429	87.1	86.8	87.5	87.6	85.8	89.3	84.7	92.2	77.9	100.8	109.5	92.9
Hypertension with or without renal disease . . . . .401,403	3.4	3.0	3.9	3.1	2.7	3.5	5.3	4.4	6.1	6.4	5.2	7.4

Cerebrovascular diseases . . . . .	430-438	61.2	49.9	72.0	62.7	50.0	74.9	53.2	49.4	56.6	61.2	56.5	65.4
Intracerebral and other intracranial hemorrhage . . . . .	431-432	8.6	8.1	9.1	8.3	7.6	9.1	10.3	11.2	9.5	11.4	12.5	10.5
Cerebral thrombosis and unspecified occlusion of cerebral arteries . . . . .	434.0,434.9	8.7	6.9	10.3	9.1	7.1	10.9	6.3	5.8	6.8	7.4	6.7	8.0
Cerebral embolism . . . . .	434.1	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.2	0.1	0.2	0.2	0.2
All other and late effects of cerebrovascular diseases . . . . .	430,433,435-438	43.6	34.6	52.2	45.0	35.0	54.5	36.4	32.3	40.2	42.2	37.2	46.8
Atherosclerosis . . . . .	440	9.0	7.0	10.9	9.8	7.4	12.0	4.7	4.3	5.1	5.6	5.2	6.0
Other diseases of arteries, arterioles, and capillaries . . . . .	441-448	9.4	11.5	7.4	10.2	12.6	7.9	5.5	5.9	5.1	6.2	6.4	5.9
Acute bronchitis and bronchiolitis . . . . .	466	0.3	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Pneumonia and influenza . . . . .	480-487	31.6	30.8	32.4	33.5	31.8	35.2	21.1	24.9	17.5	23.8	28.3	19.8
Pneumonia . . . . .	480-486	30.8	30.2	31.4	32.6	31.2	34.0	20.9	24.7	17.3	23.6	28.1	19.5
Influenza . . . . .	487	0.8	0.6	1.0	0.9	0.6	1.2	0.2	0.2	0.2	0.2	0.2	0.3
Chronic obstructive pulmonary diseases and allied conditions . . . . .	490-496	33.7	40.9	26.9	37.0	44.2	30.0	16.1	22.4	10.3	18.1	25.4	11.5
Bronchitis, chronic and unspecified . . . . .	490-491	1.5	1.7	1.4	1.7	1.8	1.5	0.6	0.8	0.4	0.6	0.8	0.5
Emphysema . . . . .	492	6.3	8.1	4.6	7.0	8.8	5.3	2.4	4.0	1.0	2.7	4.5	1.1
Asthma . . . . .	493	1.9	1.5	2.2	1.7	1.3	2.1	2.9	2.9	3.0	3.4	3.2	3.5
Other chronic obstructive pulmonary diseases and allied conditions . . . . .	494-496	24.0	29.6	18.7	26.6	32.3	21.1	10.2	14.8	5.9	11.4	16.9	6.6
Ulcer of stomach and duodenum . . . . .	531-533	2.6	2.7	2.6	2.8	2.8	2.8	1.7	2.0	1.4	1.9	2.3	1.5
Appendicitis . . . . .	540-543	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.4	0.3
Hernia of abdominal cavity and intestinal obstruction without mention of hernia . . . . .	550-553,560	2.3	1.7	2.8	2.3	1.7	3.0	1.9	1.8	2.0	2.3	2.2	2.4
Chronic liver disease and cirrhosis . . . . .	571	10.7	14.4	7.3	10.6	14.2	7.1	11.7	15.3	8.3	12.9	17.3	9.0
Cholelithiasis and other disorders of gallbladder . . . . .	574-575	1.3	1.2	1.4	1.3	1.2	1.5	0.8	0.8	0.9	0.9	0.7	1.0
Nephritis, nephrotic syndrome, and nephrosis . . . . .	580-589	9.1	9.1	9.1	8.6	8.7	8.6	11.6	11.4	11.9	13.8	13.3	14.2
Acute glomerulonephritis and nephrotic syndrome . . . . .	580-581	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2
Chronic glomerulonephritis, nephritis and nephropathy, not specified as acute or chronic, and renal sclerosis, unspecified . . . . .	582-583,587	0.6	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.6	0.8	0.9	0.7
Renal failure, disorders resulting from impaired renal function, and small kidney of unknown cause . . . . .	584-586,588-589	8.4	8.3	8.4	7.9	7.9	7.9	10.8	10.5	11.1	12.8	12.2	13.3
Infections of kidney . . . . .	590	0.7	0.4	0.9	0.7	0.4	0.9	0.5	0.4	0.6	0.6	0.5	0.6
Hyperplasia of prostate . . . . .	600	0.2	0.4	...	0.2	0.4	...	0.2	0.3	...	0.2	0.4	...
Complications of pregnancy, childbirth, and the puerperium . . . . .	630-676	0.1	...	0.3	0.1	...	0.2	0.4	...	0.7	0.4	...	0.8
Pregnancy with abortive outcome . . . . .	630-638	0.0	...	0.0	0.0	...	0.0	0.1	...	0.2	0.1	...	0.2
Other complications of pregnancy, childbirth, and the puerperium . . . . .	640-676	0.1	...	0.2	0.1	...	0.1	0.3	...	0.6	0.3	...	0.6
Congenital anomalies . . . . .	740-759	5.2	5.7	4.7	5.0	5.4	4.6	6.3	7.0	5.7	6.7	7.5	6.0
Certain conditions originating in the perinatal period . . . . .	760-779	7.4	8.7	6.2	5.4	6.4	4.4	18.3	21.3	15.5	21.9	25.8	18.4
Birth trauma, intrauterine hypoxia, birth asphyxia, and respiratory distress syndrome . . . . .	767-769	1.7	2.1	1.4	1.4	1.7	1.1	3.5	4.1	3.0	4.2	4.9	3.5
Other conditions originating in the perinatal period . . . . .	760-766,770-779	5.7	6.6	4.8	4.0	4.7	3.4	14.7	17.2	12.5	17.7	20.9	14.9
Symptoms, signs, and ill-defined conditions . . . . .	780-799	12.6	14.2	11.1	11.6	12.8	10.5	17.9	21.9	14.3	21.0	25.8	16.8
All other diseases . . . . .	Residual	68.3	65.6	70.9	69.5	65.2	73.6	62.1	67.5	57.1	72.2	78.6	66.3
Accidents and adverse effects . . . . .	E800-E949	39.5	55.0	24.8	39.1	53.7	25.2	41.7	62.1	23.0	44.7	67.1	24.4
Motor vehicle accidents . . . . .	E810-E825	20.0	28.6	11.8	20.2	28.7	12.1	18.5	28.0	9.8	18.6	28.9	9.3
All other accidents and adverse effects . . . . .	E800-E807,E826-E949	19.5	26.4	13.1	18.9	25.0	13.0	23.2	34.1	13.2	26.0	38.2	15.1
Suicide . . . . .	E950-E959	12.4	20.1	5.0	13.4	21.7	5.5	6.8	11.4	2.6	6.7	11.5	2.4
Homicide and legal intervention . . . . .	E960-E978	9.0	14.0	4.2	5.3	7.9	2.9	28.5	47.5	11.2	34.4	58.0	13.2
All other external causes . . . . .	E980-E999	1.2	1.8	0.7	1.1	1.6	0.6	2.0	3.2	1.0	2.4	3.8	1.1

**Table 12. Age-adjusted death rates for 72 selected causes by race and sex: United States, 1988**

[Rates per 100,000 population in specified group. Computed by the direct method, using as the standard population the age distribution of the total population of the United States as enumerated in 1940. For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	All races						All other					
	Both sexes		Male	Female	White		Total			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All causes . . . . .	535.5	696.7	404.4	509.8	664.3	384.4	692.5	904.3	523.5	788.8	1,037.8	593.1
Shigellosis and amebiasis . . . . .004,006	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0
Certain other intestinal infections . . . . .007-009	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1
Tuberculosis . . . . .010-018	0.5	0.8	0.3	0.3	0.5	0.2	1.9	2.9	1.1	2.1	3.2	1.2
Tuberculosis of respiratory system . . . . .010-012	0.4	0.7	0.2	0.3	0.4	0.1	1.3	2.3	0.7	1.5	2.5	0.7
Other tuberculosis . . . . .013-018	0.1	0.1	0.1	0.1	0.1	0.0	0.6	0.6	0.5	0.6	0.7	0.5
Whooping cough . . . . .033	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0
Streptococcal sore throat, scarlatina, and erysipelas . . . . .034-035	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0
Meningococcal infection . . . . .036	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Septicemia . . . . .038	4.6	5.2	4.1	4.0	4.5	3.5	8.9	10.4	7.7	10.4	12.2	9.0
Acute poliomyelitis . . . . .045	0.0	0.0	-	0.0	0.0	-	-	-	-	-	-	-
Measles . . . . .055	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-
Viral hepatitis . . . . .070	0.4	0.5	0.3	0.4	0.5	0.2	0.6	0.7	0.5	0.6	0.6	0.5
Syphilis . . . . .090-097	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1
All other infectious and parasitic diseases . .001-003,005,020-032,037,039-041,*042-*044, 046-054,056-066,071-088,098-139	8.7	14.6	3.0	7.0	12.1	2.1	17.8	29.5	7.8	22.2	37.1	9.5
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	132.7	162.4	111.2	130.0	157.6	110.1	151.9	198.9	117.6	171.3	227.0	131.2
Malignant neoplasms of lip, oral cavity, and pharynx . . . . .140-149	2.5	3.8	1.3	2.2	3.4	1.3	3.9	6.7	1.7	4.5	7.8	1.9
Malignant neoplasms of digestive organs and peritoneum . . . . .150-159	30.0	38.6	23.3	28.6	36.6	22.4	40.2	53.6	29.9	43.7	58.4	32.5
Malignant neoplasms of respiratory and intrathoracic organs . . . . .160-165	39.9	59.7	24.4	39.4	58.0	24.8	43.3	71.6	21.8	49.8	83.4	24.6
Malignant neoplasm of breast . . . . .174-175	12.6	0.2	23.1	12.5	0.2	23.0	13.2	0.3	23.3	15.3	0.4	27.0
Malignant neoplasms of genital organs . . . . .179-187	13.0	15.6	12.2	12.3	14.5	11.9	18.8	25.6	14.8	21.6	30.6	16.4
Malignant neoplasms of urinary organs . . . . .188-189	4.9	7.5	3.0	5.0	7.7	2.9	4.3	5.9	3.1	4.8	6.6	3.5
Malignant neoplasms of all other and unspecified sites . . . . .170-173,190-199	17.5	21.8	14.0	17.6	21.9	14.1	16.9	21.1	13.7	19.1	24.1	15.2
Leukemia . . . . .204-208	4.8	6.2	3.7	4.9	6.3	3.8	4.2	5.3	3.4	4.5	5.8	3.5
Other malignant neoplasms of lymphatic and hematopoietic tissues . . . . .200-203	7.4	9.1	6.0	7.4	9.1	6.0	7.2	8.8	5.9	8.0	9.9	6.6
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . .210-239	1.7	1.9	1.6	1.7	1.9	1.6	2.1	2.1	2.0	2.4	2.4	2.4
Diabetes mellitus . . . . .250	10.1	10.5	9.8	9.0	9.6	8.4	18.7	17.5	19.5	21.2	19.8	22.1
Nutritional deficiencies . . . . .260-269	0.5	0.5	0.5	0.4	0.5	0.4	0.9	1.1	0.7	1.0	1.2	0.8
Anemias . . . . .280-285	0.9	0.9	0.8	0.7	0.8	0.6	1.8	2.0	1.7	2.2	2.3	2.0
Meningitis . . . . .320-322	0.4	0.4	0.4	0.3	0.3	0.3	0.8	1.1	0.6	1.0	1.3	0.7
Major cardiovascular diseases . . . . .390-448	206.6	270.8	155.4	199.2	264.2	147.2	256.4	315.9	210.3	293.0	360.8	241.1
Diseases of heart . . . . .390-398,402,404-429	166.3	224.5	119.8	161.5	220.5	114.2	197.8	250.2	157.2	226.6	286.2	181.1
Rheumatic fever and rheumatic heart disease .390-398	1.7	1.2	2.0	1.7	1.2	2.0	1.4	1.2	1.6	1.4	1.2	1.6
Hypertensive heart disease . . . . .402	4.9	5.6	4.3	3.7	4.2	3.1	14.4	16.5	12.7	17.3	19.8	15.3
Hypertensive heart and renal disease . . . . .404	0.5	0.5	0.5	0.4	0.4	0.3	1.5	1.6	1.5	1.9	1.9	1.8
Ischemic heart disease . . . . .410-414	110.2	153.5	75.9	110.7	155.8	74.7	103.5	131.9	81.7	116.3	146.9	93.0
Acute myocardial infarction . . . . .410	57.8	81.6	38.8	58.3	83.3	38.2	52.9	66.9	42.1	59.2	74.4	47.8
Other acute and subacute forms of ischemic heart disease . . . . .411	0.8	1.2	0.5	0.8	1.2	0.5	1.2	1.7	0.8	1.4	2.0	0.9
Angina pectoris . . . . .413	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2
Old myocardial infarction and other forms of chronic ischemic heart disease . . . . .412,414	51.4	70.4	36.4	51.4	71.1	35.9	49.3	63.1	38.6	55.4	70.2	44.1
Other diseases of endocardium . . . . .424	2.4	2.9	2.0	2.4	2.9	2.0	2.4	2.8	2.0	2.6	3.1	2.2
All other forms of heart disease . . . . .415-423,425-429	46.5	60.7	35.2	42.7	56.0	31.9	74.5	96.1	57.7	87.1	113.2	67.2

