

United States Life Tables, 2016

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Abstract

Objectives—This report presents complete period life tables for the United States by race, Hispanic origin, and sex, based on age-specific death rates in 2016.

Methods—Data used to prepare the 2016 life tables are 2016 final mortality statistics; July 1, 2016 population estimates based on the 2010 decennial census; and 2016 Medicare data for persons aged 66–99. The methodology used to estimate the life tables for the Hispanic population remains unchanged from that developed for the publication of life tables by Hispanic origin for data year 2006. The methodology used to estimate the 2016 life tables for all other groups was first implemented with data year 2008.

Results—In 2016, the overall expectation of life at birth was 78.7 years, unchanged from 2015. Between 2015 and 2016, life expectancy at birth decreased by 0.1 year for males (76.3 to 76.2) and did not change for females (81.1). Life expectancy at birth did not change for the white population (78.9) between 2015 and 2016. Life expectancy at birth decreased by 0.2 year for the black population (75.5 to 75.3) and for the non-Hispanic black population (75.1 to 74.9). Life expectancy at birth decreased by 0.1 year for the non-Hispanic white population (78.7 to 78.6) and for the Hispanic population (81.9 to 81.8).

Keywords: life expectancy • survival • death rates • race • Hispanic origin

Introduction

There are two types of life tables: the cohort (or generation) life table and the period (or current) life table. The cohort life table presents the mortality experience of a particular birth cohort—all persons born in the year 1900, for example—from the moment of birth through consecutive ages in successive calendar years. Based on age-specific death rates observed through consecutive calendar years, the cohort life table reflects the mortality experience of an actual cohort from birth until no

lives remain in the group. To prepare just a single complete cohort life table requires data over many years. It is usually not feasible to construct cohort life tables entirely on the basis of observed data for real cohorts due to data unavailability or incompleteness (1). For example, a life table representation of the mortality experience of a cohort of persons born in 1970 would require the use of data projection techniques to estimate deaths into the future (2,3).

Unlike the cohort life table, the period life table does not represent the mortality experience of an actual birth cohort. Rather, the period life table presents what would happen to a hypothetical cohort if it experienced throughout its entire life the mortality conditions of a particular period in time. For example, a period life table for 2016 assumes a hypothetical cohort that is subject throughout its lifetime to the age-specific death rates prevailing for the actual population in 2016. The period life table may thus be characterized as rendering a snapshot of current mortality experience and shows the long-range implications of a set of age-specific death rates that prevailed in a given year. In this report, the term life table refers only to the period life table and not to the cohort life table.

Life tables can be classified in two ways according to the length of the age interval in which data are presented. A complete life table contains data for every single year of age. An abridged life table typically contains data by 5- or 10-year age intervals. A complete life table can easily be aggregated into 5- or 10-year age groups (see [Technical Notes](#) for instructions). Other than the decennial life tables, U.S. life tables based on data before 1997 are abridged life tables constructed by reference to a standard table (4). This report presents complete period life tables by race, Hispanic origin, and sex.

Data and Methods

The data used to prepare the U.S. life tables for 2016 are final numbers of deaths for the year 2016; July 1, 2016 population estimates based on the 2010 decennial census;



and age-specific death and population counts for Medicare beneficiaries aged 66–99 for the year 2016 from the Centers for Medicare & Medicaid Services. Data from the Medicare program are used to supplement vital statistics and census data for ages 66 and over. The U.S. life tables by Hispanic origin are based on death rates that have been adjusted for race and ethnicity misclassification on death certificates using classification ratios (or correction factors) generated from an updated evaluation of race and Hispanic origin misclassification on death certificates in the United States (5). (See [Technical Notes](#) for a detailed description of the data sets and methodology used to estimate Hispanic origin life tables.)

Expectation of life

The most frequently used life table statistic is life expectancy (e_x), which is the average number of years of life remaining for persons who have attained a given age (x). Life expectancy and other life table values for each age in 2016 are shown for the total population by race, Hispanic origin, and sex in [Tables 1–18](#). Life expectancy is summarized by age, race, Hispanic origin, and sex in [Table A](#).

Life expectancy at birth (e_0) for 2016 for the total population was 78.7 years. This represents the average number of years that the members of the hypothetical life table cohort can expect to live at the time of birth ([Table A](#)).

Survivors to specified ages

Another way of assessing the longevity of the period life table cohort is by determining the proportion that survives to specified ages. The l_x column of the life table provides the data for computing this proportion. [Table B](#) summarizes the number of survivors by age, race, Hispanic origin, and sex. To illustrate, 57,781 persons out of the original 2016 hypothetical life table cohort of 100,000 (or 57.8 %) were alive at exact age 80. In other words, the probability that a person will survive from birth to age 80, given 2016 age-specific mortality, is 57.8%. Probabilities of survival can be calculated at any age by simply dividing the number of survivors at the terminal age by the number at the beginning age. For example, to calculate the probability of surviving from age 20 to age 85, one would divide the number of survivors at age 85 (42,475) by the number of survivors at age 20 (98,927), which results in a 42.9% probability of survival.

Explanation of life table columns

Column 1. Age (between x and $x + 1$)—Shows the age interval between the two exact ages indicated. For instance, “20–21” means the 1-year interval between the 20th and 21st birthdays.

Column 2. Probability of dying (q_x)—Shows the probability of dying between ages x and $x + 1$. For example, for males in the age interval 20–21 years, the probability of dying is 0.001182 ([Table 2](#)). This column forms the basis of the life table; all subsequent columns are derived from it.

Column 3. Number surviving (l_x)—Shows the number of persons from the original hypothetical cohort of 100,000 live births who survive to the beginning of each age interval. The l_x values are computed from the q_x values, which are successively applied to the remainder of the original 100,000 persons still alive at the beginning of each age interval. Thus, out of 100,000 female babies born alive, 99,466 will complete the first year of life and enter the second; 99,320 will reach age 10; 99,110 will reach age 20; and 49,298 will live to age 85 ([Table 3](#)).

Column 4. Number dying (d_x)—Shows the number dying in each successive age interval out of the original 100,000 live births. For example, out of 100,000 males born alive, 637 will die in the first year of life; 117 between ages 20 and 21; and 1,099 after reaching age 100 ([Table 2](#)). Each figure in column 4 is the difference between two successive figures in column 3.

Column 5. Person-years lived (L_x)—Shows the number of person-years lived by the hypothetical life table cohort within an age interval x to $x + 1$. Each figure in column 5 represents the total time (in years) lived between two indicated birthdays by all those reaching the earlier birthday. Thus, the figure 98,695 for males in the age interval 20–21 is the total number of years lived between the 20th and 21st birthdays by the 98,753 males (column 3) who reached their 20th birthday out of 100,000 males born alive ([Table 2](#)).

Column 6. Total number of person-years lived (T_x)—Shows the total number of person-years that would be lived after the beginning of the age interval x to $x + 1$ by the hypothetical life table cohort. For example, the figure 5,632,257 is the total number of years lived after reaching age 20 by the 98,753 males reaching that age ([Table 2](#)).

Column 7. Expectation of life (e_x)—The expectation of life at any given age is the average number of years remaining to be lived by those surviving to that age, based on a given set of age-specific rates of dying. It is derived by dividing the total person-years that would be lived beyond age x by the number of persons who survived to that age interval (T_x/l_x). Thus, the average remaining lifetime for males who reach age 20 is 57.0 years (5,632,257 divided by 98,753) ([Table 2](#)).

Results

Life expectancy in the United States

[Tables 1–18](#) show complete life tables for 2016 by race (white and black), Hispanic origin, and sex. [Table A](#) summarizes life expectancy by age, race, Hispanic origin, and sex. Life expectancy at birth for 2016 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 2016. In 2016, life expectancy at birth was 78.7 years, unchanged from 2015.

Changes in mortality by age and cause of death can have a major effect on life expectancy. Life expectancy between 2015 and 2016 did not change due to increases in mortality from unintentional injuries, homicide, Alzheimer disease, suicide, and Parkinson disease and accompanying decreases in mortality from heart disease, cancer, Influenza and pneumonia, Chronic

Table A. Expectation of life by age, race, Hispanic origin, race for the non-Hispanic population, and sex: United States, 2016

Age	All races and origins			White			Black			Hispanic ¹			Non-Hispanic white ¹			Non-Hispanic black ¹		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
0	78.7	76.2	81.1	78.9	76.4	81.3	75.3	72.0	78.3	81.8	79.1	84.3	78.6	76.2	81.0	74.9	71.6	78.0
1	78.1	75.6	80.6	78.2	75.8	80.7	75.1	71.9	78.1	81.2	78.6	83.7	78.0	75.6	80.4	74.7	71.4	77.8
5	74.2	71.7	76.6	74.3	71.9	76.7	71.2	68.0	74.2	77.3	74.6	79.7	74.0	71.6	76.5	70.8	67.6	73.9
10	69.2	66.8	71.7	69.4	67.0	71.8	66.3	63.1	69.3	72.3	69.7	74.8	69.1	66.7	71.5	65.9	62.6	69.0
15	64.3	61.8	66.7	64.4	62.0	66.8	61.4	58.1	64.4	67.4	64.7	69.8	64.1	61.7	66.5	61.0	57.7	64.0
20	59.4	57.0	61.8	59.5	57.2	61.9	56.6	53.4	59.5	62.5	59.9	64.9	59.3	56.9	61.6	56.2	53.0	59.1
25	54.7	52.4	57.0	54.8	52.6	57.1	52.0	49.0	54.7	57.7	55.2	60.0	54.5	52.3	56.8	51.6	48.6	54.3
30	50.0	47.8	52.1	50.1	48.0	52.2	47.4	44.5	49.9	53.0	50.5	55.1	49.9	47.7	52.0	47.0	44.2	49.6
35	45.4	43.3	47.4	45.4	43.4	47.5	42.8	40.1	45.2	48.2	45.9	50.3	45.2	43.2	47.2	42.5	39.8	44.9
40	40.7	38.7	42.6	40.8	38.9	42.7	38.3	35.7	40.5	43.5	41.2	45.5	40.6	38.7	42.5	38.0	35.4	40.2
45	36.1	34.2	38.0	36.2	34.3	38.0	33.8	31.3	36.0	38.8	36.6	40.7	36.1	34.2	37.9	33.6	31.1	35.7
50	31.7	29.8	33.4	31.7	29.9	33.5	29.5	27.1	31.5	34.2	32.0	36.0	31.6	29.8	33.3	29.3	26.9	31.3
55	27.4	25.7	29.0	27.4	25.8	29.0	25.4	23.1	27.4	29.8	27.7	31.4	27.3	25.7	28.9	25.2	23.0	27.2
60	23.3	21.8	24.7	23.3	21.8	24.8	21.7	19.5	23.4	25.5	23.6	27.0	23.3	21.8	24.7	21.5	19.4	23.2
65	19.4	18.1	20.6	19.4	18.1	20.6	18.2	16.4	19.7	21.5	19.8	22.7	19.4	18.0	20.5	18.1	16.2	19.5
70	15.7	14.6	16.7	15.7	14.5	16.7	15.0	13.4	16.1	17.6	16.1	18.5	15.6	14.5	16.6	14.9	13.3	16.0
75	12.3	11.3	13.1	12.3	11.3	13.1	11.9	10.6	12.8	13.9	12.7	14.6	12.2	11.3	13.0	11.9	10.6	12.7
80	9.3	8.5	9.8	9.2	8.4	9.8	9.2	8.2	9.8	10.6	9.5	11.1	9.2	8.4	9.8	9.2	8.1	9.8
85	6.7	6.0	7.1	6.6	6.0	7.0	6.9	6.1	7.3	7.7	6.9	8.0	6.6	5.9	7.0	6.9	6.1	7.3
90	4.6	4.2	4.9	4.6	4.1	4.9	5.1	4.5	5.3	5.4	4.8	5.6	4.6	4.1	4.8	5.1	4.5	5.3
95	3.2	2.9	3.3	3.2	2.8	3.3	3.7	3.3	3.8	3.8	3.3	3.8	3.2	2.8	3.3	3.7	3.3	3.8
100	2.3	2.1	2.3	2.2	2.0	2.3	2.8	2.5	2.8	2.7	2.4	2.6	2.2	2.0	2.3	2.8	2.5	2.8

¹Life tables by Hispanic origin are based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

lower respiratory diseases (CLRD), and Viral hepatitis. For females, life expectancy did not change due to decreases in mortality from heart disease, cancer, Influenza and pneumonia, CLRD, diabetes and concomitant increases in mortality from unintentional injuries, Alzheimer disease, homicide, Parkinson disease, and congenital malformations. Life expectancy between 2015 and 2016 decreased by 0.1 year for males due to increases in mortality from unintentional injuries, homicide, suicide, Alzheimer disease, Parkinson disease and decreases in cancer, heart disease, Viral hepatitis, Influenza and pneumonia, and CLRD (6).

The difference in life expectancy between the sexes was 4.9 years in 2016, increasing by 0.1 year from the difference in 2015. From 1900 to 1975, the difference in life expectancy between the sexes increased from 2.0 years to 7.8 years (Table 19). The increasing gap during these years is attributed to increases in male mortality due to ischemic heart disease and lung cancer, both of which increased largely as the result of men's early and widespread adoption of cigarette smoking (7,8). Between 1979 and 2010, the difference in life expectancy between the sexes narrowed from 7.8 years to 4.8 years and remained at this level through 2015, increasing in 2016 to 2009 levels (Table 19).

The 2016 life table may be used to compare life expectancy at any age from birth onward. On the basis of mortality experienced in 2016, a person aged 65 could expect to live an average of 19.4 more years for a total of 84.4 years; a person aged 85 could expect to live an additional 6.7 years for a total of 91.7 years; and

a person aged 100 could expect to live an additional 2.3 years, on average (Table A).

Life expectancy by race

Between 2015 and 2016, life expectancy decreased by 0.2 year for the black population (75.5 to 75.3) and did not change for the white population (78.9) (Table 19). The difference in life expectancy between the white and black populations was 3.6 years in 2016, increasing from a historically record low level of 3.4 in 2015. The white–black difference in life expectancy narrowed from 14.6 years in 1900 to 5.7 years in 1982 but increased to 7.1 years in 1993 before beginning to decline again in 1994 (Table 19). The increase in the gap from 1983 to 1993 was largely the result of increases in mortality among the black male population due to HIV infection and homicide (8).

Among the four race–sex groups (Figure 1), white females continued to have the highest life expectancy at birth (81.3 years), followed by black females (78.3), white males (76.4), and black males (72.0). Between 2015 and 2016, life expectancy decreased by 0.2 year for black males (72.2 to 72.0) and for black females (78.5 to 78.3). Black males experienced a decline in life expectancy every year for 1984–1989 (8), followed by annual increases in 1990–1992 and 1994–2012. Between 2015 and 2016, life expectancy declined by 0.2 year for white males (76.6 to 76.4). It remained unchanged for white females (81.3). Overall, gains in life expectancy between 1980 and 2016 were

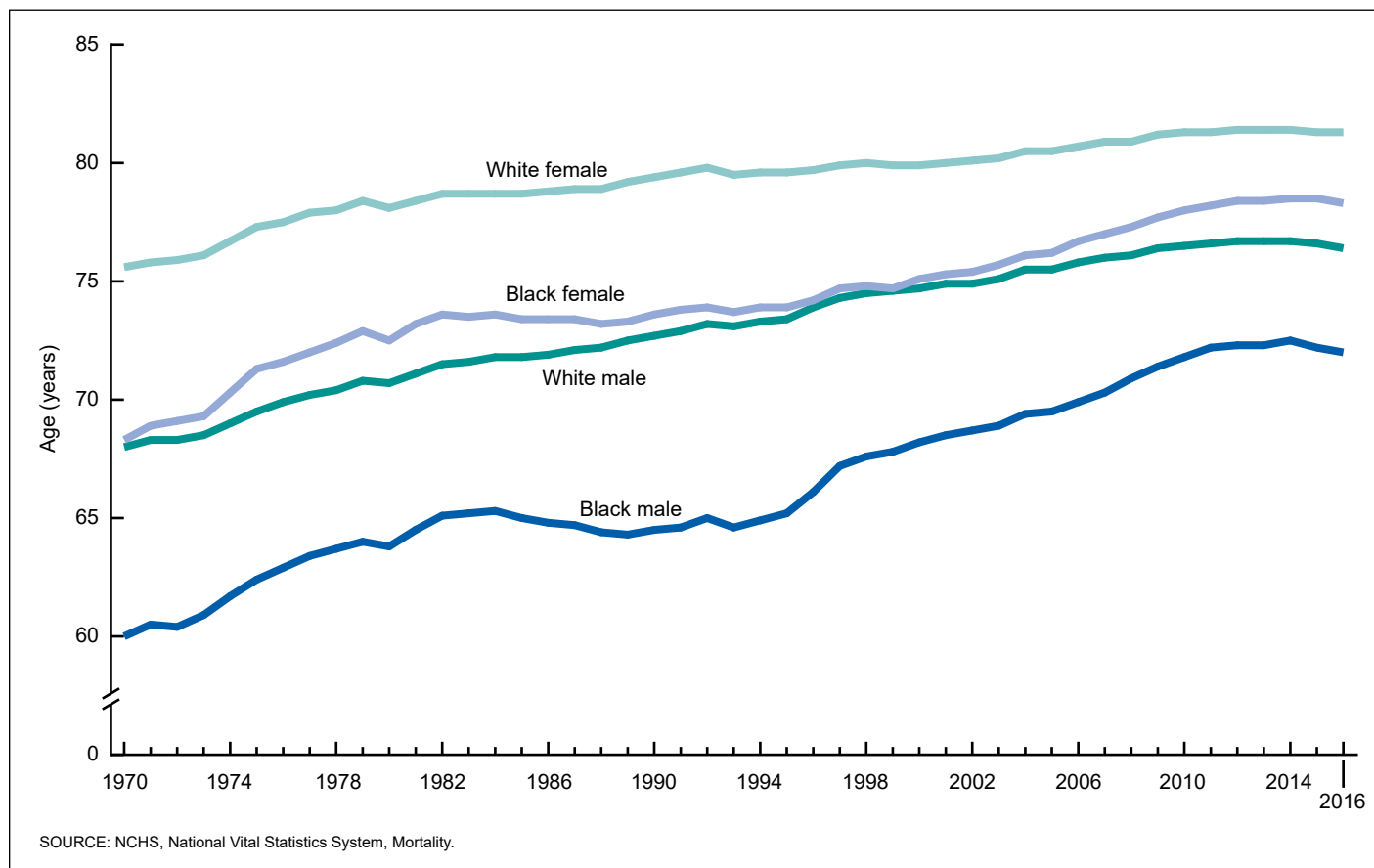


Figure 1. Life expectancy at birth, by race and sex: United States, 1970–2016

8.2 years for black males, 5.8 years for black females, 5.7 years for white males, and 3.2 years for white females (Table 19).

Life expectancy by Hispanic origin

Between 2015 and 2016, life expectancy decreased by 0.1 year for the Hispanic population (81.9 to 81.8) and the non-Hispanic white population (78.7 to 78.6). It decreased by 0.2 year for the non-Hispanic black population (75.1 to 74.9) (Table 19). In 2016, the Hispanic population had a life expectancy advantage at birth of 3.2 years over the non-Hispanic white population and 6.9 years over the non-Hispanic black population. The U.S. life tables by Hispanic origin are based on death rates that have been adjusted for race and ethnicity misclassification on death certificates (see Technical Notes for a detailed description of the methodology).

Among the six Hispanic-origin race–sex groups (Figure 2), Hispanic females continued to have the highest life expectancy at birth (84.3 years), followed by non-Hispanic white females (81.0), Hispanic males (79.1), non-Hispanic black females (78.0), non-Hispanic white males (76.2), and non-Hispanic black males (71.6). The smallest difference is between Hispanic males and non-Hispanic black females, with Hispanic males having an advantage of 1.1 years. The largest difference is between Hispanic females and non-Hispanic black males, with Hispanic females having a life expectancy at birth 12.7 years greater.

The Hispanic mortality advantage is also evident in the effect produced on life expectancy at birth when race and Hispanic origin are considered separately. Until 2006, U.S. life tables were produced only by race (white and black), irrespective of Hispanic origin. When the Hispanic population is excluded from the two race groups and only the non-Hispanic black and non-Hispanic white populations are included, life expectancy at birth declines. For example, for the black population, irrespective of Hispanic origin, life expectancy at birth was 75.3 years in 2016 but was 74.9 years when only the non-Hispanic segment of the black population was included. Similarly, life expectancy for the white population, irrespective of Hispanic origin, was 78.9 years in 2016, but was 78.6 years when only the non-Hispanic segment of the white population was included. The effect of the Hispanic mortality advantage on race-specific life expectancy was also observed for each race–sex group. (See Technical Notes for a detailed description of the methodology used to estimate the Hispanic-origin life tables.)

Survivorship in the United States

Table B summarizes the number of survivors out of 100,000 persons born alive (l_x) by age, race, Hispanic origin, and sex for 2016. Table 20 shows trends in survivorship from 1900 to 2016. In 2016, 99.4% of all infants born in the United States survived the first year of life. In contrast, only 87.6% of infants born in 1900 survived the first year. Of the 2016 period life table

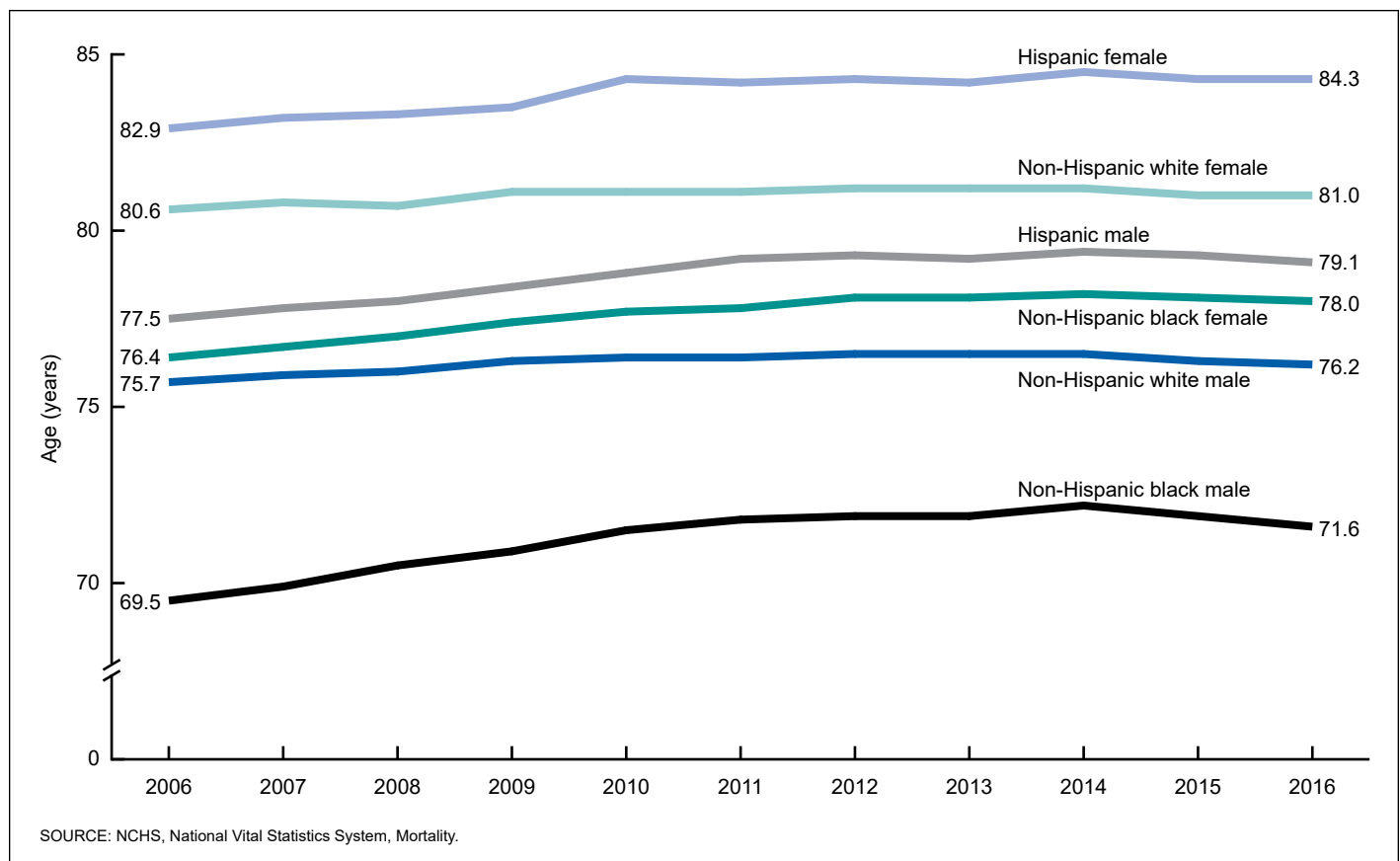


Figure 2. Life expectancy at birth, by Hispanic origin, race, and sex: United States, 2006–2016

Table B. Number of survivors out of 100,000 born alive, by age, race, Hispanic origin, race for non-Hispanic population, and sex: United States, 2016

Age	All races and origins			White			Black			Hispanic ¹			Non-Hispanic white ¹			Non-Hispanic black ¹		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
1	99,414	99,363	99,466	99,507	99,462	99,554	98,892	98,808	98,978	99,504	99,464	99,546	99,514	99,470	99,560	98,880	98,782	98,981
5	99,313	99,253	99,375	99,416	99,362	99,472	98,738	98,637	98,843	99,428	99,383	99,476	99,420	99,358	99,485	98,712	98,611	98,836
10	99,252	99,188	99,320	99,360	99,302	99,421	98,648	98,539	98,761	99,374	99,327	99,425	99,366	99,294	99,443	98,613	98,514	98,747
15	99,180	99,105	99,259	99,291	99,223	99,363	98,553	98,428	98,682	99,316	99,265	99,373	99,295	99,204	99,391	98,510	98,405	98,663
20	98,927	98,753	99,110	99,056	98,903	99,217	98,184	97,878	98,500	99,114	98,992	99,245	99,056	98,881	99,242	98,109	97,809	98,465
25	98,448	98,056	98,862	98,602	98,248	98,977	97,500	96,848	98,181	98,745	98,462	99,053	98,589	98,210	98,990	97,373	96,702	98,117
30	97,868	97,237	98,532	98,028	97,444	98,646	96,727	95,723	97,760	98,304	97,817	98,837	97,977	97,360	98,628	96,571	95,546	97,673
35	97,183	96,321	98,085	97,343	96,536	98,198	95,814	94,452	97,188	97,824	97,163	98,551	97,235	96,377	98,135	95,616	94,228	97,066
40	96,361	95,267	97,498	96,530	95,498	97,619	94,694	93,001	96,377	97,263	96,403	98,202	96,353	95,256	97,500	94,417	92,672	96,196
45	95,327	93,989	96,710	95,513	94,249	96,845	93,246	91,180	95,271	96,553	95,463	97,730	95,255	93,919	96,650	92,882	90,740	95,026
50	93,849	92,209	95,539	94,065	92,502	95,706	91,213	88,749	93,607	95,503	94,161	96,949	93,726	92,090	95,430	90,766	88,209	93,292
55	91,561	89,447	93,727	91,822	89,782	93,953	88,140	85,132	91,039	93,818	92,052	95,707	91,404	89,296	93,589	87,593	84,483	90,632
60	88,240	85,402	91,126	88,583	85,834	91,433	83,622	79,696	87,369	91,297	88,841	93,880	88,089	85,285	90,984	82,971	78,958	86,849
65	83,716	79,892	87,574	84,190	80,490	87,997	77,343	72,008	82,368	87,690	84,306	91,163	83,641	79,905	87,481	76,579	71,183	81,712
70	77,751	72,893	82,635	78,311	73,610	83,126	69,621	62,835	75,952	82,872	78,299	87,430	77,738	73,030	82,568	68,723	61,880	75,157
75	69,338	63,466	75,231	69,877	64,183	75,725	60,001	51,968	67,451	76,026	70,041	81,813	69,281	63,621	75,079	59,018	50,957	66,546
80	57,781	51,046	64,510	58,204	51,628	64,979	48,242	39,521	56,286	66,157	58,998	72,900	57,605	51,091	64,239	47,273	38,575	55,348
85	42,475	35,558	49,298	42,703	35,898	49,601	34,328	26,071	41,863	52,155	44,165	59,319	42,172	35,441	48,926	33,505	25,321	41,020
90	24,735	18,836	30,351	24,709	18,910	30,252	20,052	13,605	25,796	34,133	26,401	40,422	24,348	18,616	29,893	19,498	13,142	25,198
95	9,692	6,324	12,741	9,500	6,197	12,585	8,655	4,974	11,765	16,121	10,692	19,852	9,344	6,085	12,329	8,395	4,790	11,467
100	2,102	1,099	2,961	1,981	1,019	2,912	2,438	1,117	3,458	4,620	2,433	5,756	1,949	1,001	2,765	2,367	1,078	3,373

¹Life tables by Hispanic origin are based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

cohort, 57.8% survived to age 80 and 2.1% survived to age 100. In 1900, 13.5% of the life table cohort survived to age 80 and only 0.03% survived to age 100 (Table 20).

Survivorship by race

Among the four race–sex groups, white females have the highest median age at death, with about 49.6% surviving to age 85 (Tables 4–9). Of the original hypothetical cohort of 100,000 infant white females, 99.2% survive to age 20, 88.0% survive to age 65, and 49.6% survive to age 85 (Table 6). White males have slightly higher survival rates than black females at the younger ages, with 98.9% surviving to age 20 compared with 98.5% of black females (Tables 5 and 9). At the older ages, however, black female survival surpasses white male survival. By age 85, white male survival is 35.9% compared with 41.9% for black females. The median age at death for black males is close to 76 years, about 9 years less than that for white females (Table 8). Among black males, 97.9% survive to age 20, 72.0% to age 65, and 26.1% to age 85. By age 100, there is very little difference between the white and black populations in terms of survival. For example, 1.0% of white males, 1.1% of black males, 2.9% of white females, and 3.5% of black females survive to age 100.

Survivorship by Hispanic origin

In 2016, 99.5% of Hispanic and non-Hispanic white infants survived the first year of life compared with 98.9% of non-Hispanic black infants (Tables 10–19). For both the Hispanic and non-Hispanic white populations, 99.1% survived to age 20, while 98.1% of the non-Hispanic black population survived to age 20. By age 65, the Hispanic population has a clear survival advantage compared with the other two populations. Overall, 87.7% of the Hispanic population survived to age 65 compared with 83.6% of the non-Hispanic white and 76.6% of the non-Hispanic black populations. The Hispanic survival advantage increases with age so that by age 85, 52.2% of the Hispanic population has survived compared with 42.2% of the non-Hispanic white and 33.5% of the non-Hispanic black populations.

Among the six Hispanic-origin race–sex groups, Hispanic females have the highest median age at death, with 48.5% surviving to age 88 (). The group with the next highest median age at death is non-Hispanic white females, with 48.9% surviving to age 85. Hispanic males had 50.6% surviving to age 83; followed by non-Hispanic black females, with 49.9% surviving to age 82; non-Hispanic white males, with 48.2% surviving to age 81; and non-Hispanic black males, with 48.6% surviving to age 76 (see Technical Notes).

