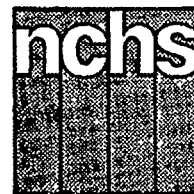


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# Monthly Vital Statistics Report



Provisional Data From the National Center for Health Statistics

## Annual Summary of Births, Marriages, Divorces, and Deaths: United States, 1988

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### Highlights

The provisional number of live births for 1988 was higher than the number reported for 1987 and was the largest number reported since 1964. The birth rate per 1,000 population and the fertility rate per 1,000 women 15-44 years of age also increased in 1988 and were the highest they have been since 1982.

In 1988 the provisional number of marriages fell by 1 percent from the comparable figure for 1987. The marriage rate per 1,000 population decreased 2 percent to the lowest level since 1967.

The number of divorces increased 2 percent between 1987 and 1988, and

the divorce rate per 1,000 population remained the same.

The provisional number of deaths increased in 1988 to the highest number ever recorded, reflecting the continued increase in the proportion of the population 65 years of age and over and the influenza outbreak which occurred in the first few months of the year. The age-adjusted death rate, however, remained essentially unchanged from 1987. The infant mortality rate declined to the lowest recorded level for the United States, and life expectancy at birth remained at the record high attained in 1987. Age-adjusted death rates were lower in 1988 for two leading causes of death, Diseases of heart and Nephritis, nephrotic syndrome, and nephrosis. Rates increased for Pneumonia and influenza, Homicide and legal intervention, and Human immunodeficiency virus infection. Changes for the remaining 10 of the 15 leading causes of death were not statistically significant.

Data for Human immunodeficiency virus infection reflect a 20-percent increase in the estimated number of deaths and a 23-percent increase in the rate between 1987 and 1988.

### Births

An estimated 3,913,000 babies were born in the United States during 1988, 2 percent more than the number

reported for 1987 (3,829,000) and the largest number reported since 1964. The birth rate was 15.9 live births per 1,000 population, 1 percent higher than the 1987 rate of 15.7 (table A). The fertility rate of 67.3 live births per 1,000 women aged 15-44 years was 2 percent higher than the 1987 rate of 66.1 (table B and figure 1). The birth and fertility rates, which increased dramatically in the 1940's and 1950's followed by rapid declines in the 1960's and early 1970's have been fairly steady since 1975. The current birth and fertility rates are the highest they have been since 1982.

Monthly fertility rates in 1988 were higher than in 1987 for 8 months and lower for 4 months (January, March, April, and November) (table B). The seasonally adjusted rates showed no consistent pattern during the year (table C).

Changes in the annual number of births are affected by two factors—changes in age-specific birth rates and in the number of women in the childbearing ages. The 2-percent increase in the general fertility rate between 1987 and 1988 indicates that there were increases in at least some of the age-specific birth rates. These increases, coupled with a less than 1-percent increase in the number of women in the childbearing ages (15-44 years), resulted in the 2-percent rise in the number of births.

**Table A. Vital statistics rates: United States, 1981-88**

[Infant mortality rates per 1,000 live births; all other rates per 1,000 population]

Rate	1988 (prov.)	1987 (prov.)	1986		1985 (final)	1984 (final)	1983 (final)	1982 (final)	1981 (final)
			(prov.)	(final)					
Birth	15.9	15.7	15.5	15.6	15.8	15.5	15.5	15.9	15.8
Death	8.8	8.7	8.7	8.7	8.7	8.6	8.6	8.5	8.6
Natural increase	7.1	7.0	6.8	6.9	7.1	6.9	6.9	7.4	7.2
Marriage	9.7	9.9	10.0	10.0	10.1	10.5	10.5	10.6	10.6
Divorce	4.8	4.8	4.8	4.9	5.0	5.0	4.9	5.0	5.3
Infant mortality	9.9	10.0	10.4	10.4	10.6	10.8	11.2	11.5	11.9

**Table B. Live births, birth rates, and fertility rates, by month: United States, 1987 and 1988**

[Data are provisional. Rates on an annual basis. Birth rates per 1,000 population and fertility rates per 1,000 women 15-44 years. Due to rounding, figures may not add to totals. Figures include revisions and, therefore, may differ from those previously published]

Month	Number		Birth rate		Fertility rate	
	1988	1987	1988	1987	1988	1987
Total	3,913,000	3,829,000	15.9	15.7	67.3	66.1
January	306,000	308,000	14.8	15.0	62.2	62.8
February	302,000	287,000	15.5	15.4	65.5	64.6
March	320,000	328,000	15.4	15.9	65.1	66.7
April	297,000	298,000	14.8	15.0	62.3	62.8
May	332,000	323,000	16.0	15.7	67.4	65.8
June	333,000	319,000	16.5	16.0	69.9	67.0
July	353,000	334,000	17.0	16.1	71.6	67.8
August	359,000	345,000	17.2	16.7	72.8	70.1
September	342,000	340,000	17.0	17.0	71.7	71.4
October	336,000	321,000	16.1	15.5	68.2	65.2
November	311,000	314,000	15.4	15.7	65.2	65.9
December	323,000	312,000	15.5	15.0	65.5	63.3

**Table C. Seasonally adjusted birth and fertility rates, by month: United States, 1987 and 1988**

[Data are provisional. Rates on an annual basis. Birth rates per 1,000 population and fertility rates per 1,000 women 15-44 years. For method of seasonal adjustment, see Technical notes. Figures include revisions and, therefore, may differ from those previously published]

Month	Birth rate		Fertility rate	
	1988	1987	1988	1987
January	15.5	15.7	65.2	65.7
February	15.9	15.7	66.9	65.9
March	15.7	16.1	66.3	67.4
April	15.2	15.4	64.0	64.7
May	16.3	16.1	68.8	67.5
June	16.6	16.0	70.1	67.2
July	16.2	15.5	68.6	65.1
August	16.3	15.8	68.8	66.1
September	15.8	15.9	67.0	66.7
October	16.0	15.4	67.5	64.6
November	15.8	16.0	66.9	67.4
December	15.9	15.5	67.1	65.0

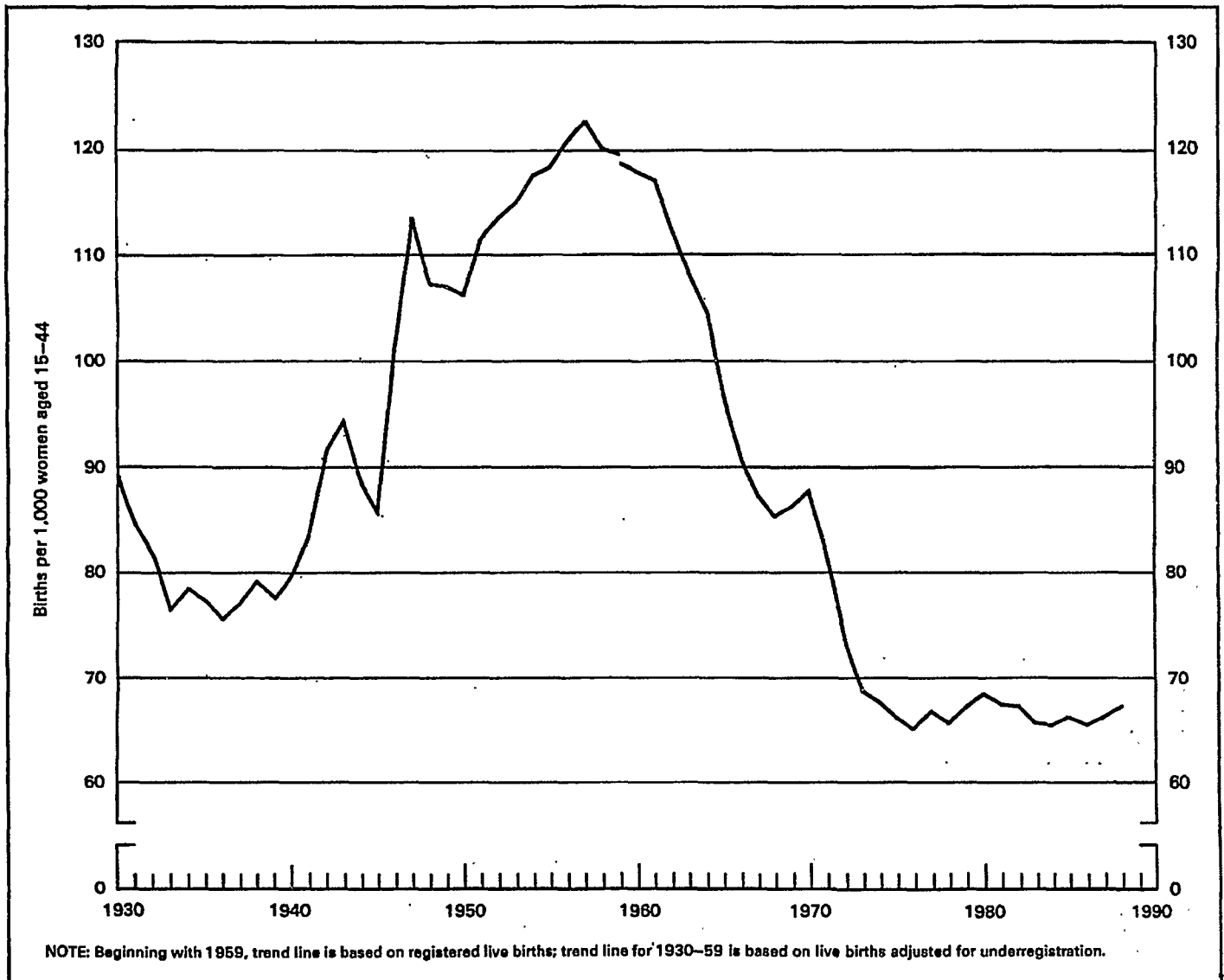


Figure 1. Fertility rates: United States, 1930-88

According to projections prepared by the U.S. Bureau of the Census, the total number of women in the child-bearing ages will continue to increase by less than 1 percent annually between 1988 and 1991(1). Thus, for the number of births to increase substantially during these years, some age-specific birth rates will have to increase.

Provisional data by place of occurrence indicate that the number of births increased 1-4 percent between 1987 and 1988 in seven geographic divisions (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, and

Pacific) and by less than 1 percent in the West South Central and Mountain divisions.

From 1987 to 1988, birth rates per 1,000 total population increased 1-4 percent in six divisions (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, and East South Central), remained the same in two divisions (West South Central and Pacific), and declined 1 percent in one division (Mountain).

Between 1987 and 1988 the provisional number of births increased in 33 States and declined in 17 States and the District of Columbia. Birth rates

increased in 29 States, declined in 16 States and the District of Columbia, and were unchanged in 5 States.

### Natural increase

During 1988, an estimated 1,742,000 persons were added to the population as a result of natural increase, the excess of births over deaths. The rate of natural increase in 1988 was 7.1 persons per 1,000 population, 1 percent above the rate for 1987 (7.0). The increase was due to a larger increase in the birth rate than in the death rate.

**Marriages**

According to provisional statistics, 2,389,000 couples married in 1988, 1 percent fewer than in 1987 (2,421,000) (table D). The national marriage rate fell by 2 percent, from 9.9 per 1,000 population in 1987 to 9.7 in 1988.

The marriage rate, recorded since 1867, has varied between a high of 16.4 in 1946 and a low of 7.9 in the depression year of 1932 (figure 2). The 1988 rate is the lowest marriage rate since 1967 when it was also 9.7. This is the fourth consecutive drop in the marriage rate after a period of fairly steady rates from 1980-84.

**Table E. Marriage rates, seasonally adjusted and unadjusted, by month: United States, 1987 and 1988**

[Data are provisional. Rates on an annual basis per 1,000 women 15-44 years. For method of seasonal adjustment, see Technical notes. Figures include revisions and, therefore, may differ from those previously published]

Month	Unadjusted for seasonal variation		Adjusted for seasonal variation	
	1988	1987	1988	1987
Total . . . . .	41.0	41.7	...	...
January . . . . .	24.4	26.9	40.6	45.0
February . . . . .	26.3	30.0	35.2	39.3
March . . . . .	35.6	35.5	46.1	43.8
April . . . . .	38.1	40.3	41.3	43.9
May . . . . .	45.2	47.1	39.0	41.7
June . . . . .	58.1	60.5	41.5	41.7
July . . . . .	45.9	46.8	40.8	41.9
August . . . . .	49.2	47.3	39.2	37.6
September . . . . .	47.9	47.8	41.5	41.4
October . . . . .	44.3	41.7	43.6	42.3
November . . . . .	36.9	36.5	40.0	39.7
December . . . . .	40.5	40.7	44.0	45.2

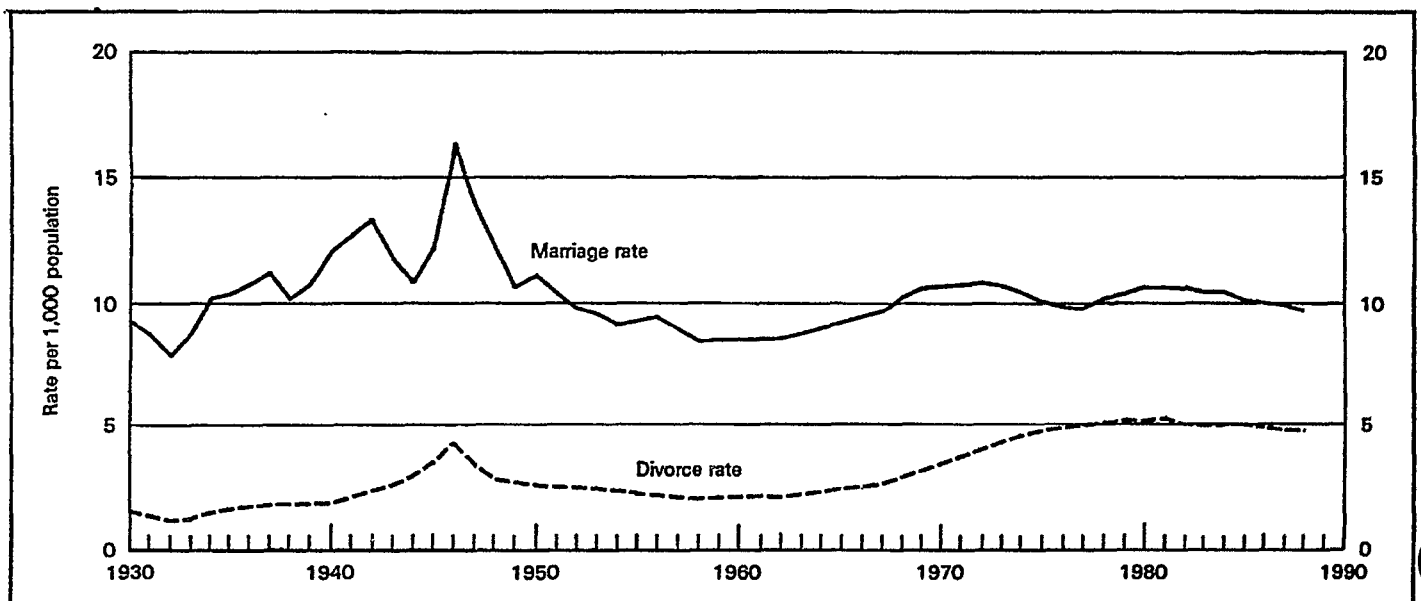
**Table D. Marriages and marriage rates, by month: United States, 1987 and 1988**

