

## United States Life Tables, 2008

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The **Technical Notes** section of this report has been updated (see page 60, left column, last paragraph) to facilitate replication of this work.

### 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 2008.

**Methods**—Data used to prepare the 2008 life tables are 2008 final mortality statistics; July 1, 2008, population estimates based on the 2000 decennial census; and 2008 Medicare data for persons aged 66–99. The methodology used to estimate the 2008 life tables has been revised from that used for data years 2000–2007. The methodology was refined in two important ways. First, a logistic model rather than a nonlinear least squares model was used to smooth and extrapolate the vital statistics and Medicare blended death rates at the oldest ages. Second, the age at which smoothing is begun was raised from 66 to 85 or so, depending on the population. This modification applies to the life tables for the total population and for the white, black, non-Hispanic white, and non-Hispanic black populations. 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.

**Results**—In 2008, the overall expectation of life at birth was 78.1 years. Between 2007 and 2008, life expectancy at birth increased for all groups considered, although approximately 0.1 years of the increase is due to the change in methodology. Life expectancy increased for both males (from 75.4 to 75.6) and females (80.4 to 80.6) and for the white population (78.4 to 78.5), the black population (73.6 to 74.0), the Hispanic population (80.9 to 81.0), the non-Hispanic white population (78.2 to 78.4), and the non-Hispanic black population (73.2 to 73.7).

**Keywords:** life expectancy • survival • death rates • race

### Introduction

There are two types of U.S. 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 2008 assumes a hypothetical cohort that is subject throughout its lifetime to the age-specific death rates prevailing for the actual population in 2008. 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, of course, can easily be aggregated into 5- or 10-year age groups (refer to the Technical Notes at the end of this report for instructions). Other than the decennial life tables, U.S. life tables based on data prior to 1997 are abridged life tables constructed by reference to a standard table (4). This report presents complete period life tables by race, Hispanic origin, race for the non-Hispanic population, and sex.

### Data and Methods

The data used to prepare the U.S. life tables for 2008 are final numbers of deaths for the year 2008, postcensal population estimates for the year 2008, and age-specific death and population



counts for Medicare beneficiaries aged 66–99 for the year 2008 from the Centers for Medicare & Medicaid Services (CMS). Data from the Medicare program are used to supplement vital statistics and census data for ages 66 and over. (See [Technical Notes](#) for a detailed description of the data sets used.)

## Methodology refined

The methodology used to estimate the U.S. life tables for 2008 was refined by modifying the smoothing technique used previously to estimate mortality at the oldest ages (5). Research into the methodology developed for the 1999–2001 decennial life tables and then applied to the 2000–2007 annual life tables has shown that it is not necessary to model (smooth) mortality rates beginning at age 66 but rather it is sufficient, and preferable, to apply a statistical model to smooth mortality rates beginning much later, around age 85 or so depending on the specific racial or ethnic population (a complete description of the revised methodology is provided in the [Technical Notes](#)) (5–8).

The revised methodology resulted in a slight increase in life expectancy at birth and at most other ages for the racial and ethnic populations considered, compared with estimates based on the methodology used previously. [Table A](#) presents a comparison of life expectancy based on both the revised and previous methodologies for selected ages. Life expectancy at birth based on the revised methodology was higher by 0.13 years for the total population, 0.13 years for the white population, 0.09 years for the black population, 0.14 years for the non-Hispanic white population, and 0.12 years for the non-Hispanic black population. Life expectancy at birth based on the revised methodology was lower by 0.03 years for the Hispanic population. The revised methodology affected estimates for the Hispanic population as well because the methodology used to estimate the Hispanic life tables (9) uses the non-Hispanic white population as the standard (see [Technical Notes](#) for a detailed description). For most groups, the differences were slightly larger for females and slightly smaller at the oldest ages ([Table A](#)).

The comparisons between 2007 and 2008 presented in this report should be interpreted with the understanding that part of the difference is due to the change in methodology. For example, 0.1 years of the increase of 0.2 years in life expectancy at birth for the total population between 2007 and 2008 is a result of the revised methodology. If the methodology had not been revised, the increase between 2007 and 2008 would have been only 0.1 years. Because this methodological effect is relatively minor and all life tables in the 2000–2009 series will be reestimated using the new 2000–2010 intercensal population estimates, the 2000–2007 life tables were not revised with the new methodology at this time. They will be revised with the new methodology when the complete 2000–2009 series is reestimated using the new intercensal population estimates.

## 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 2008 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 B](#).

Life expectancy at birth ( $e_0$ ) for 2008 for the total population was 78.1 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 B](#)).

## Survivors to specified ages

Another way of assessing the longevity of the period life table cohort is by determining the proportion who survive to specified ages. The  $l_x$  column of the life table provides the data for computing this proportion. [Table C](#) summarizes the number of survivors by age, race, Hispanic origin, and sex. To illustrate, 55,562 persons out of the original 2008 hypothetical life table cohort of 100,000 (or 55.6%) were alive at exact age 80. In other words, the probability that a person will survive from birth to age 80, given 2008 age-specific mortality, is 55.6%. 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 (39,797) by the number of survivors at age 20 (98,804), which results in a 40.3% probability of survival.