Hypertension with or without renal disease . . . . .401,403	1.8	2.0	1.7	1.5	1.7	1.2	4.7	4.6	4.8	5.7	5.5	5.8
Cerebrovascular diseases . . . . .430-438	29.7	32.4	27.6	27.5	30.0	25.5	45.6	50.9	41.5	51.5	57.8	46.6
Intracerebral and other intracranial												
hemorrhage . . . . .431-432	5.5	6.2	4.8	4.7	5.3	4.3	10.4	12.7	8.6	11.6	14.3	9.4
Cerebral thrombosis and unspecified												
occlusion of cerebral arteries . . . . .434.0,434.9	3.9	4.4	3.6	3.7	4.2	3.4	5.2	5.8	4.7	5.9	6.7	5.3
Cerebral embolism . . . . .434.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1
All other and late effects of cerebrovascular												
diseases . . . . .430,433,435-438	20.2	21.7	19.0	18.9	20.4	17.8	29.9	32.2	28.0	33.9	36.7	31.7
Atherosclerosis . . . . .440	3.4	4.0	3.0	3.4	4.0	3.0	3.3	4.0	2.9	3.8	4.6	3.3
Other diseases of arteries, arterioles,												
and capillaries . . . . .441-448	5.3	7.9	3.3	5.3	8.1	3.2	4.9	6.2	3.9	5.4	6.7	4.4
Acute bronchitis and bronchiolitis . . . . .466	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1
Pneumonia and influenza . . . . .480-487	14.2	18.9	11.0	13.6	18.0	10.7	17.5	24.6	12.1	19.6	28.0	13.4
Pneumonia . . . . .480-486	13.9	18.6	10.7	13.3	17.7	10.3	17.3	24.5	12.0	19.4	27.8	13.2
Influenza . . . . .487	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Chronic obstructive pulmonary diseases												
and allied conditions . . . . .490-496	19.4	27.5	14.0	19.8	27.8	14.5	14.8	23.1	9.0	16.6	26.0	10.0
Bronchitis, chronic and unspecified . . . . .490-491	0.8	1.1	0.7	0.9	1.1	0.7	0.5	0.8	0.4	0.6	0.8	0.4
Emphysema . . . . .492	3.8	5.5	2.5	3.9	5.7	2.7	2.2	4.1	0.9	2.5	4.6	0.9
Asthma . . . . .493	1.4	1.2	1.5	1.1	1.0	1.2	3.0	3.1	3.0	3.5	3.5	3.4
Other chronic obstructive pulmonary diseases												
and allied conditions . . . . .494-496	13.5	19.6	9.3	13.9	20.1	9.8	9.1	15.1	4.8	10.1	17.0	5.3
Ulcer of stomach and duodenum . . . . .531-533	1.4	1.8	1.0	1.4	1.7	1.0	1.5	2.2	1.0	1.7	2.4	1.1
Appendicitis . . . . .540-543	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.4	0.2	0.3	0.4	0.2
Hernia of abdominal cavity and intestinal												
obstruction without mention of hernia . . . . .550-553,560	1.1	1.1	1.1	1.0	1.0	1.0	1.6	1.8	1.4	1.9	2.1	1.6
Chronic liver disease and cirrhosis . . . . .571	9.0	12.9	5.6	8.4	12.1	5.0	12.9	18.2	8.6	14.5	20.7	9.3
Cholelithiasis and other disorders of												
gallbladder . . . . .574-575	0.6	0.7	0.5	0.6	0.7	0.5	0.7	0.8	0.6	0.7	0.8	0.7
Nephritis, nephrotic syndrome, and nephrosis . . . . .580-589	4.8	6.0	4.0	4.1	5.2	3.3	10.0	11.5	8.9	11.6	13.3	10.3
Acute glomerulonephritis and nephritic												
syndrome . . . . .580-581	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.1
Chronic glomerulonephritis, nephritis and												
nephropathy, not specified as acute or chronic,												
and renal sclerosis, unspecified . . . . .582-583,587	0.3	0.4	0.3	0.3	0.4	0.2	0.6	0.8	0.4	0.7	0.9	0.5
Renal failure, disorders resulting from impaired												
renal function, and small kidney of												
unknown cause . . . . .584-586,588-589	4.4	5.4	3.6	3.7	4.8	3.0	9.3	10.6	8.3	10.8	12.2	9.7
Infections of kidney . . . . .590	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.4	0.4	0.5	0.5	0.5
Hyperplasia of prostate . . . . .600	0.1	0.2	...	0.1	0.2	...	0.1	0.3	...	0.1	0.3	...
Complications of pregnancy, childbirth,												
and the puerperium . . . . .630-676	0.1	...	0.3	0.1	...	0.2	0.4	...	0.7	0.4	...	0.8
Pregnancy with abortive outcome . . . . .630-638	0.0	...	0.0	0.0	...	0.0	0.1	...	0.2	0.1	...	0.2
Other complications of pregnancy, childbirth,												
and the puerperium . . . . .640-676	0.1	...	0.2	0.1	...	0.2	0.3	...	0.5	0.3	...	0.6
Congenital anomalies . . . . .740-759	5.0	5.3	4.7	4.9	5.3	4.6	5.3	5.7	4.9	5.6	6.0	5.2
Certain conditions originating in the perinatal												
period . . . . .760-779	7.2	8.1	6.4	5.5	6.2	4.8	14.5	15.9	13.1	17.1	18.9	15.3
Birth trauma, intrauterine hypoxia, birth												
asphyxia, and respiratory distress syndrome . . . . .767-769	1.7	1.9	1.4	1.4	1.7	1.1	2.8	3.1	2.5	3.2	3.6	2.9
Other conditions originating in the perinatal												
period . . . . .760-766,770-779	5.6	6.1	5.0	4.1	4.5	3.6	11.7	12.8	10.6	13.9	15.3	12.4
Symptoms, signs, and ill-defined conditions . . . . .780-799	9.2	11.7	6.9	7.9	10.1	5.9	16.0	20.9	11.9	18.7	24.6	13.8
All other diseases . . . . .Residual	38.8	46.9	32.4	36.1	43.4	30.3	56.2	70.3	45.0	64.8	82.0	51.3
Accidents and adverse effects . . . . .E800-E949	35.0	51.5	19.1	34.1	49.9	18.8	40.7	63.4	21.1	43.7	69.0	22.2
Motor vehicle accidents . . . . .E810-E825	19.7	28.3	11.3	20.0	28.5	11.6	18.5	28.5	9.7	18.7	29.6	9.2
All other accidents and adverse												
effects . . . . .E800-E807,E826-E949	15.3	23.3	7.9	14.1	21.4	7.2	22.2	35.0	11.3	25.0	39.4	12.9
Suicide . . . . .E950-E959	11.4	18.7	4.7	12.2	19.8	5.1	6.9	11.6	2.6	6.8	11.8	2.4
Homicide and legal intervention . . . . .E960-E978	9.0	13.9	4.2	5.3	7.7	2.8	28.2	47.4	10.8	34.1	58.2	12.7
All other external causes . . . . .E980-E999	1.2	1.7	0.6	1.0	1.5	0.6	2.0	3.2	0.9	2.3	3.9	1.0

Table 13. Infant, neonatal, and postneonatal mortality rates, by race and sex: United States, 1940, 1950, 1960, 1970, and 1975-88

[Rates are infant (under 1 year), neonatal (under 28 days), and postneonatal (28 days-11 months) deaths per 1,000 live births in specified group]

Year	All races			White			All other					
	Both sexes	Male	Female	Both sexes	Male	Female	Total			Black		
							Both sexes	Male	Female	Both sexes	Male	Female
Infant mortality rate												
1988	10.0	11.0	8.9	8.5	9.5	7.4	15.0	16.2	13.8	17.6	19.0	16.1
1987	10.1	11.2	8.9	8.6	9.6	7.6	15.4	16.9	13.9	17.9	19.6	16.0
1986	10.4	11.5	9.1	8.9	10.0	7.8	15.7	17.3	14.0	18.0	20.0	16.0
1985	10.6	11.9	9.3	9.3	10.6	8.0	15.8	17.2	14.4	18.2	19.9	16.5
1984	10.8	11.9	9.6	9.4	10.5	8.3	16.1	17.3	14.8	18.4	19.8	16.9
1983	11.2	12.3	10.0	9.7	10.8	8.6	16.8	18.3	15.2	19.2	21.1	17.2
1982	11.5	12.8	10.2	10.1	11.2	8.9	17.3	18.9	15.5	19.6	21.5	17.7
1981	11.9	13.1	10.7	10.5	11.7	9.2	17.8	19.2	16.3	20.0	21.7	18.3
1980	12.6	13.9	11.2	11.0	12.3	9.6	19.1	20.7	17.5	21.4	23.3	19.4
1979	13.1	14.5	11.6	11.4	12.8	9.9	19.8	21.5	18.1	21.8	23.7	19.8
1978	13.8	15.3	12.2	12.0	13.4	10.6	21.1	23.1	18.9	23.1	25.4	20.8
1977	14.1	15.8	12.4	12.3	13.9	10.7	21.7	23.7	19.6	23.6	25.9	21.3
1976	15.2	16.8	13.6	13.3	14.8	11.7	23.5	25.5	21.4	25.5	27.8	23.2
1975	16.1	17.9	14.2	14.2	15.9	12.3	24.2	26.2	22.2	26.2	28.3	24.0
1970	20.0	22.4	17.5	17.8	20.0	15.4	30.9	34.2	27.5	32.6	36.2	29.0
1960	26.0	29.3	22.6	22.9	26.0	19.6	43.2	47.9	38.5	44.3	49.1	39.4
1950	29.2	32.8	25.5	26.8	30.2	23.1	44.5	48.9	39.9	43.9	48.3	39.4
1940	47.0	52.5	41.3	43.2	48.3	37.8	73.8	82.2	65.2	72.9	81.1	64.6
Neonatal mortality rate												
1988	6.3	6.9	5.7	5.4	5.9	4.8	9.7	10.5	8.8	11.5	12.5	10.4
1987	6.5	7.1	5.8	5.5	6.1	4.9	10.0	11.0	9.0	11.7	12.9	10.5
1986	6.7	7.4	6.0	5.8	6.4	5.1	10.1	11.1	9.1	11.7	13.0	10.5
1985	7.0	7.8	6.1	6.1	6.9	5.3	10.3	11.3	9.4	12.1	13.2	10.9
1984	7.0	7.7	6.3	6.2	6.8	5.5	10.2	11.0	9.5	11.8	12.7	10.9
1983	7.3	8.0	6.5	6.4	7.1	5.7	10.8	11.7	9.7	12.4	13.6	11.2
1982	7.7	8.5	6.9	6.8	7.5	6.0	11.3	12.4	10.3	13.1	14.3	11.8
1981	8.0	8.8	7.2	7.1	7.8	6.3	11.8	12.8	10.9	13.4	14.6	12.3
1980	8.5	9.3	7.6	7.5	8.3	6.6	12.5	13.5	11.5	14.1	15.3	12.8
1979	8.9	9.8	7.9	7.9	8.8	6.9	12.9	13.9	11.8	14.3	15.5	13.1
1978	9.5	10.5	8.4	8.4	9.3	7.4	14.0	15.5	12.4	15.5	17.2	13.7
1977	9.9	11.0	8.7	8.7	9.8	7.6	14.7	16.0	13.3	16.1	17.6	14.5
1976	10.9	12.0	9.7	9.7	10.7	8.5	16.3	17.7	14.9	17.9	19.5	16.3
1975	11.6	12.9	10.2	10.4	11.7	9.0	16.8	18.2	15.3	18.3	19.8	16.8
1970	15.1	17.0	13.1	13.8	15.5	11.9	21.4	23.9	18.9	22.8	25.4	20.1
1960	18.7	21.2	16.1	17.2	19.7	14.7	26.9	30.0	23.6	27.8	31.1	24.5
1950	20.5	23.3	17.5	19.4	22.2	16.4	27.5	30.8	24.2	27.8	31.1	24.4
1940	28.8	32.6	24.7	27.2	30.9	23.3	39.7	44.9	34.5	39.9	44.8	34.9
Postneonatal mortality rate												
1988	3.6	4.0	3.2	3.1	3.6	2.7	5.4	5.7	5.0	6.2	6.6	5.8
1987	3.6	4.1	3.2	3.1	3.6	2.7	5.4	5.9	4.9	6.1	6.8	5.5
1986	3.6	4.1	3.1	3.1	3.6	2.7	5.6	6.2	4.9	6.3	7.0	5.6
1985	3.7	4.2	3.2	3.2	3.7	2.7	5.5	6.0	5.0	6.1	6.7	5.6
1984	3.8	4.2	3.3	3.3	3.7	2.8	5.8	6.3	5.3	6.5	7.1	5.9
1983	3.9	4.3	3.4	3.3	3.7	2.9	6.0	6.6	5.4	6.8	7.4	6.1
1982	3.8	4.3	3.3	3.3	3.7	2.8	5.9	6.5	5.3	6.6	7.3	5.9
1981	3.9	4.3	3.5	3.4	3.8	3.0	6.0	6.5	5.4	6.6	7.1	6.0
1980	4.1	4.6	3.6	3.5	4.0	3.0	6.6	7.2	6.0	7.3	7.9	6.6
1979	4.2	4.7	3.7	3.5	4.0	3.0	6.9	7.6	6.3	7.5	8.2	6.7
1978	4.3	4.7	3.9	3.6	4.0	3.2	7.0	7.6	6.5	7.6	8.2	7.0
1977	4.2	4.8	3.7	3.6	4.1	3.1	7.0	7.7	6.3	7.6	8.3	6.8
1976	4.3	4.8	3.8	3.6	4.1	3.2	7.2	7.8	6.5	7.6	8.4	6.9
1975	4.5	4.9	4.0	3.8	4.2	3.3	7.5	8.0	6.9	7.9	8.5	7.2
1970	4.9	5.4	4.4	4.0	4.4	3.5	9.5	10.3	8.6	9.9	10.8	8.9
1960	7.3	8.1	6.5	5.7	6.3	4.9	16.4	17.8	14.8	16.5	18.0	14.9
1950	8.7	9.4	8.0	7.4	8.0	6.7	16.9	18.1	15.7	16.1	17.2	15.0
1940	18.3	19.9	16.6	16.0	17.5	14.5	34.1	37.3	30.7	33.0	36.4	29.7