[Data are provisional. Rates on an annual basis per 1,000 population. Due to rounding, figures may not add to totals. Figures include revisions and, therefore, may differ from those previously published]

Month	Number		Rate	
	1988	1987	1988	1987
Total . . . . .	2,389,000	2,421,000	9.7	9.9
January . . . . .	120,000	132,000	5.8	6.4
February . . . . .	121,000	133,000	6.3	7.1
March . . . . .	175,000	174,000	8.4	8.5
April . . . . .	181,000	192,000	9.0	9.6
May . . . . .	223,000	231,000	10.7	11.2
June . . . . .	277,000	288,000	13.8	14.4
July . . . . .	226,000	230,000	10.9	11.1
August . . . . .	243,000	233,000	11.6	11.3
September . . . . .	229,000	228,000	11.3	11.4
October . . . . .	218,000	206,000	10.5	9.9
November . . . . .	176,000	174,000	8.7	8.7
December . . . . .	200,000	200,000	9.6	9.7

Marriages in 1988 exhibited the usual seasonal variations. More couples married in June than in any other month (tables D and E), and the fewest marriages occurred in January. The marriage rate for June (13.8) was more than twice that for January (5.8).

Marriages also varied by place of occurrence. Marriage rates were lowest on average in the Middle Atlantic, East North Central, and Pacific divisions, and highest in the East South Central and Mountain divisions. The lowest marriage rate was in Illinois (6.8), where a new law required that both applicants for a marriage license have a



**Figure 2. Marriage and divorce rates: United States, 1930-88**

blood test for human immunodeficiency virus (HIV) infection. The highest marriage rates continued to be in Nevada (114.5), Hawaii (15.8), and South Carolina (15.7), all favored States for nonresidents to marry. Between 1987 and 1988 marriage rates fell in 17 States and the District of Columbia, rose in 32 States, and stayed the same in 1 State. The greatest absolute and percent change in rates between 1987 and 1988 occurred in Tennessee, where the marriage rate increased 20 percent from 11.8 to 14.2 per 1,000 population. The number of marriages has been increasing in Tennessee since the requirement for blood tests was dropped from the marriage legislation of that State in July 1985.

**Divorces**

The estimated number of divorces for the United States increased 2 percent between 1987 and 1988, from 1,157,000 to 1,183,000 (table F). The divorce rate for 1988, 4.8 per 1,000 population, remained unchanged from the rate for 1987. The divorce rate rose fairly steadily throughout the 1960's and 1970's, reaching a peak of 5.3 in 1979 and 1981. The divorce rate stabilized from 1982 to 1986, fluctuating between 4.9 and 5.0. The rate of 4.8 for 1987 and 1988 is the lowest since 1975 (figure 2).

Divorce rates on average were lowest in the northeastern States and highest in the southern and western States. Divorce rates by place of occurrence

ranged from lows of 2.9 in Massachusetts, 3.2 in Connecticut, and 3.3 in Pennsylvania to highs of 7.0 in Arkansas, 7.1 in Arizona and Oklahoma, and 14.1 in Nevada. Between 1987 and 1988 divorce rates fell in 12 States and the District of Columbia, rose in 23 States, and remained the same in 13 States. Provisional divorce data are not available from Indiana and Louisiana; the provisional total for the United States includes estimated divorces for these two States.

**Deaths**

During 1988 an estimated 2,171,000 deaths occurred in the United States, the greatest number ever recorded. The provisional death rate for 1988 was 883.0 deaths per 100,000 population compared with the provisional rate for 1987 of 874.0. The record number of deaths in 1988 is consistent with a general increase in the size of the population, especially for ages 65 years and over, and the occurrence in the first few months of 1988 of an influenza outbreak, which is often associated with elevated mortality (2). The provisional age-adjusted death rate for 1988 of 536.3 deaths per 100,000 population was essentially unchanged from the record low rate for 1987 of 536.2 (figure 3). Age-adjusted death rates control for changes and variations in the age composition of the population; therefore, they are better indicators than crude death rates for showing changes in mortality risk over time and

for showing differences between race-sex groups within the population.

Unadjusted death rates per 1,000 population were higher for January, February, March, May, and September in 1988 than for the same months in 1987. Rates for June, October, and December were the same; for all other months of 1988, death rates were lower than the previous year (table G).

**Death rates by race and sex, and by age**

Age-adjusted death rates for the major race-sex groups showed no statistically significant changes between 1987 and 1988. The lowest estimated age-adjusted death rate was for white females (385.8 deaths per 100,000 population), followed by black females (574.9), white males (670.5), and black males (1,018.4). For white males, white females, and black females the age-adjusted rates were also the lowest on record. While the age-adjusted rate for black males increased between 1987 and 1988, the change was not statistically significant. Between 1987 and 1988 provisional death rates decreased for the age groups 45-54 years and 65-74 years, and increased for those aged 75-84 years and 85 years and over. Death rates for other age groups did not change significantly between the two years (table H).

**Expectation of life**

The expectation of life at birth in 1988 was 74.9 years, the same as the provisional record high attained in 1987. Provisional data showed that among the white population, from 1987 to 1988, life expectancy at birth remained the same for males, but increased by 0.1 year for females. Among the black population, life expectancy at birth declined by 0.3 year for males, but remained the same for females. The expectation of life at birth represents the average number of years that a group of infants would be expected to live if, throughout life, they were to experience the age-specific death rates prevailing during the year of their birth.

**Table F. Divorces and divorce rates, by month: United States, 1987 and 1988**

[Data are provisional. Includes reported annulments. Rates on an annual basis per 1,000 population. Data are estimated for some States; see Technical notes. Due to rounding, figures may not add to totals. Figures include revisions and, therefore, may differ from those previously published]

Month	Number		Rate	
	1988	1987	1988	1987
Total	1,183,000	1,157,000	4.8	4.8
January	93,000	92,000	4.5	4.5
February	84,000	86,000	4.3	4.7
March	100,000	96,000	4.8	4.7
April	92,000	97,000	4.6	4.9
May	108,000	96,000	5.2	4.7
June	104,000	108,000	5.2	5.4
July	100,000	103,000	4.8	5.0
August	106,000	96,000	5.1	4.6
September	98,000	97,000	4.8	4.9
October	98,000	96,000	4.7	4.7
November	91,000	90,000	4.5	4.5
December	108,000	98,000	5.2	4.7

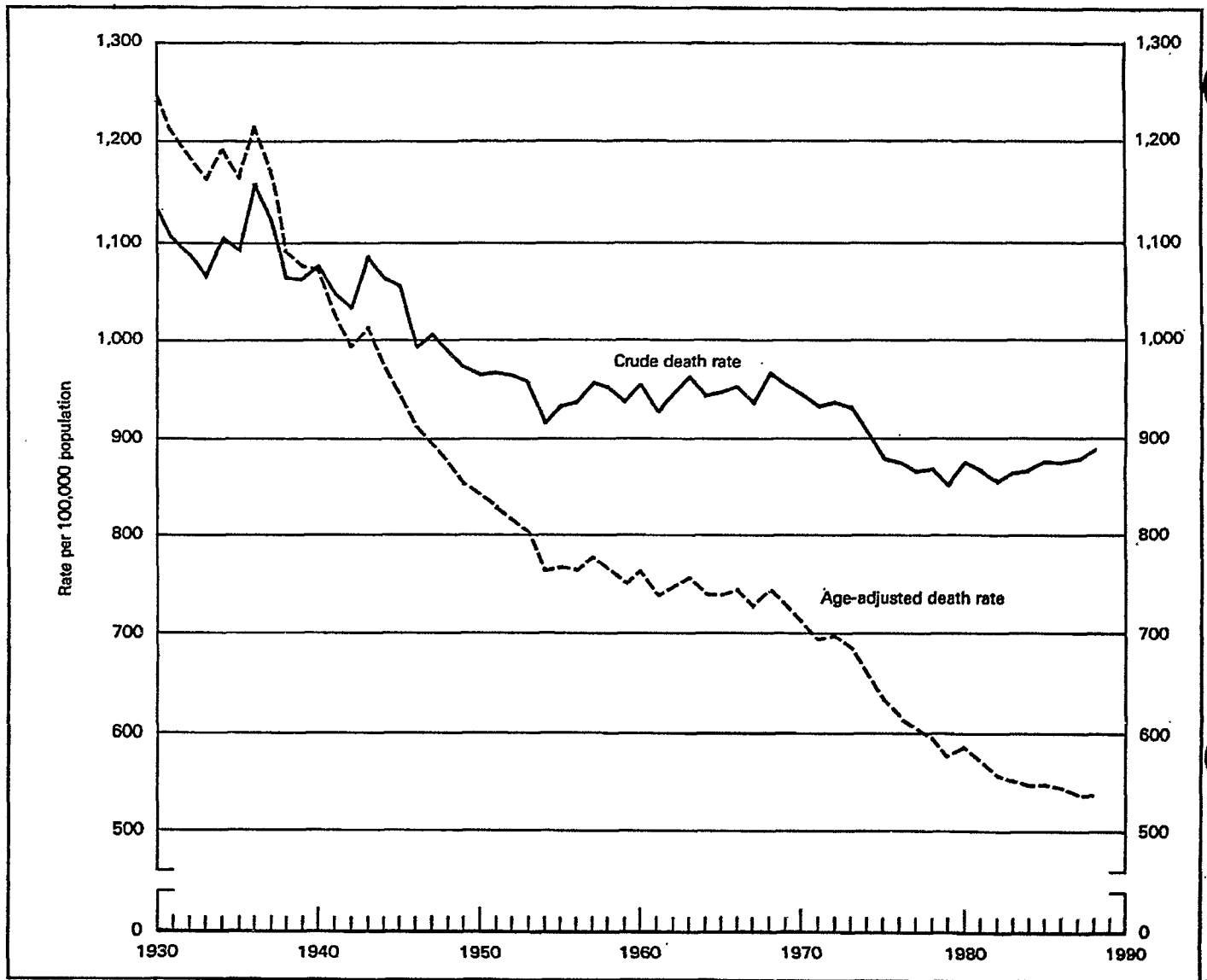


Figure 3. Crude and age-adjusted death rates: United States, 1930-88

Table G. Deaths and death rates, by month: United States, 1987 and 1988

[Data are provisional. Rates on an annual basis per 1,000 population. Due to rounding, figures may not add to totals. Figures include revisions and, therefore, may differ from those previously published]

Month	Number		Rate	
	1988	1987	1988	1987
Total	2,171,000	2,127,000	8.8	8.7
January	196,000	190,000	9.5	9.3
February	195,000	178,000	10.0	9.6
March	202,000	186,000	9.7	9.0
April	184,000	186,000	9.2	9.3
May	180,000	174,000	8.7	8.5
June	170,000	171,000	8.5	8.5
July	175,000	175,000	8.4	8.5
August	170,000	171,000	8.2	8.3
September	168,000	164,000	8.3	8.2
October	179,000	178,000	8.6	8.6
November	168,000	171,000	8.3	8.5
December	185,000	183,000	8.8	8.8

**Table H. Estimated death rates by age for 1987 and 1988 and percent difference between 1987 and 1988: United States**

[Data are provisional, estimated from a 10-percent sample of deaths. Rates per 100,000 population in specified group. For information on standard errors of the estimates and further discussion, see Technical notes]

Age	1988	1987	Percent difference
All ages <sup>1</sup> . . . . .	883.0	874.0	1.0
Under 1 year <sup>2</sup> . . . . .	1,001.9	1,006.5	-0.5
1-4 years . . . . .	50.7	51.6	-1.7
5-14 years . . . . .	26.2	25.6	2.3
15-24 years . . . . .	104.8	101.6	3.1
25-34 years . . . . .	133.6	131.4	1.7
35-44 years . . . . .	217.6	211.8	2.7
45-54 years . . . . .	486.4	498.9	-2.5
55-64 years . . . . .	1,246.3	1,246.8	0.0
65-74 years . . . . .	2,731.2	2,763.6	-1.2
75-84 years . . . . .	6,324.4	6,266.1	0.9
85 years and over . . . . .	15,577.7	15,405.7	1.1

<sup>1</sup> Figures for age not stated are included in "All ages" but are 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 table 11 for infant mortality rates and Technical notes for discussion of the difference.

**Major causes of death**

The 15 leading causes of death in 1988 accounted for 87 percent of all deaths in the United States (table J). (For ranking procedures see Technical notes.) The leading causes of death from 1979 through 1988 have generally been the same, but the order has often varied. In addition, beginning with this report, the rules for ranking causes of death were modified to include the category Human immunodeficiency virus infection (HIV infection) as a rankable cause. Changes in the ranking of lead-

ing causes of death between 1987 and 1988 were as follows: Homicide and legal intervention (the 12th leading cause of death in 1987) moved ahead of Nephritis, nephrotic syndrome, and nephrosis to become the 11th leading cause of death in 1988. In 1988, HIV infection replaced the category Congenital anomalies as the 15th leading cause of death, the same rank as in 1987 had HIV infection been a rankable cause for that year. (For further discussion on HIV infection see the following section entitled "HIV infection.")