## Explanation of the columns of the life table

*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 0.001225 ([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, 99,404 will complete the first year of life and enter the second; 99,249 will reach age 10; 99,022 will reach age 20; and 46,782 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, 720 will die in the first year of life; 121 between ages 20 and 21; and 844 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 98,537 for males in the age interval 20–21 is the total number of years lived between the 20th and 21st birthdays by the 98,598 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

**Table A. Comparison of life expectancy at selected ages between revised and previous life table methodologies, by sex: United States, 2008**

Age (years), race, and Hispanic origin	Total			Males			Females		
	Revised methodology	Previous methodology	Difference	Revised methodology	Previous methodology	Difference	Revised methodology	Previous methodology	Difference
<b>Total</b>									
0 . . . . .	78.12	77.99	0.13	75.60	75.49	0.11	80.57	80.42	0.15
65 . . . . .	18.78	18.62	0.16	17.32	17.19	0.13	19.99	19.81	0.18
85 . . . . .	6.41	6.39	0.02	5.73	5.76	-0.03	6.77	6.76	0.01
100 . . . . .	2.22	2.22	0.00	2.05	2.03	0.02	2.24	2.24	0.00
<b>White</b>									
0 . . . . .	78.50	78.37	0.13	76.05	75.95	0.10	80.90	80.75	0.15
65 . . . . .	18.82	18.67	0.15	17.39	17.26	0.13	20.02	19.84	0.18
85 . . . . .	6.37	6.34	0.03	5.69	5.71	-0.02	6.73	6.70	0.03
100 . . . . .	2.17	2.17	0.00	2.01	1.98	0.03	2.19	2.19	0.00
<b>Black</b>									
0 . . . . .	74.03	73.94	0.09	70.56	70.51	0.05	77.17	77.08	0.09
65 . . . . .	17.39	17.28	0.11	15.38	15.30	0.08	18.88	18.77	0.11
85 . . . . .	6.65	6.66	-0.01	5.78	5.85	-0.07	7.03	7.06	-0.03
100 . . . . .	2.77	2.75	0.02	2.54	2.49	0.05	2.78	2.75	0.03
<b>Hispanic</b>									
0 . . . . .	80.97	81.00	-0.03	78.39	78.45	-0.06	83.35	83.40	-0.05
65 . . . . .	20.69	20.74	-0.05	19.13	19.20	-0.07	21.81	21.87	-0.06
85 . . . . .	7.42	7.60	-0.18	6.64	6.87	-0.23	7.70	7.92	-0.22
100 . . . . .	2.61	2.71	-0.10	2.41	2.47	-0.06	2.56	2.68	-0.12
<b>Non-Hispanic white</b>									
0 . . . . .	78.37	78.23	0.14	75.93	75.82	0.11	80.75	80.59	0.16
65 . . . . .	18.77	18.61	0.16	17.34	17.21	0.13	19.96	19.78	0.18
85 . . . . .	6.36	6.33	0.03	5.68	5.70	-0.02	6.72	6.69	0.03
100 . . . . .	2.17	2.17	0.00	2.01	1.98	0.03	2.19	2.20	-0.01
<b>Non-Hispanic black</b>									
0 . . . . .	73.70	73.58	0.12	70.18	70.09	0.09	76.93	76.78	0.15
65 . . . . .	17.28	17.16	0.12	15.28	15.20	0.08	18.77	18.64	0.13
85 . . . . .	6.63	6.64	-0.01	5.77	5.83	-0.06	7.02	7.04	-0.02
100 . . . . .	2.77	2.76	0.01	2.54	2.50	0.04	2.79	2.76	0.03

0.00 Quantity more than zero but less than 0.005.

NOTE: Difference equals revised methodology minus previous methodology.

SOURCE: CDC/NCHS, National Vital Statistics System.

example, the figure 5,578,411 is the total number of years lived after attaining age 20 by the 98,598 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 56.6 years (5,578,411 divided by 98,598) (Table 2).

## Results

### Life expectancy in the United States

Tables 1–18 show complete life tables for 2008 by race (white and black), Hispanic origin, race for the non-Hispanic population, and sex. Table B summarizes life expectancy by age, race, Hispanic origin, and sex. Life expectancy at birth for 2008 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 2008. In 2008, life expectancy at birth was 78.1 years, an increase of 0.2 years from 77.9 years in 2007; 0.1 years of the increase is a result of the change in methodology. (Refer to Table A for details on the effect of the methodological change when reviewing the following discussions of changes in life expectancy between 2007 and 2008.)

Changes in mortality levels by age and cause of death have a major effect on changes in life expectancy. Life expectancy at birth increased in 2008 over 2007 because of decreases in mortality from heart disease, cancer, unintentional injury, stroke, and diabetes. Decreases in mortality from these same causes also generated increases in life expectancy among the male population. Although increases in life expectancy for the female population were brought about by decreases in mortality for these same conditions, cancer rather than heart disease was the leading contributor to this net effect among women. Increases in life expectancy in 2008 from 2007 for the population as a whole were slightly offset by increases in mortality from

Table B. Expectation of life, by age, sex, race, and Hispanic origin: United States, 2008