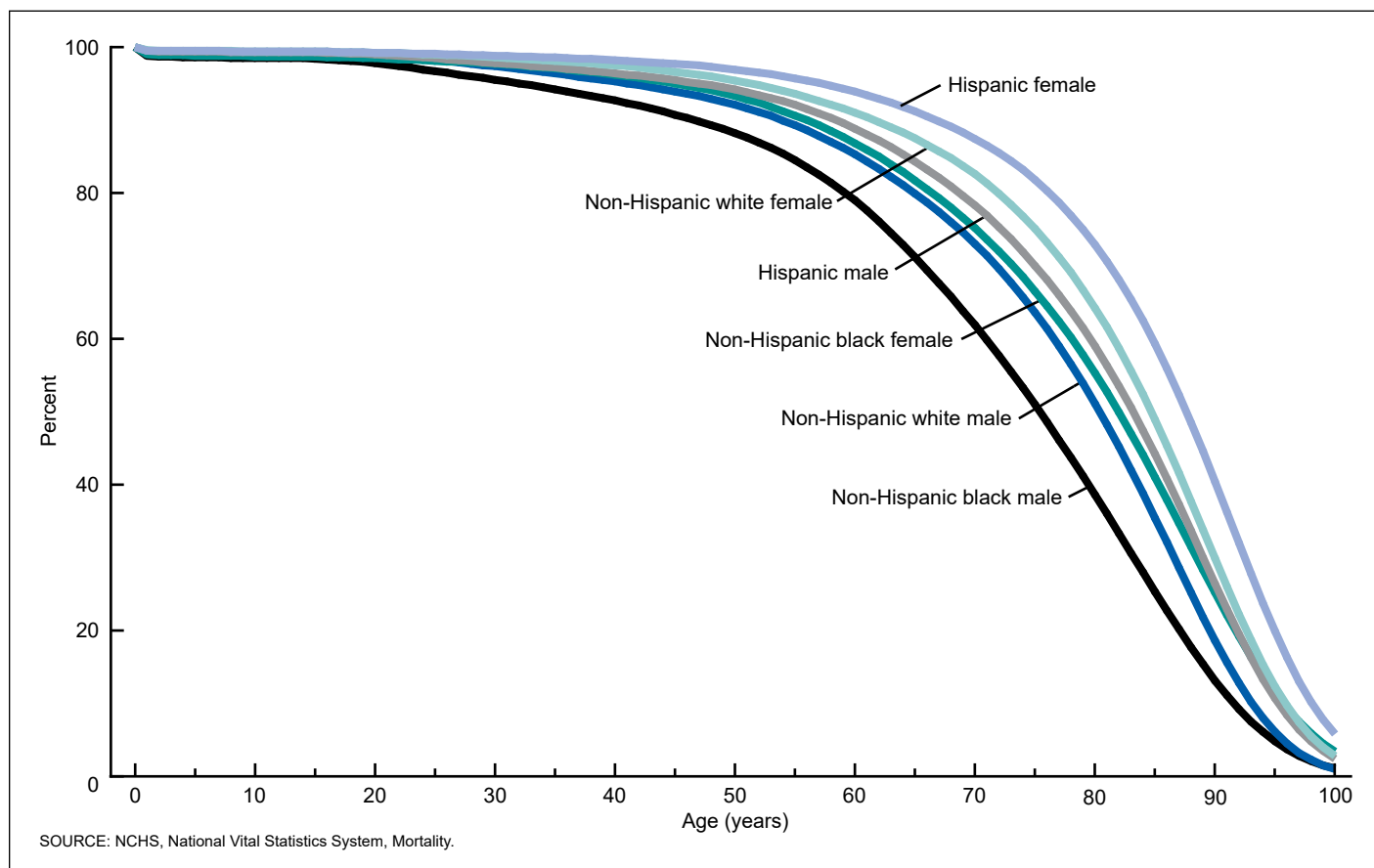


Figure 3. Percentage surviving, by Hispanic origin, race, age, and sex: United States, 2016

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Table 1. Life table for the total population: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table01.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.005864	100,000	586	99,487	7,865,195	78.7
1-2	0.000396	99,414	39	99,394	7,765,707	78.1
2-3	0.000262	99,374	26	99,361	7,666,314	77.1
3-4	0.000197	99,348	20	99,338	7,566,952	76.2
4-5	0.000158	99,329	16	99,321	7,467,614	75.2
5-6	0.000151	99,313	15	99,305	7,368,293	74.2
6-7	0.000135	99,298	13	99,291	7,268,988	73.2
7-8	0.000121	99,285	12	99,279	7,169,697	72.2
8-9	0.000108	99,273	11	99,267	7,070,418	71.2
9-10	0.000095	99,262	9	99,257	6,971,151	70.2
10-11	0.000089	99,252	9	99,248	6,871,894	69.2
11-12	0.000095	99,244	9	99,239	6,772,646	68.2
12-13	0.000122	99,234	12	99,228	6,673,407	67.2
13-14	0.000175	99,222	17	99,213	6,574,179	66.3
14-15	0.000249	99,205	25	99,192	6,474,965	65.3
15-16	0.000328	99,180	33	99,164	6,375,773	64.3
16-17	0.000410	99,147	41	99,127	6,276,609	63.3
17-18	0.000502	99,107	50	99,082	6,177,482	62.3
18-19	0.000603	99,057	60	99,027	6,078,400	61.4
19-20	0.000706	98,997	70	98,962	5,979,373	60.4
20-21	0.000814	98,927	80	98,887	5,880,411	59.4
21-22	0.000914	98,847	90	98,802	5,781,524	58.5
22-23	0.000994	98,757	98	98,707	5,682,722	57.5
23-24	0.001048	98,658	103	98,607	5,584,014	56.6
24-25	0.001083	98,555	107	98,502	5,485,408	55.7
25-26	0.001112	98,448	109	98,394	5,386,906	54.7
26-27	0.001143	98,339	112	98,283	5,288,512	53.8
27-28	0.001177	98,226	116	98,169	5,190,230	52.8
28-29	0.001216	98,111	119	98,051	5,092,061	51.9
29-30	0.001260	97,992	123	97,930	4,994,010	51.0
30-31	0.001306	97,868	128	97,804	4,896,080	50.0
31-32	0.001353	97,740	132	97,674	4,798,276	49.1
32-33	0.001401	97,608	137	97,540	4,700,602	48.2
33-34	0.001451	97,471	141	97,401	4,603,062	47.2
34-35	0.001504	97,330	146	97,257	4,505,662	46.3
35-36	0.001566	97,183	152	97,107	4,408,405	45.4
36-37	0.001635	97,031	159	96,952	4,311,298	44.4
37-38	0.001701	96,873	165	96,790	4,214,346	43.5
38-39	0.001763	96,708	170	96,623	4,117,555	42.6
39-40	0.001827	96,537	176	96,449	4,020,933	41.7
40-41	0.001907	96,361	184	96,269	3,924,484	40.7
41-42	0.002011	96,177	193	96,080	3,828,214	39.8
42-43	0.002136	95,984	205	95,881	3,732,134	38.9
43-44	0.002280	95,779	218	95,670	3,636,253	38.0
44-45	0.002445	95,560	234	95,444	3,540,583	37.1
45-46	0.002621	95,327	250	95,202	3,445,139	36.1
46-47	0.002821	95,077	268	94,943	3,349,938	35.2
47-48	0.003066	94,809	291	94,663	3,254,995	34.3
48-49	0.003369	94,518	318	94,359	3,160,331	33.4
49-50	0.003720	94,200	350	94,025	3,065,972	32.5
50-51	0.004090	93,849	384	93,657	2,971,948	31.7
51-52	0.004474	93,465	418	93,256	2,878,291	30.8
52-53	0.004891	93,047	455	92,820	2,785,034	29.9
53-54	0.005344	92,592	495	92,345	2,692,214	29.1
54-55	0.005822	92,097	536	91,829	2,599,870	28.2
55-56	0.006319	91,561	579	91,272	2,508,040	27.4
56-57	0.006825	90,983	621	90,672	2,416,768	26.6
57-58	0.007341	90,362	663	90,030	2,326,096	25.7
58-59	0.007877	89,698	707	89,345	2,236,066	24.9
59-60	0.008447	88,992	752	88,616	2,146,721	24.1
60-61	0.009065	88,240	800	87,840	2,058,106	23.3

Table 1. Life table for the total population: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table01.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.009734	87,440	851	87,014	1,970,266	22.5
62–63.....	0.010444	86,589	904	86,137	1,883,251	21.7
63–64.....	0.011177	85,685	958	85,206	1,797,114	21.0
64–65.....	0.011928	84,727	1,011	84,222	1,711,909	20.2
65–66.....	0.012707	83,716	1,064	83,184	1,627,687	19.4
66–67.....	0.013557	82,653	1,120	82,092	1,544,503	18.7
67–68.....	0.014515	81,532	1,183	80,940	1,462,410	17.9
68–69.....	0.015634	80,349	1,256	79,721	1,381,470	17.2
69–70.....	0.016961	79,092	1,341	78,422	1,301,749	16.5
70–71.....	0.018596	77,751	1,446	77,028	1,223,328	15.7
71–72.....	0.020506	76,305	1,565	75,523	1,146,300	15.0
72–73.....	0.022564	74,740	1,686	73,897	1,070,777	14.3
73–74.....	0.024655	73,054	1,801	72,153	996,880	13.6
74–75.....	0.026878	71,253	1,915	70,295	924,726	13.0
75–76.....	0.029366	69,338	2,036	68,320	854,431	12.3
76–77.....	0.032205	67,302	2,167	66,218	786,111	11.7
77–78.....	0.035365	65,134	2,303	63,982	719,894	11.1
78–79.....	0.038878	62,831	2,443	61,609	655,911	10.4
79–80.....	0.043164	60,388	2,607	59,085	594,302	9.8
80–81.....	0.047923	57,781	2,769	56,397	535,217	9.3
81–82.....	0.052977	55,012	2,914	53,555	478,821	8.7
82–83.....	0.058839	52,098	3,065	50,565	425,266	8.2
83–84.....	0.065561	49,032	3,215	47,425	374,700	7.6
84–85.....	0.072949	45,818	3,342	44,147	327,275	7.1
85–86.....	0.081194	42,475	3,449	40,751	283,128	6.7
86–87.....	0.090814	39,027	3,544	37,255	242,377	6.2
87–88.....	0.101377	35,483	3,597	33,684	205,123	5.8
88–89.....	0.112927	31,885	3,601	30,085	171,439	5.4
89–90.....	0.125502	28,285	3,550	26,510	141,354	5.0
90–91.....	0.139125	24,735	3,441	23,014	114,844	4.6
91–92.....	0.153806	21,294	3,275	19,656	91,829	4.3
92–93.....	0.169539	18,019	3,055	16,491	72,173	4.0
93–94.....	0.186296	14,964	2,788	13,570	55,682	3.7
94–95.....	0.204030	12,176	2,484	10,934	42,112	3.5
95–96.....	0.222669	9,692	2,158	8,613	31,178	3.2
96–97.....	0.242121	7,534	1,824	6,622	22,565	3.0
97–98.....	0.262267	5,710	1,497	4,961	15,944	2.8
98–99.....	0.282973	4,212	1,192	3,616	10,983	2.6
99–100.....	0.304084	3,020	918	2,561	7,367	2.4
100 and over.....	1.000000	2,102	2,102	4,806	4,806	2.3

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 2. Life table for males: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table02.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.006369	100,000	637	99,445	7,615,555	76.2
1-2	0.000432	99,363	43	99,342	7,516,110	75.6
2-3	0.000280	99,320	28	99,306	7,416,769	74.7
3-4	0.000228	99,292	23	99,281	7,317,462	73.7
4-5	0.000166	99,270	16	99,262	7,218,181	72.7
5-6	0.000166	99,253	17	99,245	7,118,920	71.7
6-7	0.000150	99,237	15	99,229	7,019,675	70.7
7-8	0.000133	99,222	13	99,215	6,920,445	69.7
8-9	0.000115	99,209	11	99,203	6,821,230	68.8
9-10	0.000097	99,197	10	99,193	6,722,027	67.8
10-11	0.000085	99,188	8	99,184	6,622,834	66.8
11-12	0.000092	99,179	9	99,175	6,523,651	65.8
12-13	0.000131	99,170	13	99,164	6,424,476	64.8
13-14	0.000209	99,157	21	99,147	6,325,312	63.8
14-15	0.000319	99,136	32	99,121	6,226,166	62.8
15-16	0.000436	99,105	43	99,083	6,127,045	61.8
16-17	0.000556	99,062	55	99,034	6,027,962	60.9
17-18	0.000695	99,007	69	98,972	5,928,928	59.9
18-19	0.000852	98,938	84	98,896	5,829,956	58.9
19-20	0.001015	98,853	100	98,803	5,731,060	58.0
20-21	0.001182	98,753	117	98,695	5,632,257	57.0
21-22	0.001337	98,636	132	98,570	5,533,562	56.1
22-23	0.001456	98,504	143	98,433	5,434,992	55.2
23-24	0.001531	98,361	151	98,286	5,336,559	54.3
24-25	0.001573	98,210	154	98,133	5,238,273	53.3
25-26	0.001604	98,056	157	97,977	5,140,140	52.4
26-27	0.001639	97,899	160	97,819	5,042,163	51.5
27-28	0.001673	97,738	164	97,657	4,944,344	50.6
28-29	0.001712	97,575	167	97,491	4,846,687	49.7
29-30	0.001755	97,408	171	97,322	4,749,196	48.8
30-31	0.001799	97,237	175	97,149	4,651,874	47.8
31-32	0.001841	97,062	179	96,973	4,554,724	46.9
32-33	0.001887	96,883	183	96,792	4,457,752	46.0
33-34	0.001937	96,700	187	96,607	4,360,960	45.1
34-35	0.001992	96,513	192	96,417	4,264,353	44.2
35-36	0.002058	96,321	198	96,222	4,167,936	43.3
36-37	0.002131	96,123	205	96,020	4,071,714	42.4
37-38	0.002201	95,918	211	95,812	3,975,694	41.4
38-39	0.002265	95,707	217	95,598	3,879,882	40.5
39-40	0.002333	95,490	223	95,378	3,784,284	39.6
40-41	0.002419	95,267	230	95,152	3,688,905	38.7
41-42	0.002535	95,037	241	94,916	3,593,753	37.8
42-43	0.002674	94,796	253	94,669	3,498,837	36.9
43-44	0.002836	94,542	268	94,408	3,404,168	36.0
44-45	0.003022	94,274	285	94,132	3,309,760	35.1
45-46	0.003222	93,989	303	93,838	3,215,628	34.2
46-47	0.003455	93,686	324	93,525	3,121,791	33.3
47-48	0.003747	93,363	350	93,188	3,028,266	32.4
48-49	0.004116	93,013	383	92,821	2,935,078	31.6
49-50	0.004549	92,630	421	92,419	2,842,257	30.7
50-51	0.005009	92,209	462	91,978	2,749,838	29.8
51-52	0.005487	91,747	503	91,495	2,657,860	29.0
52-53	0.006015	91,243	549	90,969	2,566,365	28.1
53-54	0.006595	90,695	598	90,395	2,475,396	27.3
54-55	0.007213	90,096	650	89,772	2,385,000	26.5
55-56	0.007853	89,447	702	89,095	2,295,229	25.7
56-57	0.008504	88,744	755	88,367	2,206,133	24.9
57-58	0.009176	87,989	807	87,586	2,117,767	24.1
58-59	0.009883	87,182	862	86,751	2,030,181	23.3
59-60	0.010640	86,320	918	85,861	1,943,430	22.5
60-61	0.011466	85,402	979	84,912	1,857,568	21.8

Table 2. Life table for males: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table02.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.012349	84,423	1,043	83,901	1,772,656	21.0
62–63.....	0.013256	83,380	1,105	82,828	1,688,754	20.3
63–64.....	0.014147	82,275	1,164	81,693	1,605,927	19.5
64–65.....	0.015022	81,111	1,218	80,502	1,524,234	18.8
65–66.....	0.015914	79,892	1,271	79,257	1,443,732	18.1
66–67.....	0.016896	78,621	1,328	77,957	1,364,475	17.4
67–68.....	0.017990	77,293	1,390	76,598	1,286,519	16.6
68–69.....	0.019263	75,902	1,462	75,171	1,209,921	15.9
69–70.....	0.020782	74,440	1,547	73,667	1,134,750	15.2
70–71.....	0.022648	72,893	1,651	72,068	1,061,083	14.6
71–72.....	0.024846	71,242	1,770	70,357	989,015	13.9
72–73.....	0.027215	69,472	1,891	68,527	918,658	13.2
73–74.....	0.029615	67,582	2,001	66,581	850,131	12.6
74–75.....	0.032243	65,580	2,115	64,523	783,550	11.9
75–76.....	0.035199	63,466	2,234	62,349	719,028	11.3
76–77.....	0.038526	61,232	2,359	60,052	656,679	10.7
77–78.....	0.042119	58,873	2,480	57,633	596,627	10.1
78–79.....	0.046121	56,393	2,601	55,093	538,994	9.6
79–80.....	0.051053	53,792	2,746	52,419	483,901	9.0
80–81.....	0.056394	51,046	2,879	49,606	431,483	8.5
81–82.....	0.062065	48,167	2,989	46,672	381,876	7.9
82–83.....	0.068695	45,178	3,103	43,626	335,204	7.4
83–84.....	0.076511	42,074	3,219	40,465	291,578	6.9
84–85.....	0.084861	38,855	3,297	37,206	251,113	6.5
85–86.....	0.094890	35,558	3,374	33,871	213,907	6.0
86–87.....	0.105979	32,184	3,411	30,478	180,036	5.6
87–88.....	0.118097	28,773	3,398	27,074	149,558	5.2
88–89.....	0.131275	25,375	3,331	23,709	122,484	4.8
89–90.....	0.145535	22,044	3,208	20,440	98,774	4.5
90–91.....	0.160877	18,836	3,030	17,321	78,335	4.2
91–92.....	0.177287	15,805	2,802	14,404	61,014	3.9
92–93.....	0.194726	13,003	2,532	11,737	46,610	3.6
93–94.....	0.213134	10,471	2,232	9,355	34,872	3.3
94–95.....	0.232425	8,239	1,915	7,282	25,517	3.1
95–96.....	0.252490	6,324	1,597	5,526	18,235	2.9
96–97.....	0.273197	4,728	1,292	4,082	12,709	2.7
97–98.....	0.294395	3,436	1,012	2,930	8,627	2.5
98–99.....	0.315917	2,424	766	2,042	5,697	2.3
99–100.....	0.337586	1,659	560	1,379	3,655	2.2
100 and over.....	1.000000	1,099	1,099	2,277	2,277	2.1

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 3. Life table for females: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table03.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.005335	100,000	534	99,532	8,112,605	81.1
1-2	0.000359	99,466	36	99,449	8,013,073	80.6
2-3	0.000243	99,431	24	99,419	7,913,625	79.6
3-4	0.000164	99,407	16	99,398	7,814,206	78.6
4-5	0.000151	99,390	15	99,383	7,714,807	77.6
5-6	0.000135	99,375	13	99,369	7,615,425	76.6
6-7	0.000120	99,362	12	99,356	7,516,056	75.6
7-8	0.000108	99,350	11	99,345	7,416,700	74.7
8-9	0.000100	99,339	10	99,334	7,317,355	73.7
9-10	0.000094	99,329	9	99,325	7,218,021	72.7
10-11	0.000092	99,320	9	99,315	7,118,696	71.7
11-12	0.000098	99,311	10	99,306	7,019,381	70.7
12-13	0.000113	99,301	11	99,295	6,920,075	69.7
13-14	0.000140	99,290	14	99,283	6,820,780	68.7
14-15	0.000175	99,276	17	99,267	6,721,497	67.7
15-16	0.000216	99,259	21	99,248	6,622,229	66.7
16-17	0.000257	99,237	26	99,224	6,522,981	65.7
17-18	0.000300	99,212	30	99,197	6,423,757	64.7
18-19	0.000342	99,182	34	99,165	6,324,560	63.8
19-20	0.000382	99,148	38	99,129	6,225,395	62.8
20-21	0.000424	99,110	42	99,089	6,126,266	61.8
21-22	0.000467	99,068	46	99,045	6,027,177	60.8
22-23	0.000505	99,022	50	98,997	5,928,132	59.9
23-24	0.000539	98,972	53	98,945	5,829,135	58.9
24-25	0.000569	98,919	56	98,890	5,730,190	57.9
25-26	0.000598	98,862	59	98,833	5,631,299	57.0
26-27	0.000629	98,803	62	98,772	5,532,467	56.0
27-28	0.000664	98,741	66	98,708	5,433,695	55.0
28-29	0.000705	98,675	70	98,641	5,334,986	54.1
29-30	0.000752	98,606	74	98,569	5,236,346	53.1
30-31	0.000803	98,532	79	98,492	5,137,777	52.1
31-32	0.000855	98,453	84	98,410	5,039,285	51.2
32-33	0.000909	98,368	89	98,324	4,940,875	50.2
33-34	0.000961	98,279	94	98,232	4,842,551	49.3
34-35	0.001013	98,185	99	98,135	4,744,319	48.3
35-36	0.001072	98,085	105	98,033	4,646,184	47.4
36-37	0.001138	97,980	111	97,924	4,548,152	46.4
37-38	0.001201	97,869	118	97,810	4,450,228	45.5
38-39	0.001262	97,751	123	97,689	4,352,418	44.5
39-40	0.001326	97,628	129	97,563	4,254,729	43.6
40-41	0.001401	97,498	137	97,430	4,157,166	42.6
41-42	0.001494	97,362	145	97,289	4,059,736	41.7
42-43	0.001605	97,216	156	97,138	3,962,447	40.8
43-44	0.001733	97,060	168	96,976	3,865,309	39.8
44-45	0.001877	96,892	182	96,801	3,768,333	38.9
45-46	0.002028	96,710	196	96,612	3,671,532	38.0
46-47	0.002196	96,514	212	96,408	3,574,921	37.0
47-48	0.002396	96,302	231	96,186	3,478,513	36.1
48-49	0.002636	96,071	253	95,944	3,382,326	35.2
49-50	0.002909	95,818	279	95,678	3,286,382	34.3
50-51	0.003195	95,539	305	95,386	3,190,704	33.4
51-52	0.003490	95,234	332	95,068	3,095,317	32.5
52-53	0.003805	94,901	361	94,721	3,000,249	31.6
53-54	0.004139	94,540	391	94,345	2,905,528	30.7
54-55	0.004487	94,149	422	93,938	2,811,184	29.9
55-56	0.004852	93,727	455	93,499	2,717,246	29.0
56-57	0.005226	93,272	487	93,028	2,623,747	28.1
57-58	0.005602	92,784	520	92,525	2,530,718	27.3
58-59	0.005986	92,265	552	91,989	2,438,194	26.4
59-60	0.006393	91,712	586	91,419	2,346,205	25.6
60-61	0.006832	91,126	623	90,815	2,254,786	24.7

Table 3. Life table for females: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table03.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.007320	90,504	662	90,172	2,163,971	23.9
62–63.....	0.007865	89,841	707	89,488	2,073,799	23.1
63–64.....	0.008466	89,134	755	88,757	1,984,311	22.3
64–65.....	0.009115	88,380	806	87,977	1,895,554	21.4
65–66.....	0.009805	87,574	859	87,145	1,807,577	20.6
66–67.....	0.010549	86,716	915	86,258	1,720,432	19.8
67–68.....	0.011398	85,801	978	85,312	1,634,174	19.0
68–69.....	0.012394	84,823	1,051	84,297	1,548,862	18.3
69–70.....	0.013567	83,772	1,136	83,203	1,464,565	17.5
70–71.....	0.015021	82,635	1,241	82,014	1,381,361	16.7
71–72.....	0.016708	81,394	1,360	80,714	1,299,347	16.0
72–73.....	0.018534	80,034	1,483	79,292	1,218,633	15.2
73–74.....	0.020398	78,551	1,602	77,749	1,139,341	14.5
74–75.....	0.022323	76,948	1,718	76,089	1,061,592	13.8
75–76.....	0.024476	75,231	1,841	74,310	985,502	13.1
76–77.....	0.026979	73,389	1,980	72,399	911,192	12.4
77–78.....	0.029866	71,409	2,133	70,343	838,793	11.7
78–79.....	0.033072	69,277	2,291	68,131	768,450	11.1
79–80.....	0.036957	66,985	2,476	65,748	700,319	10.5
80–81.....	0.041402	64,510	2,671	63,174	634,571	9.8
81–82.....	0.046139	61,839	2,853	60,413	571,397	9.2
82–83.....	0.051607	58,986	3,044	57,464	510,984	8.7
83–84.....	0.057763	55,942	3,231	54,326	453,520	8.1
84–85.....	0.064739	52,710	3,412	51,004	399,194	7.6
85–86.....	0.072132	49,298	3,556	47,520	348,190	7.1
86–87.....	0.081230	45,742	3,716	43,884	300,670	6.6
87–88.....	0.091298	42,026	3,837	40,108	256,786	6.1
88–89.....	0.102397	38,189	3,910	36,234	216,678	5.7
89–90.....	0.114575	34,279	3,928	32,315	180,444	5.3
90–91.....	0.127875	30,351	3,881	28,411	148,128	4.9
91–92.....	0.142319	26,470	3,767	24,587	119,718	4.5
92–93.....	0.157918	22,703	3,585	20,910	95,131	4.2
93–94.....	0.174656	19,118	3,339	17,448	74,220	3.9
94–95.....	0.192497	15,779	3,037	14,260	56,772	3.6
95–96.....	0.211378	12,741	2,693	11,395	42,512	3.3
96–97.....	0.231207	10,048	2,323	8,887	31,117	3.1
97–98.....	0.251868	7,725	1,946	6,752	22,231	2.9
98–99.....	0.273217	5,779	1,579	4,990	15,479	2.7
99–100.....	0.295088	4,200	1,239	3,581	10,489	2.5
100 and over.....	1.000000	2,961	2,961	6,908	6,908	2.3

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 4. Life table for the white population: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table04.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.004932	100,000	493	99,568	7,885,234	78.9
1-2	0.000364	99,507	36	99,489	7,785,666	78.2
2-3	0.000234	99,471	23	99,459	7,686,177	77.3
3-4	0.000175	99,447	17	99,439	7,586,718	76.3
4-5	0.000143	99,430	14	99,423	7,487,279	75.3
5-6	0.000136	99,416	13	99,409	7,387,856	74.3
6-7	0.000122	99,402	12	99,396	7,288,447	73.3
7-8	0.000110	99,390	11	99,385	7,189,051	72.3
8-9	0.000099	99,379	10	99,374	7,089,666	71.3
9-10	0.000090	99,369	9	99,365	6,990,292	70.3
10-11	0.000086	99,360	8	99,356	6,890,927	69.4
11-12	0.000093	99,352	9	99,347	6,791,571	68.4
12-13	0.000119	99,343	12	99,337	6,692,224	67.4
13-14	0.000167	99,331	17	99,323	6,592,887	66.4
14-15	0.000233	99,314	23	99,303	6,493,564	65.4
15-16	0.000306	99,291	30	99,276	6,394,262	64.4
16-17	0.000381	99,261	38	99,242	6,294,986	63.4
17-18	0.000466	99,223	46	99,200	6,195,744	62.4
18-19	0.000560	99,177	56	99,149	6,096,544	61.5
19-20	0.000658	99,121	65	99,089	5,997,395	60.5
20-21	0.000760	99,056	75	99,018	5,898,306	59.5
21-22	0.000857	98,981	85	98,938	5,799,288	58.6
22-23	0.000938	98,896	93	98,850	5,700,349	57.6
23-24	0.000998	98,803	99	98,754	5,601,500	56.7
24-25	0.001043	98,705	103	98,653	5,502,746	55.7
25-26	0.001082	98,602	107	98,548	5,404,093	54.8
26-27	0.001124	98,495	111	98,440	5,305,544	53.9
27-28	0.001165	98,384	115	98,327	5,207,105	52.9
28-29	0.001209	98,270	119	98,210	5,108,778	52.0
29-30	0.001256	98,151	123	98,089	5,010,567	51.0
30-31	0.001304	98,028	128	97,964	4,912,478	50.1
31-32	0.001352	97,900	132	97,834	4,814,515	49.2
32-33	0.001400	97,767	137	97,699	4,716,681	48.2
33-34	0.001448	97,631	141	97,560	4,618,982	47.3
34-35	0.001496	97,489	146	97,416	4,521,422	46.4
35-36	0.001554	97,343	151	97,268	4,424,006	45.4
36-37	0.001618	97,192	157	97,113	4,326,738	44.5
37-38	0.001680	97,035	163	96,953	4,229,625	43.6
38-39	0.001737	96,872	168	96,788	4,132,672	42.7
39-40	0.001797	96,703	174	96,617	4,035,884	41.7
40-41	0.001874	96,530	181	96,439	3,939,267	40.8
41-42	0.001974	96,349	190	96,254	3,842,828	39.9
42-43	0.002095	96,159	201	96,058	3,746,574	39.0
43-44	0.002236	95,957	215	95,850	3,650,516	38.0
44-45	0.002396	95,743	229	95,628	3,554,667	37.1
45-46	0.002565	95,513	245	95,391	3,459,039	36.2
46-47	0.002759	95,268	263	95,137	3,363,648	35.3
47-48	0.002998	95,005	285	94,863	3,268,511	34.4
48-49	0.003294	94,720	312	94,564	3,173,648	33.5
49-50	0.003639	94,408	344	94,237	3,079,084	32.6
50-51	0.004002	94,065	376	93,877	2,984,847	31.7
51-52	0.004377	93,688	410	93,483	2,890,971	30.9
52-53	0.004784	93,278	446	93,055	2,797,487	30.0
53-54	0.005223	92,832	485	92,590	2,704,432	29.1
54-55	0.005683	92,347	525	92,085	2,611,842	28.3
55-56	0.006164	91,822	566	91,539	2,519,758	27.4
56-57	0.006652	91,256	607	90,953	2,428,218	26.6
57-58	0.007144	90,649	648	90,326	2,337,265	25.8
58-59	0.007648	90,002	688	89,658	2,246,940	25.0
59-60	0.008182	89,314	731	88,948	2,157,282	24.2
60-61	0.008760	88,583	776	88,195	2,068,334	23.3

Table 4. Life table for the white population: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table04.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.009393	87,807	825	87,394	1,980,139	22.6
62–63.....	0.010079	86,982	877	86,544	1,892,745	21.8
63–64.....	0.010806	86,105	930	85,640	1,806,201	21.0
64–65.....	0.011565	85,175	985	84,682	1,720,561	20.2
65–66.....	0.012354	84,190	1,040	83,670	1,635,879	19.4
66–67.....	0.013216	83,150	1,099	82,600	1,552,209	18.7
67–68.....	0.014200	82,051	1,165	81,468	1,469,609	17.9
68–69.....	0.015358	80,886	1,242	80,264	1,388,141	17.2
69–70.....	0.016730	79,643	1,332	78,977	1,307,876	16.4
70–71.....	0.018406	78,311	1,441	77,590	1,228,899	15.7
71–72.....	0.020367	76,870	1,566	76,087	1,151,309	15.0
72–73.....	0.022469	75,304	1,692	74,458	1,075,222	14.3
73–74.....	0.024575	73,612	1,809	72,707	1,000,764	13.6
74–75.....	0.026830	71,803	1,926	70,840	928,056	12.9
75–76.....	0.029351	69,877	2,051	68,851	857,217	12.3
76–77.....	0.032240	67,826	2,187	66,732	788,366	11.6
77–78.....	0.035468	65,639	2,328	64,475	721,634	11.0
78–79.....	0.039022	63,311	2,471	62,076	657,159	10.4
79–80.....	0.043327	60,840	2,636	59,522	595,083	9.8
80–81.....	0.048109	58,204	2,800	56,804	535,561	9.2
81–82.....	0.053172	55,404	2,946	53,931	478,757	8.6
82–83.....	0.059138	52,458	3,102	50,907	424,826	8.1
83–84.....	0.066070	49,356	3,261	47,725	373,919	7.6
84–85.....	0.073585	46,095	3,392	44,399	326,193	7.1
85–86.....	0.081775	42,703	3,492	40,957	281,794	6.6
86–87.....	0.091636	39,211	3,593	37,414	240,837	6.1
87–88.....	0.102477	35,618	3,650	33,793	203,423	5.7
88–89.....	0.114346	31,968	3,655	30,140	169,630	5.3
89–90.....	0.127280	28,312	3,604	26,511	139,490	4.9
90–91.....	0.141302	24,709	3,491	22,963	112,980	4.6
91–92.....	0.156421	21,217	3,319	19,558	90,017	4.2
92–93.....	0.172626	17,899	3,090	16,354	70,459	3.9
93–94.....	0.189885	14,809	2,812	13,403	54,105	3.7
94–95.....	0.208143	11,997	2,497	10,748	40,702	3.4
95–96.....	0.227319	9,500	2,159	8,420	29,954	3.2
96–97.....	0.247309	7,340	1,815	6,433	21,534	2.9
97–98.....	0.267985	5,525	1,481	4,785	15,101	2.7
98–99.....	0.289197	4,044	1,170	3,460	10,317	2.6
99–100.....	0.310780	2,875	893	2,428	6,857	2.4
100 and over.....	1.000000	1,981	1,981	4,429	4,429	2.2

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 5. Life table for white males: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table05.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.005382	100,000	538	99,531	7,643,145	76.4
1-2	0.000404	99,462	40	99,442	7,543,613	75.8
2-3	0.000253	99,422	25	99,409	7,444,172	74.9
3-4	0.000200	99,396	20	99,387	7,344,763	73.9
4-5	0.000144	99,377	14	99,369	7,245,376	72.9
5-6	0.000149	99,362	15	99,355	7,146,007	71.9
6-7	0.000134	99,347	13	99,341	7,046,652	70.9
7-8	0.000121	99,334	12	99,328	6,947,311	69.9
8-9	0.000106	99,322	11	99,317	6,847,983	68.9
9-10	0.000092	99,312	9	99,307	6,748,666	68.0
10-11	0.000085	99,302	8	99,298	6,649,359	67.0
11-12	0.000095	99,294	9	99,289	6,550,061	66.0
12-13	0.000130	99,285	13	99,278	6,450,772	65.0
13-14	0.000199	99,272	20	99,262	6,351,494	64.0
14-15	0.000294	99,252	29	99,237	6,252,232	63.0
15-16	0.000395	99,223	39	99,203	6,152,995	62.0
16-17	0.000501	99,184	50	99,159	6,053,792	61.0
17-18	0.000627	99,134	62	99,103	5,954,633	60.1
18-19	0.000773	99,072	77	99,033	5,855,530	59.1
19-20	0.000929	98,995	92	98,949	5,756,497	58.1
20-21	0.001091	98,903	108	98,849	5,657,548	57.2
21-22	0.001241	98,795	123	98,734	5,558,699	56.3
22-23	0.001363	98,673	134	98,605	5,459,965	55.3
23-24	0.001446	98,538	143	98,467	5,361,359	54.4
24-25	0.001502	98,396	148	98,322	5,262,893	53.5
25-26	0.001548	98,248	152	98,172	5,164,571	52.6
26-27	0.001597	98,096	157	98,017	5,066,399	51.6
27-28	0.001643	97,939	161	97,859	4,968,382	50.7
28-29	0.001688	97,778	165	97,696	4,870,523	49.8
29-30	0.001734	97,613	169	97,528	4,772,827	48.9
30-31	0.001779	97,444	173	97,357	4,675,299	48.0
31-32	0.001822	97,270	177	97,182	4,577,942	47.1
32-33	0.001867	97,093	181	97,003	4,480,760	46.1
33-34	0.001916	96,912	186	96,819	4,383,757	45.2
34-35	0.001968	96,726	190	96,631	4,286,938	44.3
35-36	0.002030	96,536	196	96,438	4,190,307	43.4
36-37	0.002099	96,340	202	96,239	4,093,869	42.5
37-38	0.002164	96,138	208	96,034	3,997,630	41.6
38-39	0.002222	95,930	213	95,823	3,901,597	40.7
39-40	0.002282	95,717	218	95,607	3,805,773	39.8
40-41	0.002361	95,498	225	95,385	3,710,166	38.9
41-42	0.002471	95,273	235	95,155	3,614,781	37.9
42-43	0.002606	95,037	248	94,913	3,519,626	37.0
43-44	0.002766	94,790	262	94,659	3,424,712	36.1
44-45	0.002949	94,527	279	94,388	3,330,054	35.2
45-46	0.003146	94,249	296	94,100	3,235,666	34.3
46-47	0.003374	93,952	317	93,794	3,141,565	33.4
47-48	0.003663	93,635	343	93,464	3,047,772	32.5
48-49	0.004029	93,292	376	93,104	2,954,308	31.7
49-50	0.004461	92,916	415	92,709	2,861,204	30.8
50-51	0.004919	92,502	455	92,274	2,768,495	29.9
51-52	0.005393	92,047	496	91,798	2,676,221	29.1
52-53	0.005910	91,550	541	91,280	2,584,422	28.2
53-54	0.006470	91,009	589	90,715	2,493,142	27.4
54-55	0.007059	90,420	638	90,101	2,402,428	26.6
55-56	0.007670	89,782	689	89,438	2,312,326	25.8
56-57	0.008290	89,093	739	88,724	2,222,889	25.0
57-58	0.008925	88,355	789	87,961	2,134,164	24.2
58-59	0.009587	87,566	840	87,147	2,046,204	23.4
59-60	0.010295	86,727	893	86,280	1,959,057	22.6
60-61	0.011065	85,834	950	85,359	1,872,777	21.8