**Table 14. Deaths under 1 year and infant mortality rates for the 10 leading causes of infant death: United States, 1988**

[Rates per 100,000 live births]

<i>Rank order</i> <sup>1</sup>	<i>Cause of death</i> (Ninth Revision International Classification of Diseases, 1975)	<i>Number</i>	<i>Rate</i>
...	All causes . . . . .	38,910	995.3
1	Congenital anomalies . . . . .740-759	8,141	208.2
2	Sudden infant death syndrome . . . . .798.0	5,476	140.1
3	Disorders relating to short gestation and unspecified low birthweight . . . . .765	3,268	83.6
4	Respiratory distress syndrome . . . . .769	3,181	81.4
5	Newborn affected by maternal complications of pregnancy . . . . .761	1,411	36.1
6	Accidents and adverse effects . . . . .E800-E949	936	23.9
7	Newborn affected by complications of placenta, cord, and membranes. . . . .762	907	23.2
8	Infections specific to the perinatal period . . . . .771	878	22.5
9	Intrauterine hypoxia and birth asphyxia. . . . .768	777	19.9
10	Pneumonia and influenza . . . . .480-487	641	16.4
...	All other causes . . . . .Residual	13,294	340.0

<sup>1</sup>Rank based on number of deaths; see Technical notes.

Table 15. Deaths under 1 year and infant mortality rates for 61 selected causes by race: United States, 1988

[Rates per 100,000 live births in specified group. For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	All races		All other		All races		All other	
	White	Total	White	Black	White	Total	White	Black
All causes . . . . .	38,910	25,925	12,985	11,840	995.3	851.1	1,504.0	1,762.0
Certain intestinal infections . . . . .008-009	85	45	40	39	2.2	1.5	4.6	5.8
Whooping cough . . . . .033	4	3	1	1	0.1	0.1	0.1	0.1
Meningococcal infection . . . . .036	72	54	18	16	1.8	1.8	2.1	2.4
Septicemia . . . . .038	245	155	90	82	6.3	5.1	10.4	12.2
Viral diseases . . . . .045-079	110	80	30	25	2.8	2.6	3.5	3.7
Congenital syphilis . . . . .090	17	4	13	13	0.4	0.1	1.5	1.9
Remainder of infectious and parasitic diseases . . . . .001,007, 010-032,034-035,037,039-041,*042-*044,080-088,091-139	207	111	96	94	5.3	3.6	11.1	14.0
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues. . . . .140-208	89	70	19	18	2.3	2.3	2.2	2.7
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . . . . .210-239	60	53	7	4	1.5	1.7	0.8	0.6
Diseases of thymus gland . . . . .254	5	4	1	1	0.1	0.1	0.1	0.1
Cystic fibrosis . . . . .277.0	10	9	1	1	0.3	0.3	0.1	0.1
Diseases of blood and blood-forming organs. . . . .280-289	75	47	28	19	1.9	1.5	3.2	2.8
Meningitis . . . . .320-322	205	135	70	62	5.2	4.4	8.1	9.2
Other diseases of nervous system and sense organs . . . . .323-389	454	334	120	104	11.6	11.0	13.9	15.5
Acute upper respiratory infections. . . . .460-465	43	24	19	16	1.1	0.8	2.2	2.4
Bronchitis and bronchiolitis . . . . .466,490-491	115	73	42	37	2.9	2.4	4.9	5.5
Pneumonia and influenza . . . . .480-487	641	387	254	224	16.4	12.7	29.4	33.3
Pneumonia . . . . .480-486	635	384	251	222	16.2	12.6	29.1	33.0
Influenza . . . . .487	6	3	3	2	0.2	0.1	0.3	0.3
Remainder of diseases of respiratory system . . . . .470-478,492-519	420	262	158	135	10.7	8.6	18.3	20.1
Hernia of abdominal cavity and intestinal obstruction without mention of hernia . . . . .550-553,560	77	49	28	27	2.0	1.6	3.2	4.0
Gastritis, duodenitis, and noninfective enteritis and colitis . . . . .535,555-558	101	57	44	40	2.6	1.9	5.1	6.0
Remainder of diseases of digestive system . . . . .520-534,536-543,562-579	203	135	68	63	5.2	4.4	7.9	9.4
Congenital anomalies . . . . .740-759	8,141	6,442	1,699	1,410	208.2	211.5	196.8	209.8
Anencephalus and similar anomalies . . . . .740	533	449	84	62	13.6	14.7	9.7	9.2
Spina bifida . . . . .741	69	54	15	14	1.8	1.8	1.7	2.1
Congenital hydrocephalus . . . . .742.3	171	130	41	36	4.4	4.3	4.7	5.4
Other congenital anomalies of central nervous system and eye . . . . .742.0-742.2,742.4-742.9,743	333	265	68	55	8.5	8.7	7.9	8.2
Congenital anomalies of heart . . . . .745-746	2,582	2,062	520	434	66.0	67.7	60.2	64.6
Other congenital anomalies of circulatory system. . . . .747	584	425	159	138	14.9	14.0	18.4	20.5
Congenital anomalies of respiratory system . . . . .748	1,109	856	253	217	28.4	28.1	29.3	32.3
Congenital anomalies of digestive system . . . . .749-751	107	72	35	26	2.7	2.4	4.1	3.9
Congenital anomalies of genitourinary system. . . . .752-753	505	428	77	64	12.9	14.1	8.9	9.5
Congenital anomalies of musculoskeletal system. . . . .754-756	601	488	113	89	15.4	16.0	13.1	13.2
Down's syndrome . . . . .758.0	119	90	29	24	3.0	3.0	3.4	3.6
Other chromosomal anomalies. . . . .758.1-758.9	795	637	158	127	20.3	20.9	18.3	18.9
All other and unspecified congenital anomalies. . . . .744,757,759	633	486	147	124	16.2	16.0	17.0	18.5
Certain conditions originating in the perinatal period . . . . .760-779	18,036	11,060	6,976	6,566	461.3	363.1	808.0	977.1
Newborn affected by maternal conditions which may be unrelated to present pregnancy . . . . .760	147	83	64	57	3.8	2.7	7.4	8.5
Newborn affected by maternal complications of pregnancy. . . . .761	1,411	875	536	509	36.1	28.7	62.1	75.7
Newborn affected by complications of placenta, cord, and membranes . . . . .762	907	615	292	268	23.2	20.2	33.8	39.9
Newborn affected by other complications of labor and delivery . . . . .763	60	40	20	18	1.5	1.3	2.3	2.7
Slow fetal growth and fetal malnutrition . . . . .764	38	20	18	18	1.0	0.7	2.1	2.7
Disorders relating to short gestation and unspecified low birthweight . . . . .765	3,268	1,726	1,542	1,478	83.6	56.7	178.6	219.9
Disorders relating to long gestation and high birthweight . . . . .766	-	-	-	-	-	-	-	-
Birth trauma . . . . .767	216	148	68	59	5.5	4.9	7.9	8.8
Intrauterine hypoxia and birth asphyxia . . . . .768	777	527	250	232	19.9	17.3	29.0	34.5
Fetal distress in liveborn infant . . . . .768.2-768.4	193	132	61	56	4.9	4.3	7.1	8.3
Birth asphyxia . . . . .768.5-768.9	584	395	189	176	14.9	13.0	21.9	26.2
Respiratory distress syndrome . . . . .769	3,181	2,148	1,033	957	81.4	70.5	119.7	142.4
Other respiratory conditions of newborn . . . . .770	3,588	2,269	1,319	1,241	91.8	74.5	152.8	184.7
Infections specific to the perinatal period . . . . .771	878	574	304	279	22.5	18.8	35.2	41.5
Neonatal hemorrhage . . . . .772	324	198	126	116	8.3	6.5	14.6	17.3
Hemolytic disease of newborn, due to isoimmunization, and other perinatal jaundice . . . . .773-774	45	34	11	10	1.2	1.1	1.3	1.5
Syndrome of "infant of a diabetic mother" and neonatal diabetes mellitus . . . . .775.0-775.1	8	7	1	1	0.2	0.2	0.1	0.1
Hemorrhagic disease of newborn . . . . .776.0	3	1	2	2	0.1	0.0	0.2	0.3
All other and ill-defined conditions originating in the perinatal period . . . . .775.2-775.9,776.1-779	3,185	1,795	1,390	1,321	81.5	58.9	161.0	196.6
Symptoms, signs, and ill-defined conditions . . . . .780-799	6,486	4,342	2,144	1,918	165.9	142.5	248.3	285.4
Sudden infant death syndrome . . . . .798.0	5,476	3,771	1,705	1,520	140.1	123.8	197.5	226.2

Table 15. Deaths under 1 year and infant mortality rates for 61 selected causes by race: United States, 1988—Con.

[Rates per 100,000 live births in specified group. For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	All races	White	All other		All races	White	All other	
			Total	Black			Total	Black
	Number				Rate			
Symptoms, signs, and all other ill-defined conditions . . . . .780-797,798.1-799	1,010	571	439	398	25.8	18.7	50.8	59.2
Accidents and adverse effects . . . . .E800-E949	936	638	298	281	23.9	20.9	34.5	41.8
Inhalation and ingestion of food or other object causing obstruction of respiratory tract or suffocation . . . .E911-E912	145	95	50	48	3.7	3.1	5.8	7.1
Accidental mechanical suffocation . . . . .E913	198	120	78	72*	5.1	3.9	9.0	10.7
Other accidental causes and adverse effects . . . . .E800-E910,E914-E949	593	423	170	161	15.2	13.9	19.7	24.0
Homicide . . . . .E960-E969	315	180	135	127	8.1	5.9	15.6	18.9
Child battering and other maltreatment . . . . .E967	108	71	37	34	2.8	2.3	4.3	5.1
Other homicide . . . . .E960-E966,E968-E969	207	109	98	93	5.3	3.6	11.4	13.8
All other causes . . . . .Residual	1,758	1,172	586	517	45.0	38.5	67.9	76.9

Table 16. Maternal deaths and maternal mortality rates for selected causes by race: United States, 1988

[Maternal deaths are those assigned to Complications of pregnancy, childbirth, and the puerperium, category numbers 630-676 of the Ninth Revision International Classification of Diseases, 1975. Rates per 100,000 live births in specified group]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	All races	White	All other		All races	White	All other	
			Total	Black			Total	Black
	Number				Rate			
Complications of pregnancy, childbirth, and the puerperium . . . . .630-676	330	180	150	131	8.4	5.9	17.4	19.5
Pregnancy with abortive outcome . . . . .630-638	61	23	38	35	1.6	0.8	4.4	5.2
Ectopic pregnancy . . . . .633	44	18	26	24	1.1	0.6	3.0	3.6
Spontaneous abortion . . . . .634	3	1	2	2	0.1	0.0	0.2	0.3
Legally induced abortion . . . . .635	5	1	4	3	0.1	0.0	0.5	0.4
Illegally induced abortion . . . . .636	—	—	—	—	—	—	—	—
Other pregnancy with abortive outcome . . . . .630-632,637-638	9	3	6	6	0.2	0.1	0.7	0.9
Direct obstetric causes . . . . .640-646,651-676	252	149	103	87	6.4	4.9	11.9	12.9
Hemorrhage of pregnancy and childbirth . . . . .640-641,666	35	19	16	8	0.9	0.6	1.9	1.2
Toxemia of pregnancy . . . . .642.4-642.9,643	58	36	22	21	1.5	1.2	2.5	3.1
Obstructed labor . . . . .660	—	—	—	—	—	—	—	—
Complications of the puerperium . . . . .670-676	110	64	46	41	2.8	2.1	5.3	6.1
Other direct obstetric causes . . . . .642.0-642.3,644-646,651-659,661-665,667-669	49	30	19	17	1.3	1.0	2.2	2.5
Indirect obstetric causes . . . . .647-648	16	7	9	9	0.4	0.2	1.0	1.3
Delivery in a completely normal case . . . . .650	1	1	—	—	0.0	0.0	—	—

Table 17. Total deaths and death rates, and infant and neonatal deaths and mortality rates for the United States, each division, and State; and by race and sex for the United States, 1988