Age (years)	All races and origins			White			Black			Hispanic			Non-Hispanic white			Non-Hispanic black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
0	78.1	75.6	80.6	78.5	76.1	80.9	74.0	70.6	77.2	81.0	78.4	83.3	78.4	75.9	80.7	73.7	70.2	76.9
1	77.6	75.1	80.1	77.9	75.5	80.3	74.0	70.6	77.1	80.4	77.9	82.8	77.8	75.4	80.2	73.6	70.2	76.8
5	73.7	71.2	76.1	74.0	71.6	76.4	70.1	66.7	73.2	76.5	74.0	78.8	73.9	71.5	76.2	69.8	66.3	72.9
10	68.8	66.3	71.2	69.1	66.6	71.4	65.2	61.8	68.2	71.5	69.0	73.9	68.9	66.5	71.3	64.8	61.4	68.0
15	63.8	61.3	66.2	64.1	61.7	66.5	60.2	56.8	63.3	66.6	64.0	68.9	64.0	61.6	66.3	59.9	56.5	63.0
20	59.0	56.6	61.3	59.3	56.9	61.6	55.5	52.2	58.4	61.8	59.3	64.0	59.1	56.8	61.4	55.1	51.8	58.2
25	54.3	52.0	56.5	54.5	52.3	56.7	50.8	47.7	53.6	57.0	54.6	59.1	54.4	52.1	56.5	50.5	47.3	53.3
30	49.5	47.3	51.6	49.8	47.6	51.8	46.2	43.1	48.8	52.2	49.9	54.2	49.6	47.5	51.7	45.9	42.8	48.6
35	44.8	42.6	46.8	45.0	42.9	47.0	41.6	38.6	44.1	47.4	45.2	49.3	44.9	42.8	46.9	41.3	38.3	43.8
40	40.1	38.0	42.0	40.3	38.3	42.2	37.0	34.2	39.4	42.7	40.5	44.5	40.2	38.2	42.1	36.7	33.9	39.2
45	35.5	33.5	37.3	35.7	33.7	37.5	32.6	29.8	34.9	38.0	35.9	39.7	35.6	33.6	37.4	32.3	29.5	34.7
50	31.0	29.1	32.8	31.2	29.3	32.9	28.4	25.7	30.6	33.4	31.4	35.1	31.1	29.3	32.9	28.1	25.4	30.4
55	26.8	25.0	28.4	26.9	25.2	28.5	24.5	21.9	26.5	29.0	27.1	30.5	26.8	25.1	28.4	24.3	21.7	26.3
60	22.7	21.0	24.1	22.8	21.2	24.1	20.8	18.5	22.6	24.8	23.0	26.1	22.7	21.1	24.1	20.7	18.4	22.4
65	18.8	17.3	20.0	18.8	17.4	20.0	17.4	15.4	18.9	20.7	19.1	21.8	18.8	17.3	20.0	17.3	15.3	18.8
70	15.2	13.9	16.2	15.2	13.9	16.2	14.3	12.6	15.4	16.9	15.5	17.8	15.1	13.9	16.1	14.2	12.5	15.4
75	11.8	10.7	12.6	11.8	10.7	12.6	11.3	9.9	12.3	13.4	12.2	14.0	11.8	10.7	12.6	11.3	9.8	12.2
80	8.9	8.0	9.5	8.9	8.0	9.4	8.8	7.6	9.4	10.2	9.2	10.6	8.8	8.0	9.4	8.8	7.6	9.4
85	6.4	5.7	6.8	6.4	5.7	6.7	6.6	5.8	7.0	7.4	6.6	7.7	6.4	5.7	6.7	6.6	5.8	7.0
90	4.5	4.0	4.7	4.4	3.9	4.6	5.0	4.4	5.2	5.2	4.7	5.3	4.4	3.9	4.6	4.9	4.3	5.2
95	3.1	2.8	3.2	3.0	2.8	3.1	3.7	3.3	3.8	3.7	3.3	3.7	3.0	2.8	3.1	3.7	3.3	3.8
100	2.2	2.0	2.2	2.2	2.0	2.2	2.8	2.5	2.8	2.6	2.4	2.6	2.2	2.0	2.2	2.8	2.5	2.8

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table C. Number of survivors out of 100,000 born alive, by age, sex, race, and Hispanic origin: United States, 2008**