Table 5. Life table for white males: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table05.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.011894	84,884	1,010	84,379	1,787,418	21.1
62–63.....	0.012761	83,875	1,070	83,339	1,703,038	20.3
63–64.....	0.013634	82,804	1,129	82,240	1,619,699	19.6
64–65.....	0.014509	81,675	1,185	81,083	1,537,459	18.8
65–66.....	0.015403	80,490	1,240	79,870	1,456,376	18.1
66–67.....	0.016395	79,250	1,299	78,601	1,376,506	17.4
67–68.....	0.017521	77,951	1,366	77,268	1,297,905	16.7
68–69.....	0.018835	76,585	1,442	75,864	1,220,637	15.9
69–70.....	0.020396	75,143	1,533	74,377	1,144,773	15.2
70–71.....	0.022291	73,610	1,641	72,790	1,070,396	14.5
71–72.....	0.024536	71,969	1,766	71,087	997,606	13.9
72–73.....	0.026943	70,204	1,891	69,258	926,520	13.2
73–74.....	0.029359	68,312	2,006	67,309	857,262	12.5
74–75.....	0.032026	66,307	2,124	65,245	789,952	11.9
75–76.....	0.035044	64,183	2,249	63,058	724,708	11.3
76–77.....	0.038452	61,934	2,381	60,743	661,649	10.7
77–78.....	0.042131	59,552	2,509	58,298	600,906	10.1
78–79.....	0.046165	57,043	2,633	55,727	542,608	9.5
79–80.....	0.051128	54,410	2,782	53,019	486,882	8.9
80–81.....	0.056572	51,628	2,921	50,168	433,863	8.4
81–82.....	0.062268	48,707	3,033	47,191	383,695	7.9
82–83.....	0.068979	45,674	3,151	44,099	336,504	7.4
83–84.....	0.076975	42,524	3,273	40,887	292,405	6.9
84–85.....	0.085425	39,251	3,353	37,574	251,518	6.4
85–86.....	0.095274	35,898	3,420	34,188	213,944	6.0
86–87.....	0.106418	32,478	3,456	30,749	179,756	5.5
87–88.....	0.118944	29,021	3,452	27,295	149,007	5.1
88–89.....	0.132597	25,569	3,390	23,874	121,711	4.8
89–90.....	0.147394	22,179	3,269	20,544	97,837	4.4
90–91.....	0.163338	18,910	3,089	17,366	77,292	4.1
91–92.....	0.180407	15,821	2,854	14,394	59,927	3.8
92–93.....	0.198557	12,967	2,575	11,680	45,533	3.5
93–94.....	0.217715	10,392	2,263	9,261	33,853	3.3
94–95.....	0.237782	8,130	1,933	7,163	24,592	3.0
95–96.....	0.258634	6,197	1,603	5,395	17,429	2.8
96–97.....	0.280120	4,594	1,287	3,951	12,034	2.6
97–98.....	0.302069	3,307	999	2,808	8,083	2.4
98–99.....	0.324295	2,308	749	1,934	5,276	2.3
99–100.....	0.346602	1,560	541	1,289	3,342	2.1
100 and over.....	1.000000	1,019	1,019	2,052	2,052	2.0

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 6. Life table for white females: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table06.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.004458	100,000	446	99,607	8,130,745	81.3
1-2	0.000322	99,554	32	99,538	8,031,138	80.7
2-3	0.000213	99,522	21	99,511	7,931,600	79.7
3-4	0.000149	99,501	15	99,493	7,832,088	78.7
4-5	0.000141	99,486	14	99,479	7,732,595	77.7
5-6	0.000122	99,472	12	99,466	7,633,116	76.7
6-7	0.000109	99,460	11	99,454	7,533,650	75.7
7-8	0.000100	99,449	10	99,444	7,434,196	74.8
8-9	0.000092	99,439	9	99,435	7,334,751	73.8
9-10	0.000087	99,430	9	99,426	7,235,317	72.8
10-11	0.000086	99,421	9	99,417	7,135,891	71.8
11-12	0.000091	99,413	9	99,408	7,036,474	70.8
12-13	0.000106	99,404	11	99,398	6,937,066	69.8
13-14	0.000134	99,393	13	99,387	6,837,668	68.8
14-15	0.000170	99,380	17	99,371	6,738,281	67.8
15-16	0.000212	99,363	21	99,352	6,638,910	66.8
16-17	0.000254	99,342	25	99,329	6,539,557	65.8
17-18	0.000296	99,317	29	99,302	6,440,228	64.8
18-19	0.000335	99,287	33	99,271	6,340,926	63.9
19-20	0.000372	99,254	37	99,235	6,241,656	62.9
20-21	0.000409	99,217	41	99,197	6,142,420	61.9
21-22	0.000448	99,176	44	99,154	6,043,224	60.9
22-23	0.000486	99,132	48	99,108	5,944,069	60.0
23-24	0.000522	99,084	52	99,058	5,844,962	59.0
24-25	0.000556	99,032	55	99,005	5,745,904	58.0
25-26	0.000590	98,977	58	98,948	5,646,899	57.1
26-27	0.000626	98,919	62	98,888	5,547,951	56.1
27-28	0.000664	98,857	66	98,824	5,449,064	55.1
28-29	0.000708	98,791	70	98,756	5,350,240	54.2
29-30	0.000757	98,721	75	98,684	5,251,484	53.2
30-31	0.000809	98,646	80	98,606	5,152,800	52.2
31-32	0.000862	98,566	85	98,524	5,054,194	51.3
32-33	0.000914	98,481	90	98,436	4,955,670	50.3
33-34	0.000962	98,391	95	98,344	4,857,234	49.4
34-35	0.001009	98,297	99	98,247	4,758,889	48.4
35-36	0.001062	98,198	104	98,146	4,660,642	47.5
36-37	0.001122	98,093	110	98,038	4,562,497	46.5
37-38	0.001181	97,983	116	97,925	4,464,458	45.6
38-39	0.001239	97,868	121	97,807	4,366,533	44.6
39-40	0.001302	97,746	127	97,683	4,268,726	43.7
40-41	0.001376	97,619	134	97,552	4,171,043	42.7
41-42	0.001469	97,485	143	97,413	4,073,491	41.8
42-43	0.001577	97,342	154	97,265	3,976,078	40.8
43-44	0.001700	97,188	165	97,105	3,878,813	39.9
44-45	0.001836	97,023	178	96,934	3,781,708	39.0
45-46	0.001978	96,845	192	96,749	3,684,774	38.0
46-47	0.002137	96,653	207	96,550	3,588,026	37.1
47-48	0.002326	96,447	224	96,334	3,491,476	36.2
48-49	0.002554	96,222	246	96,099	3,395,142	35.3
49-50	0.002815	95,976	270	95,841	3,299,042	34.4
50-51	0.003088	95,706	296	95,558	3,203,201	33.5
51-52	0.003368	95,411	321	95,250	3,107,643	32.6
52-53	0.003671	95,089	349	94,915	3,012,393	31.7
53-54	0.003995	94,740	378	94,551	2,917,478	30.8
54-55	0.004334	94,362	409	94,157	2,822,927	29.9
55-56	0.004692	93,953	441	93,732	2,728,770	29.0
56-57	0.005058	93,512	473	93,275	2,635,037	28.2
57-58	0.005420	93,039	504	92,787	2,541,762	27.3
58-59	0.005781	92,535	535	92,267	2,448,975	26.5
59-60	0.006159	92,000	567	91,716	2,356,708	25.6
60-61	0.006569	91,433	601	91,133	2,264,991	24.8

Table 6. Life table for white females: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table06.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.007032	90,832	639	90,513	2,173,859	23.9
62–63.....	0.007562	90,194	682	89,853	2,083,345	23.1
63–64.....	0.008165	89,512	731	89,146	1,993,493	22.3
64–65.....	0.008826	88,781	784	88,389	1,904,346	21.4
65–66.....	0.009528	87,997	838	87,578	1,815,957	20.6
66–67.....	0.010290	87,159	897	86,710	1,728,379	19.8
67–68.....	0.011171	86,262	964	85,780	1,641,669	19.0
68–69.....	0.012226	85,298	1,043	84,777	1,555,889	18.2
69–70.....	0.013405	84,255	1,129	83,691	1,471,112	17.5
70–71.....	0.014737	83,126	1,225	82,513	1,387,421	16.7
71–72.....	0.016501	81,901	1,351	81,225	1,304,908	15.9
72–73.....	0.018598	80,549	1,498	79,800	1,223,683	15.2
73–74.....	0.020427	79,051	1,615	78,244	1,143,883	14.5
74–75.....	0.022109	77,437	1,712	76,581	1,065,639	13.8
75–76.....	0.024147	75,725	1,828	74,810	989,058	13.1
76–77.....	0.026780	73,896	1,979	72,907	914,248	12.4
77–78.....	0.029863	71,917	2,148	70,843	841,341	11.7
78–79.....	0.033086	69,769	2,308	68,615	770,498	11.0
79–80.....	0.036791	67,461	2,482	66,220	701,883	10.4
80–81.....	0.041330	64,979	2,686	63,636	635,662	9.8
81–82.....	0.046096	62,294	2,871	60,858	572,026	9.2
82–83.....	0.051382	59,422	3,053	57,895	511,168	8.6
83–84.....	0.058136	56,369	3,277	54,730	453,273	8.0
84–85.....	0.065741	53,092	3,490	51,347	398,543	7.5
85–86.....	0.073771	49,601	3,659	47,772	347,196	7.0
86–87.....	0.082919	45,942	3,809	44,038	299,424	6.5
87–88.....	0.093023	42,133	3,919	40,173	255,387	6.1
88–89.....	0.104138	38,214	3,979	36,224	215,213	5.6
89–90.....	0.116312	34,234	3,982	32,243	178,990	5.2
90–91.....	0.129582	30,252	3,920	28,292	146,747	4.9
91–92.....	0.143969	26,332	3,791	24,437	118,454	4.5
92–93.....	0.159480	22,541	3,595	20,744	94,018	4.2
93–94.....	0.176099	18,946	3,336	17,278	73,274	3.9
94–95.....	0.193787	15,610	3,025	14,097	55,996	3.6
95–96.....	0.212483	12,585	2,674	11,248	41,899	3.3
96–97.....	0.232098	9,911	2,300	8,761	30,651	3.1
97–98.....	0.252516	7,611	1,922	6,650	21,890	2.9
98–99.....	0.273600	5,689	1,556	4,911	15,241	2.7
99–100.....	0.295189	4,132	1,220	3,522	10,330	2.5
100 and over.....	1.000000	2,912	2,912	6,808	6,808	2.3

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 7. Life table for the black population: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table07.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.011084	100,000	1,108	99,033	7,528,227	75.3
1-2	0.000563	98,892	56	98,864	7,429,193	75.1
2-3	0.000422	98,836	42	98,815	7,330,329	74.2
3-4	0.000307	98,794	30	98,779	7,231,514	73.2
4-5	0.000257	98,764	25	98,751	7,132,735	72.2
5-6	0.000237	98,738	23	98,727	7,033,984	71.2
6-7	0.000209	98,715	21	98,705	6,935,257	70.3
7-8	0.000184	98,694	18	98,685	6,836,552	69.3
8-9	0.000157	98,676	15	98,669	6,737,867	68.3
9-10	0.000130	98,661	13	98,654	6,639,198	67.3
10-11	0.000111	98,648	11	98,643	6,540,544	66.3
11-12	0.000113	98,637	11	98,632	6,441,901	65.3
12-13	0.000151	98,626	15	98,619	6,343,270	64.3
13-14	0.000235	98,611	23	98,599	6,244,651	63.3
14-15	0.000353	98,588	35	98,570	6,146,052	62.3
15-16	0.000478	98,553	47	98,530	6,047,481	61.4
16-17	0.000603	98,506	59	98,476	5,948,952	60.4
17-18	0.000742	98,447	73	98,410	5,850,476	59.4
18-19	0.000891	98,374	88	98,330	5,752,066	58.5
19-20	0.001042	98,286	102	98,235	5,653,736	57.5
20-21	0.001195	98,184	117	98,125	5,555,501	56.6
21-22	0.001334	98,066	131	98,001	5,457,376	55.6
22-23	0.001437	97,935	141	97,865	5,359,375	54.7
23-24	0.001493	97,795	146	97,722	5,261,511	53.8
24-25	0.001517	97,649	148	97,575	5,163,789	52.9
25-26	0.001530	97,500	149	97,426	5,066,214	52.0
26-27	0.001550	97,351	151	97,276	4,968,789	51.0
27-28	0.001577	97,200	153	97,124	4,871,513	50.1
28-29	0.001621	97,047	157	96,968	4,774,389	49.2
29-30	0.001680	96,890	163	96,808	4,677,420	48.3
30-31	0.001747	96,727	169	96,643	4,580,612	47.4
31-32	0.001816	96,558	175	96,470	4,483,969	46.4
32-33	0.001892	96,383	182	96,292	4,387,499	45.5
33-34	0.001971	96,200	190	96,106	4,291,208	44.6
34-35	0.002052	96,011	197	95,912	4,195,102	43.7
35-36	0.002142	95,814	205	95,711	4,099,190	42.8
36-37	0.002242	95,608	214	95,501	4,003,479	41.9
37-38	0.002344	95,394	224	95,282	3,907,977	41.0
38-39	0.002448	95,171	233	95,054	3,812,695	40.1
39-40	0.002564	94,938	243	94,816	3,717,641	39.2
40-41	0.002704	94,694	256	94,566	3,622,825	38.3
41-42	0.002871	94,438	271	94,302	3,528,259	37.4
42-43	0.003060	94,167	288	94,023	3,433,957	36.5
43-44	0.003265	93,879	306	93,725	3,339,934	35.6
44-45	0.003488	93,572	326	93,409	3,246,209	34.7
45-46	0.003726	93,246	347	93,072	3,152,799	33.8
46-47	0.003999	92,898	371	92,713	3,059,727	32.9
47-48	0.004330	92,527	401	92,327	2,967,015	32.1
48-49	0.004734	92,126	436	91,908	2,874,688	31.2
49-50	0.005200	91,690	477	91,452	2,782,780	30.3
50-51	0.005685	91,213	519	90,954	2,691,328	29.5
51-52	0.006191	90,695	562	90,414	2,600,374	28.7
52-53	0.006761	90,133	609	89,829	2,509,959	27.8
53-54	0.007406	89,524	663	89,192	2,420,131	27.0
54-55	0.008114	88,861	721	88,500	2,330,938	26.2
55-56	0.008846	88,140	780	87,750	2,242,438	25.4
56-57	0.009593	87,360	838	86,941	2,154,688	24.7
57-58	0.010393	86,522	899	86,072	2,067,747	23.9
58-59	0.011272	85,623	965	85,140	1,981,674	23.1
59-60	0.012239	84,658	1,036	84,140	1,896,534	22.4
60-61	0.013310	83,622	1,113	83,065	1,812,394	21.7

Table 7. Life table for the black population: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table07.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.014441	82,509	1,191	81,913	1,729,329	21.0
62–63.....	0.015559	81,317	1,265	80,685	1,647,416	20.3
63–64.....	0.016589	80,052	1,328	79,388	1,566,731	19.6
64–65.....	0.017541	78,724	1,381	78,034	1,487,344	18.9
65–66.....	0.018517	77,343	1,432	76,627	1,409,310	18.2
66–67.....	0.019594	75,911	1,487	75,167	1,332,683	17.6
67–68.....	0.020708	74,424	1,541	73,653	1,257,516	16.9
68–69.....	0.021926	72,882	1,598	72,083	1,183,863	16.2
69–70.....	0.023330	71,284	1,663	70,453	1,111,779	15.6
70–71.....	0.025073	69,621	1,746	68,749	1,041,326	15.0
71–72.....	0.026996	67,876	1,832	66,960	972,578	14.3
72–73.....	0.029106	66,043	1,922	65,082	905,618	13.7
73–74.....	0.031476	64,121	2,018	63,112	840,536	13.1
74–75.....	0.033847	62,103	2,102	61,052	777,424	12.5
75–76.....	0.036410	60,001	2,185	58,908	716,372	11.9
76–77.....	0.039188	57,816	2,266	56,683	657,464	11.4
77–78.....	0.042069	55,550	2,337	54,382	600,780	10.8
78–79.....	0.045630	53,214	2,428	51,999	546,398	10.3
79–80.....	0.050081	50,785	2,543	49,514	494,399	9.7
80–81.....	0.054804	48,242	2,644	46,920	444,885	9.2
81–82.....	0.059964	45,598	2,734	44,231	397,965	8.7
82–83.....	0.065511	42,864	2,808	41,460	353,734	8.3
83–84.....	0.071113	40,056	2,849	38,632	312,274	7.8
84–85.....	0.077391	37,207	2,880	35,768	273,643	7.4
85–86.....	0.084737	34,328	2,909	32,873	237,875	6.9
86–87.....	0.092672	31,419	2,912	29,963	205,002	6.5
87–88.....	0.101220	28,507	2,886	27,065	175,039	6.1
88–89.....	0.110405	25,622	2,829	24,207	147,974	5.8
89–90.....	0.120246	22,793	2,741	21,423	123,766	5.4
90–91.....	0.130758	20,052	2,622	18,741	102,344	5.1
91–92.....	0.141950	17,430	2,474	16,193	83,603	4.8
92–93.....	0.153826	14,956	2,301	13,806	67,409	4.5
93–94.....	0.166380	12,655	2,106	11,603	53,604	4.2
94–95.....	0.179599	10,550	1,895	9,602	42,001	4.0
95–96.....	0.193463	8,655	1,674	7,818	32,399	3.7
96–97.....	0.207940	6,981	1,452	6,255	24,581	3.5
97–98.....	0.222990	5,529	1,233	4,913	18,326	3.3
98–99.....	0.238563	4,296	1,025	3,784	13,413	3.1
99–100.....	0.254599	3,271	833	2,855	9,629	2.9
100 and over.....	1.000000	2,438	2,438	6,775	6,775	2.8

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 8. Life table for black males: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table08.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.011922	100,000	1,192	98,958	7,199,682	72.0
1-2	0.000615	98,808	61	98,777	7,100,724	71.9
2-3	0.000449	98,747	44	98,725	7,001,946	70.9
3-4	0.000389	98,703	38	98,683	6,903,222	69.9
4-5	0.000278	98,664	27	98,651	6,804,538	69.0
5-6	0.000264	98,637	26	98,624	6,705,888	68.0
6-7	0.000234	98,611	23	98,599	6,607,264	67.0
7-8	0.000203	98,588	20	98,578	6,508,665	66.0
8-9	0.000166	98,568	16	98,559	6,410,087	65.0
9-10	0.000126	98,551	12	98,545	6,311,528	64.0
10-11	0.000094	98,539	9	98,534	6,212,983	63.1
11-12	0.000095	98,530	9	98,525	6,114,449	62.1
12-13	0.000157	98,520	15	98,512	6,015,924	61.1
13-14	0.000293	98,505	29	98,490	5,917,411	60.1
14-15	0.000485	98,476	48	98,452	5,818,921	59.1
15-16	0.000687	98,428	68	98,394	5,720,469	58.1
16-17	0.000887	98,360	87	98,317	5,622,075	57.2
17-18	0.001108	98,273	109	98,219	5,523,758	56.2
18-19	0.001344	98,164	132	98,098	5,425,539	55.3
19-20	0.001579	98,032	155	97,955	5,327,441	54.3
20-21	0.001817	97,878	178	97,789	5,229,486	53.4
21-22	0.002031	97,700	198	97,601	5,131,697	52.5
22-23	0.002183	97,501	213	97,395	5,034,096	51.6
23-24	0.002259	97,289	220	97,179	4,936,701	50.7
24-25	0.002279	97,069	221	96,958	4,839,523	49.9
25-26	0.002279	96,848	221	96,737	4,742,565	49.0
26-27	0.002288	96,627	221	96,516	4,645,827	48.1
27-28	0.002310	96,406	223	96,294	4,549,311	47.2
28-29	0.002358	96,183	227	96,070	4,453,017	46.3
29-30	0.002431	95,956	233	95,840	4,356,947	45.4
30-31	0.002514	95,723	241	95,603	4,261,107	44.5
31-32	0.002594	95,482	248	95,359	4,165,504	43.6
32-33	0.002675	95,235	255	95,107	4,070,146	42.7
33-34	0.002747	94,980	261	94,849	3,975,039	41.9
34-35	0.002814	94,719	267	94,586	3,880,189	41.0
35-36	0.002887	94,452	273	94,316	3,785,603	40.1
36-37	0.002974	94,180	280	94,040	3,691,287	39.2
37-38	0.003074	93,900	289	93,755	3,597,248	38.3
38-39	0.003194	93,611	299	93,462	3,503,492	37.4
39-40	0.003337	93,312	311	93,156	3,410,031	36.5
40-41	0.003516	93,001	327	92,837	3,316,874	35.7
41-42	0.003722	92,674	345	92,501	3,224,037	34.8
42-43	0.003942	92,329	364	92,147	3,131,536	33.9
43-44	0.004162	91,965	383	91,773	3,039,389	33.0
44-45	0.004391	91,582	402	91,381	2,947,616	32.2
45-46	0.004640	91,180	423	90,968	2,856,235	31.3
46-47	0.004937	90,757	448	90,533	2,765,266	30.5
47-48	0.005306	90,309	479	90,069	2,674,734	29.6
48-49	0.005765	89,830	518	89,571	2,584,664	28.8
49-50	0.006304	89,312	563	89,030	2,495,094	27.9
50-51	0.006867	88,749	609	88,444	2,406,063	27.1
51-52	0.007465	88,139	658	87,810	2,317,620	26.3
52-53	0.008167	87,481	714	87,124	2,229,809	25.5
53-54	0.008998	86,767	781	86,376	2,142,685	24.7
54-55	0.009935	85,986	854	85,559	2,056,309	23.9
55-56	0.010908	85,132	929	84,668	1,970,750	23.1
56-57	0.011902	84,203	1,002	83,702	1,886,082	22.4
57-58	0.012984	83,201	1,080	82,661	1,802,380	21.7
58-59	0.014195	82,121	1,166	81,538	1,719,719	20.9
59-60	0.015547	80,955	1,259	80,326	1,638,182	20.2
60-61	0.017067	79,696	1,360	79,016	1,557,856	19.5

Table 8. Life table for black males: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table08.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.018676	78,336	1,463	77,605	1,478,840	18.9
62–63.....	0.020237	76,873	1,556	76,095	1,401,235	18.2
63–64.....	0.021614	75,317	1,628	74,504	1,325,140	17.6
64–65.....	0.022821	73,690	1,682	72,849	1,250,636	17.0
65–66.....	0.024031	72,008	1,730	71,143	1,177,787	16.4
66–67.....	0.025374	70,277	1,783	69,386	1,106,645	15.7
67–68.....	0.026739	68,494	1,831	67,579	1,037,259	15.1
68–69.....	0.028252	66,663	1,883	65,721	969,680	14.5
69–70.....	0.030016	64,779	1,944	63,807	903,959	14.0
70–71.....	0.032129	62,835	2,019	61,826	840,152	13.4
71–72.....	0.034404	60,816	2,092	59,770	778,326	12.8
72–73.....	0.037014	58,724	2,174	57,637	718,556	12.2
73–74.....	0.039894	56,550	2,256	55,422	660,919	11.7
74–75.....	0.042840	54,294	2,326	53,131	605,497	11.2
75–76.....	0.045877	51,968	2,384	50,776	552,366	10.6
76–77.....	0.049187	49,584	2,439	48,365	501,589	10.1
77–78.....	0.052543	47,145	2,477	45,907	453,225	9.6
78–79.....	0.056794	44,668	2,537	43,400	407,318	9.1
79–80.....	0.061951	42,131	2,610	40,826	363,918	8.6
80–81.....	0.066881	39,521	2,643	38,200	323,092	8.2
81–82.....	0.072909	36,878	2,689	35,534	284,893	7.7
82–83.....	0.079703	34,189	2,725	32,827	249,359	7.3
83–84.....	0.086256	31,464	2,714	30,107	216,533	6.9
84–85.....	0.093202	28,750	2,680	27,410	186,425	6.5
85–86.....	0.101867	26,071	2,656	24,743	159,015	6.1
86–87.....	0.111181	23,415	2,603	22,113	134,272	5.7
87–88.....	0.121164	20,812	2,522	19,551	112,159	5.4
88–89.....	0.131831	18,290	2,411	17,084	92,608	5.1
89–90.....	0.143190	15,879	2,274	14,742	75,524	4.8
90–91.....	0.155243	13,605	2,112	12,549	60,782	4.5
91–92.....	0.167986	11,493	1,931	10,528	48,233	4.2
92–93.....	0.181404	9,562	1,735	8,695	37,705	3.9
93–94.....	0.195474	7,828	1,530	7,063	29,010	3.7
94–95.....	0.210162	6,298	1,324	5,636	21,947	3.5
95–96.....	0.225425	4,974	1,121	4,413	16,311	3.3
96–97.....	0.241212	3,853	929	3,388	11,898	3.1
97–98.....	0.257459	2,923	753	2,547	8,510	2.9
98–99.....	0.274095	2,171	595	1,873	5,963	2.7
99–100.....	0.291042	1,576	459	1,346	4,089	2.6
100 and over.....	1.000000	1,117	1,117	2,743	2,743	2.5

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 9. Life table for black females: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table09.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.010222	100,000	1,022	99,112	7,833,064	78.3
1-2	0.000509	98,978	50	98,953	7,733,952	78.1
2-3	0.000394	98,927	39	98,908	7,635,000	77.2
3-4	0.000222	98,888	22	98,877	7,536,092	76.2
4-5	0.000235	98,866	23	98,855	7,437,215	75.2
5-6	0.000208	98,843	21	98,833	7,338,360	74.2
6-7	0.000183	98,823	18	98,814	7,239,527	73.3
7-8	0.000163	98,805	16	98,796	7,140,713	72.3
8-9	0.000147	98,788	15	98,781	7,041,917	71.3
9-10	0.000135	98,774	13	98,767	6,943,136	70.3
10-11	0.000128	98,761	13	98,754	6,844,369	69.3
11-12	0.000131	98,748	13	98,741	6,745,614	68.3
12-13	0.000146	98,735	14	98,728	6,646,873	67.3
13-14	0.000175	98,721	17	98,712	6,548,145	66.3
14-15	0.000216	98,703	21	98,693	6,449,433	65.3
15-16	0.000261	98,682	26	98,669	6,350,741	64.4
16-17	0.000310	98,656	31	98,641	6,252,072	63.4
17-18	0.000364	98,626	36	98,608	6,153,431	62.4
18-19	0.000423	98,590	42	98,569	6,054,823	61.4
19-20	0.000483	98,548	48	98,524	5,956,254	60.4
20-21	0.000546	98,500	54	98,474	5,857,730	59.5
21-22	0.000607	98,447	60	98,417	5,759,257	58.5
22-23	0.000659	98,387	65	98,355	5,660,840	57.5
23-24	0.000701	98,322	69	98,288	5,562,485	56.6
24-25	0.000737	98,253	72	98,217	5,464,198	55.6
25-26	0.000773	98,181	76	98,143	5,365,981	54.7
26-27	0.000812	98,105	80	98,065	5,267,838	53.7
27-28	0.000854	98,025	84	97,983	5,169,773	52.7
28-29	0.000901	97,942	88	97,897	5,071,789	51.8
29-30	0.000955	97,853	93	97,807	4,973,892	50.8
30-31	0.001014	97,760	99	97,710	4,876,085	49.9
31-32	0.001082	97,661	106	97,608	4,778,375	48.9
32-33	0.001162	97,555	113	97,499	4,680,767	48.0
33-34	0.001253	97,442	122	97,381	4,583,268	47.0
34-35	0.001352	97,320	132	97,254	4,485,888	46.1
35-36	0.001462	97,188	142	97,117	4,388,634	45.2
36-37	0.001577	97,046	153	96,970	4,291,517	44.2
37-38	0.001683	96,893	163	96,811	4,194,547	43.3
38-39	0.001778	96,730	172	96,644	4,097,735	42.4
39-40	0.001872	96,558	181	96,468	4,001,092	41.4
40-41	0.001980	96,377	191	96,282	3,904,624	40.5
41-42	0.002115	96,186	203	96,085	3,808,342	39.6
42-43	0.002278	95,983	219	95,874	3,712,258	38.7
43-44	0.002470	95,764	237	95,646	3,616,384	37.8
44-45	0.002687	95,528	257	95,399	3,520,738	36.9
45-46	0.002916	95,271	278	95,132	3,425,339	36.0
46-47	0.003167	94,993	301	94,843	3,330,207	35.1
47-48	0.003465	94,692	328	94,528	3,235,364	34.2
48-49	0.003820	94,364	360	94,184	3,140,836	33.3
49-50	0.004221	94,004	397	93,805	3,046,652	32.4
50-51	0.004639	93,607	434	93,390	2,952,847	31.5
51-52	0.005065	93,173	472	92,937	2,859,457	30.7
52-53	0.005519	92,701	512	92,445	2,766,520	29.8
53-54	0.006005	92,189	554	91,913	2,674,075	29.0
54-55	0.006517	91,636	597	91,337	2,582,162	28.2
55-56	0.007044	91,039	641	90,718	2,490,825	27.4
56-57	0.007584	90,397	686	90,055	2,400,107	26.6
57-58	0.008151	89,712	731	89,346	2,310,052	25.7
58-59	0.008762	88,981	780	88,591	2,220,706	25.0
59-60	0.009427	88,201	831	87,785	2,132,116	24.2
60-61	0.010152	87,369	887	86,926	2,044,330	23.4

Table 9. Life table for black females: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table09.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.010923	86,482	945	86,010	1,957,405	22.6
62–63.....	0.011719	85,538	1,002	85,037	1,871,394	21.9
63–64.....	0.012510	84,535	1,058	84,007	1,786,358	21.1
64–65.....	0.013296	83,478	1,110	82,923	1,702,351	20.4
65–66.....	0.014129	82,368	1,164	81,786	1,619,429	19.7
66–67.....	0.015042	81,204	1,221	80,593	1,537,643	18.9
67–68.....	0.016005	79,983	1,280	79,343	1,457,049	18.2
68–69.....	0.017038	78,702	1,341	78,032	1,377,707	17.5
69–70.....	0.018215	77,361	1,409	76,657	1,299,675	16.8
70–71.....	0.019734	75,952	1,499	75,203	1,223,018	16.1
71–72.....	0.021468	74,454	1,598	73,654	1,147,815	15.4
72–73.....	0.023291	72,855	1,697	72,007	1,074,161	14.7
73–74.....	0.025369	71,158	1,805	70,256	1,002,154	14.1
74–75.....	0.027421	69,353	1,902	68,402	931,898	13.4
75–76.....	0.029769	67,451	2,008	66,447	863,496	12.8
76–77.....	0.032301	65,443	2,114	64,386	797,049	12.2
77–78.....	0.034980	63,329	2,215	62,222	732,662	11.6
78–79.....	0.038214	61,114	2,335	59,946	670,440	11.0
79–80.....	0.042408	58,779	2,493	57,532	610,494	10.4
80–81.....	0.047243	56,286	2,659	54,956	552,962	9.8
81–82.....	0.052084	53,627	2,793	52,230	498,005	9.3
82–83.....	0.057152	50,834	2,905	49,381	445,775	8.8
83–84.....	0.062484	47,929	2,995	46,431	396,393	8.3
84–85.....	0.068348	44,934	3,071	43,398	349,962	7.8
85–86.....	0.075426	41,863	3,158	40,284	306,564	7.3
86–87.....	0.083135	38,705	3,218	37,096	266,280	6.9
87–88.....	0.091510	35,487	3,247	33,864	229,184	6.5
88–89.....	0.100583	32,240	3,243	30,619	195,320	6.1
89–90.....	0.110383	28,997	3,201	27,397	164,702	5.7
90–91.....	0.120934	25,796	3,120	24,237	137,305	5.3
91–92.....	0.132254	22,677	2,999	21,177	113,068	5.0
92–93.....	0.144354	19,678	2,841	18,257	91,891	4.7
93–94.....	0.157234	16,837	2,647	15,513	73,634	4.4
94–95.....	0.170888	14,190	2,425	12,977	58,120	4.1
95–96.....	0.185296	11,765	2,180	10,675	45,143	3.8
96–97.....	0.200428	9,585	1,921	8,624	34,468	3.6
97–98.....	0.216240	7,664	1,657	6,835	25,844	3.4
98–99.....	0.232678	6,007	1,398	5,308	19,009	3.2
99–100.....	0.249672	4,609	1,151	4,034	13,701	3.0
100 and over.....	1.000000	3,458	3,458	9,667	9,667	2.8

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 10. Life table for the Hispanic population: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table10.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.004956	100,000	496	99,562	8,184,071	81.8
1-2	0.000314	99,504	31	99,489	8,084,509	81.2
2-3	0.000177	99,473	18	99,464	7,985,020	80.3
3-4	0.000160	99,456	16	99,448	7,885,556	79.3
4-5	0.000115	99,440	11	99,434	7,786,108	78.3
5-6	0.000125	99,428	12	99,422	7,686,674	77.3
6-7	0.000118	99,416	12	99,410	7,587,252	76.3
7-8	0.000111	99,404	11	99,398	7,487,843	75.3
8-9	0.000101	99,393	10	99,388	7,388,444	74.3
9-10	0.000088	99,383	9	99,379	7,289,056	73.3
10-11	0.000078	99,374	8	99,370	7,189,677	72.3
11-12	0.000077	99,366	8	99,363	7,090,307	71.4
12-13	0.000094	99,359	9	99,354	6,990,945	70.4
13-14	0.000136	99,349	13	99,343	6,891,590	69.4
14-15	0.000196	99,336	19	99,326	6,792,248	68.4
15-16	0.000263	99,316	26	99,303	6,692,922	67.4
16-17	0.000332	99,290	33	99,274	6,593,618	66.4
17-18	0.000406	99,257	40	99,237	6,494,344	65.4
18-19	0.000481	99,217	48	99,193	6,395,107	64.5
19-20	0.000555	99,169	55	99,142	6,295,914	63.5
20-21	0.000631	99,114	63	99,083	6,196,772	62.5
21-22	0.000703	99,052	70	99,017	6,097,689	61.6
22-23	0.000762	98,982	75	98,944	5,998,672	60.6
23-24	0.000803	98,907	79	98,867	5,899,728	59.6
24-25	0.000831	98,827	82	98,786	5,800,861	58.7
25-26	0.000855	98,745	84	98,703	5,702,075	57.7
26-27	0.000879	98,661	87	98,617	5,603,372	56.8
27-28	0.000899	98,574	89	98,530	5,504,754	55.8
28-29	0.000915	98,485	90	98,440	5,406,225	54.9
29-30	0.000929	98,395	91	98,350	5,307,784	53.9
30-31	0.000941	98,304	92	98,258	5,209,435	53.0
31-32	0.000953	98,211	94	98,165	5,111,177	52.0
32-33	0.000971	98,118	95	98,070	5,013,012	51.1
33-34	0.000996	98,023	98	97,974	4,914,942	50.1
34-35	0.001028	97,925	101	97,875	4,816,968	49.2
35-36	0.001066	97,824	104	97,772	4,719,094	48.2
36-37	0.001107	97,720	108	97,666	4,621,322	47.3
37-38	0.001149	97,612	112	97,556	4,523,656	46.3
38-39	0.001192	97,500	116	97,442	4,426,100	45.4
39-40	0.001239	97,384	121	97,323	4,328,658	44.4
40-41	0.001293	97,263	126	97,200	4,231,335	43.5
41-42	0.001361	97,137	132	97,071	4,134,135	42.6
42-43	0.001445	97,005	140	96,935	4,037,064	41.6
43-44	0.001549	96,865	150	96,790	3,940,129	40.7
44-45	0.001673	96,715	162	96,634	3,843,339	39.7
45-46	0.001808	96,553	175	96,466	3,746,705	38.8
46-47	0.001961	96,378	189	96,284	3,650,239	37.9
47-48	0.002146	96,190	206	96,086	3,553,955	36.9
48-49	0.002372	95,983	228	95,869	3,457,869	36.0
49-50	0.002634	95,755	252	95,629	3,362,000	35.1
50-51	0.002921	95,503	279	95,364	3,266,370	34.2
51-52	0.003224	95,224	307	95,071	3,171,007	33.3
52-53	0.003541	94,917	336	94,749	3,075,936	32.4
53-54	0.003869	94,581	366	94,398	2,981,187	31.5
54-55	0.004213	94,215	397	94,017	2,886,788	30.6
55-56	0.004582	93,818	430	93,603	2,792,772	29.8
56-57	0.004979	93,388	465	93,156	2,699,168	28.9
57-58	0.005403	92,923	502	92,672	2,606,012	28.0
58-59	0.005858	92,421	541	92,151	2,513,340	27.2
59-60	0.006344	91,880	583	91,589	2,421,189	26.4
60-61	0.006880	91,297	628	90,983	2,329,601	25.5

See footnotes at end of table.