For most leading causes, age-adjusted death rates are better indicators than crude death rates for showing changes in mortality risk over time, with the exception of the category Certain conditions originating in the perinatal period, which occurs mainly among infants. Therefore, age-adjusted rates are used to depict trends for 14 of the 15 leading causes of death. Among these 14 causes, age-adjusted death rates were lower in 1988 than in 1987 for two leading causes, Diseases of heart and Nephritis, nephrotic syndrome, and nephrosis. The age-adjusted death rate for Diseases of heart has generally declined since 1950 (figure 4). In contrast, the trend for Nephritis, nephrotic syndrome, and nephrosis had increased steadily during the 1980's, reversing the downward trend since 1950. Age-adjusted death rates were higher in 1988 than 1987 for 3 of the 14 leading causes of death: Pneumonia and influenza, Homicide and legal intervention, and HIV infection. Contributing to the increase in the age-adjusted rate for Pneumonia and influenza was an outbreak of influenza in the first few months of 1988 (2). For the remaining nine leading causes of death, provisional data did not indicate a statistically significant change between 1987 and 1988.

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

[Data are provisional, estimated from a 10-percent sample of deaths. Rates per 100,000 population. See table 8 for category numbers of causes of death. For information on standard errors of the estimates and further discussion, see Technical notes]

Rank	Cause of death (Ninth Revision, International Classification of Diseases, 1975)	Number	Death rate	Percent of total deaths
...	All causes . . . . .	2,171,000	883.0	100.0
1	Diseases of heart . . . . .	767,400	312.2	35.3
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .	488,240	198.6	22.5
3	Cerebrovascular diseases . . . . .	150,300	61.1	6.9
4	Accidents and adverse effects . . . . .	97,500	39.7	4.5
...	Motor vehicle accidents . . . . .	50,060	20.4	2.3
...	All other accidents and adverse effects . . . . .	47,440	19.3	2.2
5	Chronic obstructive pulmonary diseases and allied conditions . . . . .	81,960	33.3	3.8
6	Pneumonia and influenza . . . . .	77,330	31.5	3.6
7	Diabetes mellitus . . . . .	39,610	16.1	1.8
8	Suicide . . . . .	30,260	12.3	1.4
9	Chronic liver disease and cirrhosis . . . . .	26,080	10.6	1.2
10	Atherosclerosis . . . . .	23,700	9.6	1.1
11	Homicide and legal intervention . . . . .	22,190	9.0	1.0
12	Nephritis, nephrotic syndrome, and nephrosis . . . . .	21,890	8.9	1.0
13	Septicemia . . . . .	20,850	8.5	1.0
14	Certain conditions originating in the perinatal period . . . . .	18,510	7.5	0.9
15	Human immunodeficiency virus infection . . . . .	16,210	6.6	0.7
...	All other causes . . . . .	288,970	117.6	13.3

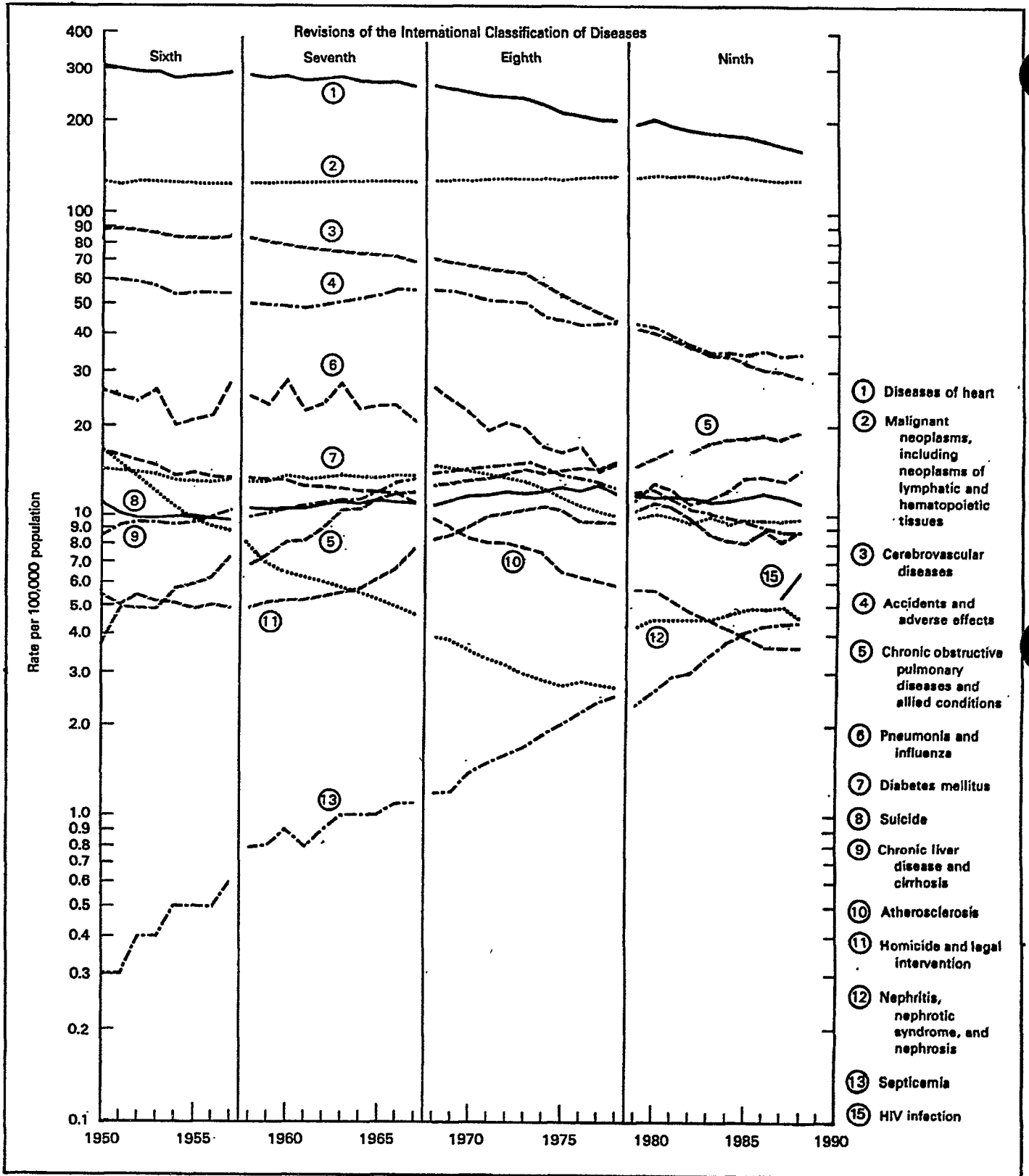


Figure 4. Age-adjusted death rates for 14 of the 15 leading causes of death: United States, 1950-88



For the other leading cause of death, Certain conditions originating in the perinatal period, which occurs mainly among infants under 1 year of age, age-adjusted death rates are not shown. Changes in mortality for this cause are measured by the infant mortality rate per 100,000 live births. The difference between the infant mortality rate for Certain conditions originating in the perinatal period for 1988 (469.7 infant deaths per 100,000 live births) and the 1987 rate (479.4) was not statistically significant.

**HIV infection**

Beginning with mortality data for 1987, a new classification was introduced for Human immunodeficiency virus infection (HIV infection) (see Technical notes). On the basis of the Current Mortality Sample the estimated total number of deaths due to HIV infection during 1988 was 16,210 with a range of 15,450 to 16,970

(approximate 95-percent confidence interval). This number is more than 20 percent higher than the estimated deaths due to HIV infection in 1987, which was 13,130 with a range of 12,450 to 13,820. Of the approximately 16,210 HIV infection deaths in 1988, 61 percent were for white males, 26 percent for black males, and 5 to 6 percent each for white and black females. The largest numbers of deaths from this cause for both males and females were for the age groups 25-34 and 35-44 years. Although the numbers of deaths were highest for white males, the age-adjusted death rates and almost all age-specific death rates were highest for black males, followed by white males, black females, and white females.

Between 1987 and 1988 the age-adjusted death rate for HIV infection increased from 5.3 deaths per 100,000 population in 1987 to 6.5. It increased for each race-sex group, with the largest percent increase for white females,

followed by black females, black males, and white males. The estimated numbers of deaths and death rates for HIV infection are shown in table 10 of this report.

**Infant mortality**

The infant mortality rate for 1988 was 9.9 per 1,000 live births compared with the rate of 10.0 for 1987. This is the lowest U.S. rate ever recorded (figure 5). For 1988 the estimated infant mortality rate for infants under 28 days was 6.4 deaths per 1,000 live births; for infants 28 days-11 months the rate was 3.5 deaths per 1,000 live births. Between 1987 and 1988 changes in mortality rates for all infants, infants under 28 days, and infants 28 days-11 months were not statistically significant. Individually, none of the causes of infant mortality changed significantly between 1987 and 1988.

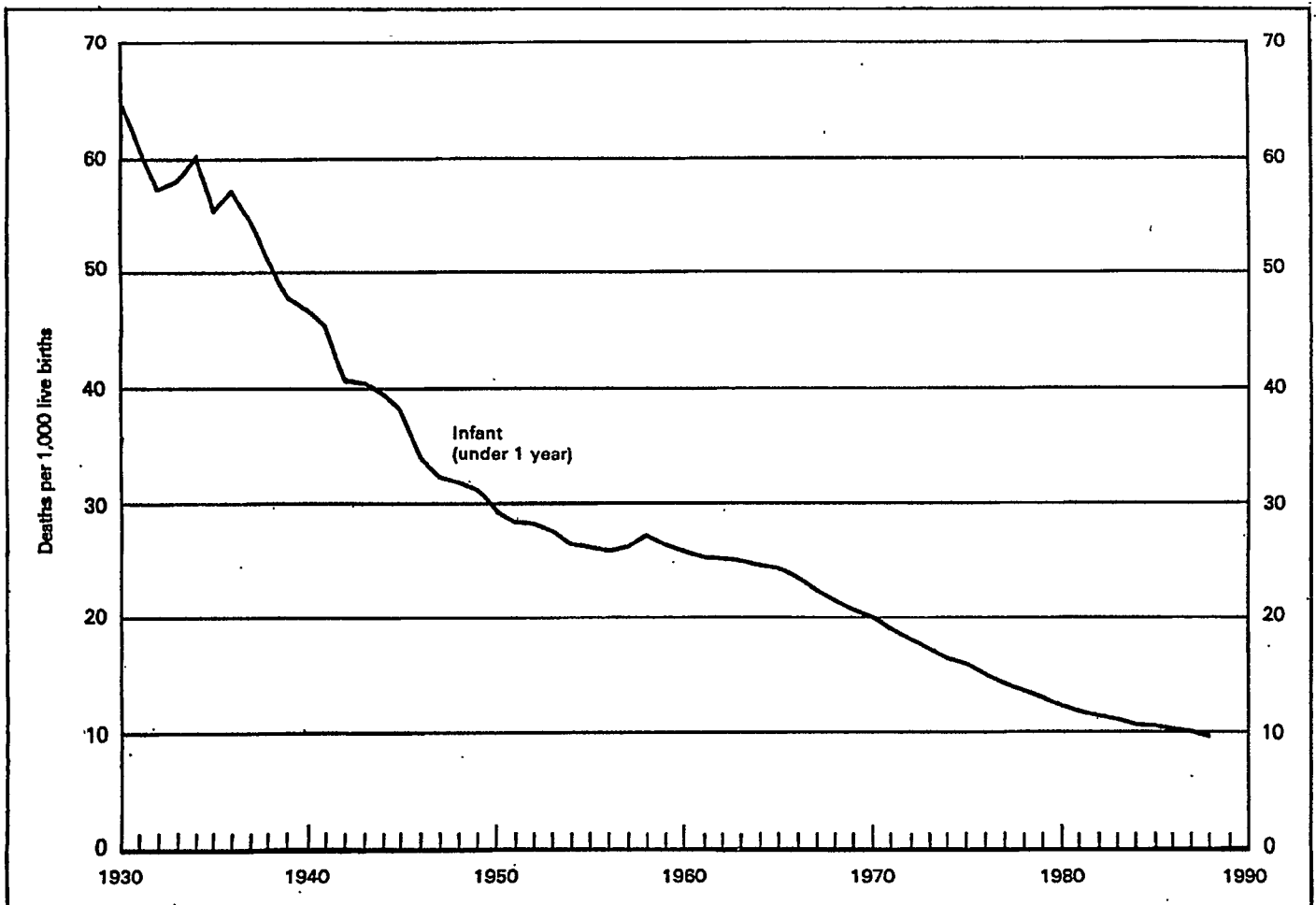


Figure 5. Infant mortality rates: United States, 1930-88

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Table 1. Live births and birth rates: Each reporting area, 1987 and 1988

[Provisional number of events reported; see Technical notes. By place of occurrence. Rates per 1,000 population in specified area]