Age (years)	All races and origins			White			Black			Hispanic			Non-Hispanic white			Non-Hispanic black		
	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 . . . . .	99,341	99,280	99,404	99,447	99,396	99,500	98,728	98,608	98,851	99,442	99,394	99,493	99,450	99,400	99,502	98,734	98,606	98,866
5 . . . . .	99,228	99,155	99,305	99,343	99,280	99,409	98,564	98,422	98,710	99,345	99,285	99,408	99,347	99,285	99,411	98,556	98,409	98,715
10 . . . . .	99,167	99,088	99,249	99,286	99,220	99,356	98,474	98,316	98,637	99,292	99,231	99,356	99,290	99,224	99,359	98,461	98,299	98,639
15 . . . . .	99,089	98,998	99,185	99,214	99,136	99,297	98,368	98,194	98,549	99,224	99,158	99,294	99,218	99,139	99,302	98,348	98,171	98,547
20 . . . . .	98,804	98,598	99,022	98,947	98,766	99,138	97,977	97,608	98,359	98,971	98,786	99,166	98,952	98,776	99,138	97,945	97,565	98,353
25 . . . . .	98,341	97,915	98,794	98,510	98,125	98,922	97,321	96,621	98,045	98,559	98,154	99,003	98,518	98,143	98,915	97,268	96,546	98,030
30 . . . . .	97,863	97,246	98,519	98,061	97,495	98,668	96,611	95,603	97,643	98,169	97,595	98,820	98,056	97,497	98,643	96,528	95,486	97,609
35 . . . . .	97,328	96,534	98,169	97,558	96,825	98,345	95,768	94,455	97,085	97,778	97,052	98,614	97,520	96,787	98,286	95,646	94,286	97,021
40 . . . . .	96,639	95,666	97,665	96,904	95,996	97,876	94,704	93,116	96,273	97,257	96,373	98,279	96,835	95,922	97,785	94,531	92,881	96,174
45 . . . . .	95,602	94,404	96,857	95,921	94,789	97,126	93,122	91,232	94,965	96,464	95,360	97,736	95,818	94,681	96,996	92,887	90,920	94,816
50 . . . . .	93,999	92,449	95,606	94,394	92,911	95,959	90,718	88,389	92,955	95,276	93,899	96,847	94,250	92,758	95,789	90,421	87,973	92,780
55 . . . . .	91,635	89,516	93,810	92,160	90,125	94,288	87,031	83,838	90,043	93,488	91,686	95,495	91,979	89,932	94,083	86,650	83,273	89,834
60 . . . . .	88,356	85,447	91,317	89,047	86,269	91,930	81,954	77,374	86,197	90,883	88,364	93,600	88,849	86,069	91,697	81,411	76,596	85,872
65 . . . . .	83,720	79,912	87,571	84,547	80,906	88,299	75,388	69,359	80,914	87,241	83,870	90,768	84,318	80,695	88,021	74,662	68,361	80,444
70 . . . . .	77,153	72,277	82,039	78,090	73,420	82,852	66,938	59,311	73,866	81,817	77,331	86,356	77,810	73,164	82,524	66,116	58,296	73,250
75 . . . . .	68,006	61,980	73,974	68,951	63,120	74,814	56,803	48,077	64,721	74,193	68,486	79,783	68,614	62,811	74,434	55,945	47,123	63,994
80 . . . . .	55,562	48,469	62,448	56,398	49,467	63,215	44,371	35,008	52,784	63,488	56,739	69,870	56,033	49,131	62,810	43,566	34,158	52,070
85 . . . . .	39,797	32,360	46,782	40,370	33,026	47,327	30,546	21,709	38,294	48,872	41,239	55,605	40,034	32,720	46,953	29,900	21,090	37,687
90 . . . . .	22,347	16,223	27,805	22,594	16,478	28,063	17,113	10,603	22,692	30,991	23,767	36,672	22,359	16,273	27,798	16,702	10,260	22,276
95 . . . . .	8,303	5,122	11,006	8,265	5,105	10,951	7,088	3,712	9,938	14,016	9,354	17,163	8,166	5,029	10,834	6,905	3,583	9,739
100 . . . . .	1,680	844	2,345	1,612	808	2,250	1,938	839	2,832	3,812	2,132	4,689	1,592	796	2,226	1,888	811	2,775

SOURCE: CDC/NCHS, National Vital Statistics System.



chronic lower respiratory diseases, Alzheimer's disease, influenza and pneumonia, suicide, and hypertension (10).

The difference in life expectancy between the sexes was 5.0 years in 2008, unchanged from 2007. From 1900 to 1975, the difference in life expectancy between the sexes increased from 2.0 years to 7.8 years. 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 (11,12). Between 1979 and 2005, the difference in life expectancy between the sexes narrowed from 7.8 years to 5.0 years, increasing slightly to 5.1 years in 2006, and declining again to 5.0 years in 2007. The general decline in the sex difference since 1979 reflects proportionately greater increases in lung cancer mortality for women than for men and proportionately larger decreases in heart disease mortality among men (11,12).

The 2008 life table may be used to compare life expectancy at any age from birth onward. On the basis of mortality experienced in 2008, a person aged 65 could expect to live an average of 18.8 more years for a total of 83.8 years; a person aged 85 could expect to live an additional 6.4 years for a total of 91.4 years; and a person aged 100 could expect to live an additional 2.2 years, on average (Table 1).

### Life expectancy by race

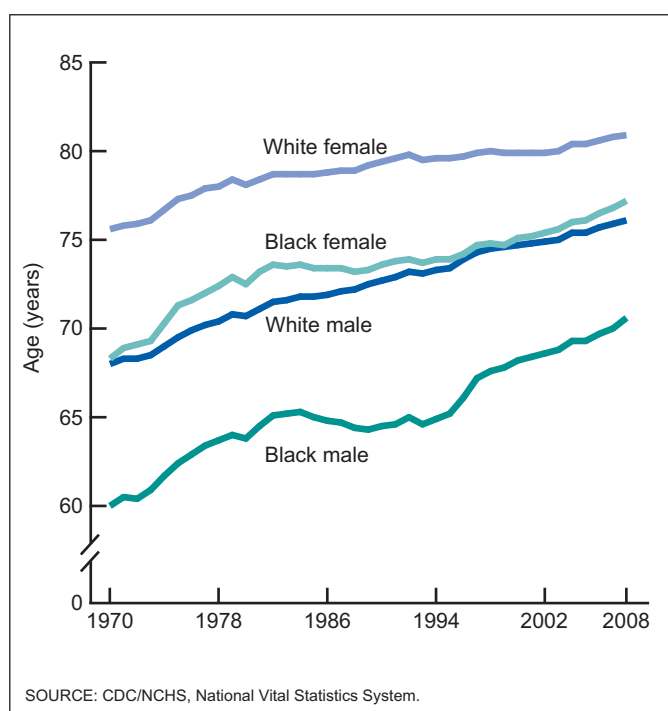
Between 2007 and 2008, life expectancy increased by 0.4 years to 74.0 years for the black population, and by 0.1 years to 78.5 years for the white population. The difference in life expectancy between the white and black populations was 4.5 years in 2008, historically a record low level. The white-black 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 (7.0 years). 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 (12).