Race, sex, and area	Total deaths		Infant deaths (under 1 year)		Neonatal deaths (under 28 days)	
	Number	Rate <sup>1</sup>	Number	Rate <sup>2</sup>	Number	Rate <sup>2</sup>
United States . . . . .	2,167,999	882.0	38,910	10.0	24,690	6.3
Male . . . . .	1,125,540	940.0	22,007	11.0	13,911	6.9
Female . . . . .	1,042,459	826.9	16,903	8.9	10,779	5.7
White . . . . .	1,876,906	905.1	25,925	8.5	16,346	5.4
Male . . . . .	965,419	952.2	14,878	9.5	9,296	5.9
Female . . . . .	911,487	860.0	11,047	7.4	7,050	4.8
All other . . . . .	291,093	757.5	12,985	15.0	8,344	9.7
Male . . . . .	160,121	872.7	7,129	16.2	4,615	10.5
Female . . . . .	130,972	652.2	5,856	13.8	3,729	8.8
Black . . . . .	264,019	874.2	11,840	17.6	7,695	11.5
Male . . . . .	144,228	1,006.8	6,503	19.0	4,263	12.5
Female . . . . .	119,791	754.5	5,337	16.1	3,432	10.4
New England . . . . .	119,737	923.8	1,572	8.1	1,078	5.6
Maine . . . . .	11,519	955.9	136	7.9	89	5.2
New Hampshire . . . . .	8,770	808.3	144	8.3	90	5.2
Vermont . . . . .	4,666	837.7	55	6.8	34	4.2
Massachusetts . . . . .	56,483	959.1	695	7.9	479	5.4
Rhode Island . . . . .	9,723	979.2	116	8.2	87	6.1
Connecticut . . . . .	28,576	883.9	426	8.9	299	6.2
Middle Atlantic . . . . .	375,756	998.5	5,828	10.3	3,988	7.1
New York . . . . .	176,315	984.5	3,017	10.8	2,081	7.4
New Jersey . . . . .	73,413	950.8	1,168	9.9	795	6.8
Pennsylvania . . . . .	126,028	1,050.1	1,643	9.9	1,112	6.7
East North Central . . . . .	378,593	898.8	6,686	10.5	4,280	6.7
Ohio . . . . .	100,127	922.4	1,565	9.7	987	6.1
Indiana . . . . .	50,037	900.6	899	11.0	530	6.5
Illinois . . . . .	105,250	906.2	2,083	11.3	1,336	7.2
Michigan . . . . .	80,147	867.4	1,544	11.1	1,070	7.7
Wisconsin . . . . .	43,032	886.3	595	8.4	357	5.0
West North Central . . . . .	164,263	925.0	2,368	8.9	1,446	5.4
Minnesota . . . . .	35,447	823.0	521	7.8	315	4.7
Iowa . . . . .	27,869	983.4	331	8.7	207	5.4
Missouri . . . . .	50,840	988.9	773	10.1	488	6.4
North Dakota . . . . .	5,664	849.2	106	10.5	57	5.6
South Dakota . . . . .	6,579	922.7	113	10.1	61	5.4
Nebraska . . . . .	14,872	928.3	215	9.0	128	5.4
Kansas . . . . .	22,992	921.5	309	8.0	190	4.9
South Atlantic . . . . .	389,230	917.4	7,561	11.6	5,025	7.7
Delaware . . . . .	5,769	874.1	123	11.8	92	8.8
Maryland . . . . .	38,655	836.3	854	11.3	603	8.0
District of Columbia . . . . .	7,664	1,242.1	245	23.2	185	17.6
Virginia . . . . .	47,608	791.5	967	10.4	636	6.8
West Virginia . . . . .	19,794	1,055.1	197	9.0	128	5.9
North Carolina . . . . .	57,641	888.3	1,215	12.5	776	8.0
South Carolina . . . . .	29,428	848.1	677	12.3	450	8.2
Georgia . . . . .	51,627	814.0	1,331	12.6	879	8.3
Florida . . . . .	131,044	1,062.4	1,952	10.6	1,276	6.9
East South Central . . . . .	145,352	947.3	2,557	11.4	1,579	7.0
Kentucky . . . . .	35,616	955.6	544	10.7	316	6.2
Tennessee . . . . .	45,775	935.1	761	10.8	457	6.5
Alabama . . . . .	39,127	953.9	736	12.1	488	8.0
Mississippi . . . . .	24,834	947.9	516	12.3	318	7.6
West South Central . . . . .	215,411	801.2	4,341	9.4	2,680	5.8
Arkansas . . . . .	24,904	1,039.8	374	10.7	224	6.4
Louisiana . . . . .	37,601	853.0	814	11.0	521	7.0
Oklahoma . . . . .	30,032	926.3	429	9.0	247	5.2
Texas . . . . .	122,874	729.6	2,724	9.0	1,688	5.6
Mountain . . . . .	94,885	711.9	2,160	9.2	1,195	5.1
Montana . . . . .	6,781	842.4	102	8.7	53	4.5
Idaho . . . . .	7,701	767.8	138	8.8	59	3.7
Wyoming . . . . .	3,246	677.7	64	8.9	31	4.3
Colorado . . . . .	21,350	646.8	510	9.6	300	5.6
New Mexico . . . . .	10,425	691.8	270	10.0	165	6.1
Arizona . . . . .	27,684	793.5	637	9.7	386	5.9
Utah . . . . .	9,224	545.8	287	8.0	135	3.7
Nevada . . . . .	8,474	804.0	152	8.4	66	3.7
Pacific . . . . .	284,772	762.4	5,837	8.6	3,419	5.1
Washington . . . . .	36,338	781.8	654	9.0	333	4.6
Oregon . . . . .	24,810	896.6	343	8.6	183	4.6
California . . . . .	215,485	761.1	4,573	8.6	2,747	5.2
Alaska . . . . .	2,064	393.9	130	11.6	57	5.1
Hawaii . . . . .	6,075	553.3	137	7.2	99	5.2

<sup>1</sup>Per 100,000 population in each race-sex group and area.  
<sup>2</sup>Per 1,000 live births in each race-sex group and area.

**Table 18. Deaths and death rates for major causes of death for the United States, each division, and State; and by race and sex for the United States, 1988**

[Rates per 100,000 population in each race-sex group and area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*]

Race,sex, and area	Diseases of heart (390-398,402, 404-429)		Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)		Cerebrovascular diseases (430-438)		Accidents and adverse effects (E800-E949)		Motor vehicle accidents (E810-E825)		Suicide (E950-E959)	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
	United States . . . . .	765,156	311.3	485,048	197.3	150,517	61.2	97,100	39.5	49,078	20.0	30,407
Male . . . . .	385,402	321.9	258,088	215.5	59,759	49.9	65,821	55.0	34,258	28.6	24,078	20.1
Female . . . . .	379,754	301.2	226,960	180.0	90,758	72.0	31,279	24.8	14,820	11.8	6,329	5.0
White . . . . .	678,526	327.2	425,140	205.0	130,075	62.7	81,091	39.1	41,974	20.2	27,790	13.4
Male . . . . .	341,519	336.8	224,514	221.4	50,692	50.0	54,435	53.7	29,127	28.7	21,980	21.7
Female . . . . .	337,007	318.0	200,626	189.3	79,383	74.9	26,656	25.2	12,847	12.1	5,810	5.5
All other . . . . .	86,630	225.4	59,908	155.9	20,442	53.2	16,009	41.7	7,104	18.5	2,617	6.8
Male . . . . .	43,883	239.2	33,574	183.0	9,067	49.4	11,386	62.1	5,131	28.0	2,098	11.4
Female . . . . .	42,747	212.9	26,334	131.1	11,375	56.6	4,623	23.0	1,973	9.8	519	2.6
Black . . . . .	79,466	263.1	53,968	178.7	18,479	61.2	13,487	44.7	5,623	18.6	2,022	6.7
Male . . . . .	39,584	276.3	30,321	211.7	8,098	56.5	9,608	67.1	4,139	28.9	1,648	11.5
Female . . . . .	39,882	251.2	23,647	148.9	10,381	65.4	3,879	24.4	1,484	9.3	374	2.4
New England . . . . .	42,683	329.3	28,280	218.2	7,824	60.4	4,047	31.2	1,965	15.2	1,331	10.3
Maine . . . . .	3,981	330.4	2,731	226.6	777	64.5	476	39.5	246	20.4	162	13.4
New Hampshire . . . . .	3,020	278.3	2,118	195.2	610	56.2	300	27.6	164	15.1	142	13.1
Vermont . . . . .	1,612	289.4	1,021	183.3	317	56.9	233	41.8	115	20.6	90	16.2
Massachusetts . . . . .	20,251	343.9	13,156	223.4	3,742	63.5	1,751	29.7	785	13.3	505	8.6
Rhode Island . . . . .	3,511	353.6	2,403	242.0	636	64.0	295	29.7	146	14.7	99	10.0
Connecticut . . . . .	10,308	318.8	6,851	211.9	1,742	53.9	992	30.7	509	15.7	333	10.3
Middle Atlantic . . . . .	142,937	379.8	84,381	224.2	21,982	58.4	12,687	33.7	5,576	14.8	3,226	8.6
New York . . . . .	67,365	376.2	38,675	216.0	9,665	54.0	5,749	32.1	2,440	13.6	1,200	6.7
New Jersey . . . . .	27,491	356.1	17,253	223.5	4,241	54.9	2,431	31.5	1,129	14.6	543	7.0
Pennsylvania . . . . .	48,081	400.6	28,453	237.1	8,076	67.3	4,507	37.6	2,007	16.7	1,483	12.4
East North Central . . . . .	140,452	333.5	85,586	203.2	26,222	62.3	15,250	36.2	7,618	18.1	4,854	11.5
Ohio . . . . .	37,402	344.6	23,020	212.1	6,739	62.1	3,753	34.6	1,799	16.6	1,214	11.2
Indiana . . . . .	17,670	318.0	11,353	204.3	3,891	70.0	2,167	39.0	1,113	20.0	642	11.6
Illinois . . . . .	39,581	340.8	23,494	202.3	6,953	59.9	4,397	37.9	2,052	17.7	1,251	10.8
Michigan . . . . .	30,230	327.2	17,909	193.8	5,251	56.8	3,242	35.1	1,813	19.6	1,094	11.8
Wisconsin . . . . .	15,569	320.7	9,810	202.1	3,388	69.8	1,691	34.8	841	17.3	653	13.5
West North Central . . . . .	58,417	328.9	36,013	202.8	12,767	71.9	7,052	39.7	3,413	19.2	2,117	11.9
Minnesota . . . . .	11,907	276.5	8,107	188.2	3,010	69.9	1,496	34.7	676	15.7	488	11.3
Iowa . . . . .	10,181	359.2	6,190	218.4	2,214	78.1	1,172	41.4	577	20.4	318	11.2
Missouri . . . . .	18,472	359.3	10,933	212.7	3,653	71.1	2,239	43.6	1,082	21.0	685	13.3
North Dakota . . . . .	2,058	308.5	1,285	192.7	431	64.6	239	35.8	121	18.1	71	10.6
South Dakota . . . . .	2,595	364.0	1,354	189.9	522	73.2	288	40.4	148	20.8	82	11.5
Nebraska . . . . .	5,149	321.4	3,165	197.6	1,158	72.3	616	38.5	298	18.6	166	10.4
Kansas . . . . .	8,055	322.8	4,979	199.6	1,779	71.3	1,002	40.2	511	20.5	307	12.3
South Atlantic . . . . .	134,070	316.0	88,714	209.1	28,124	66.3	18,884	44.5	10,059	23.7	5,671	13.4
Delaware . . . . .	2,045	309.8	1,437	217.7	295	44.7	289	43.8	156	23.6	87	13.2
Maryland . . . . .	12,765	276.2	9,290	201.0	2,371	51.3	1,538	33.3	804	17.4	520	11.3
District of Columbia . . . . .	2,196	355.9	1,628	263.9	398	64.5	241	39.1	80	13.0	48	7.8
Virginia . . . . .	16,156	268.6	11,099	184.5	3,519	58.5	2,231	37.1	1,024	17.0	755	12.6
West Virginia . . . . .	7,450	397.1	4,347	231.7	1,310	69.8	895	47.7	496	26.4	214	11.4
North Carolina . . . . .	19,428	299.4	12,705	195.8	4,777	73.6	3,215	49.5	1,604	24.7	787	12.1
South Carolina . . . . .	10,197	293.9	6,144	177.1	2,593	74.7	1,939	55.9	1,043	30.1	345	9.9
Georgia . . . . .	16,911	266.7	10,859	171.2	4,038	63.7	3,143	49.6	1,750	27.6	851	13.4
Florida . . . . .	46,922	380.4	31,205	253.0	8,823	71.5	5,393	43.7	3,102	25.1	2,064	16.7
East South Central . . . . .	51,151	333.4	31,608	206.0	11,215	73.1	7,811	50.9	4,100	26.7	1,920	12.5
Kentucky . . . . .	12,596	338.0	8,026	215.3	2,569	68.9	1,720	46.1	878	23.6	470	12.6
Tennessee . . . . .	16,043	327.7	9,846	201.1	3,730	76.2	2,420	49.4	1,290	26.4	655	13.4
Alabama . . . . .	13,272	323.5	8,459	206.2	2,922	71.2	2,234	54.5	1,150	28.0	498	12.1
Mississippi . . . . .	9,240	352.7	5,277	201.4	1,994	76.1	1,437	54.8	782	29.8	297	11.3
West South Central . . . . .	73,820	274.6	46,123	171.6	15,181	56.5	11,171	41.5	5,790	21.5	3,558	13.2
Arkansas . . . . .	8,607	359.4	5,409	225.8	2,128	88.9	1,239	51.7	653	27.3	302	12.6
Louisiana . . . . .	13,357	303.0	8,410	190.8	2,574	58.4	1,962	44.5	966	21.9	579	13.1
Oklahoma . . . . .	11,009	339.6	6,398	197.3	2,305	71.1	1,433	44.2	696	21.5	414	12.8
Texas . . . . .	40,847	242.5	25,906	153.8	8,174	48.5	6,537	38.8	3,475	20.6	2,263	13.4
Mountain . . . . .	29,166	218.8	20,491	153.7	5,891	44.2	5,903	44.3	3,107	23.3	2,530	19.0
Montana . . . . .	2,071	257.3	1,543	191.7	459	57.0	376	46.7	196	24.3	145	18.0
Idaho . . . . .	2,378	237.1	1,593	158.8	603	60.1	548	54.6	243	24.2	179	17.8
Wyoming . . . . .	919	191.9	698	145.7	234	48.9	255	53.2	123	25.7	81	16.9
Colorado . . . . .	6,477	196.2	4,452	134.9	1,324	40.1	1,135	34.4	564	17.1	599	18.1
New Mexico . . . . .	2,860	189.8	2,180	144.7	633	42.0	854	56.7	485	32.2	344	22.8
Arizona . . . . .	8,776	251.5	6,280	180.0	1,532	43.9	1,694	48.6	926	26.5	679	19.5
Utah . . . . .	2,963	175.3	1,708	101.1	690	40.8	591	35.0	307	18.2	229	13.6
Nevada . . . . .	2,722	258.3	2,037	193.3	416	39.5	450	42.7	263	25.0	274	26.0

Table 18. Deaths and death rates for major causes of death for the United States, each division, and State; and by race and sex for the United States, 1988—Con.