Area	Live births			
	1988		1987	
	Number	Rate	Number	Rate
New England	195,022	15.0	187,816	14.6
Maine	15,961	13.2	16,155	13.6
New Hampshire	17,186	15.8	16,435	15.5
Vermont	8,538	15.3	7,226	13.2
Massachusetts	91,988	15.6	86,934	14.8
Rhode Island	14,481	14.6	14,519	14.7
Connecticut	46,868	14.5	46,547	14.5
Middle Atlantic	558,553	14.8	548,021	14.6
New York	277,291	15.5	270,390	15.2
New Jersey	114,118	14.8	111,344	14.5
Pennsylvania	167,144	13.9	166,287	13.9
East North Central	637,327	15.1	618,999	14.8
Ohio	165,258	15.2	156,900	14.5
Indiana	81,421	14.7	77,694	14.0
Illinois	180,526	15.5	177,564	15.3
Michigan	140,229	15.2	136,374	14.8
Wisconsin	69,893	14.4	70,467	14.7
West North Central	265,917	15.0	262,637	14.9
Minnesota	66,579	15.5	64,068	15.1
Iowa	38,506	13.6	38,736	13.7
Missouri	75,844	14.8	75,950	14.9
North Dakota	11,433	17.1	11,545	17.2
South Dakota	11,297	15.8	11,514	16.2
Nebraska	24,363	15.2	23,657	14.8
Kansas	37,895	15.2	37,167	15.0
South Atlantic	655,130	15.4	629,371	15.1
Delaware	10,915	16.5	10,032	15.6
Maryland	68,412	14.8	64,692	14.3
District of Columbia	19,290	31.3	20,406	32.8
Virginia	90,498	15.0	87,002	14.7
West Virginia	22,585	12.0	23,572	12.4
North Carolina	98,183	15.1	93,405	14.6
South Carolina	53,285	15.4	50,693	14.8
Georgia	107,108	16.9	104,881	16.9
Florida	184,854	15.0	174,688	14.5
East South Central	230,975	15.1	222,131	14.5
Kentucky	51,109	13.7	51,075	13.7
Tennessee	79,140	16.2	71,343	14.7
Alabama	59,611	14.5	59,207	14.5
Mississippi	41,115	15.7	40,506	15.4
West South Central	463,380	17.2	462,452	17.2
Arkansas	34,554	14.4	33,375	14.0
Louisiana	75,170	17.1	75,313	16.9
Oklahoma	46,874	14.5	45,535	13.9
Texas	306,782	18.2	308,229	18.4
Mountain	235,526	17.7	235,177	17.9
Montana	11,356	14.1	11,976	14.8
Idaho	15,564	15.5	15,956	16.0
Wyoming	6,697	14.0	7,107	14.5
Colorado	53,014	16.1	54,314	16.5
New Mexico	27,438	18.2	30,169	20.1
Arizona	65,608	18.8	63,449	18.7
Utah	37,260	22.0	35,927	21.4
Nevada	18,589	17.6	16,279	16.2
Pacific	653,886	17.5	637,640	17.5
Washington	68,242	14.7	73,836	16.3
Oregon	41,305	14.9	39,708	14.6
California	514,247	18.2	494,053	17.9
Alaska	11,037	21.1	11,441	21.8
Hawaii	19,055	17.4	18,602	17.2

All data are by State of occurrence rather than by State of residence and should be interpreted accordingly.

Table 2. Marriages, divorces, and rates: Each reporting area, 1987 and 1988

[Provisional number of events reported; see Technical notes. Divorces include reported annulments. By place of occurrence. Rates per 1,000 population in specified area]

Area	Marriages <sup>1</sup>				Divorces			
	1988		1987		1988		1987	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
New England . . . . .	116,059	9.0	119,193	9.3	44,558	3.4	43,960	3.4
Maine . . . . .	12,487	10.4	11,879	10.0	5,763	4.8	5,811	4.9
New Hampshire . . . . .	11,270	10.4	10,506	9.9	4,755	4.4	4,844	4.6
Vermont . . . . .	6,486	11.6	5,668	10.3	2,748	4.9	2,201	4.0
Massachusetts . . . . .	49,981	8.5	55,925	9.6	17,244	2.9	17,755	3.0
Rhode Island . . . . .	8,379	8.4	8,026	8.1	3,785	3.8	3,681	3.7
Connecticut . . . . .	27,456	8.5	27,189	8.5	10,263	3.2	9,668	3.0
Middle Atlantic . . . . .	314,638	8.4	317,164	8.5	130,828	3.5	134,678	3.6
New York . . . . .	165,421	9.2	169,184	9.5	64,571	3.6	68,965	3.9
New Jersey . . . . .	61,052	7.9	60,129	7.8	26,897	3.5	27,222	3.5
Pennsylvania . . . . .	88,165	7.3	87,851	7.4	39,360	3.3	38,491	3.2
East North Central <sup>2</sup> . . . . .	343,963	8.2	352,585	8.4	153,086	4.2	152,356	4.2
Ohio . . . . .	97,334	9.0	95,647	8.9	49,778	4.6	48,162	4.5
Indiana . . . . .	51,874	9.3	48,451	8.8	---	---	---	---
Illinois . . . . .	79,100	6.8	95,598	8.3	46,443	4.0	46,681	4.0
Michigan . . . . .	74,150	8.0	75,159	8.2	39,887	4.3	40,493	4.4
Wisconsin . . . . .	41,505	8.5	37,730	7.8	16,978	3.5	17,020	3.5
West North Central . . . . .	155,858	8.8	149,838	8.5	77,487	4.4	72,063	4.1
Minnesota . . . . .	33,481	7.8	32,765	7.7	14,945	3.5	14,865	3.5
Iowa . . . . .	25,006	8.8	23,100	8.2	10,761	3.8	10,791	3.8
Missouri . . . . .	49,867	9.7	48,167	9.4	24,864	4.8	24,289	4.8
North Dakota . . . . .	4,923	7.4	5,025	7.5	2,371	3.6	2,249	3.3
South Dakota . . . . .	7,262	10.2	6,983	9.8	2,657	3.7	2,692	3.8
Nebraska . . . . .	12,349	7.7	11,749	7.4	6,379	4.0	6,317	4.0
Kansas . . . . .	22,970	9.2	22,049	8.9	15,510	6.2	10,880	4.4
South Atlantic . . . . .	454,498	10.7	443,768	10.6	218,983	5.2	216,454	5.2
Delaware . . . . .	5,616	8.5	5,209	8.1	2,972	4.5	2,910	4.5
Maryland . . . . .	44,064	9.5	45,436	10.0	16,439	3.6	15,932	3.5
District of Columbia . . . . .	4,947	8.0	5,146	8.3	3,610	5.9	4,150	6.7
Virginia . . . . .	69,022	11.5	67,073	11.4	26,065	4.3	25,568	4.3
West Virginia . . . . .	14,400	7.7	13,451	7.1	9,149	4.9	9,071	4.8
North Carolina . . . . .	51,664	8.0	50,506	7.9	32,367	5.0	31,630	4.9
South Carolina . . . . .	54,339	15.7	53,489	15.6	14,637	4.2	13,961	4.1
Georgia . . . . .	73,330	11.6	65,284	10.5	35,709	5.6	33,546	5.4
Florida . . . . .	137,116	11.1	138,174	11.5	78,035	6.3	79,686	6.6
East South Central . . . . .	188,658	12.3	173,024	11.3	88,086	5.7	87,975	5.8
Kentucky . . . . .	49,910	13.4	47,583	12.8	20,456	5.5	19,933	5.3
Tennessee . . . . .	69,354	14.2	57,530	11.8	31,990	6.5	31,012	6.4
Alabama . . . . .	44,546	10.9	44,045	10.8	23,411	5.7	24,658	6.0
Mississippi . . . . .	24,848	9.5	23,866	9.1	12,229	4.7	12,372	4.7
West South Central <sup>3</sup> . . . . .	276,138	10.3	289,459	10.8	134,464	6.0	133,432	5.9
Arkansas . . . . .	34,820	14.5	32,198	13.5	16,675	7.0	16,197	6.8
Louisiana . . . . .	33,870	7.7	36,764	8.2	---	---	---	---
Oklahoma . . . . .	32,923	10.2	31,823	9.7	23,048	7.1	23,919	7.3
Texas . . . . .	174,525	10.4	188,674	11.2	94,741	5.6	93,316	5.6
Mountain . . . . .	240,308	18.0	242,467	18.6	87,751	6.6	86,912	6.6
Montana . . . . .	6,765	8.4	6,518	8.1	4,074	5.1	4,135	5.1
Idaho . . . . .	11,213	11.2	13,080	13.1	6,058	6.0	5,873	5.9
Wyoming . . . . .	4,696	9.8	4,600	9.4	3,307	6.9	3,209	6.5
Colorado . . . . .	31,536	9.6	31,388	9.5	18,792	5.7	18,558	5.6
New Mexico . . . . .	13,025	8.6	13,518	9.0	7,943	5.3	8,608	5.7
Arizona . . . . .	35,737	10.2	39,415	12.4	24,940	7.1	23,808	7.0
Utah . . . . .	16,611	9.8	16,294	9.7	7,824	4.6	8,879	5.3
Nevada . . . . .	120,725	114.5	117,654	116.8	14,813	14.1	13,842	13.7
Pacific . . . . .	319,810	8.6	333,182	9.1	186,112	5.0	173,830	4.8
Washington . . . . .	44,042	9.5	43,460	9.6	26,436	5.7	26,045	5.7
Oregon . . . . .	22,581	8.2	23,325	8.6	14,891	5.4	15,694	5.8
California . . . . .	229,983	8.1	244,440	8.8	136,076	4.8	124,090	4.5
Alaska . . . . .	5,803	11.1	5,509	10.5	3,633	6.9	3,530	6.7
Hawaii . . . . .	17,401	15.8	16,448	15.2	5,076	4.6	4,471	4.1

<sup>1</sup>Data are either marriages reported or marriage licenses issued; see Technical notes.  
<sup>2</sup>Divorce data exclude figures for Indiana.  
<sup>3</sup>Divorce data exclude figures for Louisiana.

All data are by State of occurrence rather than by State of residence and should be interpreted accordingly.

**Table 3. Deaths, death rates, and infant deaths: Each reporting area, 1987 and 1988**

[Provisional number of events reported; see Technical notes. By place of occurrence. Rates per 1,000 population in specified area]

Area	Deaths (all ages)				Infant deaths (under 1 year)	
	1988		1987		Number	
	Number	Rate	Number	Rate	1988	1987
New England . . . . .	121,658	9.4	118,594	9.2	1,526	1,426
Maine . . . . .	11,331	9.4	11,434	9.6	126	103
New Hampshire . . . . .	8,658	8.0	8,226	7.8	111	119
Vermont . . . . .	5,267	9.5	4,518	8.2	65	66
Massachusetts . . . . .	57,715	9.8	56,273	9.6	721	678
Rhode Island . . . . .	9,930	10.0	9,886	10.0	126	121
Connecticut . . . . .	28,757	8.9	28,257	8.8	377	339
Middle Atlantic . . . . .	373,228	9.9	367,861	9.8	5,739	5,597
New York . . . . .	174,299	9.7	172,380	9.7	2,901	2,898
New Jersey . . . . .	71,773	9.3	69,712	9.1	1,027	893
Pennsylvania . . . . .	127,156	10.6	125,769	10.5	1,811	1,806
East North Central . . . . .	374,467	8.9	366,920	8.8	6,428	6,322
Ohio . . . . .	100,625	9.3	97,774	9.1	1,613	1,455
Indiana . . . . .	50,396	9.1	48,925	8.8	847	768
Illinois . . . . .	101,165	8.7	99,002	8.5	1,954	2,003
Michigan . . . . .	78,882	8.5	78,871	8.6	1,486	1,477
Wisconsin . . . . .	43,399	8.9	42,348	8.8	528	619
West North Central . . . . .	167,896	9.5	165,615	9.4	2,463	2,564
Minnesota . . . . .	35,246	8.2	34,644	8.2	521	555
Iowa . . . . .	27,753	9.8	26,985	9.5	309	307
Missouri . . . . .	54,495	10.6	54,574	10.7	908	934
North Dakota . . . . .	6,055	9.1	5,827	8.7	126	102
South Dakota . . . . .	6,564	9.2	6,683	9.4	97	116
Nebraska . . . . .	15,123	9.4	15,207	9.5	215	234
Kansas . . . . .	22,660	9.1	21,695	8.8	287	316
South Atlantic . . . . .	390,957	9.2	378,595	9.1	7,366	7,061
Delaware . . . . .	5,866	8.9	5,675	8.8	115	91
Maryland . . . . .	37,789	8.2	37,233	8.2	636	631
District of Columbia . . . . .	8,972	14.5	8,602	13.8	440	415
Virginia . . . . .	46,984	7.8	46,015	7.8	907	850
West Virginia . . . . .	19,649	10.5	19,978	10.5	214	215
North Carolina . . . . .	58,164	9.0	55,396	8.6	1,248	1,064
South Carolina . . . . .	28,348	8.2	27,705	8.1	600	653
Georgia . . . . .	52,815	8.3	49,872	8.0	1,265	1,275
Florida . . . . .	132,370	10.7	128,119	10.7	1,941	1,867
East South Central . . . . .	149,298	9.7	143,384	9.4	2,668	2,557
Kentucky . . . . .	35,557	9.5	33,959	9.1	552	410
Tennessee . . . . .	50,720	10.4	48,370	10.0	885	887
Alabama . . . . .	39,016	9.5	37,188	9.1	753	749
Mississippi . . . . .	24,005	9.2	23,867	9.1	478	511
West South Central . . . . .	217,606	8.1	209,856	7.8	4,421	4,443
Arkansas . . . . .	25,278	10.6	23,464	9.8	360	286
Louisiana . . . . .	38,640	8.8	36,516	8.2	883	883
Oklahoma . . . . .	29,174	9.0	27,972	8.5	427	447
Texas . . . . .	124,514	7.4	121,904	7.3	2,751	2,827
Mountain . . . . .	96,664	7.3	93,736	7.1	2,138	2,076
Montana . . . . .	6,736	8.4	6,524	8.1	74	90
Idaho . . . . .	7,391	7.4	6,992	7.0	117	125
Wyoming . . . . .	3,042	6.4	2,878	5.9	42	39
Colorado . . . . .	21,712	6.6	21,487	6.5	539	557
New Mexico . . . . .	10,476	7.0	10,437	7.0	242	207
Arizona . . . . .	28,446	8.2	27,522	8.1	638	558
Utah . . . . .	9,695	5.7	9,339	5.6	337	352
Nevada . . . . .	9,166	8.7	8,557	8.5	149	148
Pacific . . . . .	277,784	7.4	282,066	7.7	5,905	5,876
Washington . . . . .	36,372	7.8	34,992	7.7	681	669
Oregon . . . . .	24,868	9.0	24,130	8.9	383	387
California . . . . .	208,161	7.4	214,486	7.8	4,576	4,528
Alaska . . . . .	2,059	3.9	2,075	4.0	122	110
Hawaii . . . . .	6,324	5.8	6,383	5.9	143	182

All data are by State of occurrence rather than by State of residence and should be interpreted accordingly.