Among the four race-sex groups (Figure 1), white females continued to have the highest life expectancy at birth (80.9 years), followed by black females (77.2), white males (76.1), and black males (70.6). Between 2007 and 2008, life expectancy increased by 0.4 years for black females (from 76.8 to 77.2) and by 0.6 years for black males (from 70.0 to 70.6). Black males experienced a decline in life expectancy every year for 1984–1989 (12), followed by annual increases in 1990–1992, 1994–2004, and 2005–2008. Between 2007 and 2008, life expectancy increased by 0.2 years for white males (from 75.9 to 76.1) and by 0.1 years for white females (from 80.8 to 80.9). Overall, gains in life expectancy between 1980 and 2008 were 6.8 years for black males, 5.4 years for white males, 4.7 years for black females, and 2.8 years for white females (Table 19).

### Life expectancy by Hispanic origin

Between 2007 and 2008, life expectancy increased by 0.5 years for the non-Hispanic black population (from 73.2 to 73.7) and by 0.2 years for the Hispanic population (from 80.9 to 81.0) and the non-Hispanic white population (from 78.2 to 78.4) (Table B). In 2008, the Hispanic population had a life expectancy advantage at birth of 2.6 years over the non-Hispanic white population and 7.3 years over the non-Hispanic black population.

Among the six Hispanic-origin race-sex groups (Figure 2), Hispanic females continued to have the highest life expectancy at birth



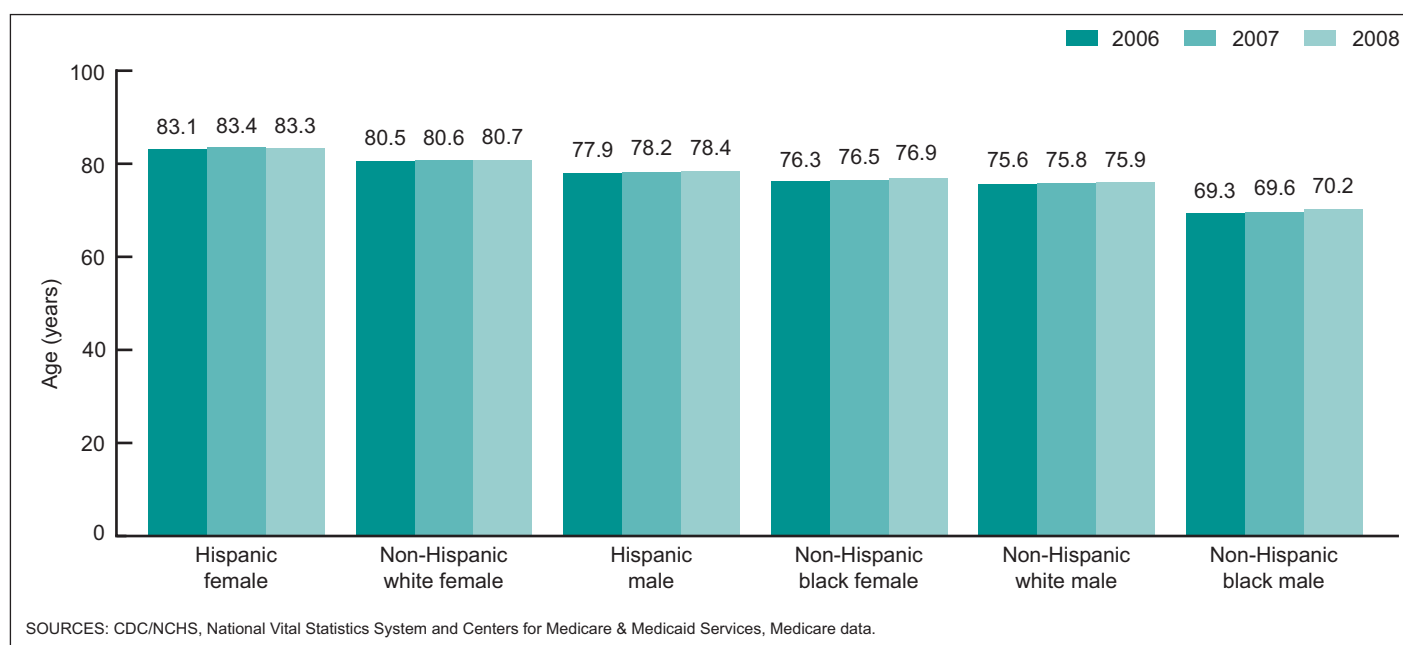
**Figure 1. Life expectancy at birth, by race and sex: United States, 1970–2008**

(83.3 years), followed by non-Hispanic white females (80.7), Hispanic males (78.4), non-Hispanic black females (76.9), non-Hispanic white males (75.9), and non-Hispanic black males (70.2). The smallest difference is between Hispanic and non-Hispanic white females, with Hispanic females having an advantage of 2.6 years. The largest difference is between Hispanic females and non-Hispanic black males, with Hispanic females having a life expectancy at birth 13.1 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 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 74.0 years in 2008 but was 73.7 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 78.5 years in 2008, but was 78.4 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 C summarizes the number of survivors out of 100,000 persons born alive ( $l_x$ ) by age, race, Hispanic origin, and sex for 2008. Table 20 shows trends in survivorship from 1900 to 2008. In



**Figure 2. Life expectancy at birth, by Hispanic origin, race, and sex: United States, 2006–2008**

2008, 99.3% 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 2008 period life table cohort, 55.6% survived to age 80 and about 1.7% survived to age 100. In 1900, the median age at death was 58 and only 0.03% survived to age 100.