[Rates per 100,000 population in each race-sex group and area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*]

Race, sex, and area	Diseases of heart (390-398,402, 404-429)		Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)		Cerebrovascular diseases (430-438)		Accidents and adverse effects (E800-E949)		Motor vehicle accidents (E810-E825)		Suicide (E950-E959)	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
	Pacific . . . . .	92,460	247.5	63,852	171.0	21,311	57.1	14,295	38.3	7,450	19.9	5,200
Washington . . . . .	11,744	252.7	8,333	179.3	2,797	60.2	1,744	37.5	878	18.9	719	15.5
Oregon . . . . .	7,778	281.1	5,827	210.6	2,005	72.5	1,256	45.4	688	24.9	468	16.9
California . . . . .	70,636	249.5	47,714	168.5	15,993	56.5	10,590	37.4	5,632	19.9	3,871	13.7
Alaska . . . . .	465	88.7	449	85.7	86	16.4	390	74.4	106	20.2	55	10.5
Hawaii . . . . .	1,837	167.3	1,529	139.3	430	39.2	315	28.7	146	13.3	87	7.9

Table 19. Deaths by age according to specified Hispanic origin, race for non-Hispanic origin, and sex: Total of 26 reporting States and the District of Columbia, 1988

[For a listing of reporting States, see Technical notes]

Hispanic origin, race for non-Hispanic origin, and sex	Total	Under 1 year	1-4 years	5-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85 years and over
All origins . . . . .	1,285,192	24,606	4,684	5,484	23,593	37,949	49,537	72,206	161,886	286,045	350,506	268,307
Male . . . . .	667,788	13,922	2,646	3,328	17,603	27,730	33,847	45,490	98,906	165,647	170,925	87,455
Female . . . . .	617,404	10,684	2,038	2,156	5,990	10,219	15,690	26,716	62,980	120,398	179,581	180,852
Hispanic . . . . .	54,713	3,275	652	678	3,277	4,939	4,689	4,722	7,585	8,963	9,592	6,273
Male . . . . .	33,124	1,859	346	412	2,663	3,963	3,534	3,163	4,664	5,014	4,812	2,633
Female . . . . .	21,589	1,416	306	266	614	976	1,155	1,559	2,921	3,949	4,780	3,640
Mexican . . . . .	32,647	2,076	426	437	2,099	2,405	2,180	2,510	4,588	5,597	6,205	4,099
Male . . . . .	19,669	1,178	216	276	1,752	1,984	1,628	1,655	2,791	3,184	3,233	1,749
Female . . . . .	12,978	898	210	161	347	421	552	855	1,797	2,413	2,972	2,350
Puerto Rican . . . . .	7,880	282	77	83	349	1,016	1,108	913	1,159	1,196	1,101	595
Male . . . . .	4,771	146	51	45	251	760	839	648	722	617	482	209
Female . . . . .	3,109	136	26	38	98	256	269	265	437	579	619	386
Cuban . . . . .	1,779	24	6	6	19	82	88	154	336	342	441	281
Male . . . . .	1,036	13	4	3	11	67	76	109	229	204	206	114
Female . . . . .	743	11	2	3	8	15	12	45	107	138	235	167
Central and South American . . . . .	3,644	183	39	45	336	538	463	399	445	491	435	269
Male . . . . .	2,217	115	23	26	284	448	345	236	248	237	163	91
Female . . . . .	1,427	68	16	19	52	90	118	163	197	254	272	178
Other and unknown Hispanic . . . . .	8,763	710	104	107	474	898	850	746	1,057	1,337	1,410	1,029
Male . . . . .	5,431	407	52	62	365	704	646	515	674	772	728	470
Female . . . . .	3,332	303	52	45	109	194	204	231	383	565	682	559
Non-Hispanic <sup>1</sup> . . . . .	1,185,362	19,708	3,811	4,557	19,209	31,238	42,587	64,472	148,140	266,852	329,919	254,692
Male . . . . .	608,933	11,131	2,179	2,773	14,114	22,437	28,608	40,237	90,056	154,455	160,542	82,292
Female . . . . .	576,429	8,577	1,632	1,784	5,095	8,801	13,979	24,235	58,084	112,397	169,377	172,400
White . . . . .	1,009,325	12,293	2,579	3,231	13,941	21,264	29,832	48,628	120,830	229,806	293,400	233,403
Male . . . . .	512,406	7,049	1,487	2,003	10,176	15,472	20,170	30,459	74,160	134,001	142,798	74,555
Female . . . . .	496,919	5,244	1,092	1,228	3,765	5,792	9,662	18,169	46,670	95,805	150,602	158,848
Black . . . . .	155,534	6,675	1,052	1,115	4,554	9,037	11,559	14,129	24,307	32,786	31,867	18,401
Male . . . . .	84,492	3,676	608	652	3,415	6,312	7,692	8,777	14,128	17,886	14,968	6,348
Female . . . . .	71,042	2,999	444	463	1,139	2,725	3,867	5,352	10,179	14,900	16,899	12,053
Not stated <sup>2</sup> . . . . .	45,117	1,623	221	249	1,107	1,772	2,261	3,012	6,161	10,230	10,995	7,342
Male . . . . .	25,731	932	121	143	826	1,330	1,705	2,090	4,186	6,178	5,571	2,530
Female . . . . .	19,386	691	100	106	281	442	556	922	1,975	4,052	5,424	4,812

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

<sup>2</sup>Includes deaths that occurred in States that did not report Hispanic origin on the death certificate.

Table 20. Deaths for the 10 leading causes of death for Hispanic and white non-Hispanic origin, for specified age groups: Total of 26 reporting States and the District of Columbia, 1988

[For explanation of asterisk preceding cause-of-death codes, see Technical notes. For a listing of reporting States, see Technical notes]

Hispanic			White non-Hispanic		
Rank order	Cause of death and age (Ninth Revision International Classification of Diseases, 1975)	Number	Rank order	Cause of death and age (Ninth Revision International Classification of Diseases, 1975)	Number
All ages <sup>1</sup>			All ages <sup>1</sup>		
...	All causes	54,713	...	All causes	1,009,325
1	Diseases of heart. . . . .390-398,402,404-429	13,685	1	Diseases of heart. . . . .390-398,402,404-429	366,809
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	8,960	2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	230,333
3	Accidents and adverse effects . . . . .E800-E949	5,353	3	Cerebrovascular diseases . . . . .430-438	70,939
...	Motor vehicle accidents . . . . .E810-E825	3,107	4	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	43,395
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	2,246	5	Accidents and adverse effects . . . . .E800-E949	40,949
4	Cerebrovascular diseases . . . . .430-438	2,822	...	Motor vehicle accidents . . . . .E810-E825	20,767
5	Homicide and legal intervention . . . . .E960-E978	2,511	...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	20,182
6	Human immunodeficiency virus infection . . . . .*042-*044	1,882	6	Pneumonia and influenza . . . . .480-487	38,713
7	Chronic liver disease and cirrhosis . . . . .571	1,847	7	Diabetes mellitus . . . . .250	17,314
8	Pneumonia and influenza . . . . .480-487	1,763	8	Suicide . . . . .E950-E959	14,896
9	Diabetes mellitus . . . . .250	1,584	9	Chronic liver disease and cirrhosis . . . . .571	11,441
10	Certain conditions originating in the perinatal period . . . . .760-779	1,391	10	Atherosclerosis . . . . .440	11,369
...	All other causes . . . . .Residual	12,915	...	All other causes . . . . .Residual	163,167
1-14 years			1-14 years		
...	All causes	1,330	...	All causes	5,810
1	Accidents and adverse effects . . . . .E800-E949	537	1	Accidents and adverse effects . . . . .E800-E949	2,576
...	Motor vehicle accidents . . . . .E810-E825	295	...	Motor vehicle accidents . . . . .E810-E825	1,313
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	242	...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	1,263
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	129	2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	637
3	Congenital anomalies . . . . .740-759	128	3	Congenital anomalies . . . . .740-759	484
4	Homicide and legal intervention . . . . .E960-E978	71	4	Homicide and legal intervention . . . . .E960-E978	227
5	Diseases of heart. . . . .390-398,402,404-429	63	5	Diseases of heart. . . . .390-398,402,404-429	213
6	Human immunodeficiency virus infection . . . . .*042-*044	28	6	Pneumonia and influenza . . . . .480-487	113
6	Pneumonia and influenza . . . . .480-487	28	7	Suicide . . . . .E950-E959	104
8	Meningitis . . . . .320-322	14	8	Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . . . . .210-239	64
8	Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . . . . .210-239	14	9	Meningitis . . . . .320-322	58
10	Septicemia . . . . .038	13	10	Certain conditions originating in the perinatal period . . . . .760-779	55
...	All other causes . . . . .Residual	305	...	All other causes . . . . .Residual	1,279
15-24 years			15-24 years		
...	All causes	3,277	...	All causes	13,941
1	Accidents and adverse effects . . . . .E800-E949	1,417	1	Accidents and adverse effects . . . . .E800-E949	7,711
...	Motor vehicle accidents . . . . .E810-E825	1,046	...	Motor vehicle accidents . . . . .E810-E825	6,146
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	371	...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	1,565
2	Homicide and legal intervention . . . . .E960-E978	825	2	Suicide . . . . .E950-E959	2,134
3	Suicide . . . . .E950-E959	303	3	Homicide and legal intervention . . . . .E960-E978	842
4	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	129	4	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	812
5	Diseases of heart. . . . .390-398,402,404-429	77	5	Diseases of heart. . . . .390-398,402,404-429	343
6	Human immunodeficiency virus infection . . . . .*042-*044	70	6	Congenital anomalies . . . . .740-759	187
7	Congenital anomalies . . . . .740-759	41	7	Human immunodeficiency virus infection . . . . .*042-*044	150
8	Cerebrovascular diseases . . . . .430-438	28	8	Cerebrovascular diseases . . . . .430-438	103
9	Pneumonia and influenza . . . . .480-487	27	9	Pneumonia and influenza . . . . .480-487	94
10	Complications of pregnancy, childbirth, and the puerperium . . . . .630-676	15	10	Diabetes mellitus . . . . .250	47
...	All other causes . . . . .Residual	345	...	All other causes . . . . .Residual	1,518
25-44 years			25-44 years		
...	All causes	9,628	...	All causes	51,096
1	Accidents and adverse effects . . . . .E800-E949	2,061	1	Accidents and adverse effects . . . . .E800-E949	11,400
...	Motor vehicle accidents . . . . .E810-E825	1,172	...	Motor vehicle accidents . . . . .E810-E825	6,863
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	889	...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	4,537
2	Human immunodeficiency virus infection . . . . .*042-*044	1,437	2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	9,042
3	Homicide and legal intervention . . . . .E960-E978	1,302	3	Diseases of heart. . . . .390-398,402,404-429	5,990
4	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	855	4	Suicide . . . . .E950-E959	5,645
5	Diseases of heart. . . . .390-398,402,404-429	605	5	Human immunodeficiency virus infection . . . . .*042-*044	4,585
6	Chronic liver disease and cirrhosis . . . . .571	540	6	Homicide and legal intervention . . . . .E960-E978	2,167
7	Suicide . . . . .E950-E959	492	7	Chronic liver disease and cirrhosis . . . . .571	1,603
8	Cerebrovascular diseases . . . . .430-438	203	8	Cerebrovascular diseases . . . . .430-438	1,046
9	Pneumonia and influenza . . . . .480-487	170	9	Diabetes mellitus . . . . .250	833
10	Diabetes mellitus . . . . .250	70	10	Pneumonia and influenza . . . . .480-487	710
...	All other causes . . . . .Residual	1,893	...	All other causes . . . . .Residual	8,075

See footnote at end of table.

Table 20. Deaths for the 10 leading causes of death for Hispanic and white non-Hispanic origin, for specified age groups: Total of 26 reporting States and the District of Columbia, 1988—Con.