Table 10. Life table for the Hispanic population: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table10.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.007457	90,669	676	90,331	2,238,618	24.7
62–63.....	0.008041	89,993	724	89,631	2,148,287	23.9
63–64.....	0.008607	89,269	768	88,885	2,058,656	23.1
64–65.....	0.009163	88,501	811	88,095	1,969,771	22.3
65–66.....	0.009744	87,690	854	87,263	1,881,675	21.5
66–67.....	0.010389	86,835	902	86,384	1,794,413	20.7
67–68.....	0.011115	85,933	955	85,456	1,708,028	19.9
68–69.....	0.011967	84,978	1,017	84,470	1,622,572	19.1
69–70.....	0.012969	83,961	1,089	83,417	1,538,103	18.3
70–71.....	0.014124	82,872	1,171	82,287	1,454,686	17.6
71–72.....	0.015436	81,702	1,261	81,071	1,372,399	16.8
72–73.....	0.016932	80,441	1,362	79,760	1,291,327	16.1
73–74.....	0.018589	79,079	1,470	78,344	1,211,568	15.3
74–75.....	0.020392	77,609	1,583	76,817	1,133,224	14.6
75–76.....	0.022348	76,026	1,699	75,177	1,056,407	13.9
76–77.....	0.024555	74,327	1,825	73,414	981,230	13.2
77–78.....	0.027062	72,502	1,962	71,521	907,816	12.5
78–79.....	0.029898	70,540	2,109	69,485	836,295	11.9
79–80.....	0.033234	68,431	2,274	67,294	766,809	11.2
80–81.....	0.036967	66,157	2,446	64,934	699,516	10.6
81–82.....	0.041028	63,711	2,614	62,404	634,582	10.0
82–83.....	0.045725	61,097	2,794	59,700	572,178	9.4
83–84.....	0.051208	58,303	2,986	56,811	512,478	8.8
84–85.....	0.057178	55,318	3,163	53,736	455,667	8.2
85–86.....	0.063678	52,155	3,321	50,494	401,931	7.7
86–87.....	0.071580	48,834	3,496	47,086	351,437	7.2
87–88.....	0.080318	45,338	3,641	43,517	304,351	6.7
88–89.....	0.089943	41,697	3,750	39,821	260,834	6.3
89–90.....	0.100500	37,946	3,814	36,040	221,012	5.8
90–91.....	0.112028	34,133	3,824	32,221	184,972	5.4
91–92.....	0.124554	30,309	3,775	28,421	152,752	5.0
92–93.....	0.138089	26,534	3,664	24,702	124,330	4.7
93–94.....	0.152629	22,870	3,491	21,124	99,629	4.4
94–95.....	0.168153	19,379	3,259	17,750	78,504	4.1
95–96.....	0.184615	16,121	2,976	14,632	60,754	3.8
96–97.....	0.201949	13,144	2,655	11,817	46,122	3.5
97–98.....	0.220065	10,490	2,308	9,336	34,305	3.3
98–99.....	0.238851	8,181	1,954	7,204	24,969	3.1
99–100.....	0.258176	6,227	1,608	5,423	17,764	2.9
100 and over.....	1.000000	4,620	4,620	12,341	12,341	2.7

NOTES: This life table is based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 11. Life table for Hispanic males: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table11.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.005358	100,000	536	99,525	7,913,461	79.1
1-2	0.000345	99,464	34	99,447	7,813,936	78.6
2-3	0.000185	99,430	18	99,421	7,714,489	77.6
3-4	0.000176	99,411	17	99,403	7,615,068	76.6
4-5	0.000108	99,394	11	99,389	7,515,665	75.6
5-6	0.000131	99,383	13	99,377	7,416,277	74.6
6-7	0.000125	99,370	12	99,364	7,316,900	73.6
7-8	0.000117	99,358	12	99,352	7,217,536	72.6
8-9	0.000103	99,346	10	99,341	7,118,184	71.7
9-10	0.000086	99,336	9	99,332	7,018,843	70.7
10-11	0.000071	99,327	7	99,324	6,919,511	69.7
11-12	0.000069	99,320	7	99,317	6,820,187	68.7
12-13	0.000093	99,314	9	99,309	6,720,870	67.7
13-14	0.000153	99,304	15	99,297	6,621,561	66.7
14-15	0.000240	99,289	24	99,277	6,522,265	65.7
15-16	0.000337	99,265	33	99,249	6,422,987	64.7
16-17	0.000437	99,232	43	99,210	6,323,739	63.7
17-18	0.000546	99,189	54	99,161	6,224,529	62.8
18-19	0.000661	99,134	66	99,102	6,125,367	61.8
19-20	0.000776	99,069	77	99,030	6,026,266	60.8
20-21	0.000892	98,992	88	98,948	5,927,235	59.9
21-22	0.001001	98,904	99	98,854	5,828,287	58.9
22-23	0.001093	98,805	108	98,751	5,729,433	58.0
23-24	0.001162	98,697	115	98,639	5,630,682	57.1
24-25	0.001213	98,582	120	98,522	5,532,043	56.1
25-26	0.001260	98,462	124	98,400	5,433,521	55.2
26-27	0.001304	98,338	128	98,274	5,335,120	54.3
27-28	0.001332	98,210	131	98,145	5,236,846	53.3
28-29	0.001341	98,079	132	98,014	5,138,701	52.4
29-30	0.001336	97,948	131	97,882	5,040,688	51.5
30-31	0.001323	97,817	129	97,752	4,942,805	50.5
31-32	0.001314	97,687	128	97,623	4,845,053	49.6
32-33	0.001320	97,559	129	97,495	4,747,430	48.7
33-34	0.001350	97,430	132	97,365	4,649,935	47.7
34-35	0.001398	97,299	136	97,231	4,552,571	46.8
35-36	0.001454	97,163	141	97,092	4,455,340	45.9
36-37	0.001511	97,021	147	96,948	4,358,248	44.9
37-38	0.001569	96,875	152	96,799	4,261,300	44.0
38-39	0.001626	96,723	157	96,644	4,164,501	43.1
39-40	0.001686	96,566	163	96,484	4,067,856	42.1
40-41	0.001758	96,403	169	96,318	3,971,372	41.2
41-42	0.001846	96,233	178	96,144	3,875,054	40.3
42-43	0.001945	96,056	187	95,962	3,778,910	39.3
43-44	0.002055	95,869	197	95,770	3,682,948	38.4
44-45	0.002179	95,672	208	95,568	3,587,177	37.5
45-46	0.002312	95,463	221	95,353	3,491,610	36.6
46-47	0.002469	95,243	235	95,125	3,396,257	35.7
47-48	0.002680	95,007	255	94,880	3,301,132	34.7
48-49	0.002960	94,753	280	94,613	3,206,251	33.8
49-50	0.003301	94,472	312	94,317	3,111,639	32.9
50-51	0.003679	94,161	346	93,987	3,017,322	32.0
51-52	0.004075	93,814	382	93,623	2,923,335	31.2
52-53	0.004496	93,432	420	93,222	2,829,712	30.3
53-54	0.004940	93,012	459	92,782	2,736,490	29.4
54-55	0.005412	92,552	501	92,302	2,643,708	28.6
55-56	0.005926	92,052	545	91,779	2,551,406	27.7
56-57	0.006480	91,506	593	91,210	2,459,627	26.9
57-58	0.007057	90,913	642	90,592	2,368,417	26.1
58-59	0.007649	90,271	690	89,926	2,277,825	25.2
59-60	0.008263	89,581	740	89,211	2,187,899	24.4
60-61	0.008933	88,841	794	88,444	2,098,688	23.6

See footnotes at end of table.

Table 11. Life table for Hispanic males: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table11.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.009663	88,047	851	87,622	2,010,244	22.8
62–63.....	0.010418	87,196	908	86,742	1,922,622	22.0
63–64.....	0.011172	86,288	964	85,806	1,835,880	21.3
64–65.....	0.011929	85,324	1,018	84,815	1,750,074	20.5
65–66.....	0.012715	84,306	1,072	83,770	1,665,259	19.8
66–67.....	0.013571	83,234	1,130	82,669	1,581,489	19.0
67–68.....	0.014524	82,105	1,193	81,508	1,498,819	18.3
68–69.....	0.015631	80,912	1,265	80,280	1,417,311	17.5
69–70.....	0.016925	79,647	1,348	78,973	1,337,031	16.8
70–71.....	0.018417	78,299	1,442	77,578	1,258,058	16.1
71–72.....	0.020094	76,857	1,544	76,085	1,180,479	15.4
72–73.....	0.021938	75,313	1,652	74,487	1,104,394	14.7
73–74.....	0.023875	73,661	1,759	72,781	1,029,907	14.0
74–75.....	0.025883	71,902	1,861	70,972	957,126	13.3
75–76.....	0.028000	70,041	1,961	69,060	886,154	12.7
76–77.....	0.030401	68,080	2,070	67,045	817,094	12.0
77–78.....	0.033215	66,010	2,193	64,914	750,049	11.4
78–79.....	0.036499	63,818	2,329	62,653	685,135	10.7
79–80.....	0.040495	61,488	2,490	60,243	622,482	10.1
80–81.....	0.045011	58,998	2,656	57,671	562,239	9.5
81–82.....	0.049934	56,343	2,813	54,936	504,568	9.0
82–83.....	0.055402	53,529	2,966	52,047	449,632	8.4
83–84.....	0.061941	50,564	3,132	48,998	397,585	7.9
84–85.....	0.068881	47,432	3,267	45,798	348,587	7.3
85–86.....	0.076804	44,165	3,392	42,469	302,789	6.9
86–87.....	0.086254	40,773	3,517	39,014	260,320	6.4
87–88.....	0.096657	37,256	3,601	35,455	221,306	5.9
88–89.....	0.108058	33,655	3,637	31,836	185,851	5.5
89–90.....	0.120489	30,018	3,617	28,210	154,014	5.1
90–91.....	0.133971	26,401	3,537	24,633	125,805	4.8
91–92.....	0.148507	22,864	3,395	21,167	101,172	4.4
92–93.....	0.164080	19,469	3,194	17,872	80,005	4.1
93–94.....	0.180651	16,274	2,940	14,804	62,134	3.8
94–95.....	0.198158	13,334	2,642	12,013	47,329	3.5
95–96.....	0.216512	10,692	2,315	9,535	35,316	3.3
96–97.....	0.235603	8,377	1,974	7,390	25,782	3.1
97–98.....	0.255295	6,403	1,635	5,586	18,391	2.9
98–99.....	0.275434	4,769	1,313	4,112	12,805	2.7
99–100.....	0.295851	3,455	1,022	2,944	8,693	2.5
100 and over.....	1.000000	2,433	2,433	5,749	5,749	2.4

NOTES: This life table is based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 12. Life table for Hispanic females: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table12.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.004537	100,000	454	99,601	8,428,629	84.3
1-2	0.000275	99,546	27	99,533	8,329,029	83.7
2-3	0.000166	99,519	16	99,511	8,229,496	82.7
3-4	0.000140	99,502	14	99,495	8,129,985	81.7
4-5	0.000122	99,488	12	99,482	8,030,490	80.7
5-6	0.000116	99,476	12	99,471	7,931,008	79.7
6-7	0.000109	99,465	11	99,459	7,831,537	78.7
7-8	0.000103	99,454	10	99,449	7,732,078	77.7
8-9	0.000096	99,444	10	99,439	7,632,629	76.8
9-10	0.000089	99,434	9	99,430	7,533,190	75.8
10-11	0.000083	99,425	8	99,421	7,433,760	74.8
11-12	0.000083	99,417	8	99,413	7,334,339	73.8
12-13	0.000093	99,409	9	99,404	7,234,926	72.8
13-14	0.000116	99,400	12	99,394	7,135,521	71.8
14-15	0.000150	99,388	15	99,381	7,036,127	70.8
15-16	0.000188	99,373	19	99,364	6,936,747	69.8
16-17	0.000226	99,355	22	99,343	6,837,383	68.8
17-18	0.000263	99,332	26	99,319	6,738,039	67.8
18-19	0.000294	99,306	29	99,291	6,638,720	66.9
19-20	0.000321	99,277	32	99,261	6,539,429	65.9
20-21	0.000349	99,245	35	99,228	6,440,168	64.9
21-22	0.000377	99,210	37	99,192	6,340,940	63.9
22-23	0.000397	99,173	39	99,153	6,241,749	62.9
23-24	0.000407	99,134	40	99,113	6,142,595	62.0
24-25	0.000411	99,093	41	99,073	6,043,482	61.0
25-26	0.000411	99,053	41	99,032	5,944,409	60.0
26-27	0.000414	99,012	41	98,991	5,845,377	59.0
27-28	0.000425	98,971	42	98,950	5,746,385	58.1
28-29	0.000448	98,929	44	98,907	5,647,435	57.1
29-30	0.000481	98,885	48	98,861	5,548,529	56.1
30-31	0.000518	98,837	51	98,811	5,449,668	55.1
31-32	0.000553	98,786	55	98,758	5,350,856	54.2
32-33	0.000585	98,731	58	98,702	5,252,098	53.2
33-34	0.000609	98,673	60	98,643	5,153,396	52.2
34-35	0.000628	98,613	62	98,582	5,054,752	51.3
35-36	0.000651	98,551	64	98,519	4,956,170	50.3
36-37	0.000678	98,487	67	98,454	4,857,651	49.3
37-38	0.000708	98,420	70	98,386	4,759,197	48.4
38-39	0.000740	98,351	73	98,314	4,660,811	47.4
39-40	0.000776	98,278	76	98,240	4,562,497	46.4
40-41	0.000817	98,202	80	98,162	4,464,257	45.5
41-42	0.000867	98,121	85	98,079	4,366,096	44.5
42-43	0.000937	98,036	92	97,991	4,268,017	43.5
43-44	0.001034	97,945	101	97,894	4,170,026	42.6
44-45	0.001155	97,843	113	97,787	4,072,132	41.6
45-46	0.001290	97,730	126	97,667	3,974,345	40.7
46-47	0.001434	97,604	140	97,534	3,876,678	39.7
47-48	0.001592	97,464	155	97,387	3,779,144	38.8
48-49	0.001763	97,309	172	97,223	3,681,758	37.8
49-50	0.001945	97,137	189	97,043	3,584,534	36.9
50-51	0.002143	96,949	208	96,845	3,487,491	36.0
51-52	0.002354	96,741	228	96,627	3,390,647	35.0
52-53	0.002570	96,513	248	96,389	3,294,020	34.1
53-54	0.002789	96,265	268	96,131	3,197,631	33.2
54-55	0.003016	95,997	289	95,852	3,101,500	32.3
55-56	0.003252	95,707	311	95,551	3,005,648	31.4
56-57	0.003511	95,396	335	95,228	2,910,097	30.5
57-58	0.003804	95,061	362	94,880	2,814,868	29.6
58-59	0.004144	94,699	392	94,503	2,719,988	28.7
59-60	0.004528	94,307	427	94,093	2,625,485	27.8
60-61	0.004960	93,880	466	93,647	2,531,392	27.0

See footnotes at end of table.

Table 12. Life table for Hispanic females: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table12.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.005420	93,414	506	93,161	2,437,745	26.1
62–63.....	0.005877	92,908	546	92,635	2,344,584	25.2
63–64.....	0.006305	92,362	582	92,070	2,251,950	24.4
64–65.....	0.006717	91,779	616	91,471	2,159,879	23.5
65–66.....	0.007154	91,163	652	90,837	2,068,408	22.7
66–67.....	0.007654	90,511	693	90,164	1,977,571	21.8
67–68.....	0.008225	89,818	739	89,449	1,887,407	21.0
68–69.....	0.008899	89,079	793	88,683	1,797,958	20.2
69–70.....	0.009701	88,286	856	87,858	1,709,276	19.4
70–71.....	0.010627	87,430	929	86,965	1,621,417	18.5
71–72.....	0.011700	86,501	1,012	85,995	1,534,452	17.7
72–73.....	0.012977	85,489	1,109	84,934	1,448,457	16.9
73–74.....	0.014473	84,379	1,221	83,769	1,363,523	16.2
74–75.....	0.016175	83,158	1,345	82,486	1,279,755	15.4
75–76.....	0.018061	81,813	1,478	81,074	1,197,269	14.6
76–77.....	0.020166	80,335	1,620	79,525	1,116,195	13.9
77–78.....	0.022515	78,715	1,772	77,829	1,036,669	13.2
78–79.....	0.025122	76,943	1,933	75,977	958,840	12.5
79–80.....	0.028126	75,010	2,110	73,955	882,863	11.8
80–81.....	0.031506	72,900	2,297	71,752	808,908	11.1
81–82.....	0.035230	70,604	2,487	69,360	737,156	10.4
82–83.....	0.039689	68,116	2,703	66,765	667,796	9.8
83–84.....	0.044825	65,413	2,932	63,947	601,031	9.2
84–85.....	0.050594	62,481	3,161	60,900	537,085	8.6
85–86.....	0.057190	59,319	3,392	57,623	476,185	8.0
86–87.....	0.064080	55,927	3,584	54,135	418,561	7.5
87–88.....	0.072636	52,343	3,802	50,442	364,426	7.0
88–89.....	0.082163	48,541	3,988	46,547	313,984	6.5
89–90.....	0.092727	44,553	4,131	42,487	267,437	6.0
90–91.....	0.104383	40,422	4,219	38,312	224,950	5.6
91–92.....	0.117178	36,202	4,242	34,081	186,638	5.2
92–93.....	0.131141	31,960	4,191	29,865	152,557	4.8
93–94.....	0.146284	27,769	4,062	25,738	122,692	4.4
94–95.....	0.162594	23,707	3,855	21,779	96,954	4.1
95–96.....	0.180034	19,852	3,574	18,065	75,175	3.8
96–97.....	0.198537	16,278	3,232	14,662	57,110	3.5
97–98.....	0.218007	13,046	2,844	11,624	42,447	3.3
98–99.....	0.238317	10,202	2,431	8,986	30,823	3.0
99–100.....	0.259314	7,771	2,015	6,763	21,837	2.8
100 and over.....	1.000000	5,756	5,756	15,074	15,074	2.6

NOTES: This life table is based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 13. Life table for the non-Hispanic white population: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table13.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.004862	100,000	486	99,577	7,859,048	78.6
1-2	0.000373	99,514	37	99,495	7,759,471	78.0
2-3	0.000251	99,477	25	99,464	7,659,976	77.0
3-4	0.000174	99,452	17	99,443	7,560,511	76.0
4-5	0.000149	99,434	15	99,427	7,461,068	75.0
5-6	0.000135	99,420	13	99,413	7,361,641	74.0
6-7	0.000118	99,406	12	99,400	7,262,228	73.1
7-8	0.000105	99,394	10	99,389	7,162,828	72.1
8-9	0.000094	99,384	9	99,379	7,063,439	71.1
9-10	0.000087	99,375	9	99,370	6,964,060	70.1
10-11	0.000086	99,366	8	99,362	6,864,689	69.1
11-12	0.000096	99,357	10	99,353	6,765,328	68.1
12-13	0.000124	99,348	12	99,342	6,665,975	67.1
13-14	0.000173	99,336	17	99,327	6,566,633	66.1
14-15	0.000239	99,318	24	99,307	6,467,306	65.1
15-16	0.000310	99,295	31	99,279	6,368,000	64.1
16-17	0.000385	99,264	38	99,245	6,268,720	63.2
17-18	0.000471	99,226	47	99,202	6,169,476	62.2
18-19	0.000567	99,179	56	99,151	6,070,273	61.2
19-20	0.000668	99,123	66	99,090	5,971,123	60.2
20-21	0.000774	99,056	77	99,018	5,872,033	59.3
21-22	0.000875	98,980	87	98,936	5,773,015	58.3
22-23	0.000963	98,893	95	98,846	5,674,078	57.4
23-24	0.001032	98,798	102	98,747	5,575,233	56.4
24-25	0.001087	98,696	107	98,642	5,476,486	55.5
25-26	0.001138	98,589	112	98,533	5,377,844	54.5
26-27	0.001190	98,476	117	98,418	5,279,311	53.6
27-28	0.001242	98,359	122	98,298	5,180,893	52.7
28-29	0.001295	98,237	127	98,174	5,082,595	51.7
29-30	0.001350	98,110	132	98,044	4,984,422	50.8
30-31	0.001408	97,977	138	97,908	4,886,378	49.9
31-32	0.001465	97,840	143	97,768	4,788,469	48.9
32-33	0.001521	97,696	149	97,622	4,690,702	48.0
33-34	0.001575	97,548	154	97,471	4,593,080	47.1
34-35	0.001627	97,394	158	97,315	4,495,609	46.2
35-36	0.001689	97,235	164	97,153	4,398,294	45.2
36-37	0.001758	97,071	171	96,986	4,301,141	44.3
37-38	0.001824	96,901	177	96,812	4,204,155	43.4
38-39	0.001886	96,724	182	96,633	4,107,343	42.5
39-40	0.001951	96,541	188	96,447	4,010,710	41.5
40-41	0.002034	96,353	196	96,255	3,914,263	40.6
41-42	0.002144	96,157	206	96,054	3,818,007	39.7
42-43	0.002274	95,951	218	95,842	3,721,953	38.8
43-44	0.002418	95,733	231	95,617	3,626,112	37.9
44-45	0.002576	95,501	246	95,378	3,530,495	37.0
45-46	0.002744	95,255	261	95,125	3,435,116	36.1
46-47	0.002936	94,994	279	94,854	3,339,992	35.2
47-48	0.003176	94,715	301	94,565	3,245,137	34.3
48-49	0.003475	94,414	328	94,250	3,150,573	33.4
49-50	0.003824	94,086	360	93,906	3,056,322	32.5
50-51	0.004189	93,726	393	93,530	2,962,416	31.6
51-52	0.004563	93,334	426	93,121	2,868,886	30.7
52-53	0.004973	92,908	462	92,677	2,775,765	29.9
53-54	0.005418	92,446	501	92,195	2,683,088	29.0
54-55	0.005886	91,945	541	91,674	2,590,893	28.2
55-56	0.006370	91,404	582	91,113	2,499,219	27.3
56-57	0.006857	90,822	623	90,510	2,408,106	26.5
57-58	0.007347	90,199	663	89,867	2,317,596	25.7
58-59	0.007847	89,536	703	89,185	2,227,728	24.9
59-60	0.008378	88,834	744	88,461	2,138,543	24.1
60-61	0.008955	88,089	789	87,695	2,050,082	23.3

See footnotes at end of table.

Table 13. Life table for the non-Hispanic white population: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table13.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.009586	87,301	837	86,882	1,962,387	22.5
62–63.....	0.010270	86,464	888	86,020	1,875,505	21.7
63–64.....	0.010992	85,576	941	85,105	1,789,485	20.9
64–65.....	0.011745	84,635	994	84,138	1,704,380	20.1
65–66.....	0.012524	83,641	1,048	83,117	1,620,242	19.4
66–67.....	0.013372	82,593	1,104	82,041	1,537,125	18.6
67–68.....	0.014348	81,489	1,169	80,904	1,455,083	17.9
68–69.....	0.015509	80,320	1,246	79,697	1,374,179	17.1
69–70.....	0.016896	79,074	1,336	78,406	1,294,482	16.4
70–71.....	0.018595	77,738	1,446	77,015	1,216,076	15.6
71–72.....	0.020583	76,292	1,570	75,507	1,139,061	14.9
72–73.....	0.022712	74,722	1,697	73,874	1,063,554	14.2
73–74.....	0.024840	73,025	1,814	72,118	989,680	13.6
74–75.....	0.027110	71,211	1,931	70,246	917,562	12.9
75–76.....	0.029650	69,281	2,054	68,253	847,316	12.2
76–77.....	0.032566	67,226	2,189	66,132	779,063	11.6
77–78.....	0.035819	65,037	2,330	63,872	712,931	11.0
78–79.....	0.039390	62,708	2,470	61,473	649,059	10.4
79–80.....	0.043705	60,238	2,633	58,921	587,586	9.8
80–81.....	0.048491	57,605	2,793	56,208	528,665	9.2
81–82.....	0.053561	54,811	2,936	53,344	472,457	8.6
82–83.....	0.059538	51,876	3,089	50,331	419,113	8.1
83–84.....	0.066487	48,787	3,244	47,165	368,782	7.6
84–85.....	0.074017	45,543	3,371	43,858	321,617	7.1
85–86.....	0.082176	42,172	3,466	40,440	277,759	6.6
86–87.....	0.092041	38,707	3,563	36,926	237,319	6.1
87–88.....	0.102882	35,144	3,616	33,336	200,393	5.7
88–89.....	0.114745	31,529	3,618	29,720	167,057	5.3
89–90.....	0.127665	27,911	3,563	26,129	137,337	4.9
90–91.....	0.141668	24,348	3,449	22,623	111,208	4.6
91–92.....	0.156759	20,898	3,276	19,260	88,585	4.2
92–93.....	0.172929	17,622	3,047	16,099	69,325	3.9
93–94.....	0.190144	14,575	2,771	13,189	53,226	3.7
94–95.....	0.208351	11,804	2,459	10,574	40,037	3.4
95–96.....	0.227468	9,344	2,126	8,282	29,463	3.2
96–97.....	0.247392	7,219	1,786	6,326	21,181	2.9
97–98.....	0.267997	5,433	1,456	4,705	14,855	2.7
98–99.....	0.289135	3,977	1,150	3,402	10,151	2.6
99–100.....	0.310640	2,827	878	2,388	6,749	2.4
100 and over.....	1.000000	1,949	1,949	4,361	4,361	2.2

NOTES: This life table is based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 14. Life table for non-Hispanic white males: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table14.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.005302	100,000	530	99,543	7,615,689	76.2
1-2	0.000449	99,470	45	99,447	7,516,146	75.6
2-3	0.000295	99,425	29	99,410	7,416,698	74.6
3-4	0.000215	99,396	21	99,385	7,317,288	73.6
4-5	0.000168	99,374	17	99,366	7,217,903	72.6
5-6	0.000161	99,358	16	99,350	7,118,537	71.6
6-7	0.000141	99,342	14	99,335	7,019,187	70.7
7-8	0.000125	99,328	12	99,322	6,919,852	69.7
8-9	0.000111	99,315	11	99,310	6,820,530	68.7
9-10	0.000103	99,304	10	99,299	6,721,220	67.7
10-11	0.000103	99,294	10	99,289	6,621,921	66.7
11-12	0.000119	99,284	12	99,278	6,522,632	65.7
12-13	0.000157	99,272	16	99,264	6,423,354	64.7
13-14	0.000223	99,257	22	99,245	6,324,090	63.7
14-15	0.000311	99,234	31	99,219	6,224,844	62.7
15-16	0.000405	99,204	40	99,183	6,125,625	61.7
16-17	0.000505	99,163	50	99,138	6,026,442	60.8
17-18	0.000628	99,113	62	99,082	5,927,304	59.8
18-19	0.000776	99,051	77	99,013	5,828,222	58.8
19-20	0.000938	98,974	93	98,928	5,729,209	57.9
20-21	0.001105	98,881	109	98,827	5,630,282	56.9
21-22	0.001262	98,772	125	98,710	5,531,455	56.0
22-23	0.001393	98,647	137	98,579	5,432,745	55.1
23-24	0.001488	98,510	147	98,437	5,334,167	54.1
24-25	0.001556	98,363	153	98,287	5,235,730	53.2
25-26	0.001617	98,210	159	98,131	5,137,443	52.3
26-27	0.001679	98,051	165	97,969	5,039,313	51.4
27-28	0.001738	97,887	170	97,802	4,941,343	50.5
28-29	0.001797	97,717	176	97,629	4,843,542	49.6
29-30	0.001856	97,541	181	97,451	4,745,913	48.7
30-31	0.001916	97,360	186	97,267	4,648,462	47.7
31-32	0.001973	97,173	192	97,078	4,551,196	46.8
32-33	0.002030	96,982	197	96,883	4,454,118	45.9
33-34	0.002084	96,785	202	96,684	4,357,235	45.0
34-35	0.002139	96,583	207	96,480	4,260,551	44.1
35-36	0.002204	96,377	212	96,270	4,164,071	43.2
36-37	0.002276	96,164	219	96,055	4,067,800	42.3
37-38	0.002343	95,945	225	95,833	3,971,745	41.4
38-39	0.002401	95,721	230	95,606	3,875,912	40.5
39-40	0.002462	95,491	235	95,373	3,780,307	39.6
40-41	0.002545	95,256	242	95,134	3,684,934	38.7
41-42	0.002661	95,013	253	94,887	3,589,799	37.8
42-43	0.002801	94,760	265	94,628	3,494,912	36.9
43-44	0.002962	94,495	280	94,355	3,400,285	36.0
44-45	0.003143	94,215	296	94,067	3,305,930	35.1
45-46	0.003336	93,919	313	93,762	3,211,863	34.2
46-47	0.003563	93,605	334	93,439	3,118,101	33.3
47-48	0.003852	93,272	359	93,092	3,024,662	32.4
48-49	0.004219	92,913	392	92,717	2,931,570	31.6
49-50	0.004653	92,521	431	92,305	2,838,853	30.7
50-51	0.005109	92,090	470	91,855	2,746,548	29.8
51-52	0.005579	91,620	511	91,364	2,654,693	29.0
52-53	0.006098	91,108	556	90,831	2,563,329	28.1
53-54	0.006664	90,553	603	90,251	2,472,498	27.3
54-55	0.007261	89,949	653	89,623	2,382,247	26.5
55-56	0.007874	89,296	703	88,945	2,292,624	25.7
56-57	0.008491	88,593	752	88,217	2,203,680	24.9
57-58	0.009120	87,841	801	87,440	2,115,463	24.1
58-59	0.009778	87,040	851	86,614	2,028,022	23.3
59-60	0.010483	86,189	904	85,737	1,941,408	22.5
60-61	0.011252	85,285	960	84,805	1,855,671	21.8

See footnotes at end of table.