### Survivorship by race

Among the four race-sex groups (Table C), white females have the highest median age at death with about 50.8% surviving to age 84. Of the original hypothetical cohort of 100,000 infant white females, 99.1% survive to age 20, 88.3% survive to age 65, and 47.3% survive to age 85. White males have slightly higher survival rates than black females at the younger ages, with 98.8% surviving to age 20 compared with 98.4% of black females. At the older ages, however, black female survival surpasses white male survival. The crossover occurs at age 66, when black female survival begins to surpass that of white males. By age 85, white male survival is 33.0% compared with 38.3% for black females. The median age at death for black males is 74 years, 10 years less than that for white females. Among black males, 97.6% survive to age 20, 69.4% to age 65, and 21.7% to age 85. By age 100, there is very little difference between the white and black populations in terms of survival. Less than 1% of white and black males, and slightly over 2% of white and black females, survive to age 100.

### Survivorship by Hispanic origin

In 2008, 99.4% of Hispanic infants survived the first year of life, compared with 99.5% of non-Hispanic white and 98.7% of non-Hispanic black infants. Ninety-nine percent of both the Hispanic and non-Hispanic white populations survived to age 20, while 97.9% 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, 87.2% of the Hispanic population survived to age 65, compared with 84.3% of the non-Hispanic white and 74.7% of the non-Hispanic black populations. The Hispanic survival advantage increases with age so that by age 85 nearly one-half (48.9%) of the Hispanic population has survived, compared with 40.0% of the non-Hispanic white and 29.9% 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 87 (Figure 3). The next group with the highest median age at death is non-Hispanic white females, with 50.5% surviving to age 84. Hispanic males had 50.9% surviving to age 82, followed by non-Hispanic black females with 49.4% surviving to age 81, non-Hispanic white males with 49.1% surviving to age 80, and finally non-Hispanic black males with 49.5% surviving to age 74 (see Technical Notes).

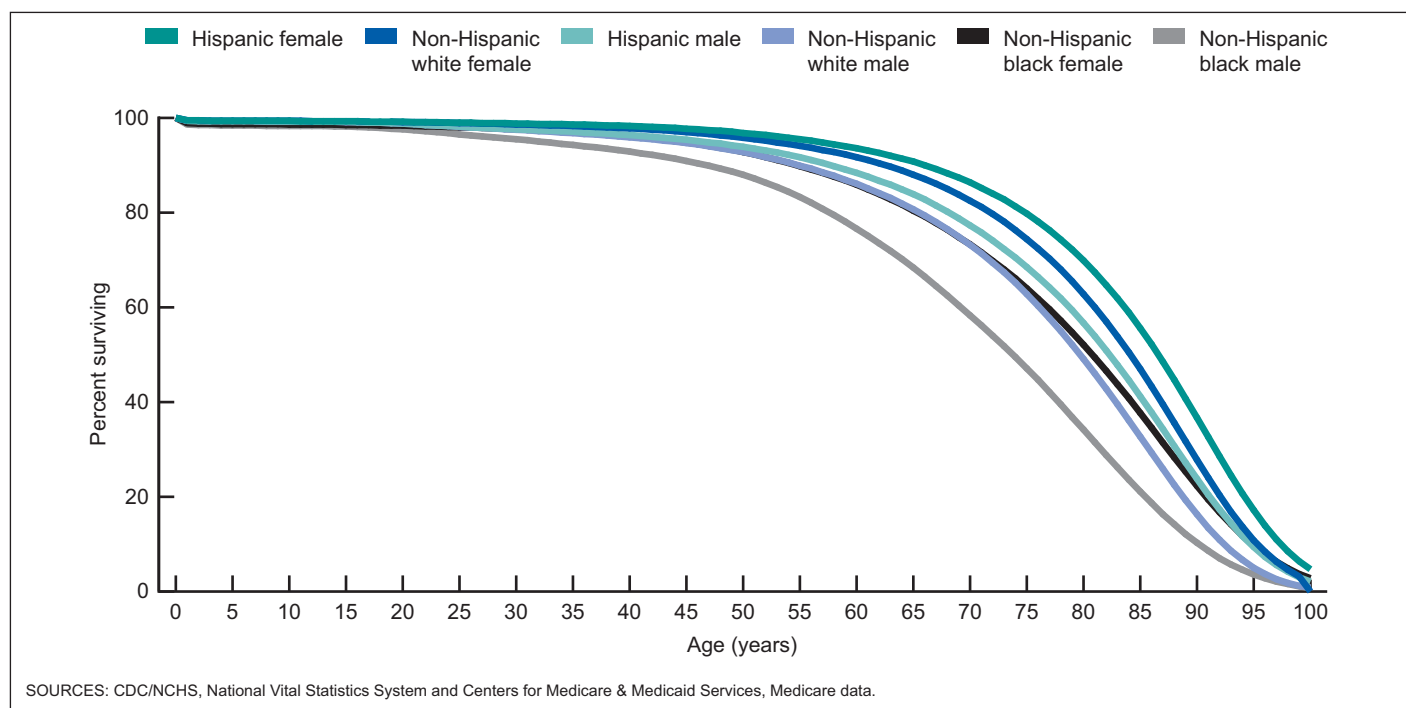


Figure 3. Percentage surviving, by Hispanic origin, race, age, and sex: United States, 2008