[For explanation of asterisk preceding cause-of-death codes, see Technical notes. For a listing of reporting States, see Technical notes]

Hispanic			White non-Hispanic		
Rank order	Cause of death and age (Ninth Revision International Classification of Diseases, 1975)	Number	Rank order	Cause of death and age (Ninth Revision International Classification of Diseases, 1975)	Number
45-64 years			45-64 years		
...	All causes	12,307	...	All causes	169,458
1	Diseases of heart. . . . .390-398,402,404-429	3,350	1	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	63,003
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	3,092	2	Diseases of heart. . . . .390-398,402,404-429	52,009
3	Chronic liver disease and cirrhosis . . . . .571	906	3	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	6,405
4	Accidents and adverse effects . . . . .E800-E949	720	4	Accidents and adverse effects . . . . .E800-E949	6,325
...	Motor vehicle accidents . . . . .E810-E825	363	...	Motor vehicle accidents . . . . .E810-E825	3,057
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	357	...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	3,268
5	Cerebrovascular diseases. . . . .430-438	627	5	Cerebrovascular diseases. . . . .430-438	5,891
6	Diabetes mellitus . . . . .250	485	6	Chronic liver disease and cirrhosis . . . . .571	4,971
7	Human immunodeficiency virus infection . . . . .*042-*044	318	7	Suicide. . . . .E950-E959	3,546
8	Homicide and legal intervention . . . . .E960-E978	232	8	Diabetes mellitus . . . . .250	3,309
9	Pneumonia and influenza . . . . .480-487	218	9	Pneumonia and influenza . . . . .480-487	2,372
10	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	211	10	Human immunodeficiency virus infection . . . . .*042-*044	1,418
...	All other causes . . . . .Residual	2,148	...	All other causes . . . . .Residual	20,209
65 years and over			65 years and over		
...	All causes	24,828	...	All causes	756,609
1	Diseases of heart. . . . .390-398,402,404-429	9,510	1	Diseases of heart. . . . .390-398,402,404-429	307,954
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	4,749	2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	156,798
3	Cerebrovascular diseases. . . . .430-438	1,945	3	Cerebrovascular diseases. . . . .430-438	63,811
4	Pneumonia and influenza . . . . .480-487	1,248	4	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	36,573
5	Diabetes mellitus . . . . .250	1,023	5	Pneumonia and influenza . . . . .480-487	35,226
6	Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	772	6	Diabetes mellitus . . . . .250	13,108
7	Accidents and adverse effects . . . . .E800-E949	501	7	Accidents and adverse effects . . . . .E800-E949	12,617
...	Motor vehicle accidents . . . . .E810-E825	189	...	Motor vehicle accidents . . . . .E810-E825	3,307
...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	312	...	All other accidents and adverse effects . . . . .E800-E807,E826-E949	9,310
8	Nephritis, nephrotic syndrome, and nephrosis . . . .580-589	456	8	Atherosclerosis. . . . .440	10,902
9	Chronic liver disease and cirrhosis . . . . .571	387	9	Nephritis, nephrotic syndrome, and nephrosis . . . .580-589	7,839
10	Septicemia . . . . .038	335	10	Septicemia . . . . .038	7,100
...	All other causes . . . . .Residual	3,902	...	All other causes . . . . .Residual	104,681

<sup>1</sup>Includes deaths under 1 year of age.



**Table 21. Infant, neonatal, and postneonatal deaths and mortality rates, by specified Hispanic origin and race for non-Hispanic origin: Total of 23 reporting States and the District of Columbia, 1988**

[Rates per 1,000 live births in specified group. Live births based on origin of mother. For a listing of reporting States, see Technical notes]

Age	All origins	Hispanic					Non-Hispanic			Not stated <sup>3</sup>
		Total	Mexican	Puerto Rican	Cuban	Other Hispanic <sup>1</sup>	Total <sup>2</sup>	White	Black	
Number										
Under 1 year . . . . .	24,083	3,245	2,061	278	24	882	19,232	11,871	6,643	1,606
Under 28 days . . . . .	15,120	2,017	1,258	168	15	576	11,897	7,299	4,180	1,206
28 days-11 months . . . . .	8,963	1,228	803	110	9	306	7,335	4,572	2,463	400
Rate										
Under 1 year . . . . .	<sup>4</sup> 10.0	8.1	7.8	7.7	7.6	8.8	9.9	8.3	17.1	...
Under 28 days . . . . .	<sup>4</sup> 6.3	5.0	4.8	4.6	4.7	5.8	6.1	5.1	10.8	...
28 days-11 months . . . . .	<sup>4</sup> 3.7	3.0	3.0	3.0	2.8	3.1	3.8	3.2	6.3	...

<sup>1</sup>Includes Central and South American and other and unknown Hispanic.  
<sup>2</sup>Includes races other than white and black.  
<sup>3</sup>Includes infant deaths that occurred in States that did not report Hispanic origin on the death certificate.  
<sup>4</sup>Figures for origin not stated included in All origins but not distributed among origin groups.

**Table 22. Number of autopsies and percent of deaths for which autopsies were reported for 15 leading causes of death: United States, 1988**

[For explanation of asterisk preceding cause-of-death codes, see Technical notes]

Rank order <sup>1</sup>	Cause of death (Ninth Revision International Classification of Diseases, 1975)	Total deaths	Reported autopsy	
			Number	Percent
...	All causes . . . . .	2,167,999	251,095	11.6
1	Diseases of heart . . . . . 390-398,402,404-429	765,156	59,318	7.8
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . . 140-208	485,048	19,689	4.1
3	Cerebrovascular diseases . . . . . 430-438	150,517	5,826	3.9
4	Accidents and adverse effects . . . . . E800-E949	97,100	48,198	49.6
...	Motor vehicle accidents . . . . . E810-E825	49,078	25,338	51.6
...	All other accidents and adverse effects . . . . . E800-E807, E826-E949	48,022	22,860	47.6
5	Chronic obstructive pulmonary diseases and allied conditions . . . . . 490-496	82,853	4,400	5.3
6	Pneumonia and influenza . . . . . 480-487	77,662	6,546	8.4
7	Diabetes mellitus . . . . . 250	40,368	1,983	4.9
8	Suicide . . . . . E950-E959	30,407	16,497	54.3
9	Chronic liver disease and cirrhosis . . . . . 571	26,409	5,121	19.4
10	Nephritis, nephrotic syndrome, and nephrosis . . . . . 580-589	22,392	1,210	5.4
11	Atherosclerosis . . . . . 440	22,086	603	2.7
12	Homicide and legal intervention . . . . . E960-E978	22,032	21,265	96.5
13	Septicemia . . . . . 038	20,925	1,923	9.2
14	Certain conditions originating in the perinatal period . . . . . 760-779	18,220	4,555	25.0
15	Human immunodeficiency virus infection . . . . . *042-*044	16,602	2,050	12.3
...	All other causes . . . . . Residual	290,222	51,911	17.9

<sup>1</sup>Rank based on number of deaths; see Technical notes.

**Table 23. Deaths and percent distribution of deaths, by marital status according to race and sex: United States, 1988**

Marital status	All races						All other					
	Both sexes		Male		Female		Total		Black		White	
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Number												
Total . . . . .	2,112,148	1,093,414	1,018,734	1,838,522	943,019	895,503	273,626	150,395	123,231	248,304	135,460	112,844
Never married . . . . .	220,694	135,849	84,845	173,888	103,267	70,621	46,806	32,582	14,224	43,390	29,963	13,427
Ever married . . . . .	1,878,851	948,511	930,340	1,655,847	833,519	822,328	223,004	114,992	108,012	201,315	102,847	98,468
Married . . . . .	930,551	655,777	274,774	825,513	583,125	242,388	105,038	72,652	32,386	92,245	63,733	28,512
Widowed . . . . .	781,766	195,935	585,831	691,336	170,019	521,317	90,430	25,916	64,514	83,340	23,799	59,541
Divorced . . . . .	166,534	96,799	69,735	138,998	80,375	58,623	27,536	16,424	11,112	25,730	15,315	10,415
Not stated . . . . .	12,603	9,054	3,549	8,787	6,233	2,554	3,816	2,821	995	3,599	2,650	949
Percent distribution <sup>1</sup>												
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never married . . . . .	10.5	12.5	8.4	9.5	11.0	7.9	17.3	22.1	11.6	17.7	22.6	12.0
Ever married . . . . .	89.5	87.5	91.6	90.5	89.0	92.1	82.7	77.9	88.4	82.3	77.4	88.0
Married . . . . .	44.3	60.5	27.1	45.1	62.2	27.1	38.9	49.2	26.5	37.7	48.0	25.5
Widowed . . . . .	37.2	18.1	57.7	37.8	18.1	58.4	33.5	17.6	52.8	34.1	17.9	53.2
Divorced . . . . .	7.9	8.9	6.9	7.6	8.6	6.6	10.2	11.1	9.1	10.5	11.5	9.3

<sup>1</sup>Denominators of percent distribution exclude deaths of persons of unknown marital status.

**Table 24. Deaths and death rates from 16 selected subcategories of Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, by race and sex: United States, 1988**

[Rates per 100,000 population in specified group]

Cause of death (Ninth Revision International Classification of Diseases, 1975)	All races						All other					
	Both sexes			White			Total			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Number											
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues <sup>1</sup> .140-208	485,048	258,088	226,960	425,140	224,514	200,626	59,908	33,574	26,334	53,968	30,321	23,647
Malignant neoplasm of esophagus. . . . .150	9,336	6,916	2,420	7,182	5,260	1,922	2,154	1,656	498	2,050	1,580	470
Malignant neoplasm of stomach . . . . .151	13,676	8,105	5,571	11,085	6,499	4,586	2,591	1,606	985	2,118	1,316	802
Malignant neoplasms of colon, rectum, rectosigmoid junction, and anus . . . . .153,154	55,920	27,584	28,336	49,726	24,634	25,092	6,194	2,950	3,244	5,578	2,605	2,973
Malignant neoplasm of pancreas . . . . .157	23,848	11,722	12,126	20,679	10,188	10,491	3,169	1,534	1,635	2,824	1,355	1,469
Malignant neoplasms of trachea, bronchus, and lung . . . . .162	133,284	88,059	45,225	117,826	77,063	40,763	15,458	10,996	4,462	14,131	10,112	4,019
Malignant melanoma of skin. . . . .172	5,979	3,585	2,394	5,877	3,535	2,342	102	50	52	88	41	47
Malignant neoplasm of cervix uteri. . . . .180	4,443	...	4,443	3,343	...	3,343	1,100	...	1,100	974	...	974
Malignant neoplasms of body of uterus and of uterus, part unspecified . . . . .179,182	5,892	...	5,892	4,956	...	4,956	936	...	936	880	...	880
Malignant neoplasm of ovary . . . . .183.0	12,214	...	12,214	11,129	...	11,129	1,085	...	1,085	938	...	938
Malignant neoplasm of prostate . . . . .185	28,982	28,982	...	24,176	24,176	...	4,806	4,806	...	4,582	4,582	...
Malignant neoplasm of bladder . . . . .188	9,805	6,534	3,271	8,951	6,077	2,874	854	457	397	782	411	371
Malignant neoplasms of kidney and other and unspecified urinary organs . . . . .189	9,669	5,855	3,814	8,749	5,289	3,460	920	566	354	820	501	319
Malignant neoplasms of brain and other and unspecified parts of nervous system . .191,192	10,943	6,076	4,867	10,161	5,659	4,502	782	417	365	669	358	311
Hodgkin's disease. . . . .201	1,608	945	663	1,445	851	594	163	94	69	150	84	66
Malignant lymphoma other than Hodgkin's disease . . . . .200,202	17,259	8,892	8,367	16,006	8,177	7,829	1,253	715	538	1,047	600	447
Multiple myeloma and other immunoproliferative neoplasms. . . . .203	8,318	4,231	4,087	6,892	3,562	3,330	1,426	669	757	1,347	631	716
	Rate											
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues <sup>1</sup> .140-208	197.3	215.5	180.0	205.0	221.4	189.3	155.9	183.0	131.1	178.7	211.7	148.9
Malignant neoplasm of esophagus. . . . .150	3.8	5.8	1.9	3.5	5.2	1.8	5.6	9.0	2.5	6.8	11.0	3.0
Malignant neoplasm of stomach . . . . .151	5.6	6.8	4.4	5.3	6.4	4.3	6.7	8.8	4.9	7.0	9.2	5.1
Malignant neoplasms of colon, rectum, rectosigmoid junction, and anus . . . . .153,154	22.7	23.0	22.5	24.0	24.3	23.7	16.1	16.1	16.2	18.5	18.2	18.7
Malignant neoplasm of pancreas . . . . .157	9.7	9.8	9.6	10.0	10.0	9.9	8.2	8.4	8.1	9.4	9.5	9.3
Malignant neoplasms of trachea, bronchus, and lung . . . . .162	54.2	73.5	35.9	56.8	76.0	38.5	40.2	59.9	22.2	46.8	70.6	25.3
Malignant melanoma of skin. . . . .172	2.4	3.0	1.9	2.8	3.5	2.2	0.3	0.3	0.3	0.3	0.3	0.3
Malignant neoplasm of cervix uteri. . . . .180	1.8	...	3.5	1.6	...	3.2	2.9	...	5.5	3.2	...	6.1
Malignant neoplasms of body of uterus and of uterus, part unspecified . . . . .179,182	2.4	...	4.7	2.4	...	4.7	2.4	...	4.7	2.9	...	5.5
Malignant neoplasm of ovary . . . . .183.0	5.0	...	9.7	5.4	...	10.5	2.8	...	5.4	3.1	...	5.9
Malignant neoplasm of prostate . . . . .185	11.8	24.2	...	11.7	23.8	...	12.5	26.2	...	15.2	32.0	...
Malignant neoplasm of bladder . . . . .188	4.0	5.5	2.6	4.3	6.0	2.7	2.2	2.5	2.0	2.6	2.9	2.3
Malignant neoplasms of kidney and other and unspecified urinary organs . . . . .189	3.9	4.9	3.0	4.2	5.2	3.3	2.4	3.1	1.8	2.7	3.5	2.0
Malignant neoplasms of brain and other and unspecified parts of nervous system . .191,192	4.5	5.1	3.9	4.9	5.6	4.2	2.0	2.3	1.8	2.2	2.5	2.0
Hodgkin's disease. . . . .201	0.7	0.8	0.5	0.7	0.8	0.6	0.4	0.5	0.3	0.5	0.6	0.4
Malignant lymphoma other than Hodgkin's disease . . . . .200,202	7.0	7.4	6.6	7.7	8.1	7.4	3.3	3.9	2.7	3.5	4.2	2.8
Multiple myeloma and other immunoproliferative neoplasms. . . . .203	3.4	3.5	3.2	3.3	3.5	3.1	3.7	3.6	3.8	4.5	4.4	4.5

<sup>1</sup>Includes figures for subcategories not shown.