Table 4. Estimated deaths and death rates, by age, race, and sex: United States, 1988

[Data are provisional, estimated from a 10-percent sample of deaths. Rates per 100,000 population in specified group. Due to rounding of estimates, figures may not add to totals. For information on standard errors of the estimates and further discussion, see Technical notes]

Age	All races			White			All other					
	Both sexes		Female	Both sexes		Female	Both sexes		Female	Both sexes		Female
	Male	Male		Male	Male		Male	Male				
	Number											
All ages . . . . .	2,171,000	1,130,540	1,040,070	1,887,080	973,620	913,460	283,530	156,920	126,610	257,900	141,590	116,310
Under 1 year . . . . .	38,700	22,180	16,500	25,510	15,000	10,510	13,170	7,180	5,990	12,040	6,590	5,450
1-4 years . . . . .	7,400	4,200	3,200	5,600	3,120	2,480	1,800	1,080	720	1,460	930	530
5-14 years . . . . .	9,080	5,420	3,660	6,650	4,140	2,510	2,430	1,280	1,150	2,090	1,070	1,020
15-24 years . . . . .	39,180	29,100	10,080	30,190	22,350	7,840	8,990	6,750	2,240	7,870	5,810	2,060
25-34 years . . . . .	58,350	42,820	15,530	42,320	31,360	10,960	16,030	11,460	4,570	14,670	10,520	4,150
35-44 years . . . . .	76,730	51,530	25,200	56,980	38,360	18,620	19,750	13,170	6,580	18,170	12,220	5,950
45-54 years . . . . .	117,520	74,790	42,730	91,990	58,680	33,310	25,530	16,110	9,420	23,240	14,820	8,420
55-59 years . . . . .	104,840	64,960	39,880	86,360	54,290	32,070	18,480	10,670	7,810	16,810	9,720	7,090
60-64 years . . . . .	167,260	102,200	65,060	142,290	87,240	55,050	24,970	14,960	10,010	22,970	13,690	9,280
65-69 years . . . . .	221,270	132,400	88,870	191,490	115,750	75,740	29,780	16,650	13,130	27,330	15,110	12,220
70-74 years . . . . .	267,520	152,240	115,280	236,980	136,000	100,980	30,540	16,240	14,300	28,130	14,770	13,360
75-79 years . . . . .	304,550	160,590	143,960	272,440	143,940	128,500	32,110	16,650	15,460	29,340	14,940	14,400
80-84 years . . . . .	297,670	134,930	162,740	271,650	122,860	148,790	26,020	12,070	13,950	23,350	10,520	12,830
85 years and over . . . . .	459,230	152,420	306,810	425,640	139,920	285,720	33,590	12,500	21,090	30,110	10,740	19,370
Not stated . . . . .	.1,330	760	570	990	610	380	340	150	190	320	140	180
	Rate											
All ages <sup>1</sup> . . . . .	883.0	944.2	825.0	910.0	960.3	861.8	737.8	855.2	630.5	853.9	988.4	732.6
Under 1 year <sup>2</sup> . . . . .	1,001.9	1,121.5	876.3	818.4	937.5	692.8	1,771.2	1,901.9	1,636.6	2,030.4	2,196.7	1,880.1
1-4 years . . . . .	50.7	56.2	44.9	47.6	51.7	43.3	63.5	75.1	51.6	66.1	82.8	48.8
5-14 years . . . . .	26.2	30.5	21.7	23.9	29.0	18.5	35.7	37.0	34.3	38.7	39.1	38.4
15-24 years . . . . .	104.8	154.0	54.5	98.8	144.4	52.0	131.2	197.4	65.2	143.3	214.2	74.1
25-34 years . . . . .	133.6	196.0	71.2	115.6	169.6	60.5	227.2	341.0	123.6	266.5	404.9	142.8
35-44 years . . . . .	217.6	296.2	141.0	188.7	254.7	123.0	389.8	564.8	240.6	476.9	703.9	286.9
45-54 years . . . . .	486.4	636.5	344.3	441.4	573.0	314.2	768.5	1,066.2	520.2	908.9	1,294.3	596.3
55-59 years . . . . .	962.1	1,250.4	699.5	909.6	1,190.0	650.2	1,318.1	1,685.6	1,015.6	1,507.6	1,917.2	1,168.1
60-64 years . . . . .	1,529.7	2,005.5	1,114.6	1,473.4	1,928.0	1,072.7	1,956.9	2,620.0	1,419.9	2,243.2	2,963.2	1,651.2
65-69 years . . . . .	2,214.2	2,913.7	1,631.2	2,154.5	2,851.7	1,568.4	2,697.5	3,433.0	2,121.2	3,057.0	3,864.5	2,429.4
70-74 years . . . . .	3,384.6	4,477.6	2,559.5	3,336.3	4,437.2	2,500.7	3,812.7	4,847.8	3,068.7	4,314.4	5,490.7	3,488.3
75-79 years . . . . .	5,159.2	6,913.0	4,021.2	5,123.0	6,883.8	3,982.0	5,488.9	7,176.7	4,379.6	6,163.9	8,163.9	4,914.7
80-84 years . . . . .	8,225.2	10,691.8	6,907.5	8,204.5	10,692.8	6,882.1	8,475.6	10,681.4	7,190.7	9,340.0	11,820.2	7,988.9
85 years and over . . . . .	15,577.7	18,475.2	14,451.7	15,888.0	18,933.7	14,727.8	12,487.0	14,534.9	11,524.6	13,206.1	15,342.9	12,259.5

<sup>1</sup> Figures for age not stated are included in "All ages" but are 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 table 11 for infant mortality rates and Technical notes for discussion of the difference.







**Table 5. Death rates by age, race, and sex and age-adjusted death rates by race and sex: United States, 1960, 1970, and 1980-88—Con.**

[Data for 1987 and 1988 are provisional, estimated from a 10-percent sample of deaths; for all other years, data are final. Rates per 100,000 population in specified group based on populations enumerated as of April 1 for census years and estimated as of July 1 for all other years. For method of computation, information on standard errors of the estimates, and further discussion, see Technical notes]

Race, sex, and year	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	Age-adjusted rate <sup>3</sup>
<b>Black, male</b>													
1988 . . . . .	988.4	2,196.7	82.8	39.1	214.2	404.9	703.9	1,294.3	2,415.9	4,527.3	9,360.3	15,342.9	1,018.4
1987 . . . . .	973.1	2,218.0	85.1	45.6	194.9	370.3	673.5	1,244.4	2,473.5	4,592.0	9,238.8	14,956.5	1,005.4
1986 <sup>4</sup> . . . . .	987.7	2,181.7	90.9	42.0	190.5	385.6	675.9	1,266.5	2,545.5	4,789.9	9,290.8	15,488.1	1,026.9
1985 <sup>4</sup> . . . . .	976.8	2,134.8	89.0	41.3	174.1	347.4	641.8	1,283.3	2,623.1	4,888.7	9,298.4	15,046.2	1,024.0
1984 <sup>4</sup> . . . . .	958.1	2,136.6	85.2	42.4	163.9	335.6	616.0	1,273.5	2,658.3	4,874.5	9,023.0	14,642.9	1,011.7
1983 <sup>4</sup> . . . . .	963.3	2,243.4	96.8	40.9	165.0	335.8	586.5	1,287.3	2,713.1	4,949.3	9,100.0	14,155.6	1,019.6
1982 <sup>4</sup> . . . . .	960.4	2,168.9	93.4	44.4	175.4	360.3	606.7	1,352.1	2,758.1	5,040.1	8,477.2	15,117.9	1,035.0
1981 <sup>4</sup> . . . . .	991.6	2,164.8	105.3	45.2	186.7	387.1	667.9	1,432.5	2,804.1	5,046.3	8,635.1	15,396.4	1,067.7
1980 <sup>4</sup> . . . . .	1,034.1	2,586.7	110.5	47.4	209.1	407.3	689.8	1,479.9	2,873.0	5,131.1	9,231.6	16,098.8	1,112.8
1970 <sup>4</sup> . . . . .	1,186.6	4,298.9	150.5	67.1	320.6	559.5	956.6	1,777.5	3,256.9	5,803.2	9,454.9	12,222.3	1,318.6
1960 <sup>4</sup> . . . . .	1,181.7	5,306.8	208.5	75.1	212.0	402.5	762.0	1,624.8	3,316.4	5,798.7	8,605.1	14,844.8	1,246.1
<b>Black, female</b>													
1988 . . . . .	732.6	1,860.1	48.8	38.4	74.1	142.8	286.9	596.3	1,399.1	2,887.1	5,997.8	12,259.5	574.9
1987 . . . . .	726.7	1,780.9	50.5	25.6	64.0	140.1	295.0	644.4	1,465.6	2,879.4	5,979.6	11,921.1	579.9
1986 <sup>4</sup> . . . . .	733.9	1,731.1	76.5	26.9	64.3	146.5	290.2	654.6	1,469.8	2,892.3	6,148.8	12,510.3	588.2
1985 <sup>4</sup> . . . . .	727.7	1,756.6	70.8	28.1	59.5	136.3	278.4	654.0	1,501.7	2,925.7	6,252.0	12,154.7	589.1
1984 <sup>4</sup> . . . . .	712.0	1,789.1	72.2	27.8	61.6	130.6	285.7	655.0	1,489.7	2,907.4	6,184.1	11,439.1	585.3
1983 <sup>4</sup> . . . . .	711.2	1,818.6	73.6	28.0	65.6	130.0	276.1	685.8	1,526.3	2,930.6	6,064.6	11,329.5	590.4
1982 <sup>4</sup> . . . . .	692.4	1,760.1	76.4	29.4	63.5	134.8	282.7	693.1	1,498.3	2,863.0	5,708.5	11,660.0	581.4
1981 <sup>4</sup> . . . . .	707.3	1,823.4	81.6	30.0	64.0	141.1	306.1	723.9	1,527.9	2,929.7	5,822.3	11,933.0	599.1
1980 <sup>4</sup> . . . . .	733.3	2,123.7	84.4	30.5	70.5	150.0	323.9	768.2	1,561.0	3,057.4	6,212.1	12,367.2	631.1
1970 <sup>4</sup> . . . . .	829.2	3,368.8	129.4	43.8	111.9	231.0	533.0	1,043.9	1,986.2	3,860.9	6,691.5	10,706.6	814.4
1960 <sup>4</sup> . . . . .	905.0	4,162.2	173.3	53.8	107.5	273.2	568.5	1,177.0	2,510.9	4,064.2	6,730.0	13,052.6	916.9

<sup>1</sup> Figures for age not stated are included in "All ages" but are not distributed among age groups.  
<sup>2</sup> Death rates under 1 year (based on population data) differ from infant mortality rates (based on live births); see table 11 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> Data are final; see Technical notes.

Table 6. Provisional abridged life table for the total population: United States, 1988

[Data are provisional, estimated from a 10-percent sample of deaths. For further discussion, see Technical notes]

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	Number living at beginning of age interval	Number dying during age interval	In the age interval	In this and all subsequent age intervals	Average number of years of life remaining at beginning of age interval	
Period of life between 2 exact ages stated in years (1)	(2)	(3)	(4)	(5)	(6)	(7)	
x to x+n	$nq_x$	$l_x$	$n^d_x$	$nL_x$	$T_x$	$e_x$	
0-1	0.0102	100,000	1,019	99,123	7,490,568	74.9	
1-5	0.0020	98,981	198	395,460	7,391,445	74.7	
5-10	0.0012	98,783	119	493,591	6,995,985	70.8	
10-15	0.0014	98,664	139	493,050	6,502,394	65.9	
15-20	0.0044	98,525	438	491,632	6,009,344	61.0	
20-25	0.0060	98,087	585	489,002	5,517,712	56.3	
25-30	0.0062	97,502	601	488,006	5,028,710	51.6	
30-35	0.0072	96,901	694	482,811	4,542,704	46.9	
35-40	0.0094	96,207	906	478,898	4,059,893	42.2	
40-45	0.0126	95,301	1,204	473,710	3,580,995	37.6	
45-50	0.0188	94,097	1,770	466,384	3,107,285	33.0	
50-55	0.0301	92,327	2,777	455,129	2,640,901	28.6	
55-60	0.0471	89,550	4,219	437,809	2,185,772	24.4	
60-65	0.0740	85,331	6,316	411,720	1,747,963	20.5	
65-70	0.1054	79,015	8,328	375,154	1,336,243	16.9	
70-75	0.1571	70,687	11,106	326,636	961,089	13.6	
75-80	0.2302	59,581	13,716	264,451	634,453	10.6	
80-85	0.3431	45,865	15,735	190,200	370,002	8.1	
85 and over	1.0000	30,130	30,130	179,602	179,602	6.0	

**Table 7. Average length of life in years by race and sex: United States, 1950, 1960, 1970, 1975-88**

[Data for 1987 and 1988 are provisional, estimated from a 10-percent sample of deaths; for all other years, data are final. For further discussion, see Technical notes]

Year	All races						All other					
	All races			White			Total			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
1988	74.9	71.4	78.3	75.5	72.1	78.9	71.5	67.4	75.5	69.5	65.1	73.8
1987	74.9	71.5	78.3	75.5	72.1	78.8	71.6	67.6	75.4	69.7	65.4	73.8
1986 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	72.6	68.8	76.6	73.4	69.5	77.3	68.0	63.7	72.4	66.8	62.4	71.3
1970 <sup>1</sup>	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 <sup>1</sup>	69.7	66.6	73.1	70.6	67.4	74.1	63.6	61.1	66.3	---	---	---
1950 <sup>1</sup>	68.2	65.6	71.1	69.1	66.5	72.2	60.8	59.1	62.9	---	---	---

<sup>1</sup>Data are final; see Technical notes.