## References

- Shryock HS, Siegel JS, Larmon EA. The methods and materials of demography, vol 2. U.S. Bureau of the Census. Washington, DC: U.S. Government Printing Office. 1971.
- Moriyama IM, Gustavus SO. Cohort mortality and survivorship, United States death-registration states, 1900–1968. National Center for Health Statistics. Vital Health Stat 3(16). 1972. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_03/sr03\\_016.pdf](http://www.cdc.gov/nchs/data/series/sr_03/sr03_016.pdf).
- Preston SM, Heuveline P, Guillot M. Demography: Measuring and modeling population processes. Oxford: Blackwell Publishers. 2001.
- Sirken MG. Comparison of two methods of constructing abridged life tables by reference to a “standard” table. National Center for Health Statistics. Vital Health Stat 2(4). 1966. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_02/sr02\\_004.pdf](http://www.cdc.gov/nchs/data/series/sr_02/sr02_004.pdf).
- Arias E. United States life tables, 2007. National vital statistics reports; vol 59 no 9. Hyattsville, MD: National Center for Health Statistics. 2011. Available from: [http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59\\_09.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_09.pdf).
- Wei R, Curtin LR, Arias E, Anderson RN. U.S. decennial life tables for 1999–2001: Methodology of the United States life tables. National vital statistics reports; vol 57 no 4. Hyattsville, MD: National Center for Health Statistics. 2008. Available from: [http://www.cdc.gov/nchs/data/nvsr/nvsr57/nvsr57\\_04.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr57/nvsr57_04.pdf).
- Arias E, Rostron BL, Tejada-Vera B. United States life tables, 2005. National vital statistics reports; vol 58 no 10. Hyattsville, MD: National Center for Health Statistics. 2010. Available from: [http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58\\_10.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_10.pdf).
- Arias E. United States life tables, 2006. National vital statistics reports; vol 58 no 21. Hyattsville, MD: National Center for Health Statistics. 2010. Available from: [http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58\\_21.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_21.pdf).
- Arias E. United States life tables by Hispanic origin. National Center for Health Statistics. Vital Health Stat 2(152). 2010. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_02/sr02\\_152.pdf](http://www.cdc.gov/nchs/data/series/sr_02/sr02_152.pdf).
- Miniño AM, Murphy SL, Xu JQ, Kochanek KD. Deaths: Final data for 2008. National vital statistics reports; vol 59 no 10. Hyattsville, MD: National Center for Health Statistics. 2011. Available from: [http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59\\_10.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_10.pdf).
- Waldron I. Recent trends in sex mortality ratios for adults in developed countries. Soc Sci Med 36(4):451–62. 1993.
- Kochanek KD, Maurer JD, Rosenberg HM. Causes of death contributing to changes in life expectancy: United States, 1984–89. National Center for Health Statistics. Vital Health Stat 20(23). 1994. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_20/sr20\\_023.pdf](http://www.cdc.gov/nchs/data/series/sr_20/sr20_023.pdf).
- Anderson RN. A method for constructing complete annual U.S. life tables. National Center for Health Statistics. Vital Health Stat 2(129). 1999. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_02/sr02\\_129.pdf](http://www.cdc.gov/nchs/data/series/sr_02/sr02_129.pdf).
- Arias E, Schauman WS, Eschbach K, et al. The validity of race and Hispanic origin reporting on death certificates in the United States. National Center for Health Statistics. Vital Health Stat 2(148). 2008. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_02/sr02\\_148.pdf](http://www.cdc.gov/nchs/data/series/sr_02/sr02_148.pdf).
- Arias E, Eschbach K, Schauman WS, Backlund EL, Sorlie PD. The Hispanic mortality advantage and ethnic misclassification on US death certificates. Am J Public Health 100(Suppl 1):S171–7. 2010.
- Anderson RN, Arias E. The effect of revised populations on mortality statistics for the United States, 2000. National vital statistics reports; vol 51 no 9. Hyattsville, MD: National Center for Health Statistics. 2003. Available from: [http://www.cdc.gov/nchs/data/nvsr/nvsr51/nvsr51\\_09.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr51/nvsr51_09.pdf).
- Greville TNE, Carlson GA. Estimated average length of life in the death-registration states. National Center for Health Statistics. Vital statistics—Special reports 33(9). Washington, DC: Public Health Service. 1951.
- Office of Management and Budget. Revisions to the standards for the classification of federal data on race and ethnicity. Fed Regist 62(210):58782–90. 1997. Available from: [http://www.whitehouse.gov/omb/fedreg\\_1997standards](http://www.whitehouse.gov/omb/fedreg_1997standards).