Table 25. Deaths and death rates by 10-year age groups and age-adjusted death rates for Human immunodeficiency virus infection, by race and sex: United States, 1987-88

[Human immunodeficiency virus infection deaths are those assigned to category numbers \*042-\*044 introduced in the United States in 1987; see Technical notes]

Year, race, and sex	Age												Age-adjusted rate <sup>3</sup>
	All ages <sup>1</sup>	Under 1 year <sup>2</sup>	1-4 years	5-14 years	15-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85 years and over	
1988													Number
All races . . . . .	16,602	81	114	54	535	6,036	6,184	2,352	867	286	79	11	...
Male . . . . .	14,811	49	62	34	447	5,279	5,656	2,214	784	223	53	8	...
Female . . . . .	1,791	32	52	20	88	757	528	138	83	63	26	3	...
White . . . . .	11,267	33	48	30	322	3,907	4,221	1,748	646	232	26	10	...
Male . . . . .	10,479	23	26	23	282	3,599	4,015	1,682	595	179	46	7	...
Female . . . . .	788	10	22	7	40	308	206	66	51	53	22	3	...
All other . . . . .	5,335	48	66	24	213	2,129	1,963	604	221	54	11	1	...
Male . . . . .	4,332	26	36	11	165	1,680	1,641	532	189	44	7	1	...
Female . . . . .	1,003	22	30	13	48	449	322	72	32	10	4	-	...
Black . . . . .	5,197	48	66	23	209	2,080	1,912	587	208	52	10	1	...
Male . . . . .	4,202	26	36	10	161	1,632	1,592	517	178	42	7	1	...
Female . . . . .	995	22	30	13	48	448	320	70	30	10	3	-	...
1987													
All races . . . . .	13,468	87	104	47	492	5,026	4,794	1,838	761	230	73	13	...
Male . . . . .	12,088	41	53	33	429	4,436	4,431	1,739	698	179	41	6	...
Female . . . . .	1,380	46	51	14	63	590	363	99	63	51	32	7	...
White . . . . .	9,328	33	50	33	305	3,330	3,328	1,381	588	200	69	10	...
Male . . . . .	8,700	20	25	26	282	3,087	3,183	1,328	545	160	39	4	...
Female . . . . .	628	13	25	7	23	243	145	53	43	40	30	6	...
All other . . . . .	4,140	54	54	14	187	1,696	1,466	457	173	30	4	3	...
Male . . . . .	3,388	21	28	7	147	1,349	1,248	411	153	19	2	2	...
Female . . . . .	752	33	26	7	40	347	218	46	20	11	2	1	...
Black . . . . .	4,040	54	52	14	183	1,670	1,427	440	168	24	3	3	...
Male . . . . .	3,301	21	26	7	145	1,326	1,212	395	150	15	1	2	...
Female . . . . .	739	33	26	7	38	344	215	45	18	9	2	1	...
1988													Rate
All races . . . . .	6.8	2.1	0.8	0.2	1.4	13.8	17.5	9.7	4.0	1.6	0.8	0.4	6.6
Male . . . . .	12.4	2.5	0.8	0.2	2.4	24.2	32.5	18.8	7.6	2.8	1.5	1.0	12.0
Female . . . . .	1.4	1.7	0.7	0.1	0.5	3.5	3.0	1.1	0.7	0.6	0.4	0.1	1.4
White . . . . .	5.4	1.1	0.4	0.1	1.1	10.7	14.0	8.4	3.4	1.5	0.8	0.4	5.3
Male . . . . .	10.3	1.4	0.4	0.2	1.8	19.5	26.7	16.4	6.5	2.5	1.4	0.9	9.9
Female . . . . .	0.7	0.7	0.4	0.1	0.3	1.7	1.4	0.6	0.5	0.6	0.4	0.2	0.7
All other . . . . .	13.9	6.5	2.3	0.4	3.1	30.2	38.7	18.2	8.3	2.8	1.2	0.4	14.1
Male . . . . .	23.6	6.9	2.5	0.3	4.8	50.0	70.4	35.2	15.7	5.4	2.0	1.2	24.8
Female . . . . .	5.0	6.0	2.2	0.4	1.4	12.1	11.8	4.0	2.2	0.9	0.7	-	4.9
Black . . . . .	17.2	8.1	3.0	0.4	3.8	37.8	50.2	23.0	9.7	3.4	1.4	0.4	17.9
Male . . . . .	29.3	8.7	3.2	0.4	5.9	62.8	91.7	45.2	18.4	6.4	2.6	1.4	31.6
Female . . . . .	6.3	7.5	2.8	0.5	1.7	15.4	15.4	5.0	2.6	1.1	0.7	-	6.2
1987													
All races . . . . .	5.5	2.3	0.7	0.1	1.3	11.6	14.0	7.9	3.5	1.3	0.8	0.5	5.5
Male . . . . .	10.2	2.1	0.7	0.2	2.2	20.5	26.2	15.4	6.7	2.3	1.2	0.7	10.0
Female . . . . .	1.1	2.5	0.7	0.1	0.3	2.7	2.1	0.8	0.5	0.5	0.6	0.3	1.1
White . . . . .	4.5	1.1	0.4	0.1	1.0	9.1	11.3	6.9	3.0	1.3	0.8	0.4	4.4
Male . . . . .	8.6	1.3	0.4	0.2	1.8	16.8	21.7	13.5	5.9	2.3	1.2	0.6	8.3
Female . . . . .	0.6	0.9	0.4	0.1	0.1	1.3	1.0	0.5	0.4	0.5	0.6	0.3	0.6
All other . . . . .	11.0	7.5	1.9	0.2	2.7	24.6	30.3	14.2	6.6	1.6	0.5	1.2	11.3
Male . . . . .	18.9	5.8	2.0	0.2	4.3	41.1	56.2	28.2	12.9	2.4	0.6	2.4	20.0
Female . . . . .	3.8	9.3	1.9	0.2	1.2	9.6	8.4	2.6	1.4	1.0	0.4	0.6	3.7
Black . . . . .	13.6	9.4	2.4	0.3	3.3	30.9	39.1	17.7	7.9	1.6	0.4	1.4	14.2
Male . . . . .	23.4	7.3	2.4	0.3	5.3	52.0	72.9	35.4	15.6	2.3	0.4	2.9	25.4
Female . . . . .	4.7	11.7	2.4	0.3	1.4	12.0	10.8	3.3	1.5	1.0	0.5	0.7	4.7

<sup>1</sup>Figures for age not stated included in All ages but not distributed among age groups.  
<sup>2</sup>Death rates under 1 year (based on population estimates) differ from infant mortality rates (based on live births); see tables E, 13, 14, 15, 17, and 21 for infant mortality rates, and Technical notes for further discussion of the difference.  
<sup>3</sup>For method of computation, see Technical notes.

**Table 26. Deaths and age-adjusted death rates for drug-induced causes, by race and sex: United States, 1979-88**

[Rates per 100,000 population in specified group. For listing of drug-induced causes, see Technical notes]

Year	All races			White			All other					
							Total			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Number												
1988	10,917	7,004	3,913	8,409	5,234	3,175	2,508	1,770	738	2,395	1,700	695
1987	9,796	6,146	3,650	7,547	4,600	2,947	2,249	1,546	703	2,101	1,465	636
1986	9,976	6,284	3,692	7,948	4,885	3,063	2,028	1,399	629	1,906	1,335	571
1985	8,663	5,342	3,321	6,946	4,172	2,774	1,717	1,170	547	1,600	1,107	493
1984	7,892	4,640	3,252	6,309	3,587	2,722	1,583	1,053	530	1,480	997	483
1983	7,492	4,145	3,347	6,187	3,378	2,809	1,305	767	538	1,194	724	470
1982	7,310	4,130	3,180	5,991	3,251	2,740	1,319	879	440	1,212	822	390
1981	7,106	3,835	3,271	5,863	3,042	2,821	1,243	793	450	1,152	751	401
1980	6,900	3,771	3,129	5,814	3,088	2,726	1,086	683	403	1,006	648	358
1979	7,101	3,656	3,445	6,116	3,077	3,039	985	579	406	897	540	357
Age-adjusted death rate <sup>1</sup>												
1988	4.2	5.6	2.9	3.8	4.8	2.7	6.7	10.2	3.6	8.2	12.9	4.3
1987	3.8	4.9	2.7	3.4	4.3	2.5	6.1	9.1	3.5	7.4	11.3	4.1
1986	3.9	5.1	2.8	3.7	4.6	2.7	5.7	8.5	3.2	6.8	10.5	3.7
1985	3.5	4.5	2.6	3.2	4.0	2.5	4.9	7.3	2.9	5.8	8.9	3.3
1984	3.2	3.9	2.5	3.0	3.5	2.5	4.7	6.7	2.9	5.5	8.2	3.2
1983	3.1	3.5	2.6	2.9	3.3	2.5	3.9	5.1	3.0	4.5	6.1	3.3
1982	3.1	3.6	2.6	2.9	3.3	2.5	4.1	5.8	2.6	4.7	6.9	2.8
1981	3.1	3.4	2.7	2.9	3.1	2.7	4.1	5.6	2.7	4.6	6.6	3.0
1980	3.0	3.4	2.6	2.9	3.2	2.6	3.7	4.9	2.5	4.1	5.8	2.7
1979	3.1	3.4	2.9	3.1	3.2	3.0	3.4	4.3	2.6	3.7	4.9	2.7

<sup>1</sup>For method of computation, see Technical notes.

**Table 27. Deaths and age-adjusted death rates for alcohol-induced causes, by race and sex: United States, 1979-88**

[Rates per 100,000 population in specified group. For listing of alcohol-induced causes, see Technical notes]

Year	All races			White			All other					
							Total			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Number												
1988	18,872	14,206	4,666	14,035	10,681	3,354	4,837	3,525	1,312	4,294	3,159	1,135
1987	17,819	13,461	4,358	13,361	10,172	3,189	4,458	3,289	1,169	4,055	3,028	1,027
1986	17,425	12,986	4,439	13,198	9,864	3,334	4,227	3,122	1,105	3,853	2,862	991
1985	17,741	13,216	4,525	13,216	9,922	3,294	4,525	3,294	1,231	4,114	3,030	1,084
1984	17,606	12,995	4,611	13,384	9,986	3,398	4,222	3,009	1,213	3,776	2,710	1,066
1983	17,400	12,812	4,588	13,288	9,863	3,425	4,112	2,949	1,163	3,708	2,668	1,040
1982	17,541	12,903	4,638	13,527	10,042	3,485	4,014	2,861	1,153	3,603	2,573	1,030
1981	18,660	13,600	5,060	14,199	10,441	3,758	4,461	3,159	1,302	4,000	2,858	1,142
1980	19,765	14,447	5,318	14,815	10,936	3,879	4,950	3,511	1,439	4,451	3,170	1,281
1979	18,951	13,788	5,163	14,334	10,513	3,821	4,617	3,275	1,342	4,132	2,953	1,179
Age-adjusted death rate <sup>1</sup>												
1988	7.0	11.1	3.3	5.9	9.4	2.7	14.2	22.8	7.0	16.2	26.6	7.7
1987	6.8	10.8	3.1	5.7	9.1	2.6	13.4	21.9	6.4	15.6	26.0	7.2
1986	6.7	10.5	3.2	5.7	8.9	2.7	13.0	21.4	6.2	15.1	25.0	7.0
1985	6.9	10.9	3.4	5.8	9.1	2.8	14.5	23.3	7.2	16.6	27.2	7.9
1984	7.0	10.8	3.4	5.9	9.3	2.9	13.9	22.1	7.3	15.6	25.0	7.9
1983	7.0	10.8	3.5	5.9	9.3	2.9	14.0	22.3	7.2	15.6	25.1	8.0
1982	7.2	11.2	3.6	6.1	9.7	3.0	14.2	22.6	7.4	15.7	25.3	8.1
1981	7.8	12.0	4.0	6.5	10.2	3.3	16.4	25.8	8.8	17.9	28.7	9.3
1980	8.4	13.0	4.3	6.9	10.8	3.5	18.8	29.5	10.0	20.4	32.4	10.6
1979	8.2	12.6	4.3	6.8	10.6	3.5	18.1	28.3	9.7	19.2	30.4	10.1

<sup>1</sup>For method of computation, see Technical notes.

## Technical notes

### Nature and sources of data

Data shown in this report are based on information from all death certificates filed in the 50 States and the District of Columbia.