Table 14. Life table for non-Hispanic white males: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table14.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.012078	84,326	1,019	83,816	1,770,866	21.0
62–63.....	0.012940	83,307	1,078	82,768	1,687,049	20.3
63–64.....	0.013804	82,229	1,135	81,661	1,604,281	19.5
64–65.....	0.014667	81,094	1,189	80,499	1,522,620	18.8
65–66.....	0.015546	79,905	1,242	79,283	1,442,121	18.0
66–67.....	0.016519	78,662	1,299	78,013	1,362,837	17.3
67–68.....	0.017631	77,363	1,364	76,681	1,284,825	16.6
68–69.....	0.018943	75,999	1,440	75,279	1,208,144	15.9
69–70.....	0.020510	74,559	1,529	73,795	1,132,864	15.2
70–71.....	0.022420	73,030	1,637	72,211	1,059,070	14.5
71–72.....	0.024684	71,393	1,762	70,512	986,858	13.8
72–73.....	0.027114	69,631	1,888	68,687	916,347	13.2
73–74.....	0.029554	67,743	2,002	66,742	847,660	12.5
74–75.....	0.032244	65,741	2,120	64,681	780,918	11.9
75–76.....	0.035294	63,621	2,245	62,498	716,238	11.3
76–77.....	0.038741	61,375	2,378	60,187	653,740	10.7
77–78.....	0.042456	58,998	2,505	57,745	593,553	10.1
78–79.....	0.046519	56,493	2,628	55,179	535,808	9.5
79–80.....	0.051503	53,865	2,774	52,478	480,629	8.9
80–81.....	0.056961	51,091	2,910	49,636	428,151	8.4
81–82.....	0.062674	48,181	3,020	46,671	378,516	7.9
82–83.....	0.069406	45,161	3,134	43,594	331,845	7.3
83–84.....	0.077429	42,026	3,254	40,399	288,251	6.9
84–85.....	0.085909	38,772	3,331	37,107	247,852	6.4
85–86.....	0.095548	35,441	3,386	33,748	210,745	5.9
86–87.....	0.106989	32,055	3,430	30,340	176,997	5.5
87–88.....	0.119512	28,626	3,421	26,915	146,656	5.1
88–89.....	0.133152	25,204	3,356	23,526	119,741	4.8
89–90.....	0.147929	21,848	3,232	20,232	96,215	4.4
90–91.....	0.163842	18,616	3,050	17,091	75,983	4.1
91–92.....	0.180869	15,566	2,815	14,159	58,891	3.8
92–93.....	0.198966	12,751	2,537	11,482	44,733	3.5
93–94.....	0.218061	10,214	2,227	9,100	33,250	3.3
94–95.....	0.238056	7,987	1,901	7,036	24,150	3.0
95–96.....	0.258826	6,085	1,575	5,298	17,114	2.8
96–97.....	0.280224	4,510	1,264	3,878	11,816	2.6
97–98.....	0.302080	3,246	981	2,756	7,938	2.4
98–99.....	0.324211	2,266	735	1,898	5,182	2.3
99–100.....	0.346423	1,531	530	1,266	3,284	2.1
100 and over.....	1.000000	1,001	1,001	2,018	2,018	2.0

NOTES: This life table is based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 15. Life table for non-Hispanic white females: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table15.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.004399	100,000	440	99,613	8,104,131	81.0
1-2	0.000291	99,560	29	99,546	8,004,518	80.4
2-3	0.000202	99,531	20	99,521	7,904,972	79.4
3-4	0.000131	99,511	13	99,504	7,805,451	78.4
4-5	0.000126	99,498	13	99,492	7,705,946	77.4
5-6	0.000106	99,485	11	99,480	7,606,455	76.5
6-7	0.000094	99,475	9	99,470	7,506,975	75.5
7-8	0.000084	99,465	8	99,461	7,407,505	74.5
8-9	0.000076	99,457	8	99,453	7,308,043	73.5
9-10	0.000070	99,450	7	99,446	7,208,590	72.5
10-11	0.000068	99,443	7	99,439	7,109,144	71.5
11-12	0.000074	99,436	7	99,432	7,009,705	70.5
12-13	0.000091	99,428	9	99,424	6,910,273	69.5
13-14	0.000122	99,419	12	99,413	6,810,849	68.5
14-15	0.000164	99,407	16	99,399	6,711,436	67.5
15-16	0.000211	99,391	21	99,380	6,612,037	66.5
16-17	0.000258	99,370	26	99,357	6,512,656	65.5
17-18	0.000304	99,344	30	99,329	6,413,299	64.6
18-19	0.000345	99,314	34	99,297	6,313,970	63.6
19-20	0.000384	99,280	38	99,261	6,214,673	62.6
20-21	0.000423	99,242	42	99,221	6,115,412	61.6
21-22	0.000465	99,200	46	99,177	6,016,192	60.6
22-23	0.000507	99,154	50	99,128	5,917,015	59.7
23-24	0.000551	99,103	55	99,076	5,817,887	58.7
24-25	0.000595	99,049	59	99,019	5,718,811	57.7
25-26	0.000639	98,990	63	98,958	5,619,791	56.8
26-27	0.000684	98,926	68	98,893	5,520,833	55.8
27-28	0.000730	98,859	72	98,823	5,421,941	54.8
28-29	0.000779	98,787	77	98,748	5,323,118	53.9
29-30	0.000831	98,710	82	98,669	5,224,370	52.9
30-31	0.000888	98,628	88	98,584	5,125,701	52.0
31-32	0.000946	98,540	93	98,493	5,027,118	51.0
32-33	0.001003	98,447	99	98,397	4,928,624	50.1
33-34	0.001056	98,348	104	98,296	4,830,227	49.1
34-35	0.001107	98,244	109	98,190	4,731,931	48.2
35-36	0.001166	98,135	114	98,078	4,633,741	47.2
36-37	0.001232	98,021	121	97,961	4,535,663	46.3
37-38	0.001298	97,900	127	97,837	4,437,702	45.3
38-39	0.001363	97,773	133	97,706	4,339,865	44.4
39-40	0.001432	97,640	140	97,570	4,242,159	43.4
40-41	0.001517	97,500	148	97,426	4,144,589	42.5
41-42	0.001621	97,352	158	97,273	4,047,163	41.6
42-43	0.001740	97,194	169	97,110	3,949,890	40.6
43-44	0.001869	97,025	181	96,934	3,852,780	39.7
44-45	0.002006	96,844	194	96,747	3,755,846	38.8
45-46	0.002147	96,650	208	96,546	3,659,099	37.9
46-47	0.002306	96,442	222	96,331	3,562,553	36.9
47-48	0.002497	96,220	240	96,100	3,466,222	36.0
48-49	0.002730	95,979	262	95,848	3,370,123	35.1
49-50	0.002998	95,717	287	95,574	3,274,274	34.2
50-51	0.003276	95,430	313	95,274	3,178,701	33.3
51-52	0.003560	95,118	339	94,948	3,083,427	32.4
52-53	0.003867	94,779	366	94,596	2,988,478	31.5
53-54	0.004197	94,413	396	94,215	2,893,882	30.7
54-55	0.004542	94,016	427	93,803	2,799,668	29.8
55-56	0.004904	93,589	459	93,360	2,705,865	28.9
56-57	0.005270	93,130	491	92,885	2,612,505	28.1
57-58	0.005629	92,640	522	92,379	2,519,620	27.2
58-59	0.005986	92,118	551	91,842	2,427,241	26.3
59-60	0.006360	91,567	582	91,276	2,335,399	25.5
60-61	0.006765	90,984	616	90,677	2,244,123	24.7

See footnotes at end of table.

Table 15. Life table for non-Hispanic white females: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table15.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.007224	90,369	653	90,042	2,153,447	23.8
62–63.....	0.007753	89,716	696	89,368	2,063,404	23.0
63–64.....	0.008353	89,020	744	88,649	1,974,036	22.2
64–65.....	0.009012	88,277	796	87,879	1,885,387	21.4
65–66.....	0.009708	87,481	849	87,057	1,797,508	20.5
66–67.....	0.010456	86,632	906	86,179	1,710,452	19.7
67–68.....	0.011326	85,726	971	85,241	1,624,273	18.9
68–69.....	0.012366	84,755	1,048	84,231	1,539,032	18.2
69–70.....	0.013604	83,707	1,139	83,138	1,454,801	17.4
70–71.....	0.015133	82,568	1,250	81,944	1,371,663	16.6
71–72.....	0.016901	81,319	1,374	80,632	1,289,719	15.9
72–73.....	0.018799	79,945	1,503	79,193	1,209,088	15.1
73–74.....	0.020692	78,442	1,623	77,630	1,129,895	14.4
74–75.....	0.022644	76,818	1,740	75,949	1,052,265	13.7
75–76.....	0.024810	75,079	1,863	74,148	976,316	13.0
76–77.....	0.027349	73,216	2,002	72,215	902,168	12.3
77–78.....	0.030301	71,214	2,158	70,135	829,953	11.7
78–79.....	0.033560	69,056	2,318	67,897	759,818	11.0
79–80.....	0.037453	66,738	2,500	65,489	691,921	10.4
80–81.....	0.041849	64,239	2,688	62,895	626,432	9.8
81–82.....	0.046573	61,551	2,867	60,117	563,537	9.2
82–83.....	0.052165	58,684	3,061	57,153	503,420	8.6
83–84.....	0.058559	55,623	3,257	53,994	446,267	8.0
84–85.....	0.065687	52,366	3,440	50,646	392,273	7.5
85–86.....	0.073772	48,926	3,609	47,121	341,627	7.0
86–87.....	0.082149	45,316	3,723	43,455	294,506	6.5
87–88.....	0.092463	41,594	3,846	39,671	251,051	6.0
88–89.....	0.103842	37,748	3,920	35,788	211,380	5.6
89–90.....	0.116338	33,828	3,935	31,860	175,592	5.2
90–91.....	0.129990	29,893	3,886	27,950	143,732	4.8
91–92.....	0.144822	26,007	3,766	24,124	115,782	4.5
92–93.....	0.160839	22,240	3,577	20,452	91,658	4.1
93–94.....	0.178024	18,663	3,323	17,002	71,206	3.8
94–95.....	0.196332	15,341	3,012	13,835	54,204	3.5
95–96.....	0.215692	12,329	2,659	10,999	40,370	3.3
96–97.....	0.236002	9,670	2,282	8,529	29,370	3.0
97–98.....	0.257135	7,388	1,900	6,438	20,842	2.8
98–99.....	0.278935	5,488	1,531	4,723	14,404	2.6
99–100.....	0.301223	3,957	1,192	3,361	9,681	2.4
100 and over.....	1.000000	2,765	2,765	6,320	6,320	2.3

NOTES: This life table is based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 16. Life table for the non-Hispanic black population: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table16.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.011198	100,000	1,120	99,025	7,486,798	74.9
1-2	0.000623	98,880	62	98,849	7,387,773	74.7
2-3	0.000462	98,819	46	98,796	7,288,924	73.8
3-4	0.000334	98,773	33	98,756	7,190,128	72.8
4-5	0.000284	98,740	28	98,726	7,091,372	71.8
5-6	0.000259	98,712	26	98,699	6,992,646	70.8
6-7	0.000229	98,686	23	98,675	6,893,947	69.9
7-8	0.000201	98,664	20	98,654	6,795,272	68.9
8-9	0.000171	98,644	17	98,635	6,696,618	67.9
9-10	0.000142	98,627	14	98,620	6,597,982	66.9
10-11	0.000120	98,613	12	98,607	6,499,362	65.9
11-12	0.000122	98,601	12	98,595	6,400,755	64.9
12-13	0.000164	98,589	16	98,581	6,302,160	63.9
13-14	0.000255	98,573	25	98,560	6,203,579	62.9
14-15	0.000384	98,548	38	98,529	6,105,019	61.9
15-16	0.000519	98,510	51	98,484	6,006,490	61.0
16-17	0.000654	98,459	64	98,427	5,908,006	60.0
17-18	0.000804	98,394	79	98,355	5,809,579	59.0
18-19	0.000967	98,315	95	98,268	5,711,224	58.1
19-20	0.001131	98,220	111	98,165	5,612,957	57.1
20-21	0.001300	98,109	128	98,045	5,514,792	56.2
21-22	0.001452	97,982	142	97,911	5,416,746	55.3
22-23	0.001557	97,839	152	97,763	5,318,836	54.4
23-24	0.001605	97,687	157	97,609	5,221,073	53.4
24-25	0.001613	97,530	157	97,452	5,123,464	52.5
25-26	0.001608	97,373	157	97,295	5,026,012	51.6
26-27	0.001612	97,216	157	97,138	4,928,718	50.7
27-28	0.001629	97,060	158	96,981	4,831,580	49.8
28-29	0.001672	96,901	162	96,820	4,734,599	48.9
29-30	0.001738	96,739	168	96,655	4,637,779	47.9
30-31	0.001813	96,571	175	96,484	4,541,124	47.0
31-32	0.001890	96,396	182	96,305	4,444,640	46.1
32-33	0.001979	96,214	190	96,119	4,348,335	45.2
33-34	0.002074	96,024	199	95,924	4,252,216	44.3
34-35	0.002174	95,825	208	95,720	4,156,292	43.4
35-36	0.002286	95,616	219	95,507	4,060,571	42.5
36-37	0.002406	95,398	230	95,283	3,965,064	41.6
37-38	0.002523	95,168	240	95,048	3,869,782	40.7
38-39	0.002636	94,928	250	94,803	3,774,734	39.8
39-40	0.002754	94,678	261	94,547	3,679,931	38.9
40-41	0.002895	94,417	273	94,280	3,585,384	38.0
41-42	0.003065	94,143	289	93,999	3,491,104	37.1
42-43	0.003255	93,855	305	93,702	3,397,104	36.2
43-44	0.003460	93,549	324	93,388	3,303,402	35.3
44-45	0.003682	93,226	343	93,054	3,210,015	34.4
45-46	0.003919	92,882	364	92,700	3,116,961	33.6
46-47	0.004192	92,518	388	92,325	3,024,260	32.7
47-48	0.004527	92,131	417	91,922	2,931,936	31.8
48-49	0.004940	91,714	453	91,487	2,840,014	31.0
49-50	0.005420	91,260	495	91,013	2,748,526	30.1
50-51	0.005920	90,766	537	90,497	2,657,513	29.3
51-52	0.006439	90,229	581	89,938	2,567,016	28.5
52-53	0.007022	89,648	630	89,333	2,477,078	27.6
53-54	0.007679	89,018	684	88,676	2,387,745	26.8
54-55	0.008397	88,335	742	87,964	2,299,069	26.0
55-56	0.009138	87,593	800	87,193	2,211,105	25.2
56-57	0.009895	86,792	859	86,363	2,123,913	24.5
57-58	0.010705	85,934	920	85,474	2,037,550	23.7
58-59	0.011597	85,014	986	84,521	1,952,076	23.0
59-60	0.012581	84,028	1,057	83,499	1,867,555	22.2
60-61	0.013669	82,971	1,134	82,403	1,784,056	21.5

See footnotes at end of table.

Table 16. Life table for the non-Hispanic black population: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table16.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$ q_x	Number surviving to age x l_x	Number dying between ages x and $x + 1$ d_x	Person-years lived between ages x and $x + 1$ L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
61–62.....	0.014819	81,836	1,213	81,230	1,701,653	20.8
62–63.....	0.015965	80,624	1,287	79,980	1,620,423	20.1
63–64.....	0.017034	79,336	1,351	78,661	1,540,443	19.4
64–65.....	0.018033	77,985	1,406	77,282	1,461,782	18.7
65–66.....	0.019063	76,579	1,460	75,849	1,384,500	18.1
66–67.....	0.020175	75,119	1,516	74,361	1,308,651	17.4
67–68.....	0.021317	73,603	1,569	72,819	1,234,290	16.8
68–69.....	0.022551	72,034	1,624	71,222	1,161,471	16.1
69–70.....	0.023965	70,410	1,687	69,566	1,090,249	15.5
70–71.....	0.025721	68,723	1,768	67,839	1,020,683	14.9
71–72.....	0.027664	66,955	1,852	66,029	952,844	14.2
72–73.....	0.029795	65,103	1,940	64,133	886,815	13.6
73–74.....	0.032182	63,163	2,033	62,147	822,682	13.0
74–75.....	0.034561	61,130	2,113	60,074	760,535	12.4
75–76.....	0.037125	59,018	2,191	57,922	700,462	11.9
76–77.....	0.039903	56,827	2,268	55,693	642,540	11.3
77–78.....	0.042787	54,559	2,334	53,392	586,847	10.8
78–79.....	0.046355	52,225	2,421	51,014	533,455	10.2
79–80.....	0.050817	49,804	2,531	48,538	482,441	9.7
80–81.....	0.055546	47,273	2,626	45,960	433,903	9.2
81–82.....	0.060705	44,647	2,710	43,292	387,943	8.7
82–83.....	0.066252	41,937	2,778	40,548	344,651	8.2
83–84.....	0.071858	39,158	2,814	37,751	304,103	7.8
84–85.....	0.078116	36,345	2,839	34,925	266,352	7.3
85–86.....	0.085458	33,505	2,863	32,074	231,427	6.9
86–87.....	0.093380	30,642	2,861	29,211	199,353	6.5
87–88.....	0.101907	27,781	2,831	26,365	170,141	6.1
88–89.....	0.111063	24,950	2,771	23,564	143,776	5.8
89–90.....	0.120864	22,179	2,681	20,838	120,212	5.4
90–91.....	0.131327	19,498	2,561	18,218	99,373	5.1
91–92.....	0.142459	16,938	2,413	15,731	81,156	4.8
92–93.....	0.154262	14,525	2,241	13,404	65,424	4.5
93–94.....	0.166732	12,284	2,048	11,260	52,020	4.2
94–95.....	0.179857	10,236	1,841	9,315	40,760	4.0
95–96.....	0.193614	8,395	1,625	7,582	31,445	3.7
96–97.....	0.207975	6,770	1,408	6,066	23,863	3.5
97–98.....	0.222898	5,362	1,195	4,764	17,797	3.3
98–99.....	0.238336	4,167	993	3,670	13,033	3.1
99–100.....	0.254231	3,173	807	2,770	9,363	3.0
100 and over.....	1.000000	2,367	2,367	6,593	6,593	2.8

NOTES: This life table is based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 17. Life table for non-Hispanic black males: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table17.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.012179	100,000	1,218	98,937	7,156,823	71.6
1-2	0.000614	98,782	61	98,752	7,057,886	71.4
2-3	0.000449	98,721	44	98,699	6,959,134	70.5
3-4	0.000389	98,677	38	98,658	6,860,435	69.5
4-5	0.000279	98,639	28	98,625	6,761,777	68.6
5-6	0.000264	98,611	26	98,598	6,663,152	67.6
6-7	0.000235	98,585	23	98,574	6,564,554	66.6
7-8	0.000204	98,562	20	98,552	6,465,980	65.6
8-9	0.000163	98,542	16	98,534	6,367,429	64.6
9-10	0.000116	98,526	11	98,520	6,268,895	63.6
10-11	0.000079	98,514	8	98,510	6,170,375	62.6
11-12	0.000077	98,507	8	98,503	6,071,864	61.6
12-13	0.000145	98,499	14	98,492	5,973,361	60.6
13-14	0.000297	98,485	29	98,470	5,874,870	59.7
14-15	0.000513	98,455	51	98,430	5,776,400	58.7
15-16	0.000738	98,405	73	98,369	5,677,969	57.7
16-17	0.000958	98,332	94	98,285	5,579,601	56.7
17-18	0.001200	98,238	118	98,179	5,481,316	55.8
18-19	0.001458	98,120	143	98,049	5,383,137	54.9
19-20	0.001714	97,977	168	97,893	5,285,088	53.9
20-21	0.001974	97,809	193	97,713	5,187,195	53.0
21-22	0.002205	97,616	215	97,508	5,089,482	52.1
22-23	0.002360	97,401	230	97,286	4,991,974	51.3
23-24	0.002421	97,171	235	97,053	4,894,688	50.4
24-25	0.002414	96,936	234	96,819	4,797,634	49.5
25-26	0.002381	96,702	230	96,587	4,700,816	48.6
26-27	0.002362	96,471	228	96,357	4,604,229	47.7
27-28	0.002365	96,244	228	96,130	4,507,872	46.8
28-29	0.002409	96,016	231	95,900	4,411,742	45.9
29-30	0.002490	95,785	239	95,665	4,315,842	45.1
30-31	0.002585	95,546	247	95,423	4,220,176	44.2
31-32	0.002677	95,299	255	95,172	4,124,753	43.3
32-33	0.002775	95,044	264	94,912	4,029,582	42.4
33-34	0.002872	94,780	272	94,644	3,934,670	41.5
34-35	0.002967	94,508	280	94,368	3,840,025	40.6
35-36	0.003072	94,228	289	94,083	3,745,658	39.8
36-37	0.003191	93,938	300	93,788	3,651,575	38.9
37-38	0.003314	93,638	310	93,483	3,557,786	38.0
38-39	0.003446	93,328	322	93,167	3,464,303	37.1
39-40	0.003594	93,006	334	92,839	3,371,136	36.2
40-41	0.003773	92,672	350	92,497	3,278,297	35.4
41-42	0.003982	92,323	368	92,139	3,185,799	34.5
42-43	0.004201	91,955	386	91,762	3,093,661	33.6
43-44	0.004419	91,569	405	91,366	3,001,899	32.8
44-45	0.004645	91,164	423	90,952	2,910,533	31.9
45-46	0.004887	90,740	443	90,519	2,819,581	31.1
46-47	0.005180	90,297	468	90,063	2,729,062	30.2
47-48	0.005550	89,829	499	89,580	2,638,999	29.4
48-49	0.006019	89,331	538	89,062	2,549,419	28.5
49-50	0.006573	88,793	584	88,501	2,460,357	27.7
50-51	0.007153	88,209	631	87,894	2,371,856	26.9
51-52	0.007765	87,578	680	87,238	2,283,962	26.1
52-53	0.008480	86,898	737	86,530	2,196,724	25.3
53-54	0.009317	86,161	803	85,760	2,110,194	24.5
54-55	0.010255	85,359	875	84,921	2,024,434	23.7
55-56	0.011229	84,483	949	84,009	1,939,513	23.0
56-57	0.012223	83,535	1,021	83,024	1,855,504	22.2
57-58	0.013308	82,514	1,098	81,965	1,772,479	21.5
58-59	0.014526	81,416	1,183	80,824	1,690,515	20.8
59-60	0.015891	80,233	1,275	79,595	1,609,691	20.1
60-61	0.017426	78,958	1,376	78,270	1,530,095	19.4

See footnotes at end of table.

Table 17. Life table for non-Hispanic black males: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table17.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.019053	77,582	1,478	76,843	1,451,825	18.7
62–63.....	0.020650	76,104	1,572	75,318	1,374,983	18.1
63–64.....	0.022086	74,532	1,646	73,709	1,299,665	17.4
64–65.....	0.023369	72,886	1,703	72,034	1,225,955	16.8
65–66.....	0.024671	71,183	1,756	70,305	1,153,921	16.2
66–67.....	0.026082	69,427	1,811	68,521	1,083,616	15.6
67–68.....	0.027498	67,616	1,859	66,686	1,015,095	15.0
68–69.....	0.029036	65,757	1,909	64,802	948,409	14.4
69–70.....	0.030808	63,847	1,967	62,864	883,607	13.8
70–71.....	0.032928	61,880	2,038	60,861	820,743	13.3
71–72.....	0.035222	59,843	2,108	58,789	759,882	12.7
72–73.....	0.037853	57,735	2,185	56,642	701,093	12.1
73–74.....	0.040750	55,549	2,264	54,418	644,451	11.6
74–75.....	0.043705	53,286	2,329	52,121	590,033	11.1
75–76.....	0.046744	50,957	2,382	49,766	537,912	10.6
76–77.....	0.050052	48,575	2,431	47,359	488,146	10.0
77–78.....	0.053407	46,144	2,464	44,912	440,786	9.6
78–79.....	0.057660	43,679	2,519	42,420	395,875	9.1
79–80.....	0.062821	41,161	2,586	39,868	353,455	8.6
80–81.....	0.067749	38,575	2,613	37,268	313,587	8.1
81–82.....	0.073769	35,962	2,653	34,635	276,319	7.7
82–83.....	0.080568	33,309	2,684	31,967	241,684	7.3
83–84.....	0.087149	30,625	2,669	29,291	209,717	6.8
84–85.....	0.094266	27,956	2,635	26,639	180,426	6.5
85–86.....	0.102911	25,321	2,606	24,018	153,788	6.1
86–87.....	0.112194	22,715	2,548	21,441	129,770	5.7
87–88.....	0.122132	20,167	2,463	18,935	108,329	5.4
88–89.....	0.132741	17,704	2,350	16,529	89,394	5.0
89–90.....	0.144026	15,354	2,211	14,248	72,865	4.7
90–91.....	0.155992	13,142	2,050	12,117	58,617	4.5
91–92.....	0.168630	11,092	1,870	10,157	46,500	4.2
92–93.....	0.181927	9,222	1,678	8,383	36,343	3.9
93–94.....	0.195861	7,544	1,478	6,805	27,960	3.7
94–95.....	0.210399	6,066	1,276	5,428	21,155	3.5
95–96.....	0.225499	4,790	1,080	4,250	15,727	3.3
96–97.....	0.241110	3,710	894	3,263	11,477	3.1
97–98.....	0.257172	2,815	724	2,453	8,214	2.9
98–99.....	0.273615	2,091	572	1,805	5,761	2.8
99–100.....	0.290365	1,519	441	1,299	3,955	2.6
100 and over.....	1.000000	1,078	1,078	2,657	2,657	2.5

NOTES: This life table is based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 18. Life table for non-Hispanic black females: United States, 2016Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table18.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.010191	100,000	1,019	99,114	7,797,339	78.0
1-2	0.000557	98,981	55	98,953	7,698,225	77.8
2-3	0.000419	98,926	41	98,905	7,599,271	76.8
3-4	0.000234	98,884	23	98,873	7,500,367	75.8
4-5	0.000255	98,861	25	98,848	7,401,494	74.9
5-6	0.000224	98,836	22	98,825	7,302,645	73.9
6-7	0.000198	98,814	20	98,804	7,203,821	72.9
7-8	0.000177	98,794	17	98,785	7,105,017	71.9
8-9	0.000159	98,777	16	98,769	7,006,231	70.9
9-10	0.000144	98,761	14	98,754	6,907,462	69.9
10-11	0.000136	98,747	13	98,740	6,808,708	69.0
11-12	0.000137	98,733	14	98,727	6,709,968	68.0
12-13	0.000154	98,720	15	98,712	6,611,242	67.0
13-14	0.000187	98,705	18	98,695	6,512,530	66.0
14-15	0.000233	98,686	23	98,675	6,413,834	65.0
15-16	0.000284	98,663	28	98,649	6,315,159	64.0
16-17	0.000338	98,635	33	98,619	6,216,510	63.0
17-18	0.000398	98,602	39	98,582	6,117,892	62.0
18-19	0.000463	98,563	46	98,540	6,019,310	61.1
19-20	0.000530	98,517	52	98,491	5,920,770	60.1
20-21	0.000600	98,465	59	98,435	5,822,279	59.1
21-22	0.000666	98,406	66	98,373	5,723,844	58.2
22-23	0.000721	98,340	71	98,305	5,625,471	57.2
23-24	0.000761	98,269	75	98,232	5,527,166	56.2
24-25	0.000792	98,194	78	98,156	5,428,934	55.3
25-26	0.000822	98,117	81	98,076	5,330,779	54.3
26-27	0.000858	98,036	84	97,994	5,232,702	53.4
27-28	0.000898	97,952	88	97,908	5,134,708	52.4
28-29	0.000946	97,864	93	97,818	5,036,800	51.5
29-30	0.001005	97,771	98	97,722	4,938,983	50.5
30-31	0.001071	97,673	105	97,621	4,841,261	49.6
31-32	0.001145	97,568	112	97,513	4,743,640	48.6
32-33	0.001234	97,457	120	97,397	4,646,127	47.7
33-34	0.001336	97,336	130	97,271	4,548,731	46.7
34-35	0.001446	97,206	141	97,136	4,451,459	45.8
35-36	0.001569	97,066	152	96,990	4,354,323	44.9
36-37	0.001696	96,914	164	96,831	4,257,333	43.9
37-38	0.001811	96,749	175	96,662	4,160,502	43.0
38-39	0.001910	96,574	184	96,482	4,063,840	42.1
39-40	0.002005	96,389	193	96,293	3,967,358	41.2
40-41	0.002114	96,196	203	96,095	3,871,066	40.2
41-42	0.002251	95,993	216	95,885	3,774,971	39.3
42-43	0.002416	95,777	231	95,661	3,679,086	38.4
43-44	0.002610	95,545	249	95,421	3,583,425	37.5
44-45	0.002831	95,296	270	95,161	3,488,005	36.6
45-46	0.003062	95,026	291	94,881	3,392,844	35.7
46-47	0.003316	94,735	314	94,578	3,297,963	34.8
47-48	0.003620	94,421	342	94,250	3,203,385	33.9
48-49	0.003986	94,079	375	93,892	3,109,135	33.0
49-50	0.004400	93,704	412	93,498	3,015,243	32.2
50-51	0.004831	93,292	451	93,067	2,921,745	31.3
51-52	0.005270	92,841	489	92,597	2,828,678	30.5
52-53	0.005738	92,352	530	92,087	2,736,082	29.6
53-54	0.006239	91,822	573	91,536	2,643,995	28.8
54-55	0.006766	91,249	617	90,940	2,552,459	28.0
55-56	0.007308	90,632	662	90,301	2,461,519	27.2
56-57	0.007862	89,969	707	89,616	2,371,218	26.4
57-58	0.008445	89,262	754	88,885	2,281,602	25.6
58-59	0.009074	88,508	803	88,107	2,192,717	24.8
59-60	0.009759	87,705	856	87,277	2,104,610	24.0
60-61	0.010505	86,849	912	86,393	2,017,333	23.2

See footnotes at end of table.

Table 18. Life table for non-Hispanic black females: United States, 2016—Con.Spreadsheet version available from: https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/68_04/Table18.xlsx.

Age (years)	Probability of dying between ages x and $x + 1$	Number surviving to age x	Number dying between ages x and $x + 1$	Person-years lived between ages x and $x + 1$	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
61–62.....	0.011299	85,937	971	85,451	1,930,940	22.5
62–63.....	0.012119	84,966	1,030	84,451	1,845,489	21.7
63–64.....	0.012933	83,936	1,086	83,393	1,761,038	21.0
64–65.....	0.013744	82,851	1,139	82,281	1,677,645	20.2
65–66.....	0.014603	81,712	1,193	81,115	1,595,363	19.5
66–67.....	0.015527	80,519	1,250	79,894	1,514,248	18.8
67–68.....	0.016502	79,268	1,308	78,614	1,434,355	18.1
68–69.....	0.017546	77,960	1,368	77,276	1,355,740	17.4
69–70.....	0.018736	76,593	1,435	75,875	1,278,464	16.7
70–71.....	0.020274	75,157	1,524	74,396	1,202,589	16.0
71–72.....	0.022032	73,634	1,622	72,823	1,128,193	15.3
72–73.....	0.023879	72,011	1,720	71,152	1,055,370	14.7
73–74.....	0.025976	70,292	1,826	69,379	984,219	14.0
74–75.....	0.028038	68,466	1,920	67,506	914,840	13.4
75–76.....	0.030389	66,546	2,022	65,535	847,334	12.7
76–77.....	0.032925	64,524	2,124	63,462	781,798	12.1
77–78.....	0.035612	62,400	2,222	61,289	718,337	11.5
78–79.....	0.038860	60,177	2,338	59,008	657,048	10.9
79–80.....	0.043071	57,839	2,491	56,593	598,040	10.3
80–81.....	0.047919	55,348	2,652	54,022	541,446	9.8
81–82.....	0.052765	52,696	2,780	51,305	487,425	9.2
82–83.....	0.057832	49,915	2,887	48,472	436,119	8.7
83–84.....	0.063158	47,028	2,970	45,543	387,648	8.2
84–85.....	0.068947	44,058	3,038	42,539	342,104	7.8
85–86.....	0.076026	41,020	3,119	39,461	299,565	7.3
86–87.....	0.083729	37,902	3,173	36,315	260,104	6.9
87–88.....	0.092092	34,728	3,198	33,129	223,789	6.4
88–89.....	0.101144	31,530	3,189	29,936	190,659	6.0
89–90.....	0.110915	28,341	3,143	26,769	160,724	5.7
90–91.....	0.121427	25,198	3,060	23,668	133,954	5.3
91–92.....	0.132697	22,138	2,938	20,669	110,287	5.0
92–93.....	0.144735	19,200	2,779	17,811	89,617	4.7
93–94.....	0.157544	16,421	2,587	15,128	71,807	4.4
94–95.....	0.171114	13,834	2,367	12,651	56,679	4.1
95–96.....	0.185428	11,467	2,126	10,404	44,028	3.8
96–97.....	0.200454	9,341	1,872	8,405	33,624	3.6
97–98.....	0.216152	7,468	1,614	6,661	25,220	3.4
98–99.....	0.232465	5,854	1,361	5,174	18,558	3.2
99–100.....	0.249329	4,493	1,120	3,933	13,385	3.0
100 and over.....	1.000000	3,373	3,373	9,452	9,452	2.8

NOTES: This life table is based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 19. Estimated life expectancy at birth, in years, by race, Hispanic origin, and sex: Death-registration states, 1900–1928, and United States, 1929–2016

[For selected years, life table values shown are estimates; see Technical Notes. Beginning in 1970, excludes death of nonresidents of the United States; see Technical Notes]