Table 8. Estimated age-specific and age-adjusted death rates for the 15 leading causes and selected components: United States, 1987 and 1988

[Data are provisional, estimated from a 10-percent sample of deaths. Rates per 100,000 population in specified group. For explanation of asterisk preceding cause-of-death codes, information on standard errors of the estimates, and further discussion, 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>	1-14 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	883.0	1,001.9	33.5	104.8	133.6	217.6	486.4	1,246.3	2,731.2	6,324.4	15,577.7	536.3
	1987	874.0	1,006.5	33.4	101.6	131.4	211.8	498.9	1,246.8	2,763.6	6,266.1	15,405.7	536.2
Diseases of heart . . . . .390-398,402,404-429	1988	312.2	23.6	1.4	2.8	7.3	33.0	131.4	405.6	985.6	2,554.4	7,119.1	166.7
	1987	313.4	23.9	1.3	2.9	7.5	34.4	140.7	408.9	1,019.5	2,556.3	7,122.1	169.9
Rheumatic fever and rheumatic heart disease . . . . .390-398	1988	2.7	-	0.1	0.2	0.3	0.5	1.7	5.0	10.4	19.3	29.9	1.7
	1987	2.5	-	0.0	0.2	0.3	0.6	2.3	4.7	10.9	17.7	20.6	1.7
Hypertensive heart disease . . . . .402	1988	8.3	-	-	0.1	0.3	1.1	5.0	14.0	26.5	64.4	155.0	4.8
	1987	8.3	-	-	0.1	0.2	1.8	4.8	14.8	28.0	64.6	145.1	4.9
Hypertensive heart and renal disease . . . . .404	1988	1.0	-	-	-	0.0	0.1	0.5	1.3	2.2	10.6	23.1	0.5
	1987	1.1	-	-	-	0.0	0.2	0.3	1.2	3.6	10.4	23.7	0.6
Ischemic heart disease . . . . .410-414	1988	207.9	0.5	0.0	0.2	2.5	18.9	84.3	269.5	672.1	1,760.4	4,612.3	110.4
	1987	211.0	0.3	0.1	0.5	2.3	20.1	91.8	278.2	701.5	1,763.9	4,700.0	114.0
Acute myocardial infarction . . . . .410	1988	101.7	0.3	0.0	0.1	1.6	12.3	51.7	156.1	372.1	868.6	1,661.1	58.3
	1987	104.0	0.3	0.1	0.4	1.3	12.2	57.6	163.7	397.0	873.6	1,649.5	60.9
Other acute and subacute forms of ischemic heart disease . . .411	1988	1.4	-	-	-	0.1	0.3	0.8	2.3	4.3	11.0	30.5	0.8
	1987	1.5	-	-	-	0.1	0.3	1.1	2.4	6.3	8.9	22.0	0.9
Angina pectoris . . . . .413	1988	0.4	-	-	-	-	-	-	0.5	1.9	3.3	10.5	0.2
	1987	0.5	-	-	-	0.0	-	-	0.7	1.5	5.8	12.6	0.3
Old myocardial infarction and other forms of chronic ischemic heart disease . . . . .412,414	1988	104.3	0.3	0.0	0.1	0.8	6.3	31.8	110.7	293.8	877.5	2,910.1	51.1
	1987	105.0	-	0.0	0.2	0.8	7.6	33.2	111.4	296.6	875.6	3,016.0	51.9
Other diseases of endocardium . . . . .424	1988	4.5	0.3	0.1	0.0	0.4	0.5	1.2	4.3	12.9	38.8	115.0	2.3
	1987	4.6	0.5	0.1	0.0	0.3	0.8	1.8	4.6	13.7	38.8	111.6	2.4
All other forms of heart disease . . . . .415-423,425-429	1988	87.8	22.8	1.2	2.2	3.9	11.8	38.7	111.4	261.7	660.8	2,183.9	47.0
	1987	85.8	23.1	1.1	2.1	4.4	10.9	39.7	105.4	261.9	660.9	2,120.7	46.4
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	1988	198.6	1.3	3.5	5.0	10.8	44.3	157.2	456.5	845.4	1,324.8	1,664.5	133.3
	1987	196.1	3.7	3.7	5.1	12.5	44.4	164.5	448.5	845.8	1,282.8	1,631.7	133.1
Malignant neoplasms of lip, oral cavity, and pharynx . . . . .140-149	1988	3.2	-	-	0.1	0.1	0.9	3.8	8.7	13.7	16.3	18.7	2.3
	1987	3.4	-	-	0.1	0.1	0.9	4.3	9.6	13.8	17.7	22.7	2.5
Malignant neoplasms of digestive organs and peritoneum . . .150-159	1988	47.4	-	0.1	0.3	1.4	7.0	29.7	95.9	197.7	356.9	537.0	29.7
	1987	47.7	0.3	0.1	0.2	1.6	7.7	33.2	98.6	202.6	351.4	517.3	30.5
Malignant neoplasms of respiratory and intrathoracic organs .160-165	1988	57.3	-	-	0.1	0.5	8.3	50.4	165.9	282.7	330.0	243.2	40.6
	1987	54.8	-	0.0	0.1	0.7	7.8	50.2	159.3	280.3	302.0	208.9	39.3
Malignant neoplasm of breast . . . . .174-175	1988	17.5	-	-	0.0	1.1	9.4	22.5	44.2	62.2	96.4	126.9	12.7
	1987	17.0	-	-	0.0	1.8	8.8	24.0	42.7	60.6	85.5	136.7	12.6
Malignant neoplasms of genital organs . . . . .179-187	1988	21.8	-	-	0.4	1.3	3.6	10.0	34.5	90.6	182.0	277.1	13.0
	1987	21.1	-	-	0.4	1.6	3.5	11.5	31.9	86.9	178.2	267.2	12.8
Malignant neoplasms of urinary organs . . . . .188-189	1988	7.9	0.3	0.1	0.1	0.1	1.0	5.4	15.5	31.5	59.9	97.4	4.9
	1987	8.2	-	0.1	0.1	0.1	1.1	3.9	16.7	33.8	64.5	96.3	5.0
Malignant neoplasms of all other and unspecified sites . . . . .170-173,190-199	1988	25.0	0.5	1.5	1.8	3.3	8.3	22.1	57.4	94.4	156.1	203.9	17.4
	1987	25.3	1.9	1.7	1.7	3.6	8.7	23.6	57.5	97.5	149.9	211.7	17.8
Leukemia . . . . .204-208	1988	7.1	0.5	1.5	1.4	1.2	2.4	4.7	10.7	24.6	51.0	68.5	4.8
	1987	7.4	1.1	1.5	1.3	1.3	2.6	4.7	11.2	24.7	54.1	78.1	5.0
Other malignant neoplasms of lymphatic and hematopoietic tissues . . . . .200-203	1988	11.5	-	0.3	0.8	1.7	3.3	8.6	23.7	47.8	76.5	91.6	7.8
	1987	11.2	0.5	0.2	1.2	1.6	3.2	9.2	21.0	45.7	79.6	93.1	7.6
Cerebrovascular diseases . . . . .430-438	1988	61.1	1.0	0.1	0.9	2.1	7.1	20.4	51.9	155.7	544.4	1,710.3	29.8
	1987	61.3	2.4	0.2	0.9	2.2	6.6	20.8	51.8	153.4	563.0	1,734.2	30.1
Accidents and adverse effects . . . . .E800-E949	1988	39.7	23.8	14.0	51.3	37.3	32.1	31.2	34.4	50.8	110.8	273.7	35.1
	1987	39.0	21.2	14.5	50.2	37.7	30.0	31.6	35.4	50.3	102.5	258.5	34.6
Motor vehicle accidents . . . . .E810-E825	1988	20.4	4.1	7.1	39.9	24.3	17.8	15.6	16.2	18.2	33.5	25.1	20.1
	1987	20.1	4.2	7.2	38.4	23.8	16.8	16.6	16.6	19.0	30.6	24.8	19.7
All other accidents and adverse effects . . . . .E800-E807,E826-E949	1988	19.3	19.4	6.9	11.4	13.0	14.2	15.7	18.2	32.6	77.3	248.6	15.0
	1987	18.9	17.0	7.4	11.8	13.9	13.1	14.9	18.8	31.4	71.8	233.7	14.9

Chronic obstructive pulmonary diseases and allied conditions .490-496	1988	33.3	0.5	0.3	0.4	0.6	1.8	8.8	50.2	151.6	301.3	399.9	19.2
	1987	32.2	2.1	0.3	0.5	0.4	1.8	7.7	48.0	146.4	305.5	363.1	18.7
Pneumonia and influenza . . . . .480-487	1988	31.5	14.5	0.6	0.5	2.1	3.6	7.3	19.3	60.7	263.5	1,090.2	14.2
	1987	28.8	17.8	0.5	0.7	1.5	3.7	6.7	17.9	57.0	235.2	1,029.3	13.2
Diabetes mellitus. . . . .250	1988	16.1	-	0.1	0.4	1.7	3.7	9.3	26.4	62.3	127.8	203.9	9.9
	1987	15.6	-	0.1	0.4	1.2	3.3	9.5	27.1	60.4	121.6	207.2	9.6
Suicide . . . . .E950-E959	1988	12.3	...	0.6	12.8	15.5	14.3	14.8	15.7	16.8	28.9	19.7	11.3
	1987	12.7	...	0.4	12.8	14.8	14.9	15.5	17.8	19.9	29.2	22.0	11.7
Chronic liver disease and cirrhosis. . . . .571	1988	10.6	0.3	0.0	0.2	2.4	10.3	20.0	30.1	35.7	31.0	18.3	9.0
	1987	10.7	1.1	0.0	0.2	2.2	9.9	19.0	34.0	33.3	34.6	17.4	9.0
Atherosclerosis. . . . .440	1988	9.6	-	-	-	0.0	0.1	0.9	3.8	16.2	74.1	428.8	3.7
	1987	9.5	-	-	-	0.1	0.1	0.9	3.9	15.5	76.4	425.5	3.7
Homicide and legal intervention . . . . .E960-E978	1988	9.0	7.3	1.6	15.1	16.3	10.9	7.5	5.3	4.4	4.3	6.1	9.0
	1987	8.5	5.3	1.4	12.9	15.2	10.8	8.2	5.9	4.0	3.4	3.1	8.4
Nephritis, nephrotic syndrome, and nephrosis . . . . .580-589	1988	8.9	5.2	0.1	0.2	0.8	1.1	2.7	9.0	25.1	79.5	207.3	4.6
	1987	9.5	7.7	0.1	0.2	0.3	1.3	3.4	9.9	28.2	80.4	230.9	5.0
Septicemia . . . . .038	1988	8.5	6.5	0.3	0.3	0.5	1.7	3.4	8.6	23.6	67.0	210.3	4.5
	1987	8.1	4.2	0.2	0.3	0.7	1.6	2.9	8.9	25.1	66.1	187.0	4.4
Certain conditions originating in the perinatal period. . . . .760-779	1988	7.5	474.0	0.4	0.1	-	-	-	-	-	-	-	0
	1987	7.6	484.0	0.3	0.1	0.0	-	-	0.0	0.1	-	-	0
Human immunodeficiency virus infection . . . . .*042-*044	1988	6.6		0.7	1.8	13.1	17.3	9.4		2.1			6.5
	1987	5.4		0.4	1.5	11.6	13.3	8.2		1.6			5.3

<sup>1</sup> Figures for age not stated are included in "All ages" but are 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 table 12 for infant mortality rates by cause 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, see table 12.

Table 9. Estimated deaths and death rates for 72 selected causes: United States, 1987 and 1988

[Data are provisional, estimated from a 10-percent sample of deaths. Rates per 100,000 population. Due to rounding of estimates, figures may not add to totals. For explanation of asterisk preceding cause-of-death codes, information on standard errors of the estimates, and further discussion, see Technical notes]