Mortality statistics are based on information coded by the National Center for Health Statistics (NCHS) from copies of the original certificates received from the State registration offices and on State-coded data provided to NCHS through the Vital Statistics Cooperative Program (VSCP). In 1988 all the States and the District of Columbia participated in this program and submitted part or all of the mortality data for 1988 on computer tape to NCHS. The following 22 States in the VSCP submitted precoded medical data for all deaths on computer tapes: California, Colorado, Florida, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Nebraska, New Hampshire, New York State (excluding New York City), North Carolina, Pennsylvania, South Carolina, Texas, Vermont, Virginia, and Wisconsin. In addition, NCHS contracted with Colorado, Kansas, Mississippi, and Wisconsin to precode medical data for all deaths on computer tape for the following five states: Alaska, Delaware, Idaho, North Dakota, and Wyoming. Vermont subcontracted with Pennsylvania for the coding of its medical data. The remaining 23 VSCP States, New York City, and the District of Columbia submitted copies of the original certificates from which NCHS coded the medical data. For 1988, all States submitted precoded demographic data for all deaths.

Data for the United States as a whole refer to events occurring within the United States. Data shown for geographic areas are by place of residence. Beginning with 1970, mortality statistics exclude deaths of nonresidents of the United States. All data exclude fetal deaths.

### Cause-of-death classification

The mortality statistics presented here were compiled in accordance with

the World Health Organization (WHO) regulations, which specify that member nations classify causes of death by the current *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*.

Causes of death for 1979–88 were classified according to the *Ninth Revision International Classification of Diseases* (2). For earlier years causes of death were classified according to the revisions then in use, as follows: 1968–78, Eighth Revision; 1958–67, Seventh Revision; and 1949–57, Sixth Revision. Changes in classification of causes of death due to these revisions may result in discontinuities in cause-of-death trends. Consequently, cause-of-death comparisons between revisions require consideration of comparability ratios and, where available, estimates of their standard errors. Comparability ratios between the Eighth and Ninth Revisions, between the Seventh and Eighth Revisions, and between the Sixth and Seventh Revisions may be found in other NCHS reports (3–5).

Besides specifying the classification, the WHO regulations outline the form of medical certification and the procedures to be used in coding cause of death. Cause-of-death data presented in this publication were coded by procedures outlined in annual issues of Part 2a of the *NCHS Instruction Manual* (6).

In this report, tabulations of cause-of-death statistics are based solely on the underlying cause of death. The underlying cause is defined by WHO as the disease or injury that initiated the train of events leading directly to death or as the circumstances of the accident or violence that produced the fatal injury. It is selected from the conditions entered by the physician in the cause-of-death section of the death certificate. When more than one cause or condition is entered by the physician, the underlying cause is determined by the sequence of conditions on the certificate, provisions of the International Classification of Diseases (ICD), and associated selection rules. In general, more medical

information is reported on death certificates than is directly reflected in the underlying cause of death.

### Codes for HIV infection

Beginning with data for 1987, NCHS introduced category numbers \*042–\*044 for classifying and coding human immunodeficiency virus (HIV) infection. The asterisk before the category numbers indicates that these codes are not part of the Ninth Revision of the International Classification of Diseases (ICD–9). Deaths classified to Human immunodeficiency virus infection (Nos. \*042–\*044) for 1988 and 1987 are shown in table 25. They are included, but not shown separately, in the category All other infectious and parasitic diseases in the List of 72 Selected Causes of Death and in the category Remainder of infectious and parasitic diseases in the List of 61 Selected Causes of Infant Deaths. Prior to 1987, deaths involving HIV infection were classified to Deficiency of cell-mediated immunity (ICD 279.1), contained in the category All other diseases; to Pneumocystosis (ICD–9 No. 136.3), contained in the category All other infectious and parasitic diseases; to Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues; and to a number of other causes. As a consequence, cause-of-death data beginning with 1987 are not strictly comparable with data for previous years.

For data years 1983–86, acquired immunodeficiency syndrome and HIV infection, when reported on the death certificate, were assigned to the category Deficiency of cell-mediated immunity (ICD–9 No. 279.1). Because the selection rules for underlying cause of death were developed prior to the identification of acquired immunodeficiency syndrome, other conditions mentioned on the death certificate and not category ICD–9 No. 279.1 were often selected as the underlying cause of death during this period. Also, the category ICD–9 No. 279.1 was not uniquely specific for HIV conditions. As mentioned in more detail in the Advance Reports for 1984, 1985, and

1986, the number of death certificates that had mention of conditions coded to ICD-9 No. 279.1 for these years was 2,943, 6,040, and 10,900, respectively (7-9). It is believed that HIV infection was involved in most of these deaths.

### Drug-induced deaths

Causes of death attributable to drug-induced mortality include ICD-9 Nos. 292, Drug psychoses; 304, Drug dependence; 305.2-305.9, Nondependent use of drugs, not including alcohol and tobacco; E850-E858, Accidental poisoning by drugs, medications, and biologicals; E950.0-E950.5, Suicide by drugs, medications, and biologicals; E962.0, Assault from poisoning by drugs and medications; and E980.0-E980.5, Poisoning by drugs, medicaments, and biologicals, undetermined whether accidentally or purposely inflicted. The category drug-induced causes excludes accidents, homicides, and other causes indirectly related to drug use.

### Alcohol-induced deaths

Causes of death attributable to alcohol-induced mortality include ICD-9 Nos. 291, Alcoholic psychoses; 303, Alcohol dependence syndrome; 305.0, nondependent abuse of alcohol; 357.5, Alcoholic polyneuropathy; 425.5, Alcoholic cardiomyopathy; 535.3, Alcoholic gastritis; 571.0-571.3, Chronic liver disease and cirrhosis, specified as alcoholic; 790.3, Excessive blood level of alcohol; E860, Accidental poisoning by alcohol, not elsewhere classified. The category alcohol-induced causes excludes accidents, homicides, and other causes indirectly related to alcohol use.

### Quality of reporting of cause of death

One index of the quality of reporting causes of death is the proportion of death certificates coded to the Ninth Revision Chapter XVI Symptoms, signs, and ill-defined conditions (ICD-9 Nos. 780-799). Although there are deaths for which it is not possible to determine the underlying cause, this

proportion indicates the care and consideration given to the certification by the medical certifier. It may also be used as a rough measure of the specificity of the medical diagnoses made by the certifier in various areas. In 1988, a record low of 1.43 percent of all reported deaths in the United States were assigned to Symptoms, signs, and ill-defined conditions (ICD-9 Nos. 780-799), compared with 1.47 percent for 1987. However, trends in the percent of deaths assigned to this category vary by age. While the percent of deaths from this cause for all ages combined has generally remained stable between 1980 and 1987, slight increases in percents occurred for the age groups under 55 years and slight decreases occurred for the older age groups. However, between 1987 and 1988, the percent decreased for almost all age groups.

### Population bases for computing rates

The population used for computing rates shown in this report (furnished by the U.S. Bureau of the Census) represents the population residing in the specified area. Death rates for 1988 are based on population estimates as of July 1, 1988 (10,11). The estimates are based on the 1980 census counts. The 1980 census counts by race were modified to be consistent with U.S. Office of Management and Budget categories and historical categories for death data. The modification procedures are discussed in detail in a report of the U.S. Bureau of the Census (12).

Population estimates used to compute death rates for 1984-87 incorporate new estimation procedures for net migration and net undocumented immigration. Death rates for 1988 are comparable with those for 1984, 1985, 1986, and 1987 but are not strictly comparable with those of previous years. For additional detail, see *Advance Report of Final Mortality Statistics, 1984* (7) and a report of the U.S. Bureau of the Census (13).

Infant mortality rates shown in figure 5 and tables E, 13, 14, 15, 17, and 21 are the most commonly used index

for measuring the risk of dying during the first year of life; they are calculated by dividing the number of infant deaths in a calendar year by the number of live births registered for the same period and are presented as rates per 1,000 or per 100,000 live births. Infant mortality rates use the number of live births in the denominator to approximate the population at risk of dying before the first birthday.

In contrast to infant mortality rates based on live births, infant death rates shown in figure 2 and tables A, 2, 5, 9, and 25 are based on the estimated population under 1 year of age. Infant death rates that appear in tabulations of age-specific death rates are calculated by dividing the number of infant deaths in a calendar year by the mid-year population of persons under 1 year of age (estimated from births occurring in the 12-month period ending with June) and are presented as rates per 100,000 population in this age group. Due to differences in the denominators, infant death rates may differ from infant mortality rates.

### Cause-of-death rankings

The cause-of-death rankings shown in figure 4 and tables B-D, 5-7, 20, and 22 are based on the List of 72 Selected Causes of Death and the category Human immunodeficiency virus infection (HIV infection) (\*042-\*044); the cause-of-death ranking for infants in table 14 is based on the List of 61 Selected Causes of Infant Death and HIV infection. HIV infection was added to the lists of rankable causes effective with data year 1987.

The group titles Major cardiovascular diseases and Symptoms, signs, and ill-defined conditions are not ranked from the List of 72 Selected Causes; Certain conditions originating in the perinatal period and Symptoms, signs, and ill-defined conditions are not ranked from the List of 61 Selected Causes of Infant Death. In addition, category titles that begin with the words "Other" and "All other" are not ranked to determine the leading causes of death. When one of the titles that represents a subtotal is ranked (for example, Tuberculosis), its

component parts are not ranked (in this case, Tuberculosis of respiratory system and Other tuberculosis).

### Age-adjusted rates

The age-adjusted rates presented in this report were computed by the direct method, that is, by applying the age-specific death rates for a given cause of death to the standard population distributed by age. The total population as enumerated in 1940 was selected as the standard. The rates for the total population and for each race-sex group were adjusted separately, by using the same standard population. The age-adjusted rates were based on 10-year age groups. It is important not to compare age-adjusted death rates with crude rates.

### Random variation

Although the mortality data in this report (except data for 1972) are not subject to sampling error, they may be affected by random variation in the number of deaths involved. When the number of events is small (perhaps less than 100) and the probability of such an event is small, considerable caution must be observed in interpreting the data. Such infrequent events may be assumed to follow a Poisson probability distribution. For this distribution, a simple approximation may be used to estimate the confidence interval, as follows:

If  $N$  is the number of registered deaths in the population and  $R$  is the corresponding rate, the chances are 19 in 20 (approximate 95-percent confidence interval) that

$$1. N - 2\sqrt{N} \text{ and } N + 2\sqrt{N}$$

cover the "true" number of events.

$$2. R - 2 \frac{R}{\sqrt{N}} \text{ and } R + 2 \frac{R}{\sqrt{N}}$$

cover the "true" rate.

If the rate  $R_1$  corresponding to  $N_1$  events is compared with the rate  $R_2$

corresponding to  $N_2$  events, the difference between the two rates may be regarded as statistically significant if it exceeds

$$2\sqrt{\frac{R_1^2}{N_1} + \frac{R_2^2}{N_2}}$$

Additional information on random variation may be found in the Technical Appendix of *Vital Statistics of the United States*, 1987 Volume II, Mortality, Part A.

*Infant and maternal mortality rates*—Comparisons made in the text between infant, neonatal, postneonatal, and maternal mortality rates, unless otherwise specified, are statistically significant at the 0.05 level of significance, as described above. Lack of comment in the text about any two rates does not mean that the difference was tested and found not to be significant at this level.

### Life tables

U.S. abridged life tables are constructed by reference to a standard life table (14).

### Hispanic origin

For 1988 mortality data for the Hispanic-origin population are based on deaths to residents of 26 reporting States and the District of Columbia whose data were at least 90 percent complete on a place-of-occurrence basis and considered to be sufficiently comparable to be used for analysis. The 26 reporting States are as follows: Alabama, Arizona, Arkansas, California, Colorado, Georgia, Hawaii, Illinois, Indiana, Kansas, Kentucky, Maine, Mississippi, Montana, Nebraska, New Jersey, New York (including New York City), North Carolina, North Dakota, Ohio, Oregon, Rhode Island, Texas, Utah, Washington, and Wyoming.

Infant mortality rates for Hispanic-origin population are based on numbers of resident infant deaths reported to be of Hispanic origin and

numbers of resident live births by Hispanic origin of mother for 23 reporting States and the District of Columbia. The 23 States are as follows: Alabama, Arizona, Arkansas, California, Colorado, Georgia, Hawaii, Illinois, Indiana, Kansas, Kentucky, Maine, Mississippi, Montana, Nebraska, New Jersey, New York (including New York City), North Carolina, North Dakota, Ohio, Texas, Utah, and Washington. In computing infant mortality rates, deaths and live births of unknown origin are not distributed among the specified Hispanic and non-Hispanic groups. Because for 1988 the percent of infant deaths of unknown origin was 6.7 percent and the percent of live births of unknown origin was 2.8 percent, infant mortality rates by specified Hispanic origin and race for non-Hispanic origin may be somewhat underestimated.

Small numbers of infant deaths for specific Hispanic-origin groups can result in infant mortality rates subject to relatively large random variation. (See section on Random variation above.)

In 1980, the 26 reporting States and the District of Columbia accounted for about 82 percent of the Hispanic population in the United States, including about 91 percent of the Mexican population, 79 percent of the Puerto Rican population, 35 percent of the Cuban population, and 72 percent of the "Other Hispanic" population (12). The 23 reporting States and the District of Columbia accounted for about 81 percent of the Hispanic population, including about 90 percent of the Mexican population, 79 percent of the Puerto Rican population, 35 percent of the Cuban population, and 71 percent of the "Other Hispanic" population. Accordingly, caution should be exercised in generalizing mortality patterns from the reporting area to the Hispanic-origin population (especially Cubans) of the entire United States.

This report represents summary tabulations from the final mortality statistics for 1988. More detailed tabulations for 1988 will be published in *Vital Statistics of the United States, 1988* Volume II—Mortality. Prior to the publication of that volume, the National Center for Health Statistics will respond to requests for unpublished data whenever possible.

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