Area and year	All races and origins			White			Black ¹			Hispanic ²			Non-Hispanic white ²			Non-Hispanic black ²		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
United States ³																		
2016 ⁴	78.7	76.2	81.1	78.9	76.4	81.3	75.3	72.0	78.3	81.8	79.1	84.3	78.6	76.2	81.0	74.9	71.6	78.0
2015 ⁴	78.7	76.3	81.1	78.9	76.6	81.3	75.5	72.2	78.5	81.9	79.3	84.3	78.7	76.3	81.0	75.1	71.9	78.1
2014 ⁴	78.9	76.5	81.3	79.1	76.7	81.4	75.6	72.5	78.5	82.1	79.4	84.5	78.8	76.5	81.2	75.3	72.2	78.2
2013 ⁴	78.8	76.4	81.2	79.0	76.7	81.4	75.5	72.3	78.4	81.9	79.2	84.2	78.8	76.5	81.2	75.1	71.9	78.1
2012 ⁴	78.8	76.4	81.2	79.1	76.7	81.4	75.5	72.3	78.4	81.9	79.3	84.3	78.9	76.5	81.2	75.1	71.9	78.1
2011 ⁴	78.7	76.3	81.1	79.0	76.6	81.3	75.3	72.2	78.2	81.8	79.2	84.2	78.7	76.4	81.1	75.0	71.8	77.8
2010 ⁴	78.7	76.2	81.0	78.9	76.5	81.3	75.1	71.8	78.0	81.7	78.8	84.3	78.8	76.4	81.1	74.7	71.5	77.7
2009 ^{4,5}	78.5	76.0	80.9	78.8	76.4	81.2	74.7	71.4	77.7	81.1	78.4	83.5	78.7	76.3	81.0	74.4	71.0	77.4
2008 ^{4,5}	78.2	75.6	80.6	78.5	76.1	80.9	74.3	70.9	77.3	80.8	78.0	83.3	78.4	76.0	80.7	73.9	70.5	77.0
2007 ^{4,5}	78.1	75.5	80.6	78.5	76.0	80.9	73.8	70.3	77.0	80.7	77.8	83.2	78.4	75.9	80.8	73.5	69.9	76.7
2006 ^{4,5}	77.8	75.2	80.3	78.3	75.8	80.7	73.4	69.9	76.7	80.3	77.5	82.9	78.2	75.7	80.6	73.1	69.5	76.4
2005 ^{4,5}	77.6	75.0	80.1	78.0	75.5	80.5	73.0	69.5	76.2	---	---	---	---	---	---	---	---	---
2004 ^{4,5}	77.6	75.0	80.1	78.1	75.5	80.5	72.9	69.4	76.1	---	---	---	---	---	---	---	---	---
2003 ^{4,5}	77.2	74.5	79.7	77.7	75.1	80.2	72.4	68.9	75.7	---	---	---	---	---	---	---	---	---
2002 ^{4,5}	77.0	74.4	79.6	77.5	74.9	80.1	72.2	68.7	75.4	---	---	---	---	---	---	---	---	---
2001 ^{4,5}	77.0	74.3	79.5	77.5	74.9	80.0	72.0	68.5	75.3	---	---	---	---	---	---	---	---	---
2000	76.8	74.1	79.3	77.3	74.7	79.9	71.8	68.2	75.1	---	---	---	---	---	---	---	---	---
1999	76.7	73.9	79.4	77.3	74.6	79.9	71.4	67.8	74.7	---	---	---	---	---	---	---	---	---
1998	76.7	73.8	79.5	77.3	74.5	80.0	71.3	67.6	74.8	---	---	---	---	---	---	---	---	---
1997	76.5	73.6	79.4	77.1	74.3	79.9	71.1	67.2	74.7	---	---	---	---	---	---	---	---	---
1996	76.1	73.1	79.1	76.8	73.9	79.7	70.2	66.1	74.2	---	---	---	---	---	---	---	---	---
1995	75.8	72.5	78.9	76.5	73.4	79.6	69.6	65.2	73.9	---	---	---	---	---	---	---	---	---
1994	75.7	72.4	79.0	76.5	73.3	79.6	69.5	64.9	73.9	---	---	---	---	---	---	---	---	---
1993	75.5	72.2	78.8	76.3	73.1	79.5	69.2	64.6	73.7	---	---	---	---	---	---	---	---	---
1992	75.8	72.3	79.1	76.5	73.2	79.8	69.6	65.0	73.9	---	---	---	---	---	---	---	---	---
1991	75.5	72.0	78.9	76.3	72.9	79.6	69.3	64.6	73.8	---	---	---	---	---	---	---	---	---
1990	75.4	71.8	78.8	76.1	72.7	79.4	69.1	64.5	73.6	---	---	---	---	---	---	---	---	---
1989	75.1	71.7	78.5	75.9	72.5	79.2	68.8	64.3	73.3	---	---	---	---	---	---	---	---	---
1988	74.9	71.4	78.3	75.6	72.2	78.9	68.9	64.4	73.2	---	---	---	---	---	---	---	---	---
1987	74.9	71.4	78.3	75.6	72.1	78.9	69.1	64.7	73.4	---	---	---	---	---	---	---	---	---
1986	74.7	71.2	78.2	75.4	71.9	78.8	69.1	64.8	73.4	---	---	---	---	---	---	---	---	---
1985	74.7	71.1	78.2	75.3	71.8	78.7	69.3	65.0	73.4	---	---	---	---	---	---	---	---	---
1984	74.7	71.1	78.2	75.3	71.8	78.7	69.5	65.3	73.6	---	---	---	---	---	---	---	---	---
1983	74.6	71.0	78.1	75.2	71.6	78.7	69.4	65.2	73.5	---	---	---	---	---	---	---	---	---
1982	74.5	70.8	78.1	75.1	71.5	78.7	69.4	65.1	73.6	---	---	---	---	---	---	---	---	---
1981	74.1	70.4	77.8	74.8	71.1	78.4	68.9	64.5	73.2	---	---	---	---	---	---	---	---	---
1980	73.7	70.0	77.4	74.4	70.7	78.1	68.1	63.8	72.5	---	---	---	---	---	---	---	---	---
1979	73.9	70.0	77.8	74.6	70.8	78.4	68.5	64.0	72.9	---	---	---	---	---	---	---	---	---
1978	73.5	69.6	77.3	74.1	70.4	78.0	68.1	63.7	72.4	---	---	---	---	---	---	---	---	---
1977	73.3	69.5	77.2	74.0	70.2	77.9	67.7	63.4	72.0	---	---	---	---	---	---	---	---	---
1976	72.9	69.1	76.8	73.6	69.9	77.5	67.2	62.9	71.6	---	---	---	---	---	---	---	---	---
1975	72.6	68.8	76.6	73.4	69.5	77.3	66.8	62.4	71.3	---	---	---	---	---	---	---	---	---
1974	72.0	68.2	75.9	72.8	69.0	76.7	66.0	61.7	70.3	---	---	---	---	---	---	---	---	---
1973	71.4	67.6	75.3	72.2	68.5	76.1	65.0	60.9	69.3	---	---	---	---	---	---	---	---	---
1972 ⁶	71.2	67.4	75.1	72.0	68.3	75.9	64.7	60.4	69.1	---	---	---	---	---	---	---	---	---
1971	71.1	67.4	75.0	72.0	68.3	75.8	64.6	60.5	68.9	---	---	---	---	---	---	---	---	---
1970	70.8	67.1	74.7	71.7	68.0	75.6	64.1	60.0	68.3	---	---	---	---	---	---	---	---	---
1969	70.5	66.8	74.4	71.4	67.7	75.3	64.5	60.6	68.6	---	---	---	---	---	---	---	---	---
1968	70.2	66.6	74.1	71.1	67.5	75.0	64.1	60.4	67.9	---	---	---	---	---	---	---	---	---
1967	70.5	67.0	74.3	71.4	67.8	75.2	64.9	61.4	68.5	---	---	---	---	---	---	---	---	---
1966	70.2	66.7	73.9	71.1	67.5	74.8	64.2	60.9	67.6	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

Table 19. Estimated life expectancy at birth, in years, by race, Hispanic origin, and sex: Death-registration states, 1900–1928, and United States, 1929–2016—Con.

[For selected years, life table values shown are estimates; see Technical Notes. Beginning in 1970, excludes death of nonresidents of the United States; see Technical Notes]

Area and year	All races and origins			White			Black ¹			Hispanic ²			Non-Hispanic white ²			Non-Hispanic black ²		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
United States ³ —Con.																		
1965.....	70.2	66.8	73.8	71.1	67.6	74.8	64.3	61.2	67.6	---	---	---	---	---	---	---	---	---
1964.....	70.2	66.8	73.7	71.0	67.7	74.7	64.2	61.3	67.3	---	---	---	---	---	---	---	---	---
1963 ⁷	69.9	66.6	73.4	70.8	67.4	74.4	63.7	61.0	66.6	---	---	---	---	---	---	---	---	---
1962 ⁷	70.1	66.9	73.5	70.9	67.7	74.5	64.2	61.6	66.9	---	---	---	---	---	---	---	---	---
1961.....	70.2	67.1	73.6	71.0	67.8	74.6	64.5	62.0	67.1	---	---	---	---	---	---	---	---	---
1960.....	69.7	66.6	73.1	70.6	67.4	74.1	63.6	61.1	66.3	---	---	---	---	---	---	---	---	---
1959.....	69.9	66.8	73.2	70.7	67.5	74.2	63.9	61.3	66.5	---	---	---	---	---	---	---	---	---
1958.....	69.6	66.6	72.9	70.5	67.4	73.9	63.4	61.0	65.8	---	---	---	---	---	---	---	---	---
1957.....	69.5	66.4	72.7	70.3	67.2	73.7	63.0	60.7	65.5	---	---	---	---	---	---	---	---	---
1956.....	69.7	66.7	72.9	70.5	67.5	73.9	63.6	61.3	66.1	---	---	---	---	---	---	---	---	---
1955.....	69.6	66.7	72.8	70.5	67.4	73.7	63.7	61.4	66.1	---	---	---	---	---	---	---	---	---
1954.....	69.6	66.7	72.8	70.5	67.5	73.7	63.4	61.1	65.9	---	---	---	---	---	---	---	---	---
1953.....	68.8	66.0	72.0	69.7	66.8	73.0	62.0	59.7	64.5	---	---	---	---	---	---	---	---	---
1952.....	68.6	65.8	71.6	69.5	66.6	72.6	61.4	59.1	63.8	---	---	---	---	---	---	---	---	---
1951.....	68.4	65.6	71.4	69.3	66.5	72.4	61.2	59.2	63.4	---	---	---	---	---	---	---	---	---
1950.....	68.2	65.6	71.1	69.1	66.5	72.2	60.8	59.1	62.9	---	---	---	---	---	---	---	---	---
1949.....	68.0	65.2	70.7	68.8	66.2	71.9	60.6	58.9	62.7	---	---	---	---	---	---	---	---	---
1948.....	67.2	64.6	69.9	68.0	65.5	71.0	60.0	58.1	62.5	---	---	---	---	---	---	---	---	---
1947.....	66.8	64.4	69.7	67.6	65.2	70.5	59.7	57.9	61.9	---	---	---	---	---	---	---	---	---
1946.....	66.7	64.4	69.4	67.5	65.1	70.3	59.1	57.5	61.0	---	---	---	---	---	---	---	---	---
1945.....	65.9	63.6	67.9	66.8	64.4	69.5	57.7	56.1	59.6	---	---	---	---	---	---	---	---	---
1944.....	65.2	63.6	66.8	66.2	64.5	68.4	56.6	55.8	57.7	---	---	---	---	---	---	---	---	---
1943.....	63.3	62.4	64.4	64.2	63.2	65.7	55.6	55.4	56.1	---	---	---	---	---	---	---	---	---
1942.....	66.2	64.7	67.9	67.3	65.9	69.4	56.6	55.4	58.2	---	---	---	---	---	---	---	---	---
1941.....	64.8	63.1	66.8	66.2	64.4	68.5	53.8	52.5	55.3	---	---	---	---	---	---	---	---	---
1940.....	62.9	60.8	65.2	64.2	62.1	66.6	53.1	51.5	54.9	---	---	---	---	---	---	---	---	---
1939.....	63.7	62.1	65.4	64.9	63.3	66.6	54.5	53.2	56.0	---	---	---	---	---	---	---	---	---
1938.....	63.5	61.9	65.3	65.0	63.2	66.8	52.9	51.7	54.3	---	---	---	---	---	---	---	---	---
1937.....	60.0	58.0	62.4	61.4	59.3	63.8	50.3	48.3	52.5	---	---	---	---	---	---	---	---	---
1936.....	58.5	56.6	60.6	59.8	58.0	61.9	49.0	47.0	51.4	---	---	---	---	---	---	---	---	---
1935.....	61.7	59.9	63.9	62.9	61.0	65.0	53.1	51.3	55.2	---	---	---	---	---	---	---	---	---
1934.....	61.1	59.3	63.3	62.4	60.5	64.6	51.8	50.2	53.7	---	---	---	---	---	---	---	---	---
1933.....	63.3	61.7	65.1	64.3	62.7	66.3	54.7	53.5	56.0	---	---	---	---	---	---	---	---	---
1932.....	62.1	61.0	63.5	63.2	62.0	64.5	53.7	52.8	54.6	---	---	---	---	---	---	---	---	---
1931.....	61.1	59.4	63.1	62.6	60.8	64.7	50.4	49.5	51.5	---	---	---	---	---	---	---	---	---
1930.....	59.7	58.1	61.6	61.4	59.7	63.5	48.1	47.3	49.2	---	---	---	---	---	---	---	---	---
1929.....	57.1	55.8	58.7	58.6	57.2	60.3	46.7	45.7	47.8	---	---	---	---	---	---	---	---	---
Death-registration states																		
1928.....	56.8	55.6	58.3	58.4	57.0	60.3	46.3	45.6	47.0	---	---	---	---	---	---	---	---	---
1927.....	60.4	59.0	62.1	62.0	60.5	63.9	48.2	47.6	48.9	---	---	---	---	---	---	---	---	---
1926.....	56.7	55.5	58.0	58.2	57.0	59.6	44.6	43.7	45.6	---	---	---	---	---	---	---	---	---
1925.....	59.0	57.6	60.6	60.7	59.3	62.4	45.7	44.9	46.7	---	---	---	---	---	---	---	---	---
1924.....	59.7	58.1	61.5	61.4	59.8	63.4	46.6	45.5	47.8	---	---	---	---	---	---	---	---	---
1923.....	57.2	56.1	58.5	58.3	57.1	59.6	48.3	47.7	48.9	---	---	---	---	---	---	---	---	---

Table 19. Estimated life expectancy at birth, in years, by race, Hispanic origin, and sex: Death-registration states, 1900–1928, and United States, 1929–2016—Con.

[For selected years, life table values shown are estimates; see Technical Notes. Beginning in 1970, excludes death of nonresidents of the United States; see Technical Notes]

Area and year	All races and origins			White			Black ¹			Hispanic ²			Non-Hispanic white ²			Non-Hispanic black ²		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Death-registration states—Con.																		
1922.....	59.6	58.4	61.0	60.4	59.1	61.9	52.4	51.8	53.0	---	---	---	---	---	---	---	---	---
1921.....	60.8	60.0	61.8	61.8	60.8	62.9	51.5	51.6	51.3	---	---	---	---	---	---	---	---	---
1920.....	54.1	53.6	54.6	54.9	54.4	55.6	45.3	45.5	45.2	---	---	---	---	---	---	---	---	---
1919.....	54.7	53.5	56.0	55.8	54.5	57.4	44.5	44.5	44.4	---	---	---	---	---	---	---	---	---
1918.....	39.1	36.6	42.2	39.8	37.1	43.2	31.1	29.9	32.5	---	---	---	---	---	---	---	---	---
1917.....	50.9	48.4	54.0	52.0	49.3	55.3	38.8	37.0	40.8	---	---	---	---	---	---	---	---	---
1916.....	51.7	49.6	54.3	52.5	50.2	55.2	41.3	39.6	43.1	---	---	---	---	---	---	---	---	---
1915.....	54.5	52.5	56.8	55.1	53.1	57.5	38.9	37.5	40.5	---	---	---	---	---	---	---	---	---
1914.....	54.2	52.0	56.8	54.9	52.7	57.5	38.9	37.1	40.8	---	---	---	---	---	---	---	---	---
1913.....	52.5	50.3	55.0	53.0	50.8	55.7	38.4	36.7	40.3	---	---	---	---	---	---	---	---	---
1912.....	53.5	51.5	55.9	53.9	51.9	56.2	37.9	35.9	40.0	---	---	---	---	---	---	---	---	---
1911.....	52.6	50.9	54.4	53.0	51.3	54.9	36.4	34.6	38.2	---	---	---	---	---	---	---	---	---
1910.....	50.0	48.4	51.8	50.3	48.6	52.0	35.6	33.8	37.5	---	---	---	---	---	---	---	---	---
1909.....	52.1	50.5	53.8	52.5	50.9	54.2	35.7	34.2	37.3	---	---	---	---	---	---	---	---	---
1908.....	51.1	49.5	52.8	51.5	49.9	53.3	34.9	33.8	36.0	---	---	---	---	---	---	---	---	---
1907.....	47.6	45.6	49.9	48.1	46.0	50.4	32.5	31.1	34.0	---	---	---	---	---	---	---	---	---
1906.....	48.7	46.9	50.8	49.3	47.3	51.4	32.9	31.8	33.9	---	---	---	---	---	---	---	---	---
1905.....	48.7	47.3	50.2	49.1	47.6	50.6	31.3	29.6	33.1	---	---	---	---	---	---	---	---	---
1904.....	47.6	46.2	49.1	48.0	46.6	49.5	30.8	29.1	32.7	---	---	---	---	---	---	---	---	---
1903.....	50.5	49.1	52.0	50.9	49.5	52.5	33.1	31.7	34.6	---	---	---	---	---	---	---	---	---
1902.....	51.5	49.8	53.4	51.9	50.2	53.8	34.6	32.9	36.4	---	---	---	---	---	---	---	---	---
1901.....	49.1	47.6	50.6	49.4	48.0	51.0	33.7	32.2	35.3	---	---	---	---	---	---	---	---	---
1900.....	47.3	46.3	48.3	47.6	46.6	48.7	33.0	32.5	33.5	---	---	---	---	---	---	---	---	---

--- Data not available.

¹Before 1970, data for the black population are not available. Data shown for 1900–1969 are for the nonwhite population. See Technical Notes.

²Life tables by Hispanic origin are based on death rates that have been adjusted for race and ethnicity misclassification on death certificates. Updated classification ratios were applied to data years 2010–2016; see Technical Notes.

³Includes Alaska in 1959 and Hawaii in 1960.

⁴Life expectancies for 2001–2016 were calculated using a revised methodology described in the Technical Notes.

⁵Life expectancies for 2001–2009 have been re-estimated using new intercensal population estimates and may differ from data previously published; see Technical Notes.

⁶Deaths based on a 50% sample.

⁷Figures by race exclude data for residents of New Jersey; see Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 20. Survivorship, by age, race, and sex: Death-registration states, 1900–1902 to 1919–1921, and United States, 1929–1931 to 2016

[Includes Alaska and Hawaii beginning in 1959. For decennial periods before 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; and 1919–1921, 34 states and the District of Columbia. Beginning in 1970, excludes deaths of nonresidents of the United States; see Technical Notes]

Age (years), race, and sex	Number of survivors out of 100,000 born alive, l_x											
	2016	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
All races												
0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
1	99,414	99,305	99,064	98,740	97,998	97,407	97,024	95,290	94,028	92,515	88,538	87,552
5	99,313	99,176	98,877	98,495	97,668	96,998	96,482	94,220	91,978	83,389	83,887	81,804
10	99,252	99,097	98,766	98,347	97,460	96,765	96,177	93,710	91,106	88,129	82,458	80,052
15	99,180	98,998	98,635	98,196	97,261	96,551	95,885	93,235	90,385	87,144	81,506	78,963
20	98,927	98,664	98,215	97,741	96,716	96,111	95,366	92,435	89,089	85,441	80,074	77,239
25	98,448	98,203	97,671	97,110	96,000	95,517	94,676	91,335	87,269	83,146	78,046	74,768
30	97,868	97,751	97,070	96,477	95,307	94,905	93,919	90,078	85,302	80,642	75,779	72,043
35	97,183	97,201	96,322	95,808	94,482	94,144	92,976	88,573	83,118	77,961	73,127	69,078
40	96,361	96,422	95,373	94,926	93,322	93,064	91,648	86,650	80,557	75,114	70,042	65,890
45	95,327	95,274	94,154	93,599	91,587	91,378	89,634	84,069	77,343	72,036	66,561	62,436
50	93,849	93,601	92,370	91,526	88,972	88,756	86,591	80,487	73,321	68,429	62,460	58,514
55	91,561	91,232	89,658	88,348	85,110	84,711	82,176	75,557	68,182	63,947	57,555	53,852
60	88,240	87,642	85,537	83,726	79,529	79,067	75,921	68,924	61,563	58,079	51,138	47,946
65	83,716	82,330	79,519	77,107	71,933	71,147	67,555	60,366	53,195	50,560	43,194	40,911
70	77,751	74,891	71,357	68,248	61,984	60,857	56,987	49,655	42,768	41,090	33,816	32,390
75	69,338	64,644	60,449	56,799	49,705	48,170	43,903	36,735	30,789	29,729	23,552	22,960
80	57,781	50,885	47,084	43,180	35,285	33,576	29,313	22,883	18,580	18,298	13,712	13,529
85	42,475	34,515	31,770	27,960	20,908	18,542	15,785	11,073	8,542	8,683	6,001	6,053
90	24,735	18,496	17,046	14,154	9,297	7,080	6,144	3,796	2,998	2,941	1,868	1,867
95	9,692	6,879	6,282	5,043	2,786	1,524	1,511	857	636	646	361	344
100	2,102	1,479	1,424	1,150	542	183	199	123	62	67	40	31
Male												
0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
1	99,363	99,239	98,961	98,607	97,755	97,087	96,661	94,762	93,440	91,745	87,505	86,426
5	99,253	99,095	98,754	98,333	97,395	96,643	96,077	93,624	91,294	88,505	82,718	80,548
10	99,188	99,008	98,627	98,160	97,151	96,375	95,726	93,054	90,346	87,184	81,249	78,775
15	99,105	98,890	98,464	97,972	96,904	96,107	95,366	92,508	89,561	86,156	80,261	77,681
20	98,753	98,426	97,854	97,316	96,126	95,491	94,695	91,617	88,220	84,440	78,792	75,984
25	98,056	97,747	97,049	96,361	95,040	94,631	93,791	90,385	86,359	82,252	76,675	73,472
30	97,237	97,114	96,166	95,430	94,072	93,826	92,861	89,009	84,346	79,890	74,378	70,747
35	96,321	96,385	95,091	94,501	92,997	92,889	91,760	87,371	82,075	77,514	71,614	67,752
40	95,267	95,389	93,761	93,345	91,541	91,572	90,207	85,246	79,357	74,432	68,297	64,447
45	93,989	93,940	92,139	91,649	89,369	89,492	87,819	82,336	75,882	71,244	64,518	60,849
50	92,209	91,818	89,865	89,007	86,070	86,199	84,158	78,254	71,518	67,553	60,118	56,736
55	89,447	88,897	86,492	84,936	81,139	81,039	78,781	72,627	65,981	62,965	54,970	51,939
60	85,402	84,551	81,378	79,012	73,958	73,887	71,246	65,142	58,909	56,917	48,343	45,895
65	79,892	78,241	73,971	70,646	64,318	64,177	61,566	55,776	50,154	49,218	40,264	38,736
70	72,893	69,491	64,107	59,681	52,296	52,244	49,950	44,588	39,516	39,668	31,023	30,217
75	63,466	57,688	51,385	46,272	38,797	38,950	36,756	31,864	27,718	28,316	21,213	21,076
80	51,046	42,769	36,749	31,810	24,921	25,300	25,237	18,995	16,172	17,128	11,942	12,084
85	35,558	26,527	21,815	18,020	13,168	12,845	11,750	8,693	7,107	7,920	5,059	5,179
90	18,836	12,473	9,878	7,732	5,107	4,609	4,197	2,787	2,283	2,527	1,502	1,508
95	6,324	3,855	2,927	2,279	1,326	970	955	586	451	556	289	262
100	1,099	645	529	423	222	117	121	78	40	62	33	22
Female												
0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
1	99,466	99,375	99,172	98,880	98,254	97,744	97,406	95,848	94,728	93,383	89,623	88,733
5	99,375	99,261	99,006	98,666	97,955	97,371	96,908	94,848	92,789	90,380	85,117	83,119
10	99,320	99,190	98,911	98,544	97,784	97,173	96,652	94,402	92,008	89,186	83,728	81,390
15	99,259	99,111	98,814	98,432	97,636	97,016	96,431	94,000	91,364	88,247	82,813	80,307
20	99,110	98,915	98,597	98,184	97,331	96,756	96,066	93,293	90,116	86,556	81,418	78,555
25	98,862	98,682	98,325	97,883	96,966	96,418	95,583	92,322	88,328	84,135	79,481	76,119
30	98,532	98,418	98,013	97,551	96,544	95,996	94,933	91,182	86,398	81,463	77,247	73,394
35	98,085	98,052	97,596	97,140	95,966	95,409	94,206	89,810	84,304	78,713	74,719	70,463
40	97,498	97,493	97,033	96,531	95,097	94,560	93,101	88,092	81,927	75,907	71,894	67,407
45	96,710	96,648	96,222	95,570	93,793	93,265	91,469	85,856	79,041	72,954	68,755	64,121

See footnote at end of table.

Table 20. Survivorship, by age, race, and sex: Death-registration states, 1900–1902 to 1919–1921, and United States, 1929–1931 to 2016—Con.

[Includes Alaska and Hawaii beginning in 1959. For decennial periods before 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; and 1919–1921, 34 states and the District of Columbia. Beginning in 1970, excludes deaths of nonresidents of the United States; see Technical Notes]

Age (years), race, and sex	Number of survivors out of 100,000 born alive, <i>lx</i>											
	2016	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
Female—Con.												
50	95,539	95,425	94,932	94,060	91,852	91,327	89,075	82,828	75,456	69,452	65,001	60,415
55	93,727	93,609	92,881	91,760	89,066	88,451	85,694	78,708	70,832	65,099	60,392	55,908
60	91,126	90,767	89,742	88,414	85,139	84,430	80,890	73,093	64,795	59,438	54,226	50,155
65	87,574	86,433	85,075	83,520	79,698	78,462	74,119	65,523	56,924	52,126	46,438	43,246
70	82,635	80,219	78,522	76,720	71,955	70,100	64,873	55,449	46,774	42,741	36,916	34,721
75	75,231	71,311	69,287	67,186	61,107	58,394	52,111	42,425	34,600	31,344	26,155	24,994
80	64,510	58,455	56,986	54,372	46,445	43,063	36,486	27,524	21,578	19,613	15,682	15,129
85	49,298	41,830	41,115	37,772	29,538	25,269	20,668	13,972	10,322	9,515	7,051	7,063
90	30,351	23,936	23,666	20,578	14,160	10,056	8,548	5,044	3,656	3,314	2,269	2,306
95	12,741	9,560	9,346	7,862	4,565	2,193	2,207	1,195	807	728	441	452
100	2,961	2,183	2,251	1,927	954	264	298	179	82	72	49	43
White												
0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
1	99,507	99,429	99,233	98,898	98,224	97,714	97,278	95,685	94,392	92,780	88,709	87,762
5	99,416	99,313	99,068	98,675	97,930	97,353	96,790	94,713	92,466	89,771	84,147	82,071
10	99,360	99,239	98,966	98,536	97,733	97,131	96,502	94,228	91,627	88,536	82,734	80,371
15	99,291	99,146	98,843	98,391	97,546	96,928	96,228	93,792	90,982	87,633	81,816	79,344
20	99,056	98,826	98,455	97,939	97,036	96,508	95,763	93,117	89,933	86,159	80,407	77,998
25	98,602	98,406	97,972	97,340	96,406	95,965	95,169	92,213	88,454	84,106	78,392	75,202
30	98,028	98,000	97,451	96,774	95,824	95,440	94,536	91,185	86,836	81,787	76,167	72,317
35	97,343	97,506	96,810	96,192	95,152	94,798	93,750	89,941	85,004	79,277	73,568	69,522
40	96,530	96,799	96,000	95,427	94,190	93,870	92,616	88,318	82,803	76,642	70,525	66,082
45	95,513	95,759	94,932	94,257	92,681	92,374	90,847	86,069	79,989	73,705	67,090	62,920
50	94,065	94,242	93,326	92,384	90,306	89,958	88,110	82,833	76,340	70,250	62,994	58,647
55	91,822	92,050	90,833	89,427	86,688	86,173	84,027	78,218	71,551	65,875	58,163	54,450
60	88,583	88,655	86,943	85,031	81,323	80,811	78,066	71,785	65,100	60,013	51,822	48,288
65	84,190	83,518	81,123	78,585	73,889	73,102	69,850	63,201	56,655	52,411	43,904	41,505
70	78,311	76,219	73,106	69,801	63,991	62,834	59,189	52,165	45,841	42,736	34,484	32,902
75	69,877	66,022	62,175	58,299	51,586	49,895	45,688	38,610	33,406	31,086	24,151	23,356
80	58,204	52,160	48,583	44,409	36,659	34,697	30,438	23,976	20,260	19,149	14,100	13,794
85	42,703	35,461	32,850	28,768	21,578	19,017	16,239	11,483	9,325	9,078	6,178	6,192
90	24,709	18,964	17,571	14,471	9,433	7,149	6,201	3,819	3,066	2,991	1,918	1,919
95	9,500	6,971	6,416	5,067	2,743	1,521	1,500	801	636	643	364	355
100	1,981	1,454	1,423	1,105	487	183	196	98	58	62	38	31
White male												
0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
1	99,462	99,373	99,138	98,769	97,994	97,408	96,931	95,188	93,768	91,975	87,674	86,655
5	99,362	99,243	98,956	98,519	97,671	97,015	96,403	94,150	91,738	88,842	82,972	80,864
10	99,302	99,163	98,839	98,357	97,441	96,758	96,069	93,601	90,810	87,530	81,519	79,109
15	99,223	99,052	98,686	98,176	97,208	96,503	95,728	93,089	90,074	86,546	80,549	78,037
20	98,903	98,616	98,134	97,525	96,480	95,908	95,104	92,293	88,904	84,997	79,116	76,376
25	98,248	98,003	97,430	96,616	95,524	95,106	94,294	91,241	87,371	83,061	77,047	73,907
30	97,444	97,436	96,662	95,783	94,716	94,401	93,489	90,092	85,707	80,888	74,810	71,219
35	96,536	96,774	95,731	94,980	93,843	93,589	92,543	88,713	83,812	78,441	72,108	68,245
40	95,498	95,859	94,588	93,984	92,631	92,427	91,173	86,880	81,457	75,733	68,848	64,954
45	94,249	94,530	93,167	92,494	90,725	90,533	89,002	84,285	78,345	72,696	65,115	61,369
50	92,502	92,588	91,124	90,105	87,690	87,424	85,601	80,521	74,288	69,107	60,741	57,274
55	89,782	89,883	88,022	86,303	83,001	82,463	80,496	75,156	68,981	64,574	55,622	52,491
60	85,834	85,773	83,182	80,625	75,969	75,485	73,172	67,787	61,933	58,498	48,987	46,452
65	80,490	79,657	75,962	72,393	66,343	65,834	63,541	58,305	52,964	50,663	40,862	39,245
70	73,610	71,039	66,181	61,384	54,138	53,825	51,735	46,739	41,880	40,873	31,527	30,640
75	64,183	59,245	53,308	47,712	40,324	40,207	38,104	33,404	29,471	29,205	21,585	21,387
80	51,628	44,121	38,245	32,788	25,885	25,993	24,005	19,860	17,221	17,655	12,160	12,266
85	35,898	27,425	22,720	18,538	13,527	13,065	12,015	9,013	7,572	8,154	5,145	5,252
90	18,910	12,840	10,214	7,891	5,125	4,600	4,209	2,812	2,356	2,568	1,523	1,523
95	6,197	3,899	2,988	2,279	1,274	956	942	552	461	556	289	263
100	1,019	625	523	404	189	115	118	65	40	61	31	22

See footnote at end of table.

Table 20. Survivorship, by age, race, and sex: Death-registration states, 1900–1902 to 1919–1921, and United States, 1929–1931 to 2016—Con.

[Includes Alaska and Hawaii beginning in 1959. For decennial periods before 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; and 1919–1921, 34 states and the District of Columbia. Beginning in 1970, excludes deaths of nonresidents of the United States; see Technical Notes]

Age (years), race, and sex	Number of survivors out of 100,000 born alive, l_x											
	2016	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
White female												
0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
1	99,554	99,488	99,333	99,035	98,468	98,036	97,645	96,211	95,037	93,608	89,774	88,939
5	99,472	99,385	99,187	98,841	98,203	97,709	97,199	95,309	93,216	90,721	85,349	83,426
10	99,421	99,319	99,099	98,725	98,042	97,525	96,960	94,890	92,466	89,564	83,979	81,723
15	99,363	99,245	99,007	98,618	97,902	97,375	96,756	94,534	91,894	88,712	83,093	80,680
20	99,217	99,049	98,795	98,374	97,618	97,135	96,454	93,984	90,939	87,281	81,750	78,978
25	98,977	98,835	98,547	98,093	97,299	96,844	96,072	93,228	89,524	85,163	79,865	76,588
30	98,646	98,602	98,283	97,802	96,945	96,499	95,605	92,320	87,972	82,740	77,676	73,887
35	98,198	98,282	97,939	97,445	96,474	96,026	94,977	91,211	86,248	80,206	75,200	70,971
40	97,619	97,790	97,472	96,913	95,762	95,326	94,080	89,805	84,256	77,624	72,425	67,935
45	96,845	97,049	96,768	96,065	94,649	94,228	92,725	87,920	81,780	74,871	69,341	64,677
50	95,706	95,962	95,608	94,710	92,924	92,522	90,685	85,267	78,572	71,547	65,629	61,005
55	93,953	94,293	93,730	92,594	90,383	89,967	87,699	81,520	74,321	67,323	61,053	56,509
60	91,433	91,615	90,789	89,451	86,726	86,339	83,279	76,200	68,462	61,704	54,900	50,752
65	87,997	87,449	86,339	84,764	81,579	80,739	76,773	68,701	60,499	54,299	47,086	43,806
70	83,126	81,400	79,984	78,139	74,101	72,507	67,545	58,363	49,932	44,638	37,482	35,206
75	75,725	72,595	70,834	68,712	63,290	60,461	54,397	44,685	37,024	32,777	26,569	25,362
80	64,979	59,721	58,454	55,770	48,182	44,676	38,026	28,882	23,053	20,492	15,929	15,349
85	49,601	42,848	42,274	38,774	30,490	26,046	21,348	14,487	10,937	9,909	7,152	7,149
90	30,252	24,491	24,270	20,996	14,406	10,219	8,662	5,061	3,719	3,372	2,291	2,322
95	12,585	9,680	9,495	7,900	4,526	2,203	2,200	1,109	797	721	434	448
100	2,912	2,147	2,239	1,858	872	265	294	139	74	63	44	41
Black ¹												
0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
1	98,892	98,578	98,187	97,885	96,731	95,732	95,407	92,584	92,035	90,379	79,784	76,609
5	98,738	98,382	97,884	97,522	96,207	95,051	94,482	90,983	89,303	86,174	70,691	66,222
10	98,648	98,271	97,720	97,322	95,928	94,745	94,060	90,339	88,258	84,690	68,437	63,410
15	98,553	98,139	97,539	97,134	95,661	94,460	93,646	89,591	87,156	83,180	66,410	61,060
20	98,184	97,701	96,925	96,652	94,887	93,880	92,738	87,839	84,386	79,641	63,165	57,931
25	97,500	96,946	95,972	95,804	93,513	92,925	91,321	85,210	80,320	74,973	59,608	54,512
30	96,727	96,143	94,809	94,680	91,934	91,699	89,584	82,194	75,962	70,492	56,112	51,287
35	95,814	95,164	93,260	93,288	89,977	90,046	87,402	78,683	71,141	65,865	52,125	48,007
40	94,694	93,809	91,239	91,439	87,304	87,766	84,478	74,466	65,974	61,244	47,866	44,518
45	93,246	91,770	88,689	88,834	83,700	84,501	80,507	69,284	59,827	56,442	43,054	40,628
50	91,213	88,761	85,285	85,044	78,938	80,172	74,976	62,702	53,141	51,422	37,800	36,103
55	88,140	84,657	80,635	79,816	72,826	73,893	67,660	54,846	45,558	45,803	32,233	31,404
60	83,622	79,007	74,335	72,913	65,250	65,795	58,593	46,318	37,654	39,418	26,046	25,698
65	77,343	71,704	66,154	64,391	56,102	56,038	48,649	37,838	30,015	32,738	19,806	20,474
70	69,621	62,349	56,192	54,617	45,785	45,434	38,616	29,654	22,505	25,585	14,021	14,960
75	60,001	50,987	44,872	43,274	34,262	34,531	28,968	21,798	15,546	18,011	9,139	9,956
80	48,242	37,964	33,149	31,711	23,710	24,815	20,003	14,408	9,589	11,376	5,158	5,750
85	34,328	24,677	21,352	19,939	15,044	15,337	12,433	8,326	4,900	5,794	2,414	2,782
90	20,052	13,204	11,646	10,713	8,087	7,195	6,394	4,077	2,044	2,317	913	1,054
95	8,655	5,368	4,729	4,463	3,252	1,777	2,010	1,557	638	689	324	296
100	2,438	1,491	1,376	1,360	1,036	214	301	399	120	129	77	57
Black male ¹												
0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
1	98,808	98,437	98,023	97,703	96,394	95,301	94,911	91,772	91,268	89,499	78,065	74,674
5	98,637	98,219	97,688	97,300	95,826	94,570	93,921	90,082	88,412	85,195	68,589	64,385
10	98,539	98,093	97,501	97,061	95,497	94,234	93,453	89,393	87,311	83,768	66,377	61,730
15	98,428	97,930	97,268	96,826	95,161	93,874	92,965	88,610	86,152	82,332	64,478	59,667
20	97,878	97,275	96,301	96,132	94,053	93,108	91,941	86,968	83,621	79,057	61,426	56,733
25	96,848	96,103	94,809	94,827	91,904	91,825	90,285	84,227	79,516	74,540	57,736	53,285
30	95,723	94,940	93,070	93,125	89,584	90,270	88,327	80,979	75,083	70,344	54,073	49,867
35	94,452	93,641	90,827	91,080	86,885	88,331	85,940	77,221	70,049	65,873	49,865	46,541
40	93,001	91,945	87,948	88,490	83,441	85,744	82,832	72,780	64,710	61,353	45,414	42,989

See footnote at end of table.