Cause of death (Ninth Revision, International Classification of Diseases, 1975)	Number		Rate	
	1988	1987	1988	1987
All causes . . . . .	2,171,000	2,127,000	883.0	874.0
Shigellosis and amebiasis . . . . .004,006	—	10	—	0.0
Certain other intestinal infections . . . . .007-009	280	340	0.1	0.1
Tuberculosis . . . . .010-018	1,970	1,720	0.8	0.7
Tuberculosis of respiratory system . . . . .010-012	1,640	1,460	0.7	0.6
Other tuberculosis . . . . .013-018	330	260	0.1	0.1
Whooping cough . . . . .033	—	—	—	—
Streptococcal sore throat, scarlatina, and erysipelas . . . . .034-035	20	10	0.0	0.0
Meningococcal infection . . . . .036	300	210	0.1	0.1
Septicemia . . . . .038	20,850	19,810	8.5	8.1
Acute poliomyelitis . . . . .045	—	—	—	—
Measles . . . . .055	—	—	—	—
Viral hepatitis . . . . .070	1,260	1,470	0.5	0.6
Syphilis . . . . .090-097	60	100	0.0	0.0
All other infectious and parasitic diseases <sup>1</sup> . . . . .001-003,005,020-032,037,039-041,*042-*044,046-054,056-066,071-088,098-139	22,570	19,160	9.2	7.9
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .140-208	488,240	477,190	198.6	196.1
Malignant neoplasms of lip, oral cavity, and pharynx . . . . .140-149	7,750	8,240	3.2	3.4
Malignant neoplasms of digestive organs and peritoneum . . . . .150-159	116,610	116,200	47.4	47.7
Malignant neoplasms of respiratory and intrathoracic organs . . . . .160-165	140,760	133,400	57.3	54.8
Malignant neoplasm of breast . . . . .174-175	43,020	41,380	17.5	17.0
Malignant neoplasms of genital organs . . . . .179-187	53,660	51,380	21.8	21.1
Malignant neoplasms of urinary organs . . . . .188-189	19,400	19,850	7.9	8.2
Malignant neoplasms of all other and unspecified sites . . . . .170-173,190-199	61,460	61,510	25.0	25.3
Leukemia . . . . .204-208	17,420	17,960	7.1	7.4
Other malignant neoplasms of lymphatic and hematopoietic tissues . . . . .200-203	28,160	27,280	11.5	11.2
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . . . . .210-239	7,120	6,650	2.9	2.7
Diabetes mellitus . . . . .250	39,610	37,900	16.1	15.6
Nutritional deficiencies . . . . .260-269	2,820	2,800	1.1	1.2
Anemias . . . . .280-285	3,740	3,650	1.5	1.5
Meningitis . . . . .320-322	1,230	1,290	0.5	0.5
Major cardiovascular diseases . . . . .390-448	972,140	966,400	395.5	397.0
Diseases of heart . . . . .390-398,402,404-429	767,400	762,820	312.2	313.4
Rheumatic fever and rheumatic heart disease . . . . .390-398	6,520	6,140	2.7	2.5
Hypertensive heart disease . . . . .402	20,320	20,230	8.3	8.3
Hypertensive heart and renal disease . . . . .404	2,530	2,690	1.0	1.1
Ischemic heart disease . . . . .410-414	511,050	513,680	207.9	211.0
Acute myocardial infarction . . . . .410	249,950	253,140	101.7	104.0
Other acute and subacute forms of ischemic heart disease . . . . .411	3,550	3,530	1.4	1.5
Angina pectoris . . . . .413	1,080	1,330	0.4	0.5
Old myocardial infarction and other forms of chronic ischemic heart disease . . . . .412,414	256,470	255,680	104.3	105.0
Other diseases of endocardium . . . . .424	11,040	11,130	4.5	4.6
All other forms of heart disease . . . . .415-423,425-429	215,940	208,940	87.8	85.8
Hypertension with or without renal disease . . . . .401,403	8,110	7,990	3.3	3.3
Cerebrovascular diseases . . . . .430-438	150,300	149,220	61.1	61.3
Intracerebral and other intracranial hemorrhage . . . . .431-432	21,620	19,760	8.8	8.1
Cerebral thrombosis and unspecified occlusion of cerebral arteries . . . . .434.0,434.9	20,820	21,690	8.5	8.9
Cerebral embolism . . . . .434.1	730	690	0.3	0.3
All other and late effects of cerebrovascular diseases . . . . .430,433,435-438	107,130	107,070	43.6	44.0
Atherosclerosis . . . . .440	23,700	23,200	9.6	9.5
Other diseases of arteries, arterioles, and capillaries . . . . .441-448	22,620	23,190	9.2	9.5
Acute bronchitis and bronchiolitis . . . . .466	710	540	0.3	0.2
Pneumonia and influenza . . . . .480-487	77,330	70,120	31.5	28.8
Pneumonia . . . . .480-486	75,430	69,500	30.7	28.6
Influenza . . . . .487	1,900	610	0.8	0.3
Chronic obstructive pulmonary diseases and allied conditions . . . . .490-496	81,960	78,270	33.3	32.2
Bronchitis, chronic and unspecified . . . . .490-491	3,440	3,300	1.4	1.4
Emphysema . . . . .492	15,750	14,550	6.4	6.0
Asthma . . . . .493	4,580	4,030	1.9	1.7
Other chronic obstructive pulmonary diseases and allied conditions . . . . .494-496	58,180	56,380	23.7	23.2
Ulcer of stomach and duodenum . . . . .531-533	6,420	5,840	2.6	2.4
Appendicitis . . . . .540-543	400	500	0.2	0.2
Hernia of abdominal cavity and intestinal obstruction without mention of hernia . . . . .550-553,560	5,040	5,690	2.1	2.3
Chronic liver disease and cirrhosis . . . . .571	26,080	26,050	10.6	10.7
Cholelithiasis and other disorders of gallbladder . . . . .574-575	3,210	3,260	1.3	1.3
Nephritis, nephrotic syndrome, and nephrosis . . . . .580-589	21,890	23,040	8.9	9.5
Acute glomerulonephritis and nephrotic syndrome . . . . .580-581	280	370	0.1	0.2
Chronic glomerulonephritis, nephritis and nephropathy, not specified as acute or chronic, and renal sclerosis, unspecified . . . . .582-583,587	1,240	1,570	0.5	0.6

**Table 9. Estimated deaths and death rates for 72 selected causes: United States, 1987 and 1988—Con.**

[Data are provisional, estimated from a 10-percent sample of deaths. Rates per 100,000 population. Due to rounding of estimates, figures may not add to totals. For explanation of asterisk preceding cause-of-death codes, information on standard errors of the estimates, and further discussion, see Technical notes]

Cause of death (Ninth Revision, International Classification of Diseases, 1975)	Number		Rate	
	1988	1987	1988	1987
Renal failure, disorders resulting from impaired renal function, and small kidney of unknown cause . . . . .584-586,588-589	20,360	21,100	8.3	8.7
Infections of kidney . . . . .590	1,440	1,840	0.6	0.8
Hyperplasia of prostate . . . . .600	420	520	0.2	0.2
Complications of pregnancy, childbirth, and the puerperium . . . . .630-676	300	240	0.1	0.1
Pregnancy with abortive outcome . . . . .630-638	20	40	0.0	0.0
Other complications of pregnancy, childbirth, and the puerperium . . . . .640-676	280	200	0.1	0.1
Congenital anomalies . . . . .740-759	12,770	12,130	5.2	5.0
Certain conditions originating in the perinatal period . . . . .760-779	18,510	18,460	7.5	7.6
Birth trauma, intrauterine hypoxia, birth asphyxia, and respiratory distress syndrome . . . . .767-769	4,190	4,490	1.7	1.8
Other conditions originating in the perinatal period . . . . .760-766,770-779	14,320	13,960	5.8	5.7
Symptoms, signs, and ill-defined conditions . . . . .780-799	31,820	31,290	12.9	12.9
All other diseases . . . . .Residual	167,300	161,570	68.1	66.4
Accidents and adverse effects . . . . .E800-E949	97,500	94,840	39.7	39.0
Motor vehicle accidents . . . . .E810-E825	50,060	48,950	20.4	20.1
All other accidents and adverse effects . . . . .E800-E807,E826-E949	47,440	45,890	19.3	18.9
Suicide . . . . .E950-E959	30,260	30,980	12.3	12.7
Homicide and legal intervention . . . . .E960-E978	22,190	20,580	9.0	8.5
All other external causes . . . . .E980-E999	2,830	2,820	1.2	1.2

<sup>1</sup> Includes data for Human Immunodeficiency virus Infection (category numbers \*042-\*044); see table 10 and Technical notes.

**Table 10. Estimated deaths and death rates for Human immunodeficiency virus infection by age, race, and sex and age-adjusted rates by race and sex: United States, 1987 and 1988**

[Data are provisional, estimated from a 10-percent sample of deaths. Rates per 100,000 population in specified group. Due to rounding of estimates, figures may not add to totals. For information on standard errors of the estimates and further discussion, see Technical notes. Data are based on deaths assigned to category numbers \*042-\*044; see Technical notes]

Sex and age	All races <sup>1</sup>				White				Black			
	1988		1987		1988		1987		1988		1987	
	Number	Rate <sup>2</sup>	Number	Rate <sup>2</sup>	Number	Rate <sup>2</sup>	Number	Rate <sup>2</sup>	Number	Rate <sup>2</sup>	Number	Rate <sup>2</sup>
<b>Both sexes</b>												
All ages . . . . .	16,210	6.6	13,130	5.4	10,720	5.2	9,160	4.5	5,300	17.5	3,920	13.2
Under 15 years . . . . .	360	0.7	210	0.4	190	0.4	130	0.3	170	2.1	80	1.0
15-24 years . . . . .	680	1.8	570	1.5	430	1.4	360	1.1	230	4.2	210	3.8
25-34 years . . . . .	5,700	13.1	5,040	11.6	3,470	9.5	3,410	9.4	2,160	39.2	1,610	29.8
35-44 years . . . . .	6,090	17.3	4,560	13.3	4,100	13.6	3,110	10.6	1,950	51.2	1,420	38.9
45-54 years . . . . .	2,260	9.4	1,900	8.2	1,660	8.0	1,440	7.2	580	22.7	440	17.7
55 years and over . . . . .	1,090	2.1	850	1.6	870	1.9	690	1.5	200	4.3	160	3.5
Not stated . . . . .	10	...	10	...	-	...	10	...	10	...	-	...
Age-adjusted rate <sup>3</sup> . . . . .	...	6.5	...	5.3	...	5.0	...	4.3	...	18.1	...	13.8
<b>Male</b>												
All ages . . . . .	14,300	11.9	11,880	10.0	9,840	9.7	8,580	8.5	4,290	29.9	3,250	23.0
Under 15 years . . . . .	200	0.7	90	0.3	120	0.5	60	0.3	80	1.9	30	0.7
15-24 years . . . . .	570	3.0	530	2.7	370	2.4	350	2.2	180	6.6	180	6.6
25-34 years . . . . .	4,980	22.8	4,400	20.3	3,190	17.3	3,090	16.8	1,720	66.2	1,290	50.6
35-44 years . . . . .	5,490	31.6	4,230	25.0	3,850	25.6	3,030	20.6	1,600	92.2	1,180	71.0
45-54 years . . . . .	2,110	18.0	1,840	16.3	1,580	15.4	1,410	14.3	510	44.5	410	36.7
55 years and over . . . . .	930	4.1	770	3.4	730	3.6	620	3.1	190	9.6	150	7.7
Not stated . . . . .	10	...	10	...	-	...	10	...	10	...	-	...
Age-adjusted rate <sup>3</sup> . . . . .	...	11.5	...	9.8	...	9.3	...	8.2	...	31.9	...	24.9
<b>Female</b>												
All ages . . . . .	1,910	1.5	1,250	1.0	880	0.8	580	0.6	1,010	6.4	670	4.3
Under 15 years . . . . .	160	0.6	120	0.5	70	0.3	70	0.3	90	2.2	50	1.3
15-24 years . . . . .	110	0.6	40	0.2	60	0.4	10	0.1	50	1.8	30	1.1
25-34 years . . . . .	720	3.3	630	2.9	280	1.5	320	1.8	440	15.1	310	10.9
35-44 years . . . . .	600	3.4	320	1.8	250	1.7	80	0.5	350	16.9	240	12.1
45-54 years . . . . .	150	1.2	60	0.5	80	0.8	30	0.3	70	5.0	30	2.2
55 years and over . . . . .	160	0.5	80	0.3	140	0.5	70	0.3	10	0.4	10	0.4
Not stated . . . . .	-	...	-	...	-	...	-	...	-	...	-	...
Age-adjusted rate <sup>3</sup> . . . . .	...	1.5	...	1.0	...	0.8	...	0.5	...	6.3	...	4.3

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

<sup>2</sup> Figures for age not stated are included in "All ages" but are not distributed among age groups.

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



**Table 11. Infant mortality rates by race and sex: United States, 1960, 1970, and 1980-88**

[Rates per 1,000 live births in specified group. For further discussion, see Technical notes]

Year	All races						All other					
	All races			White			Total			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
<b>Provisional</b>												
1988.....	9.9	---	---	---	---	---	---	---	---	---	---	---
1987.....	10.0	---	---	---	---	---	---	---	---	---	---	---
1986.....	10.4	---	---	---	---	---	---	---	---	---	---	---
1985.....	10.6	---	---	---	---	---	---	---	---	---	---	---
<b>Final</b>												
1988.....	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
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	18.6	43.2	47.9	38.5	44.3	49.1	39.4

**Table 12. Infant mortality rates by age and for 10 selected causes of death: United States, 1985-88**

[Provisional data for 1986-88 are estimated from a 10-percent sample of deaths. Rates per 100,000 live births. For information on standard errors of the estimates and further discussion, see Technical notes]

Age and cause of death (Ninth Revision, International Classification of Diseases, 1975)	1988	1987	1986		1985
	(prov.)	(prov.)	(prov.)	(final)	(final)
Total, under 1 year . . . . .	992.9	997.0	1,039.2	1,035.3	1,064.5
Under 28 days . . . . .	641.7	653.8	669.5	671.1	696.1
28 days to 11 months . . . . .	351.5	343.3	369.7	364.1	368.3
Certain gastrointestinal diseases . . . . .008-009,535,555-558	4.4	5.0	5.9	5.3	5.4
Pneumonia and influenza . . . . .480-487	14.4	17.6	18.0	17.6	18.7
Congenital anomalies . . . . .740-759	207.2	207.0	218.9	219.5	227.7
Disorders relating to short gestation and unspecified low birth weight . . . . .765	90.9	84.8	87.9	86.4	86.6
Birth trauma . . . . .767	4.6	5.0	8.6	7.1	8.7
Intrauterine hypoxia and birth asphyxia . . . . .768	20.3	25.5	24.2	26.2	30.8
Respiratory distress syndrome . . . . .769	80.4	86.4	94.4	90.6	96.2
Other conditions originating in the perinatal period . . . . .760-764,766,770-779	273.2	277.9	266.2	275.0	282.8
Sudden infant death syndrome . . . . .798.0	117.4	116.1	130.4	140.5	141.3
All other causes . . . . .Residual	179.7	172.1	184.7	167.2	164.3

## Technical Notes

### Nature and sources of data

All data for 1987 and 1988 in this report are provisional. Data for all other years are final, unless specified as provisional. Data for the United States as a whole refer to events occurring within the United States; other data refer to events within the reporting areas shown.

Beginning with 1970, final birth and mortality statistics exclude data for births and deaths to nonresidents of the United States. Data for nonresidents are included in provisional data. All mortality figures exclude fetal deaths.

Provisional or estimated figures for births, marriages, divorces, and deaths, except data estimated from the Current Mortality Sample, summarize data from monthly reports of the numbers of birth, marriage, divorce, and death certificates received in registration offices between two dates a month apart regardless of the month or year when the events occurred. Delay in the receipt of certificates in a registration office may result in a low count for a given month, followed by a high count for the month(s) in which the delayed records are received. Although this occasionally may result in large fluctuations in State counts for a given event, the effect on provisional monthly totals for the United States is usually small. Data include revisions received from the States and, therefore, may differ from those previously published.