Table 20. Survivorship, by age, race, and sex: Death-registration states, 1900–1902 to 1919–1921, and United States, 1929–1931 to 2016—Con.

[Includes Alaska and Hawaii beginning in 1959. For decennial periods before 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; and 1919–1921, 34 states and the District of Columbia. Beginning in 1970, excludes deaths of nonresidents of the United States; see Technical Notes]

Age (years), race, and sex	Number of survivors out of 100,000 born alive, l_x											
	2016	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
Black male¹—Con.												
45	91,180	89,439	84,467	84,997	78,976	82,075	78,686	67,346	58,432	56,589	40,563	39,230
50	88,749	85,653	79,984	80,065	73,282	77,239	72,891	60,495	51,748	51,880	35,427	34,766
55	85,132	80,529	74,095	73,413	66,101	70,351	65,122	52,426	44,436	46,581	29,754	29,987
60	79,696	73,588	66,334	64,980	57,457	61,669	55,535	43,833	36,790	40,506	23,750	24,194
65	72,008	64,980	56,795	55,061	47,485	51,392	45,198	35,371	29,314	34,042	17,806	19,015
70	62,835	54,253	45,690	44,213	36,925	39,914	35,018	27,236	21,741	26,923	12,295	13,829
75	51,968	41,693	33,755	32,717	25,921	29,064	25,472	19,456	14,419	18,854	7,494	8,892
80	39,521	28,497	22,549	22,017	16,560	19,994	16,904	12,186	8,239	11,615	3,894	4,831
85	26,071	16,532	12,709	12,383	9,648	11,620	9,898	6,444	3,660	5,605	1,747	2,030
90	13,605	7,625	5,972	5,708	4,696	5,174	4,642	2,836	1,246	2,040	595	634
95	4,974	2,565	1,971	2,009	1,721	1,240	1,342	961	307	552	189	137
100	1,117	563	466	513	489	149	192	209	41	77	40	18
Black female¹												
0	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
1	98,978	98,723	98,356	98,073	97,076	96,172	95,913	93,416	92,796	91,251	81,493	78,525
5	98,843	98,550	98,087	97,751	96,598	95,543	95,055	91,906	90,185	87,149	72,768	68,056
10	98,761	98,456	97,946	97,590	96,369	95,265	94,679	91,308	89,201	85,607	70,508	65,111
15	98,682	98,354	97,818	97,450	96,172	95,057	94,343	90,594	88,088	83,954	68,218	62,384
20	98,500	98,141	97,566	97,180	95,729	94,660	93,544	88,736	85,078	80,154	64,764	59,053
25	98,181	97,785	97,140	96,754	95,035	94,005	92,336	86,198	81,067	75,359	61,430	55,795
30	97,760	97,314	96,514	96,150	94,114	93,070	90,799	83,384	76,816	70,633	58,281	52,773
35	97,188	96,632	95,599	95,338	92,807	91,670	88,805	80,092	72,192	65,857	54,595	49,567
40	96,377	95,588	94,364	94,137	90,817	89,676	86,052	76,084	67,271	61,130	50,568	46,146
45	95,271	93,979	92,676	92,322	88,001	86,793	82,257	71,157	61,365	56,230	45,947	42,279
50	93,607	91,680	90,277	89,563	84,168	82,979	77,007	64,885	54,920	50,780	40,886	37,681
55	91,039	88,517	86,793	85,653	79,177	77,362	70,196	57,314	47,074	44,742	35,415	33,124
60	87,369	84,044	81,886	80,293	72,820	69,941	61,758	48,928	38,761	37,954	28,908	27,524
65	82,368	77,941	75,031	73,266	64,716	60,825	52,358	40,504	30,852	31,044	22,302	21,995
70	75,952	69,778	66,278	64,729	54,873	51,274	42,612	32,354	23,341	24,107	15,871	16,140
75	67,451	59,361	55,684	53,831	43,193	40,540	32,981	24,502	16,576	17,216	10,657	11,066
80	56,286	46,453	43,622	41,686	31,756	30,315	23,712	17,039	10,822	11,151	6,324	6,708
85	41,863	32,053	30,089	28,004	21,358	19,744	15,550	10,622	6,033	5,972	3,029	3,567
90	25,796	18,347	17,536	16,260	12,210	9,675	8,590	5,652	2,774	2,579	1,206	1,492
95	11,765	7,989	7,687	7,312	5,217	2,438	2,875	2,345	941	818	448	462
100	3,458	2,351	2,364	2,398	1,803	293	445	659	193	179	112	97

¹For 1939–1941 and 1949–1951, data shown are for the entire nonwhite population. During these periods, life tables were not constructed for the black population. See Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table 21. Life expectancy, by age, race, and sex: Death-registration states, 1900–1902 to 1919–1921, and United States, 1929–1931 to 2016

[Includes Alaska and Hawaii beginning in 1959. For decennial periods before 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; and 1919–1921, 34 states and the District of Columbia. Beginning in 1970, excludes deaths of nonresidents of the United States; see Technical Notes]

Age (years), race, and sex	Average number of years of life remaining, e_x											
	2016	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
All races												
0	78.65	76.86	75.37	73.88	70.75	69.89	68.07	63.62	59.20	56.40	51.49	49.24
1	78.12	76.40	75.08	73.82	71.19	70.75	69.16	65.76	61.94	59.94	57.11	55.20
5	74.19	72.49	71.22	70.00	67.43	67.04	65.54	62.49	59.29	57.99	56.21	54.98
10	69.24	67.55	66.29	65.10	62.57	62.19	60.74	57.82	54.84	53.79	52.15	51.14
15	64.28	62.61	61.38	60.19	57.69	57.33	55.91	53.10	50.25	49.37	47.73	46.81
20	59.44	57.82	56.63	55.46	53.00	52.58	51.20	48.54	45.94	45.30	43.53	42.79
25	54.72	53.08	51.93	50.81	48.37	47.89	46.56	44.09	41.85	41.47	39.60	39.12
30	50.03	48.31	47.23	46.12	43.71	43.18	41.91	39.67	37.75	37.68	35.70	35.51
35	45.36	43.57	42.58	41.43	39.07	38.51	37.31	35.30	33.68	33.89	31.90	31.92
40	40.73	38.90	37.98	36.79	34.52	33.92	32.81	31.03	29.67	30.08	28.20	28.34
45	36.14	34.34	33.44	32.27	30.12	29.50	28.49	26.90	25.79	26.25	24.54	24.77
50	31.67	29.90	29.03	27.94	25.93	25.29	24.40	22.98	22.06	22.50	20.98	21.26
55	27.39	25.61	24.83	23.85	21.99	21.37	20.57	19.31	18.53	18.90	17.55	17.88
60	23.32	21.55	20.90	20.02	18.34	17.71	17.04	15.91	15.24	15.54	14.42	14.76
65	19.44	17.77	17.28	16.51	15.00	14.39	13.83	12.80	12.23	12.47	11.60	11.86
70	15.73	14.27	13.96	13.32	12.00	11.38	10.92	10.00	9.58	9.74	9.11	9.30
75	12.32	11.12	11.00	10.48	9.32	8.71	8.40	7.62	7.32	7.49	6.99	7.08
80	9.26	8.42	8.40	7.98	7.10	6.39	6.34	5.73	5.50	5.63	5.25	5.30
85	6.67	6.22	6.23	5.96	5.28	4.58	4.69	4.31	4.19	4.21	4.00	3.96
90	4.64	4.49	4.50	4.43	3.94	3.22	3.44	3.30	3.15	3.22	3.03	2.95
95	3.22	3.19	3.29	3.34	3.06	2.43	2.54	2.61	2.26	2.32	2.35	2.18
100	2.29	2.27	2.46	2.73	2.62	1.91	1.92	2.13	1.51	1.53	1.85	1.58
Male												
0	76.16	74.13	71.83	70.11	67.04	66.80	65.47	61.60	57.71	55.50	49.86	47.88
1	75.64	73.70	71.58	70.10	67.58	67.80	66.73	64.00	60.75	59.47	55.95	54.35
5	71.72	69.80	67.73	66.29	63.82	64.10	63.12	60.76	58.14	57.60	55.11	54.22
10	66.77	64.86	62.81	61.41	58.98	59.27	58.35	56.12	53.75	53.44	51.07	50.39
15	61.82	59.94	57.91	56.52	54.12	54.43	53.56	51.43	49.18	49.05	46.66	46.06
20	57.03	55.21	53.25	51.88	49.54	49.77	48.92	46.91	44.88	44.99	42.48	42.03
25	52.42	50.57	48.67	47.37	45.07	45.19	44.36	42.51	40.79	41.11	38.59	38.38
30	47.84	45.89	44.10	42.81	40.51	40.56	39.78	38.13	36.71	37.26	34.70	34.76
35	43.27	41.21	39.57	38.20	35.95	35.94	35.23	33.79	32.65	33.43	30.94	31.19
40	38.72	36.62	35.09	33.64	31.48	31.42	30.79	29.57	28.68	29.63	27.32	27.65
45	34.21	32.14	30.66	29.22	27.18	27.09	26.55	25.52	24.87	25.84	23.77	24.14
50	29.82	27.82	26.37	25.00	23.12	23.02	22.59	21.72	21.25	22.11	20.32	20.70
55	25.66	23.65	22.30	21.08	19.36	19.32	18.96	18.20	17.79	18.53	16.98	17.38
60	21.75	19.73	18.53	17.46	15.99	15.94	15.68	14.99	14.62	15.22	13.95	14.33
65	18.07	16.11	15.12	14.21	12.99	12.95	12.74	12.07	11.72	12.20	11.24	11.50
70	14.56	12.80	12.05	11.35	10.39	10.33	10.11	9.46	9.18	9.52	8.83	9.02
75	11.33	9.89	9.39	8.90	8.13	7.99	7.83	7.22	7.02	7.31	6.75	6.84
80	8.45	7.44	7.12	6.80	6.27	5.95	5.94	5.44	5.27	5.49	5.10	5.11
85	6.02	5.47	5.31	5.13	4.73	4.39	4.41	4.11	4.02	4.10	3.90	3.82
90	4.16	3.95	3.89	3.89	3.60	3.18	3.30	3.17	3.06	3.21	3.01	2.86
95	2.88	2.82	2.92	2.98	2.82	2.43	2.49	2.52	2.21	2.38	2.36	2.13
100	2.07	2.03	2.25	2.49	2.43	1.91	1.92	2.05	1.50	1.58	1.81	1.55
Female												
0	81.13	79.47	78.81	77.62	74.64	73.24	70.96	65.89	60.90	57.40	53.24	50.70
1	80.56	78.97	78.47	77.50	74.97	73.93	71.84	67.73	65.37	60.45	58.37	56.10
5	76.63	75.06	74.60	73.67	71.19	70.21	68.21	64.43	60.66	58.41	57.39	55.80
10	71.67	70.11	69.67	68.75	66.31	65.35	63.38	59.73	56.16	54.16	53.31	51.94
15	66.72	65.16	64.73	63.83	61.41	60.45	58.52	54.97	51.54	49.71	48.87	47.60
20	61.81	60.29	59.87	58.98	56.59	55.60	53.73	50.37	47.21	45.63	44.66	43.60
25	56.96	55.42	55.03	54.16	51.80	50.79	48.99	45.87	43.11	41.86	40.69	39.92
30	52.14	50.57	50.19	49.33	47.01	46.00	44.28	41.41	39.02	38.15	36.79	36.30
35	47.37	45.75	45.40	44.53	42.28	41.27	39.63	37.01	34.92	34.40	32.95	32.71
40	42.64	40.99	40.65	39.80	37.64	36.61	35.06	32.68	30.86	30.58	29.15	29.08
45	37.96	36.33	35.97	35.17	33.13	32.09	30.64	28.46	26.89	26.71	25.36	25.44

See footnote at end of table.

Table 21. Life expectancy, by age, race, and sex: Death-registration states, 1900–1902 to 1919–1921, and United States, 1929–1931 to 2016—Con.

[Includes Alaska and Hawaii beginning in 1959. For decennial periods before 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; and 1919–1921, 34 states and the District of Columbia. Beginning in 1970, excludes deaths of nonresidents of the United States; see Technical Notes]

Age (years), race, and sex	Average number of years of life remaining, e_x											
	2016	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
Female—Con.												
50	33.40	31.76	31.42	30.69	28.77	27.71	26.40	24.40	23.05	22.92	21.67	21.84
55	28.99	27.32	27.05	26.39	24.59	23.53	22.33	20.54	19.38	19.28	18.13	18.39
60	24.74	23.10	22.90	22.29	20.60	19.52	18.50	16.92	15.94	15.87	14.90	15.21
65	20.64	19.12	19.02	18.44	16.83	15.80	14.95	13.57	12.78	12.73	11.96	12.22
70	16.72	15.40	15.38	14.84	13.35	12.37	11.71	10.56	9.99	9.96	9.38	9.59
75	13.10	11.99	12.08	11.58	10.26	9.33	8.94	8.01	7.61	7.65	7.20	7.34
80	9.84	9.05	9.13	8.69	7.68	6.72	6.67	5.99	5.70	5.75	5.37	5.51
85	7.06	6.62	6.66	6.38	5.63	4.71	4.90	4.47	4.32	4.30	4.08	4.12
90	4.88	4.71	4.73	4.66	4.14	3.25	3.54	3.39	3.24	3.23	3.05	3.04
95	3.34	3.29	3.40	3.48	3.18	2.43	2.57	2.67	2.30	2.27	2.34	2.24
100	2.33	2.29	2.52	2.81	2.69	1.91	1.93	2.17	1.52	1.48	1.91	1.61
White												
0	78.85	77.43	76.13	74.53	71.62	70.73	69.02	64.92	60.86	57.42	51.90	49.64
1	78.24	76.87	75.72	74.35	71.91	71.38	69.95	66.84	63.46	60.87	57.46	55.47
5	74.31	72.96	71.84	70.52	68.12	67.64	66.29	63.52	60.75	58.86	56.51	55.18
10	69.35	68.01	66.92	65.62	63.26	62.79	61.48	58.83	56.29	54.65	52.43	51.34
15	64.40	63.07	61.99	60.71	58.37	57.92	56.65	54.09	51.69	50.21	48.01	47.01
20	59.55	58.27	57.23	55.98	53.66	53.16	51.91	49.47	47.28	46.04	43.77	43.17
25	54.81	53.51	52.50	51.30	49.00	48.44	47.22	44.92	43.02	42.07	39.79	39.26
30	50.11	48.72	47.76	46.59	44.28	43.69	42.52	40.40	38.76	38.17	35.86	35.51
35	45.45	43.95	43.06	41.86	39.58	38.97	37.86	35.93	34.50	34.27	32.03	32.01
40	40.81	39.25	38.41	37.17	34.95	34.33	33.29	31.54	30.33	30.38	28.29	28.28
45	36.22	34.65	33.81	32.60	30.48	29.84	28.88	27.29	26.29	26.45	24.60	24.82
50	31.73	30.17	29.34	28.21	26.21	25.57	24.70	23.26	22.42	22.64	21.01	21.18
55	27.44	25.82	25.08	24.05	22.19	21.58	20.77	19.47	18.75	18.97	17.57	17.91
60	23.35	21.71	21.08	20.16	18.48	17.84	17.15	15.98	15.37	15.57	14.43	14.73
65	19.43	17.88	17.40	16.59	15.08	14.44	13.86	12.80	12.28	12.47	11.60	11.87
70	15.69	14.34	14.02	13.35	12.01	11.37	10.89	9.96	9.58	9.72	9.10	9.31
75	12.27	11.15	11.03	10.47	9.27	8.65	8.34	7.55	7.30	7.47	6.98	7.08
80	9.20	8.42	8.39	7.95	7.01	6.33	6.27	5.64	5.45	5.59	5.22	5.30
85	6.60	6.19	6.20	5.90	5.19	4.53	4.62	4.20	4.12	4.15	3.97	3.95
90	4.57	4.44	4.46	4.36	3.84	3.20	3.41	3.16	3.10	3.17	3.00	2.93
95	3.15	3.14	3.25	3.25	2.92	2.43	2.53	2.45	2.22	2.28	2.29	2.16
100	2.24	2.22	2.43	2.62	2.41	1.91	1.92	1.95	1.48	1.50	1.71	1.56
White male												
0	76.43	74.78	72.72	70.82	67.94	67.55	66.31	62.81	59.12	56.34	50.23	48.23
1	75.84	74.25	72.35	70.70	68.33	68.34	67.41	64.98	62.04	60.24	56.26	54.61
5	71.92	70.34	68.48	66.87	64.55	64.61	63.77	61.68	59.38	58.31	55.37	54.43
10	66.96	65.40	63.55	61.98	59.69	59.78	58.98	57.03	54.96	54.15	51.32	50.59
15	62.01	60.47	58.65	57.09	54.83	54.93	54.18	52.33	50.39	49.74	46.91	46.25
20	57.20	55.72	53.96	52.45	50.22	50.25	49.52	47.76	46.02	45.60	42.71	42.19
25	52.57	51.05	49.33	47.92	45.70	45.65	44.93	43.28	41.78	41.60	38.79	38.52
30	47.98	46.34	44.71	43.31	41.07	40.97	40.29	38.80	37.54	37.65	34.87	34.88
35	43.41	41.64	40.12	38.66	36.43	36.31	35.68	34.36	33.33	33.74	31.08	31.29
40	38.85	37.01	35.57	34.04	31.87	31.73	31.17	30.03	29.22	29.86	27.43	27.74
45	34.33	32.49	31.07	29.55	27.48	27.34	26.87	25.87	25.28	26.00	23.86	24.21
50	29.93	28.12	26.71	25.26	23.34	23.22	22.83	21.96	21.51	22.22	20.39	20.76
55	25.75	23.88	22.56	21.25	19.51	19.45	19.11	18.34	17.97	18.59	17.03	17.42
60	21.82	19.90	18.71	17.56	16.07	16.01	15.76	15.05	14.72	15.25	13.98	14.35
65	18.09	16.22	15.24	14.26	13.02	12.97	12.75	12.07	11.77	12.21	11.25	11.51
70	14.54	12.87	12.11	11.35	10.38	10.29	10.07	9.42	9.20	9.51	8.83	9.03
75	11.29	9.92	9.40	8.87	8.06	7.92	7.77	7.17	7.02	7.30	6.75	6.84
80	8.40	7.43	7.11	6.76	6.18	5.89	5.88	5.38	5.26	5.47	5.09	5.10
85	5.96	5.43	5.28	5.09	4.63	4.34	4.35	4.02	3.99	4.06	3.88	3.81
90	4.09	3.90	3.85	3.83	3.49	3.16	3.27	3.06	3.03	3.18	2.99	2.85
95	2.81	2.77	2.88	2.91	2.67	2.43	2.48	2.40	2.19	2.36	2.31	2.12
100	2.01	1.98	2.21	2.41	2.20	1.91	1.92	1.96	1.49	1.58	1.68	1.55

See footnote at end of table.

Table 21. Life expectancy, by age, race, and sex: Death-registration states, 1900–1902 to 1919–1921, and United States, 1929–1931 to 2016—Con.

[Includes Alaska and Hawaii beginning in 1959. For decennial periods before 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; and 1919–1921, 34 states and the District of Columbia. Beginning in 1970, excludes deaths of nonresidents of the United States; see Technical Notes]

Age (years), race, and sex	Average number of years of life remaining, e_x											
	2016	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
White female												
0	81.31	79.99	79.45	78.22	75.49	74.19	72.03	67.29	62.67	58.53	53.62	51.08
1	80.67	79.40	78.99	77.98	75.66	74.68	72.77	68.93	64.93	61.51	58.69	56.39
5	76.74	75.48	75.10	74.13	71.86	70.92	69.09	65.57	62.17	59.43	57.67	56.03
10	71.77	70.53	70.16	69.21	66.97	66.05	64.26	60.85	57.65	55.17	53.57	52.15
15	66.81	65.58	65.23	64.29	62.07	61.15	59.39	56.07	53.00	50.67	49.12	47.79
20	61.91	60.70	60.36	59.44	57.24	56.29	54.56	51.38	48.52	46.46	44.88	43.77
25	57.05	55.83	55.51	54.60	52.42	51.45	49.77	46.78	44.25	42.55	40.88	40.05
30	52.24	50.95	50.65	49.76	47.60	46.63	45.00	42.21	39.99	38.72	36.96	36.42
35	47.46	46.11	45.82	44.93	42.82	41.84	40.28	37.70	35.73	34.86	33.09	32.82
40	42.73	41.33	41.03	40.16	38.12	37.13	35.64	33.25	31.52	30.94	29.26	29.17
45	38.05	36.62	36.30	35.49	33.54	32.53	31.12	28.90	27.39	26.98	25.45	25.51
50	33.47	32.01	31.71	30.96	29.11	28.08	26.76	24.72	23.41	23.12	21.74	21.89
55	29.04	27.53	27.29	26.61	24.85	23.81	22.58	20.73	19.60	19.40	18.18	18.43
60	24.77	23.25	23.09	22.45	20.79	19.69	18.64	17.00	16.05	15.93	14.92	15.23
65	20.64	19.23	19.14	18.55	16.93	15.88	15.00	13.56	12.81	12.75	11.97	12.23
70	16.69	15.47	15.46	14.89	13.37	12.38	11.68	10.50	9.98	9.94	9.38	9.59
75	13.06	12.02	12.11	11.58	10.21	9.28	8.87	7.92	7.56	7.62	7.20	7.33
80	9.78	9.04	9.12	8.65	7.59	6.67	6.59	5.88	5.63	5.70	5.35	5.50
85	7.00	6.59	6.62	6.32	5.54	4.66	4.83	4.34	4.24	4.24	4.06	4.10
90	4.85	4.67	4.69	4.59	4.05	3.23	3.51	3.24	3.17	3.16	3.00	3.02
95	3.33	3.24	3.36	3.39	3.04	2.43	2.56	2.47	2.24	2.20	2.27	2.21
100	2.34	2.24	2.49	2.70	2.49	1.91	1.92	1.95	1.48	1.42	1.74	1.58
Black¹												
0	75.28	71.81	69.16	68.52	64.11	63.91	60.73	53.85	48.53	47.03	35.87	33.80
1	75.12	71.84	69.43	68.99	65.27	65.75	62.65	57.15	51.71	51.01	43.84	43.00
5	71.24	67.98	65.64	65.25	61.62	62.21	59.25	54.13	49.25	49.44	45.34	45.55
10	66.30	63.05	60.75	60.38	56.79	57.41	54.50	49.50	44.80	45.26	41.74	42.46
15	61.36	58.13	55.86	55.49	51.94	52.57	49.73	44.89	40.37	41.02	38.02	39.04
20	56.58	53.38	51.19	50.75	47.34	47.88	45.19	40.73	36.62	37.72	34.86	36.03
25	51.96	48.78	46.67	46.18	43.00	43.35	40.85	36.91	33.32	34.91	31.72	33.04
30	47.36	44.16	42.22	41.69	38.70	38.89	36.59	33.17	30.07	31.98	28.43	29.96
35	42.78	39.59	37.87	37.28	34.48	34.56	32.44	29.53	26.94	29.07	25.39	26.82
40	38.26	35.12	33.65	32.98	30.36	30.39	28.48	26.06	23.82	26.07	22.41	23.73
45	33.81	30.84	29.55	28.87	26.65	26.46	24.75	22.82	20.97	23.17	19.58	20.67
50	29.51	26.80	25.62	25.03	23.11	22.74	21.38	19.94	18.22	20.17	16.84	17.95
55	25.44	22.97	21.95	21.50	19.83	19.45	18.41	17.43	15.80	17.33	14.33	15.23
60	21.67	19.43	18.59	18.29	16.83	16.53	15.87	15.18	13.62	14.72	12.16	13.06
65	18.22	16.14	15.56	15.37	14.16	13.96	13.59	13.02	11.49	12.22	10.22	10.87
70	14.96	13.18	12.87	12.67	11.77	11.63	11.48	10.93	9.54	9.90	8.59	8.96
75	11.94	10.54	10.48	10.32	9.89	9.52	9.48	8.97	7.84	8.00	7.08	7.24
80	9.22	8.29	8.30	8.17	8.20	7.28	7.62	7.31	6.19	6.22	5.80	5.79
85	6.93	6.41	6.51	6.54	6.54	5.27	5.79	5.91	4.92	4.88	4.80	4.56
90	5.10	4.90	4.94	5.13	5.09	3.48	3.97	4.64	3.83	3.84	4.26	3.60
95	3.74	3.71	3.82	4.08	4.28	2.43	2.70	3.51	2.83	2.90	3.31	2.82
100	2.78	2.81	2.91	3.58	3.93	1.91	1.94	2.57	1.87	1.94	2.27	2.18
Black male¹												
0	72.00	68.17	64.47	64.10	60.00	61.48	58.91	52.26	47.55	47.14	34.05	32.54
1	71.86	68.25	64.76	64.60	61.24	63.50	61.06	55.93	51.08	51.63	42.53	42.46
5	67.99	64.40	60.98	60.86	57.60	59.98	57.69	52.95	48.69	50.18	44.25	45.06
10	63.05	59.48	56.09	56.01	52.79	55.19	52.96	48.34	44.27	45.99	40.65	41.90
15	58.12	54.57	51.22	51.14	47.96	50.39	48.23	43.74	39.83	41.75	36.77	38.26
20	53.43	49.92	46.71	46.48	43.49	45.78	43.73	39.52	35.95	38.36	33.46	35.11
25	48.97	45.50	42.40	42.09	39.45	41.38	39.49	35.72	32.67	35.54	30.44	32.21
30	44.51	41.02	38.14	37.81	35.40	37.05	35.31	32.05	29.45	32.51	27.33	29.25
35	40.08	36.56	34.02	33.60	31.42	32.81	31.21	28.48	26.39	29.54	24.42	26.16
40	35.67	32.18	30.05	29.51	27.61	28.72	27.29	25.06	23.36	26.53	21.57	23.12
45	31.33	28.01	26.18	25.61	24.03	24.89	23.59	21.88	20.59	23.55	18.85	20.09

See footnote at end of table.

Table 21. Life expectancy, by age, race, and sex: Death-registration states, 1900–1902 to 1919–1921, and United States, 1929–1931 to 2016—Con.

[Includes Alaska and Hawaii beginning in 1959. For decennial periods before 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; and 1919–1921, 34 states and the District of Columbia. Beginning in 1970, excludes deaths of nonresidents of the United States; see Technical Notes]

Age (years), race, and sex	Average number of years of life remaining, e_x											
	2016	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
Black male¹—Con.												
50	27.11	24.13	22.50	22.03	20.69	21.28	20.25	19.06	17.92	20.47	16.21	17.34
55	23.15	20.50	19.08	18.79	17.66	18.11	17.36	16.60	15.46	17.50	13.82	14.69
60	19.55	17.19	16.01	15.89	14.93	15.29	14.91	14.37	13.15	14.74	11.67	12.62
65	16.36	14.12	13.27	13.29	12.53	12.84	12.75	12.21	10.87	12.07	9.74	10.38
70	13.37	11.40	10.88	10.94	10.40	10.81	10.74	10.11	8.78	9.58	8.00	8.33
75	10.63	9.07	8.84	8.90	8.76	8.93	8.83	8.17	6.99	7.61	6.58	6.60
80	8.18	7.12	7.01	7.03	7.35	6.87	7.07	6.58	5.42	5.83	5.53	5.12
85	6.10	5.52	5.58	5.61	5.92	5.08	5.38	5.34	4.30	4.53	4.48	4.04
90	4.47	4.23	4.24	4.47	4.68	3.42	3.78	4.23	3.42	3.60	4.01	3.21
95	3.28	3.24	3.37	3.62	3.92	2.43	2.64	3.20	2.54	2.61	3.15	2.50
100	2.46	2.48	2.63	3.24	3.61	1.91	1.93	2.29	1.68	1.64	2.14	1.89
Black female¹												
0	78.33	75.16	73.73	72.88	68.32	66.47	62.70	55.56	49.51	46.92	37.67	35.04
1	78.14	75.13	73.96	73.31	69.37	68.10	64.37	58.46	52.33	50.39	45.15	43.54
5	74.24	71.26	70.16	69.54	65.70	64.54	60.93	55.40	49.81	48.70	46.42	46.04
10	69.30	66.32	65.26	64.65	60.85	59.72	56.17	50.75	45.33	44.54	42.84	43.02
15	64.36	61.39	60.34	59.74	55.97	54.85	51.36	46.13	40.87	40.36	39.18	39.79
20	59.47	56.52	55.49	54.90	51.22	50.07	46.77	42.04	37.22	37.15	36.14	36.89
25	54.65	51.71	50.72	50.13	46.57	45.40	42.35	38.20	33.93	34.35	32.97	33.90
30	49.88	46.95	46.03	45.43	42.00	40.83	38.02	34.40	30.67	31.48	29.61	30.70
35	45.16	42.26	41.45	40.79	37.56	36.41	33.82	30.83	27.47	28.58	26.44	27.52
40	40.51	37.69	36.96	36.28	33.32	32.16	29.82	27.19	24.30	25.60	23.34	24.37
45	35.95	33.29	32.58	31.94	29.31	28.14	26.07	23.89	21.39	22.61	20.43	21.36
50	31.55	29.06	28.38	27.84	25.52	24.31	22.67	20.95	18.60	19.76	17.65	18.67
55	27.36	25.01	24.41	24.00	21.97	20.89	19.62	18.38	16.27	17.09	14.98	15.88
60	23.40	21.20	20.71	20.42	18.66	17.83	16.95	16.10	14.22	14.69	12.78	13.60
65	19.66	17.65	17.37	17.13	15.67	15.12	14.54	13.95	12.24	12.41	10.82	11.38
70	16.10	14.41	14.32	14.05	13.02	12.46	12.29	11.82	10.38	10.25	9.22	9.62
75	12.80	11.49	11.56	11.37	10.85	10.10	10.15	9.81	8.62	8.37	7.55	7.90
80	9.82	8.96	9.05	8.95	8.87	7.66	8.15	8.02	6.90	6.58	6.05	6.48
85	7.32	6.86	6.99	7.09	7.00	5.44	6.15	6.41	5.48	5.22	5.09	5.10
90	5.32	5.16	5.24	5.47	5.41	3.52	4.13	4.96	4.20	4.07	4.50	4.01
95	3.84	3.84	3.97	4.30	4.58	2.43	2.74	3.71	3.09	3.18	3.45	3.15
100	2.80	2.84	2.97	3.69	4.20	1.91	1.94	2.70	2.04	2.23	2.39	2.49

¹For 1939–1941 and 1949–1951, data shown are for the entire nonwhite population. During these periods, life tables were not constructed for the black population. See Technical Notes.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Technical Notes

The life table program

Two series of complete life tables for the U.S. population are prepared by the National Center for Health Statistics (NCHS). *Decennial life tables* are based on decennial U.S. census data and final deaths for a 3-year period around the census year. Annual final life tables (referred to here as “annual life tables”) are based on a complete count of all reported deaths.

Available since 1945, the annual life tables are based on deaths occurring during the calendar year and on midyear postcensal population estimates provided by the U.S. Census Bureau. From 1945 to 1996, the annual life tables were abridged life tables, closed at age 85 and over, and were constructed by reference to a standard table (4). Beginning with 1997 mortality data, a new methodology similar to that of the 1989–1991 decennial life tables was employed to estimate annual complete life tables to age 100, with combined life table values presented for ages 100 and over (9). The methodology was again revised for data years 2000–2007 using a methodology similar to that of the 1999–2001 decennial life tables (10). Beginning with data year 2008, the life table methodology was refined by changing the smoothing technique used to estimate the life table functions at the oldest ages (11).

The methodology used to estimate the 2008–2016 life tables is different from that used to estimate the 2000–2007 life tables with respect to the technique used to estimate the probabilities of death for ages over 65. The methodology used to produce the life tables for 2008–2016 does not model the probabilities of death beginning at age 66, as was done for data years 2000–2007, but rather at ages above 85 or so. (The exact ages at which smoothing techniques are used depends on the specific racial and ethnic population.) Research into the methodology developed and used for the 1999–2001 decennial life tables and applied to the annual life tables has revealed that it is not necessary to model (or “smooth”) the probabilities of death beginning at age 66. The observed blended vital statistics and Medicare data for ages 66–85 are robust enough and do not require additional smoothing (11). A full description of the methodology used to estimate the 2016 life tables is provided below. See “United States Life Tables, 2005” (10) for a detailed description of the methodology used for data years 2000–2007.