Although the counts in this report are not subject to sampling variability (except the Current Mortality Sample, see below), they may be affected by random variation. 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 random variation, as follows.

If  $N$  is the number of events in the population and  $R$  is the corresponding

rate, the chances are 19 in 20 that

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

covers the "true" number of events.

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

covers 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 in numbers of events, rates, and ratios may be found in the technical appendixes of *Vital Statistics of the United States, 1986*, Volumes I and II.

### Natality

Monthly estimates of births for the entire United States are based on the monthly reports adjusted for observed differences from final monthly figures. State figures are not adjusted in this manner. U.S. birth figures contain adjustments made to data for California because of varying length of reporting periods.

### Marriages

Monthly estimates of marriages for the entire United States are based on the monthly reports adjusted for observed differences from final monthly figures. State figures are not adjusted in this manner. For most States, data represent marriages performed. For New Mexico, New York City, and some counties of Arizona, data are marriage licenses issued.

### Divorces

Provisional divorce data, including reported annulments, are shown for the areas reporting divorce data monthly. Divorce figures for the United States for 1987 and 1988 are estimated from a summary of monthly reports from 48 States and the District of Columbia. These areas contained over 95 percent of the population of the United States as enumerated in 1980.

### Mortality

Monthly estimates of deaths for the entire United States are based on monthly reports; they are not adjusted for observed differences from final monthly figures. U.S. figures for deaths and infant deaths contain adjustments made to data for California because of varying length of reporting periods.

### Current mortality sample

Estimated deaths and death rates for 1987 and 1988 by age, race, sex, and cause and provisional life table figures were derived from the Current Mortality Sample. The Current Mortality Sample is a 10-percent systematic sample of death certificates received each month in the vital statistics offices in the 50 States, the District of Columbia, and the independent registration area of New York City. The sample for each of these areas consists of one-tenth of the death certificates received in the office between a given date and the same date of the following month. All death certificates received during the 1-month period are sampled regardless of the month or year in which the death occurred. As a result, the monthly sample is not strictly comparable to a sample on a month-of-occurrence basis. The proportions of death certificates received in the samples for each month of 1988 representing deaths occurring in the current month and those occurring in other months are shown in table I.

Table I. Percent of death certificates received in the sample each month by month of occurrence: United States, 1988

Month	Deaths occurring in—		
	Same month	Previous month	All other months
January	71.5	21.5	6.9
February	68.2	23.5	8.4
March	68.9	23.0	8.1
April	68.8	24.2	7.1
May	71.7	20.6	7.7
June	70.3	22.3	7.4
July	72.7	20.5	6.8
August	72.6	19.7	7.8
September	69.7	21.6	8.8
October	72.1	21.1	6.9
November	71.5	22.0	6.5
December	71.4	22.3	6.3

Because of the way in which death certificates are processed in California, this State contributes a high proportion of the certificates for deaths not occurring in the sample month. For the sample exclusive of California, the percent of the sample deaths occurring in the current month constitutes 77 percent of the total as opposed to 72 percent of the entire sample. As for the year of occurrence, 97 percent of the 216,592 transcripts in the 1988 sample were for deaths occurring in 1988 and 3 percent for deaths occurring in 1987.

**Correction for bias and adjustment to provisional counts**—The sample data in this report are corrected for bias and adjusted to provisional counts using rules and methodology described in the annual summary for 1978(3). The Current Mortality Sample is selected at a specified time each month. Complete information concerning the underlying cause of death is sometimes not available in the State offices when the sample is drawn but is available later when copies of the final death certificates are processed. As a result, estimates based on sample counts for certain causes are recurrently biased estimates of final counts.

The data for 1988 were adjusted for bias based on the experience of three years—1984, 1985, and 1986. If for a given cause the sample count for these years departs from one-tenth of the final count by more than would be

Table II. Causes of death corrected for bias and adjusted weights for all ages and for under 1 year: United States, 1988

Cause of death <sup>1</sup> (Ninth Revision, International Classification of Diseases, 1975)	Adjusted weight
All ages	
All other infectious and parasitic diseases . . . . .001-003,005,020-032,037,039-041, *042-*044,046-054,056-066,071-088,098-139	10.27
Malignant neoplasms of respiratory and intrathoracic organs. . . . .160-165	10.12
Malignant neoplasms of all other and unspecified sites . . . . .170-173,190-199	9.84
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . . . . .210-239	9.12
Other acute and subacute forms of ischemic heart disease . . . . .411	10.76
Angina pectoris . . . . .413	12.50
Hypertension with or without renal disease . . . . .401,403	10.75
Intracerebral and other intracranial hemorrhage . . . . .431-432	10.27
Renal failure, disorders resulting from impaired renal function, and small kidney of unknown cause . . . . .584-586,588-589	9.71
Symptoms, signs, and ill-defined conditions . . . . .780-799	7.25
All other diseases. . . . .Residual	10.12
Motor vehicle accidents . . . . .E810-E825	10.34
Suicide . . . . .E950-E959	10.46
Homicide and legal intervention . . . . .E960-E978	10.31
All other external causes . . . . .E980-E999	11.42
Under 1 year	
Symptoms, signs, and ill-defined conditions . . . . .780-799	9.11

<sup>1</sup>Causes of death eligible to have an adjusted weight were those that had 50 or more deaths based on final data for 1988.

expected on the basis of sampling variability alone, the sample deaths for this cause are corrected by using an adjusted weight. For all causes without an adjusted weight, a weight of 10 is used. The adjusted weights that were applied to the 1988 sample for all ages and for ages under 1 year are shown in table II.

The 1987 cause-of-death data in this report were adjusted for bias using data for 1983, 1984, and 1985. Therefore, the adjusted weights for 1988 data are not the same as those used for 1987 (4).

**Sampling variability**—Because the estimates of deaths and death rates presented in this report (with the exception of total deaths and deaths under 1 year for the United States and specified States) are based on a sample of the death certificates, they are subject to sampling variability. The estimated relative standard error shown in this report is a measure of the sampling error of the estimated number of deaths (or of the estimated death rate) expressed as a percent of the estimate. The chances are about two out of three that the percent difference between an estimate and the result of a complete count is less than the percent shown. The chances are about 19 out of 20 that the

percent difference is less than twice the percent shown. Special caution should be used in interpreting figures based on 100 or fewer estimated deaths; these estimates have relative standard error of 30 percent or more and are therefore considered unreliable.

Two methods are used for estimating relative standard errors—one for the ratio estimates for the causes of death corrected for bias and the other for estimates for the remaining causes of death or for given age-race-sex groups. The relative standard error of a ratio estimate for a given cause of death corrected for bias for all ages is computed as follows:

$$V = 300 \sqrt{\frac{1}{10} \left( \frac{1}{x} - \frac{1}{D} \right) + \left( \frac{1}{Y} - \frac{1}{M} \right)}$$

- where V = relative standard error (in percent) of the estimate X
- X = the estimated number of deaths (or estimated death rate) from a given cause or age-race-sex group
- x = the number of deaths in the sample from the given cause
- D = the total number of death certificates in the sample

NOTE: A list of references follows the text.

for the specified year (216,592 for 1988)

$Y$  = the final number of deaths from the given cause occurring in the three years used for bias correction combined

$M$  = the final number of all deaths occurring in the three years used for bias correction combined

The relative standard errors for the remaining estimates for given causes of death not requiring a correction for bias or for a given age-race-sex group are computed as follows:

$$V = 300 \sqrt{\frac{1}{X} - \frac{1}{N}}$$

where  $V$  = the relative standard error (in percent) of the estimate  $X$

$X$  = the estimated number of deaths (or estimated death rate) from a given cause or for an age-race-sex group

$N$  = the provisional number of registered deaths for the specified year (2,171,000 for 1988)

The relative standard error due to sampling may be obtained by using the above formula where  $X$  is the estimated number of deaths for a given group. Data required to compute relative standard errors for 1987 are given in an earlier report (4). For easy reference, the relative standard errors due to sampling for estimates based on several levels in the number of deaths are shown in table III.

Comparisons made in the text between death rates based on the Current Mortality Sample, unless otherwise specified, were statistically significant at the 0.05 level of significance. 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.

### Cause-of-death classification

The mortality statistics presented here are compiled in accordance with

Table III. Relative standard errors for estimated numbers of deaths from the Current Mortality Sample expressed as a percent of the estimate

Estimated number of deaths	Relative standard error (as percent)	Estimated number of deaths	Relative standard error (as percent)
10	94.9	900	10.0
20	67.1	1,000	9.5
50	42.4	2,000	6.7
100	30.0	5,000	4.2
200	21.2	10,000	3.0
300	17.3	20,000	2.1
400	15.0	50,000	1.3
500	13.4	100,000	0.9
600	12.2	200,000	0.6
700	11.3	500,000	0.4
800	10.6	1,000,000	0.2

World Health Organization regulations, which specify that member nations classify causes of death in accordance with the current revision 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 (5). For years prior to 1979 causes of death were classified according to the revision then in use. 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 the comparability ratios and, where available, estimates of their standard errors. For information about comparability ratios between the Eighth and Ninth Revisions, see *Monthly Vital Statistics Report*, Volume 28, Number 11 Supplement (6).

For information about comparability ratios between the Seventh and Eighth Revisions, see *Vital and Health Statistics*, Series 2, Number 66 (7). For a list of other reports on the effects of revisions of the international lists on mortality statistics tabulated by cause, see *Vital Statistics—Special Reports*, Volume 51, Number 4 (8).

Besides specifying the classification, the World Health Organization regulations outline the form of medical certification and the coding procedures to be used. In general, when more than one cause of death is reported, the cause designated by the certifying phy-

sician as the underlying cause of death is the cause tabulated.

Causes of death for data presented in this publication were coded by procedures outlined in issues of Part 2a of the *NCHS Instruction Manual* (9).

*Codes for HIV infection*—Beginning with data for 1987, NCHS introduced category numbers \*042- \*044 for classifying and coding human immunodeficiency virus (HIV) infection, formerly referred to as human T-cell lymphotropic virus-III/lymphadenopathy-associated virus (HTLV-III/LAV) 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). In table 10 of this report estimated deaths and death rates for Human immunodeficiency virus infection are shown for 1987 and 1988 by age, race, and sex. These estimates are based on data from the Current Mortality Sample and therefore are subject to the sampling variability discussed above. Deaths classified to these categories for 1987 and 1988 are included in All other infectious and parasitic diseases in the List of 72 Selected Causes of Death shown in table 9. For 1986 and previous years, deaths involving HIV infection were classified to Deficiency of cell-mediated immunity (ICD-9 No. 279.1), contained in the title All other diseases; to Pneumocystosis (ICD-9 No. 136.3), contained in the title All other infectious and parasitic diseases; to Malignant neoplasms, including neoplasms of

NOTE: A list of references follows the text.

lymphatic and hematopoietic tissues; and to a number of other causes. Therefore, beginning with 1987 cause-of-death data are not strictly comparable with data for earlier years.

### Cause-of-death ranking

Cause-of-death ranking is based on the List of 72 Selected Causes of Death and the category Human immunodeficiency virus infection (\*042--\*044). The List of 72 Selected Causes of Death was adapted from one of the special lists for mortality tabulations recommended by the World Health Organization for use with the Ninth Revision of the International Classification of Diseases. Two group titles—Major cardiovascular diseases and Symptoms, signs, and ill-defined conditions—are not ranked. In addition, category titles that begin with the words "Other" and "All other" are not ranked. The remaining category titles are ranked according to the number of deaths for 1988 to determine the leading causes of death. When one of the titles that represents a subtotal is ranked (for example, Tuberculosis), its component parts (in this case, Tuberculosis of respiratory system and Other tuberculosis) are not ranked.

### 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 specified group or cause of death to the standard population distributed by age. The total population as enumerated in 1940 was selected as the standard. The age-adjusted rates were based on 10-year age groups except those by specified causes for 1987 and 1988. Rates by specified cause in tables 8 and 10 were based on age groups shown in the given table. It is important not to compare age-adjusted death rates with crude rates.

### Life tables

U.S. abridged life tables are constructed by reference to a standard life table (10). For explanation of the col-

umns of the life table, see *Vital Statistics of the United States, 1986*, Volume II, Section 6 (11).

### Infant mortality

Infant mortality rates shown in figure 5 and tables A, 11, and 12 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 tables H, 4, 5, and 8 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 estimated mid-year population of persons under 1 year of age (based on 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.

### Seasonal adjustment

The method of seasonal adjustment used for birth, fertility, and marriage rates is described in *The X-II Variant of the Census Method II Seasonal Adjustment Program* (12). Marriage rates were also adjusted for monthly variation in the specified days of the week (Sundays, Mondays, and so forth) because marriages are more likely on some days than on others.

### Population bases for computing rates

The populations used for computing rates shown in this report (fur-

nished by the U.S. Bureau of the Census) represent the population residing in the specified area. Populations for 1940, 1950, 1960, 1970, and 1980 were enumerated as of April 1; all other populations were estimated as of July 1.

The populations for 1988 have been published by the U.S. Bureau of the Census (13,14).

Beginning with 1984 data in this report population estimates incorporate new estimates for net migration and net undocumented immigration. As a result, rates for 1984-88 are not strictly comparable with those for previous years, although trends for the total population and most age-race-sex groups are not substantially affected. Additional information has been published by the U.S. Bureau of the Census (15).

The U.S. Bureau of the Census has conducted extensive research to evaluate the coverage of the U.S. population (including undercount and overcount and misstatement of age, race, and sex) in the last four decennial censuses—1950, 1960, 1970, and 1980 (16-18). These evaluative studies indicate that there is differential coverage in the censuses among the population groups; that is, some age, race, and sex groups are more completely enumerated than others. To the extent that the estimates of net census undercounts and overcounts are valid, that the net undercounts and overcounts are substantial, and that they vary among subgroups of the population, net census undercounts and overcounts can have consequences for vital statistics measures (16).

NOTE: A list of references follows the text.

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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 standards of reliability or precision
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