Beginning with 2006 mortality data, life tables by Hispanic origin were added to the annual life table program. Before this time, concerns over data limitations such as racial and ethnic misclassification on U.S. death certificates and lack of Medicare data for older populations other than the white and black populations prevented the estimation of life tables for the Hispanic-origin population. Recent research that identified and quantified these data limitations has led to the development of reliable methodological strategies to address these data problems (5,12–14). The methodology developed to estimate life tables for the Hispanic and non-Hispanic white and black populations is described in detail below and in “United States Life Tables by Hispanic Origin” (12).

Revised intercensal life table values

Life table values for 1960–1969, 1970–1979, and 1980–1989 were constructed using the U.S. decennial life tables for 1959–1961, 1969–1971, and 1979–1981, respectively, as the standard tables. The life table values for years before 1989 appearing in this report are based on revised intercensal estimates of the populations for those years. As a result, the life table values for these years may differ from the life table values for those years published in Vital Statistics of the United States for 1989 and earlier years (<https://www.cdc.gov/nchs/products/vsus.htm>). Life table values for 1991–1999 presented in this report are based on postcensal population estimates of the population enumerated in the 1990 decennial census. Life table values for 2001–2009 presented in this report are based on revised intercensal population estimates based on the 2010 decennial census and the revised methodology used to estimate the 2008–2016 life tables. As a result, the values may differ from those previously published in annual final mortality and life table reports (15). The revised intercensal life tables for years 2001–2009 can be accessed by links provided under each of the annual life table reports in: https://www.cdc.gov/nchs/products/life_tables.htm.

Geographic coverage

The geographic areas covered in life tables before 1929–1931 were limited to death-registration areas. Life tables for 1900–1902 and 1909–1911 were constructed using mortality data from the 1900 death-registration states (10 states and the District of Columbia), and tables for 1919–1921 used mortality data from the 1920 death-registration states (34 states and the District of Columbia). The tables for 1929–1931 through 1958 cover the coterminous United States. Decennial life table values for the 3-year period 1959–1961 were derived from data that include both Alaska and Hawaii for each year (Tables 20 and 21). Data for each year shown in Table 19 include Alaska beginning in 1959 and Hawaii beginning in 1960. However, it is believed that the inclusion of these two states does not materially affect life table values.

New Jersey data, 1962–1964

The life tables for 1962 and 1963 for the six population groups involving race do not include data from New Jersey, which omitted the item on race from its certificates of live birth, death, and fetal death in use at the beginning of 1962. The item was restored during the latter part of 1962. However, the certificate revision without this item was used for most of 1962, as well as for 1963. For computing vital rates, populations by age, race, and sex (excluding New Jersey) were estimated to obtain comparable denominators. Approximately 7% of the New Jersey death records for 1964 did not contain the race designation. When the records were being electronically processed for this state, the “race not stated” deaths were allocated proportionally to white or to black.

Nonresidents

Beginning in 1970, the deaths of nonresidents of the United States were excluded from the life table statistics.

Estimation of life table functions

For some years, it was necessary to estimate life table functions for some race–sex groups. In [Tables 20](#) and [21](#), values for the black population during the periods 1939–1941 and 1949–1951 were estimated using values for the nonwhite population. Life table functions were also missing in [Tables 20](#) and [21](#) for some race–sex groups for the periods from 1900–1902 to 1939–1941. Values were missing for the following groups:

<i>Years</i>	<i>Race and sex</i>
1900–1902.....	Total white, total black
1909–1911.....	Total white, total black
1919–1921.....	Total, male, female, total white, total black
1929–1931.....	Total, male, female, total white, total black

These missing values were estimated by weighted averages using population distributions as the weights. For example, life expectancy at age 20 for the total black population was estimated by a weighted average of black male and black female life expectancies at age 20, using as weights the population distribution by sex of the black population aged 20.

Annual life tables were initiated in 1945 for white males, white females, all other males, and all other females. The values in [Table 19](#) by race and sex for the following years were estimated using a procedure other than the abridged life table methodology (16):

<i>Years</i>	<i>Race and sex</i>
1900–1945.....	Total
1900–1947.....	Male
1900–1947.....	Female
1900–1950.....	White
1900–1944.....	White male
1900–1944.....	White female

Annual life table functions were not calculated for the black population before 1970. In [Table 19](#), life expectancy for the black population for years before 1970 is estimated using values for the total nonwhite population.

Data for calculating life table functions

The data used to prepare the U.S. life tables include final death counts from the National Vital Statistics System (NVSS), population estimates from the U.S. Census Bureau, and death and population counts for Medicare beneficiaries aged 66–99 from the Centers for Medicare & Medicaid Services (CMS).

Vital statistics data

Death counts used for computing the life tables presented in this report are final numbers of deaths for 2016 collected from death certificates filed in state vital statistics offices and reported to NCHS as part of NVSS. Race and Hispanic origin are reported separately on the death certificate.

The U.S. Standard Certificate of Death was revised in 2003, and its race and Hispanic-origin items reflect the mandate of the 1997 Office of Management and Budget (OMB) standards (17). This revision allowed individuals to report more than one race and increased the race choices from four to five by separating the Asian and Pacific Islander groups. In 2016, 49 states and the District of Columbia had adopted the 1997 OMB standards, while 1 state continued to collect race and ethnicity data according to the 1977 OMB standards (6,18). To attain uniformity and comparability during the transition period until all states implement the 1997 standards, multiple-race responses are “bridged” back to the 1977 single-race standard, and Asian and Pacific Islander groups are combined according to the 1977 standards. The bridging procedure is the same as that used to bridge multiple-race population estimates, as discussed below (19).

Census population data

The population data used to estimate the life tables shown in this report were produced under a collaborative agreement with the U.S. Census Bureau and are consistent with the postcensal estimates of the 2010 census. Reflecting the 1997 OMB guidelines on race and ethnicity reporting (17), the 2010 census included an option for individuals to report more than one race and provided for the reporting of Asian persons separately from Native Hawaiian or other Pacific Islander persons. Death certificate data by race for states that have not yet implemented the 1997 OMB standards are thus currently incompatible with the population data collected in the 2010 census (the denominators for the rates). To produce death rates for 2016, it was necessary to bridge the reported population data for multiple-race persons back to single-race categories. In addition, the 2010 census counts were modified to be consistent with the 1977 OMB race categories (i.e., to report the data for Asian persons and Native Hawaiian or other Pacific Islander persons as a combined category [Asian or Pacific Islander] and to reflect age as of the census reference date) (20). The procedures used to produce the bridged populations are described elsewhere (19).

Medicare data

Medicare data have traditionally been employed in the estimation of U.S. decennial life tables and in the estimation of U.S. annual life tables since 1997 (9). Medicare data are considered to be more accurate than vital statistics and census data at the oldest ages because Medicare enrollees must have proof of age in order to enroll (21). However, the reliability of Medicare data beyond age 100 declines because of the small percentage of persons who enrolled at the start of the Medicare program in 1965 and for whom it was not possible to verify exact

age (21). Further, the Medicare race and ethnicity classification system makes it impossible to correctly identify the Hispanic, American Indian or Alaska Native, or Asian or Pacific Islander populations (12,22). It is, however, possible to use Medicare data to estimate old-age mortality for both the white and black race groups, irrespective of Hispanic origin, as has been done traditionally, and to estimate old-age mortality for the non-Hispanic segments of these populations (12). As a result, data from the Medicare program are used to supplement vital statistics and census data for ages 66–99 for the total population and for the white, black, non-Hispanic white, and non-Hispanic black populations (12).

To estimate death rates for the Medicare white, black, non-Hispanic white, and non-Hispanic black populations in 2016, age-specific numbers of deaths and population counts by sex and race for the population aged 66–99 from the 2018 and 2019 Medicare files were used. The data files are created by CMS for the Social Security Administration, which under a special agreement shares the files with NCHS. The 2018 file contains final Medicare population counts as of January 1, 2016 and the 2019 file contains final Medicare population counts as of January 1, 2017 and final 2016 Medicare death counts. Medicare death data are reported on a calendar-year age basis, by subtracting the year of birth from the year of death. As a result, for a given reporting year, deaths reported as age x are on average exact age $x - 1/2$ as of January 1 of the reporting year. Medicare enrollment (population) data are reported on an age-at-last-birthday basis. As a result, persons with reported age x as of January 1 of the reporting year are on average exact age $x + 1/2$.

Preliminary adjustment of the data

Adjustment for unknown age

An adjustment is made to account for the small proportion of deaths each year for which age is not reported on the death certificate. The number of deaths in each age category is adjusted proportionally to account for those with not-stated ages. The following factor (F) is used to make the adjustment. F is calculated for the total and for each sex group within a racial and ethnic population for which life tables are constructed:

$$F = \frac{D}{D^a} \quad [1]$$

where D is the total number of deaths and D^a is the total number of deaths for which age is stated. F is then applied by multiplying it by the number of deaths in each age group. Table I shows values for F by sex used to adjust mortality data for the total, white, black, Hispanic, non-Hispanic white, and non-Hispanic black populations in 2016.

Adjustment for misclassification of race and Hispanic origin on death certificates

The latest research to evaluate race and Hispanic-origin reporting on U.S. death certificates found that the misclassification

Table I. Values for F used to adjust for not-stated age based on 2016 mortality data

Race, Hispanic origin, and sex	Total deaths	Total deaths for which age was not stated	F
Total	2,744,248	137	1.00004993
Male	1,400,232	97	1.00006928
Female	1,344,016	40	1.00002976
White	2,323,094	107	1.00004606
Male	1,181,931	73	1.00006177
Female	1,141,163	34	1.00002980
Black	331,788	22	1.00006631
Male	171,674	17	1.00009903
Female	160,114	5	1.00003123
Hispanic	188,254	13	1.00006906
Male	103,532	9	1.00008694
Female	84,722	4	1.00004722
Non-Hispanic white	2,133,463	56	1.00002625
Male	1,077,362	33	1.00003063
Female	1,056,101	23	1.00002178
Non-Hispanic black	326,810	11	1.00003366
Male	168,750	8	1.00004741
Female	158,060	3	1.00001898

SOURCE: NCHS, National Vital Statistics System, Mortality.

of race and Hispanic origin on death certificates in the United States accounts for a net underestimate of 3% for total Hispanic deaths, a net underestimate of less than one-half percent for total non-Hispanic black deaths, and no under or overestimate for total non-Hispanic white deaths or for the population racially classified as white or black, irrespective of Hispanic origin (5). These results are based on a comparison of self-reported race and Hispanic origin on Current Population Surveys (CPS) with race and Hispanic origin reported on the death certificates of a sample of decedents in the National Longitudinal Mortality Study (NLMS) who died during the period 1999–2011 (5).

NLMS-linked records are used to estimate sex-age-specific ratios of CPS race and Hispanic-origin counts to death certificate counts (5,13,14). The CPS/death certificate ratio, or “classification ratio,” is specifically the ratio of the weighted count of self-reported race and ethnicity on the CPS to the weighted count of the same racial or ethnic category on the death certificates of the sample of NLMS decedents described above. It can be interpreted as the net difference in assignment of a specific race and Hispanic-origin category between the two classification systems and can be used as a correction factor for race and Hispanic origin misclassification (5,13,14). The assumption is made that the race and ethnicity reported by a CPS respondent is more reliable than proxy reporting of race and ethnicity by a funeral director who has little personal knowledge of the decedent. Further, public policy embodied in the 1997 OMB standard mandates that self-identification should be the standard used for the collection and recording of race and ethnicity information (17).

The NLMS-based classification ratios discussed above are used to adjust the age-specific number of deaths for ages 1–95 and over for the total Hispanic, non-Hispanic white, and

Table II. Classification ratios, by Hispanic origin, race for the non-Hispanic white and black populations, age, and sex

Age (years)	Hispanic			Non-Hispanic white			Non-Hispanic black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
All ages	1.0329	1.0362	1.0294	0.9995	0.9993	0.9997	1.0047	1.0041	1.0053
0 ¹	1.0575	1.0661	1.0470	0.9845	0.9851	0.9838	1.0486	1.0385	1.0609
1–14	0.9905	0.9659	*1.0299	0.9918	1.0755	0.8770	1.0266	0.9379	*1.1751
15–24	0.9668	0.9325	1.0604	0.9976	1.0019	0.9869	1.0248	1.0215	1.0343
25–34	1.0354	1.0401	1.0232	1.0021	1.0034	0.9994	0.9855	0.9770	1.0008
35–44	1.0434	1.0645	1.0066	0.9980	0.9997	0.9951	1.0062	1.0073	1.0048
45–54	1.0584	1.0372	1.0953	0.9969	0.9965	0.9976	1.0002	1.0019	0.9982
55–64	1.0571	1.0517	1.0659	0.9994	0.9992	0.9997	1.0003	0.9965	1.0046
65–74	1.0295	1.0485	1.0072	0.9967	0.9967	0.9966	1.0062	1.0055	1.0070
75–84	1.0192	1.0188	1.0196	1.0004	1.0003	1.0004	1.0057	1.0057	1.0058
85–94	1.0208	1.0313	1.0137	1.0008	1.0007	1.0009	1.0110	1.0155	1.0086
95 and over	1.0732	1.0509	1.0842	1.0005	0.9995	1.0008	0.9980	0.9872	0.9954

* Ratio is unreliable because either the unweighted number of Current Population Survey deaths or the unweighted number of death certificate deaths, or both, are based on fewer than 20 deaths.

¹Ratios for age 0 are estimated as the ratio of infant mortality rates based on the traditional death and birth files to the infant mortality rates based on the 2016 linked birth/infant death data file. Ratios are shown for illustrative purposes only; see text for details.

SOURCE: NCHS, National Vital Statistics System, Mortality.

non-Hispanic black populations, and by sex for each group, as follows:

$${}_nD_x = {}_nD_x^F \cdot {}_nCR_x, \quad [2]$$

where ${}_nD_x^F$ is the age-specific number of deaths adjusted for unknown age as described above, ${}_nCR_x$ is the sex- and age-specific classification ratios used to correct for the misclassification of race and Hispanic origin on death certificates, and ${}_nD_x$ is the final age-specific counts of death adjusted for age and race and Hispanic-origin misclassification. Table II shows values of the sex- and age-specific classification ratios, ${}_nCR_x$, by Hispanic origin and race for the non-Hispanic population (black and white).

Because NLMS classification ratios for infant deaths are unreliable due to small sample sizes, corrections for racial and ethnic misclassification of infant deaths are addressed by using infant death counts and live birth counts from the 2015 and 2016 linked birth/infant death data files rather than the traditional birth and death data files (23,24). In the linked file, each infant death record is linked to its corresponding birth record so that the race and ethnicity reported on the birth record can be ascribed to the infant death record. As a result, race- and ethnicity-specific infant mortality rates estimated with the linked file do not suffer from the problem of racial and ethnic discrepancies between the numerator and denominator of the rate. A ratio of infant mortality rates based on the traditional birth and death data files to infant mortality rates based on the linked birth/infant death data file shows that using the traditional files overestimates the infant mortality rate by 5.7% for Hispanic infants and 4.9% for non-Hispanic black infants, and underestimates the rate by 2% for non-Hispanic white infants (see ratios for age 0 in Table II). Because the probability of death at age 0 used to calculate the life table uses live births in the denominator (procedure described below), it is preferable to use the linked birth/infant death data file.

Note that although there is no conclusive evidence supporting return migration as a factor in the lower mortality of the Hispanic population, the possibility remains that Hispanic deaths are missed in NVSS due to return migration, and therefore, the resulting death rates may be biased irrespective of correction for ethnic misclassification (12,25).

Interpolation of P_x and D_x

Anomalies—both random and those associated with reporting age at death—can be problematic when using vital statistics and census data by single years of age to estimate the probability of death (1,9). Graduation techniques are often used to eliminate these anomalies and to derive a smooth curve by age. Beers’ ordinary minimized fifth difference formula is used to obtain smoothed values of population counts (P_x) and death counts (D_x) from 5-year age groupings of ${}_nP_x$ from age 0 to 99 and ${}_nD_x$ from age 5 to 99, and where ${}_nD_x$ has first been adjusted for not-reported age and race and Hispanic-origin misclassification on the death certificate (see reference 9 for details on the application of Beers’ method).

Calculation of the probability of dying (q_x)

The first step in the calculation of a complete period life table is the estimation of the age-specific probability of dying, q_x , which is derived from the age-specific death rate, m_x (3,26). In the life table cohort,

$$m_x = \frac{d_x}{L_x},$$

where d_x is the number of deaths occurring between ages x and $x + 1$, and L_x is the number of person-years lived by the life table cohort between ages x and $x + 1$. The conversion of the

age-specific death rate, m_x , to the age-specific probability of death, q_x , is as follows:

$$q_x = \frac{m_x}{1 + (1 - a_x)m_x} \quad [3]$$

where a_x is the number of person-years lived in the age interval by members of the life table cohort who died in the interval. When the age interval is 1 year, except at infancy, $a_x = 1/2$; in other words, deaths occur on average midway through the age interval. As a result,

$$q_x = \frac{m_x}{1 + \frac{1}{2}m_x} \quad [4]$$

because the complete period life table is based on the age-specific death rates of a current population observed for a specific calendar year, the life table death rate is equivalent to the observed death rates of the current population:

$$m_x = \frac{d_x}{L_x} = M_x = \frac{D_x}{P_x}$$

where D_x is the Beers' smoothed number of deaths adjusted for not-stated age and race and Hispanic-origin misclassification on the death certificate (for the Hispanic, non-Hispanic white, and non-Hispanic black populations) and P_x is the Beers' smoothed population at risk of dying between ages x and $x + 1$. Then,

$$q_x = \frac{M_x}{1 + \frac{1}{2}M_x} = \frac{D_x}{P_x + \frac{1}{2}D_x} \quad [5]$$

This procedure is used to estimate vital statistics age-specific probabilities of death for ages 1–99.

Calculation of q_x at age 0

The higher mortality observed in infancy is associated with a high concentration of deaths occurring at the beginning of the age interval rather than in the middle. As a result, whenever possible, it is best to assign deaths to the appropriate birth cohorts. Therefore, the probability of death at birth, q_0 , is calculated using a birth cohort method that employs a separation factor (f) defined as the proportion of infant deaths in year t occurring to infants born in the previous year ($t - 1$). The value f is estimated by categorizing infant deaths by date of birth. The probability of death is then calculated as

$$q_0 = \frac{D_0(1-f)}{B^t} + \frac{D_0(f)}{B^{t-1}} \quad [6]$$

where D_0 is the number of infant deaths adjusted for not-stated age in 2016, B^t is the number of live births in 2016, and B^{t-1} is the number of live births in 2015. Table III shows separation factors and numbers of births for 2015–2016.

Probabilities of dying at the oldest ages for the total, white, black, non-Hispanic white, and non-Hispanic black populations

Medicare data are used to supplement vital statistics data for the estimation of q_x at the oldest ages because these data are more accurate given that proof of age is required for enrollment in the Medicare program. Medicare data are used here to estimate the probability of dying for ages 66 and over for the total, white, black, non-Hispanic white, and non-Hispanic black populations.

The method described in this section consists of the following steps. First, vital statistics and Medicare death rates are blended in the age range 66–99. Second, a logistic model is used to smooth the blended death rates in the age range 85–99 and predict death rates for ages 100–120. Third, final resulting death rates, M_x , are converted to q_x .

For ages 66–94, vital statistics death rates, M_x^V , and Medicare death rates, M_x^M , are blended with a weighting process that gives gradually declining weight to vital statistics data and gradually increasing weight to Medicare data. For ages 95–99, M_x^M is used exclusively. Blended M_x is thus obtained as follows:

$$M_x = \frac{1}{30} [(95 - x)M_x^V + (x - 65)M_x^M]$$

when $x = 66, \dots, 94$

$$\text{and } M_x = M_x^M$$

when $x = 95, \dots, 99$.

[7]

Because of the manner in which age is reported in Medicare death and enrollment data as of January 1 of the reporting year, Medicare death rates are in one-half years of age. As a result, M_x^M is estimated as follows:

$$M_x^M = \left[M_{x-\frac{1}{2}}^{M_1} + M_{x+\frac{1}{2}}^{M_1} \right] / 2,$$

$$\text{where } M_{x-\frac{1}{2}}^{M_1} = \frac{D_{y,x}}{[P_{y,x-1} + P_{y+1,x}] / 2},$$

$$M_{x+\frac{1}{2}}^{M_1} = \frac{D_{y,x+1}}{[P_{y,x} + P_{y+1,x+1}] / 2},$$

and $D_{y,x}$ is the number of Medicare deaths at age x , year y , where deaths occur on average to those age $x - 1/2$ as of January 1; $P_{y,x-1}$ is the Medicare population count with reported age $x - 1$ on January 1, year y ; and $P_{y+1,x}$ is the Medicare population count with reported age x on January 1, year $y + 1$.

A logistic model proposed by Kannisto is then used to smooth M_x in the age range 85–99 and predict M_x in the age range 100–120 (27). The start of the modeled age range varies by race- and ethnicity-specific population because it is a function of the age at which the rate of change in the age-specific death rates peaks. In current times, the rate of change in the age-specific death rate rises steadily up to approximately ages 80–85 or so and then begins to decline. As a result, it is difficult to model a large age span, such as 65–100, with one simple model without over smoothing and thus altering the underlying mortality pattern observed in the population of interest (28). Further, the observed data for the age range 65–85 or so is reliable and robust, as

indicated by the very close similarity between vital statistics and Medicare death rates, so it is unnecessary to model (smooth) the entire age span (65–100).

The Kannisto model is a simple form of a logistic model in which the logit of u_x (or the natural log of the odds of u_x) is a linear function of age, x (27). It is expressed as:

$$\ln\left[\frac{u_x}{1-u_x}\right] = \ln(\alpha) + \beta x \quad [8]$$

where u_x , the force of mortality (or the instantaneous death rate), is defined as:

$$u_x = \frac{\alpha e^{\beta x}}{1 + \alpha e^{\beta x}}$$

Because u_x is not directly observed but is closely approximated by m_x , and $m_x = M_x$, then the logit of M_x is modeled instead. A maximum-likelihood generalized linear model estimation procedure is used to fit the following model in the age range 85–99 years:

$$\ln\left[\frac{M_x}{1-M_x}\right] = \ln(\alpha) + \beta x \quad [9]$$

Then, the estimated parameters are used to predict \bar{M}_x as follows:

$$\bar{M}_x = \frac{e^a e^{bx}}{1 + e^a e^{bx}}, \text{ or equivalently, } \bar{M}_x = \frac{e^{a+bx}}{1 + e^{a+bx}} \quad [10]$$

where a and b are the predicted values of parameters $\ln(\alpha)$ and β , respectively, given by fitting model [9]. Estimated parameters and the starting age for the modeled age span by population in 2016 are presented in Table IV.

Finally, the predicted probability of death, \bar{q}_x , for ages 85–120 is estimated by converting \bar{M}_x as follows:

$$\bar{q}_x = \frac{\bar{M}_x}{1 + \frac{1}{2}\bar{M}_x} \quad [11]$$

The probability of death is extrapolated to age 120 in order to estimate the life table population until no survivors remain. This information is then used to estimate L_x for ages 100–120, which is used to close the table with the age category 100 and over, combined (discussed below).

Probabilities of dying at the oldest ages for the Hispanic population

As noted above, Medicare data are unreliable for the Hispanic population due to inconsistencies in the Medicare race and ethnicity classification system. As a result, it was necessary to use other methods to estimate mortality at the oldest ages for this population. Beyond age 80, mortality estimates based strictly on vital statistics for the Hispanic population are too low, despite correction for ethnic misclassification on the death certificate.

A consistent finding across diverse studies has been that

Hispanic mortality in the adult and advanced ages varies between approximately 80% and 89% of that of the non-Hispanic white population (13,14,25,29). The Brass relational logit model takes advantage of the relationship between Hispanic and non-Hispanic white mortality previously identified and has been widely and successfully used to predict the mortality of one population relative to another at the older ages (3,30–32). Using the age-specific mortality pattern of the non-Hispanic white population as the “standard,” the Brass relational logit model is used to predict Hispanic mortality in the older ages. The standard is fit to Hispanic data in the age interval 45–80, and the predicted parameters are used to estimate the probabilities of death for ages 76–100. This method allows the relationship between the two populations in the younger ages to be carried over to the older ages (3,30–32).

The Brass relational logit model expresses the age-specific mortality pattern of a population of interest as a function of the age-specific mortality pattern of a standard population and is expressed as:

$$\bar{Y}_x = \alpha + \beta Y_x^s \quad [12]$$

where \bar{Y}_x is the predicted logit of the probability of death, q_x , in the population of interest, i.e.,

$$\text{logit}[q_x] = \ln\left[\frac{q_x}{1-q_x}\right]$$

Y_x^s is the logit of the probability of death in the standard population, q_x^s , i.e.,

$$\text{logit}[q_x^s] = \ln\left[\frac{q_x^s}{1-q_x^s}\right],$$

α is the predicted parameter that measures the level of mortality of the population of interest relative to the standard population, and β is the predicted parameter that measures the slope of the mortality function of the population of interest relative to the standard population (3,30–32). Table V shows values of predicted α and β and their standard errors.

A maximum-likelihood generalized linear model estimation procedure is used to fit equation [12] in the age range 45–80. The resulting predicted parameters α and β were then used to estimate the predicted probability of death for ages 76–120 in the Hispanic population. The value q_x , was predicted to age 120 in order to estimate the life table population until no survivors remain, as was done for the other population groups. This information is then used to estimate L_x for ages 100–120, which is used to close the table with the age category 100 and over, combined (discussed below).

Predicted \bar{q}_x , is estimated by transforming its logit, \bar{Y}_x , back as follows:

$$\bar{q}_x = \frac{\exp[\bar{Y}_x]}{1 + \exp[\bar{Y}_x]} = \frac{\exp[\alpha + \beta Y_x^s]}{1 + \exp[\alpha + \beta Y_x^s]} \quad [13]$$

To ensure a smooth transition from vital q_x^V and predicted

Table III. Births in 2015 and 2016, deaths in 2016 of infants born in 2015 and 2016, and separation factors, by race, Hispanic origin, and sex: United States

Births, deaths, and separation factors	Total			White			Black			Hispanic			Non-Hispanic white			Non-Hispanic black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Births																		
2015.....	3,978,497	2,036,161	1,942,336	3,012,855	1,543,326	1,469,529	640,079	325,262	314,817	924,048	471,456	452,592	2,130,279	1,092,789	1,037,490	589,047	299,319	289,728
2016.....	3,945,875	2,018,183	1,927,692	2,945,970	1,508,585	1,437,385	654,067	331,470	322,597	918,447	468,504	449,943	2,094,054	1,073,824	1,020,230	583,786	295,719	288,067
Deaths in 2016 of infants born in:																		
2015.....	2,918	1,647	1,266	1,806	1,050	765	925	497	431	528	286	245	1,327	788	540	844	458	385
2016.....	20,243	11,220	9,028	12,762	7,093	5,660	6,304	3,445	2,856	4,027	2,226	1,798	8,877	4,919	3,957	5,701	3,149	2,553
Separation factor, <i>f</i> ...	0.126	0.128	0.123	0.124	0.129	0.119	0.128	0.126	0.131	0.116	0.114	0.120	0.130	0.138	0.120	0.129	0.127	0.131

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table IV. Estimated parameters α and β used for predicting m_x and starting age of modeled age span: United States Life Tables, 2016

Parameter	Total			White			Black			Non-Hispanic white			Non-Hispanic black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Starting age.....	85	85	85	85	86	85	84	84	84	85	85	86	84	84	84
$\ln(\alpha)$	-13.30741	-13.26093	-13.92166	-13.49529	-13.58166	-13.74702	-11.10726	-10.96847	-11.85188	-13.45079	-13.52602	-14.07024	-11.02443	-10.85819	-11.77532
(SE).....	(0.088)	(0.146)	(0.075)	(0.077)	(0.130)	(0.123)	(0.111)	(0.109)	(0.179)	(0.075)	(0.114)	(0.074)	(0.113)	(0.108)	(0.182)
β	0.1285454	0.130111	0.1341991	0.1308515	0.1338975	0.1324412	0.1032354	0.1041201	0.1104393	0.1303935	0.1333246	0.1360759	0.102375	0.1029643	0.1096437
(SE).....	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)

NOTE: SE is standard error.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Table V. Estimated Brass relational logit model parameters α and β for Hispanic-origin population, 2016

Parameter	Total (SE)	Male (SE)	Female (SE)
α	-0.2501363 (0.022)	-0.2297565 (0.040)	-0.1760237 (0.021)
β	1.01029 (0.006)	1.0040620 (0.010)	1.038067 (0.006)

NOTE: SE is standard error.

SOURCE: NCHS, National Vital Statistics System, Mortality.

\bar{q}_x , the two were blended from ages 76 to 80 with a graduating process as follows:

$$q_x = \frac{1}{6} [(81 - x) q_x^v + (x - 75) \bar{q}_x] \quad [14]$$

when $x = 76, \dots, 80$.

Finally, to close the table at age 100 and over (combined), ${}_{\infty}q_{100}$ is set equal to 1.0 because all survivors to this age will die at some point in the open-ended age interval. Once q_x is obtained for each single year of age, the other life table functions are easily calculated.

Calculation of remaining life table functions for all groups

Survivor function (l_x)

The life table radix, l_0 , is set at 100,000. For ages greater than 0, the number of survivors remaining at exact age x is calculated as

$$l_x = l_{x-1} (1 - q_{x-1}) \quad [15]$$

Decrement function (d_x)

The number of deaths occurring between ages x and $x + 1$ is calculated from the survivor function:

$$d_x = l_x - l_{x+1} = l_x q_x \quad [16]$$

Note that ${}_{\infty}d_{100} = {}_{\infty}l_{100}$ because ${}_{\infty}q_{100} = 1.0$.

Person-years lived (L_x)

Person-years lived for ages 1–99 are calculated assuming that the survivor function declines linearly between ages x and $x + 1$. This gives the formula

$$L_x = \frac{1}{2} (l_x + l_{x+1}) = l_x - \frac{1}{2} d_x \quad [17]$$

For $x = 0$, the separation factor f is used to calculate L_0 :

$$L_0 = f l_0 + (1 - f) l_1 \quad [18]$$

Finally, ${}_{\infty}L_{100}$ is estimated as the sum of the extrapolated L_x values for ages 100–120.

Person-years lived at and above age x (T_x)

T_x is calculated by summing L_x values at and above age x :

$$T_x = \sum_{x=0}^{\infty} L_x \quad [19]$$

Life expectancy at age x (e_x)

Life expectancy at exact age x is calculated as

$$e_x = \frac{T_x}{l_x} \quad [20]$$

Abridging the complete life table

An abridged or collapsed version of the complete life table can be easily calculated in which life table functions are shown for 5-year rather than single-year age intervals. It is often desirable to summarize the life table and save space. The abridgement of the complete life table is simplified by an important property of three of the six life table functions. The l_x , T_x , and e_x functions describe exact age x (i.e., the beginning of the age interval x to $x + n$ [where n denotes the length of the age interval; for 5-year age intervals, $n = 5$]). Life expectancy at age 20 (e_{20}), for example, has the same value regardless of whether the age interval is 20–21 or 20–25. Thus, the values l_x , T_x , and e_x can be extracted at 5-year intervals from the complete life table and placed into the abridged life table (compare l_x , T_x , and e_x in Table VI with the same functions in Table 1). It is also illustrative to compare values for e_x and l_x in Tables A and B with their corresponding values presented in Tables 1–18. The q_x , d_x , and L_x functions, in contrast, describe the age interval x to $x + n$. In fact, for abridged life tables, the notation for these functions is different (${}_nq_x$, ${}_nd_x$, and ${}_nL_x$, respectively). Thus, ${}_5q_{20}$ is the probability of dying between ages 20 and 25 and will obviously be somewhat larger than q_{20} , the probability of dying between ages 20 and 21. Taking this into account, ${}_nq_x$, ${}_nd_x$, and ${}_nL_x$ must be recalculated in the abridged life table. It is simplest to begin with ${}_nd_x$. The calculations are made for all but the final age interval as follows:

$${}_nd_x = l_x - l_{x+n}$$

$${}_nq_x = \frac{{}_nd_x}{l_x}$$

$${}_nL_x = T_x - T_{x+n}$$

Note that for the open-ended interval, ages 100 and over: ${}_{\infty}d_{100} = l_{100}$, ${}_{\infty}q_{100} = 1.0$, and ${}_{\infty}L_{100} = T_{100}$. Table VI shows each of the life table functions for the 2016 U.S. total population abridged from Table 1.

Table VI. Life table for the total population: United States, 2016

Age (years)	Probability of dying between ages x and $x + n$	Number surviving to age x	Number dying between ages x and $x + n$	Person-years lived between ages x and $x + n$	Total number of person-years lived above age x	Expectation of life at age x
	${}_n q_x$	l_x	${}_n d_x$	${}_n L_x$	T_x	e_x
0-1.....	0.005864	100,000	586	99,487	7,865,195	78.7
1-5.....	0.001013	99,414	101	397,414	7,765,707	78.1
5-10.....	0.000610	99,313	61	496,400	7,368,293	74.2
10-15.....	0.000729	99,252	72	496,121	6,871,894	69.2
15-20.....	0.002546	99,180	253	495,363	6,375,773	64.3
20-25.....	0.004844	98,927	479	493,505	5,880,411	59.4
25-30.....	0.005893	98,448	580	490,826	5,386,906	54.7
30-35.....	0.006995	97,868	685	487,675	4,896,080	50.0
35-40.....	0.008463	97,183	822	483,922	4,408,405	45.4
40-45.....	0.010733	96,361	1,034	479,344	3,924,484	40.7
45-50.....	0.015499	95,327	1,477	473,192	3,445,139	36.1
50-55.....	0.024381	93,849	2,288	463,908	2,971,948	31.7
55-60.....	0.036273	91,561	3,321	449,935	2,508,040	27.4
60-65.....	0.051265	88,240	4,524	430,419	2,058,106	23.3
65-70.....	0.071256	83,716	5,965	404,359	1,627,687	19.4
70-75.....	0.108208	77,751	8,413	368,897	1,223,328	15.7
75-80.....	0.166668	69,338	11,556	319,214	854,431	12.3
80-85.....	0.264892	57,781	15,306	252,089	535,217	9.3
85-90.....	0.417666	42,475	17,741	168,285	283,128	6.7
90-95.....	0.608174	24,735	15,043	83,665	114,844	4.6
95-100.....	0.783131	9,692	7,590	26,373	31,178	3.2
100 and over.....	1.000000	2,102	2,102	4,806	4,806	2.3

SOURCE: NCHS, National Vital Statistics System, Mortality.

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