19. Office of Management and Budget. Race and ethnic standards for federal statistics and administrative reporting. Statistical Policy Directive 15. 1977. Available from: <http://wonder.cdc.gov/WONDER/help/populations/bridged-race/Directive15.html>.
20. Ingram DD, Parker JD, Schenker N, et al. United States Census 2000 population with bridged race categories. National Center for Health Statistics. Vital Health Stat 2(135). 2003. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_02/sr02\\_135.pdf](http://www.cdc.gov/nchs/data/series/sr_02/sr02_135.pdf).
21. U.S. Census Bureau. Age, sex, race, and Hispanic origin information from the 1990 census: A comparison of census results with results where age and race have been modified, 1990. CPH-L-74. Washington, D.C.: U.S. Department of Commerce. 1991.
22. Bell FC, Miller ML. Life tables for the United States Social Security Area 1900–2100. Baltimore, MD: Social Security Administration, Office of the Chief Actuary. SSA Pub. No. 11–11536. 2005.
23. Research Data Assistance Center. Introduction to the use of Medicare data for research. Minneapolis, MN: University of Minnesota School of Public Health. 2004.
24. Mathews TJ, MacDorman MF. Infant mortality statistics from the 2007 period linked birth/infant death data set. National vital statistics reports; vol 59 no 6. Hyattsville, MD: National Center for Health Statistics. 2011. Available from: [http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59\\_06.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_06.pdf).
25. Mathews TJ, MacDorman MF. Infant mortality statistics from the 2008 period linked birth/infant death data set. National vital statistics reports; vol 60 no 5. Hyattsville, MD: National Center for Health Statistics. 2012. Available from: [http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60\\_05.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_05.pdf).
26. Turra CM, Elo IT. The impact of salmon bias on the Hispanic mortality advantage: New evidence from Social Security data. *Popul Res Policy Rev* 27(5):515–30. 2008.
27. Chiang CL. The life table and its applications. Malabar, FL: Krieger Publishing. 1984.
28. Thatcher AR, Kannisto V, Vaupel JW. The force of mortality at ages 80 to 120. Odense, Denmark: Odense University Press. 1998.
29. Andreev KF, Bourbeau RR. Frailty modeling of Canadian and Swedish mortality at adult and advanced ages. Silver Spring, MD: Population Association of America. 2007.
30. Elo IT, Turra CM, Kestenbaum B, Fergusson BR. Mortality among elderly Hispanics in the United States: Past evidence and new results. *Demography* 41(1):109–28. 2004.
31. Brass W. On the scale of mortality. In: Brass W, ed., *Biological aspects of demography*. 99–110. London: Taylor and Francis. 1971.
32. Himes CL, Preston SH, Condran GA. A relational model of mortality at older ages in low mortality countries. *Popul Stud* 48(2):269–91. 1994.
33. Preston SH, Elo IT. Black mortality at very old ages in official U.S. life tables: A skeptical appraisal. *Popul Dev Rev* 32(3):557–65. 2006.

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**Table 1. Life table for the total population: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table01.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table01.xls).

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	0.006593	100,000	659	99,425	7,812,389	78.1
1-2	0.000461	99,341	46	99,318	7,712,964	77.6
2-3	0.000281	99,295	28	99,281	7,613,646	76.7
3-4	0.000219	99,267	22	99,256	7,514,365	75.7
4-5	0.000172	99,245	17	99,237	7,415,109	74.7
5-6	0.000155	99,228	15	99,221	7,315,872	73.7
6-7	0.000139	99,213	14	99,206	7,216,651	72.7
7-8	0.000126	99,199	12	99,193	7,117,445	71.7
8-9	0.000110	99,187	11	99,181	7,018,252	70.8
9-10	0.000093	99,176	9	99,171	6,919,071	69.8
10-11	0.000081	99,167	8	99,162	6,819,900	68.8
11-12	0.000087	99,158	9	99,154	6,720,738	67.8
12-13	0.000123	99,150	12	99,144	6,621,583	66.8
13-14	0.000196	99,138	19	99,128	6,522,440	65.8
14-15	0.000293	99,118	29	99,104	6,423,312	64.8
15-16	0.000395	99,089	39	99,070	6,324,208	63.8
16-17	0.000490	99,050	49	99,026	6,225,138	62.8
17-18	0.000581	99,002	58	98,973	6,126,112	61.9
18-19	0.000666	98,944	66	98,911	6,027,139	60.9
19-20	0.000746	98,878	74	98,841	5,928,228	60.0
20-21	0.000832	98,804	82	98,763	5,829,387	59.0
21-22	0.000915	98,722	90	98,677	5,730,624	58.0
22-23	0.000972	98,632	96	98,584	5,631,946	57.1
23-24	0.000993	98,536	98	98,487	5,533,362	56.2
24-25	0.000987	98,438	97	98,390	5,434,875	55.2
25-26	0.000974	98,341	96	98,293	5,336,485	54.3
26-27	0.000966	98,245	95	98,198	5,238,192	53.3
27-28	0.000964	98,150	95	98,103	5,139,994	52.4
28-29	0.000973	98,056	95	98,008	5,041,891	51.4
29-30	0.000993	97,960	97	97,912	4,943,883	50.5
30-31	0.001020	97,863	100	97,813	4,845,971	49.5
31-32	0.001052	97,763	103	97,712	4,748,158	48.6
32-33	0.001088	97,660	106	97,607	4,650,446	47.6
33-34	0.001134	97,554	111	97,499	4,552,839	46.7
34-35	0.001183	97,443	115	97,386	4,455,340	45.7
35-36	0.001242	97,328	121	97,268	4,357,954	44.8
36-37	0.001314	97,207	128	97,143	4,260,687	43.8
37-38	0.001400	97,080	136	97,012	4,163,543	42.9
38-39	0.001507	96,944	146	96,871	4,066,531	41.9
39-40	0.001635	96,798	158	96,718	3,969,661	41.0
40-41	0.001777	96,639	172	96,553	3,872,942	40.1
41-42	0.001937	96,468	187	96,374	3,776,389	39.1
42-43	0.002128	96,281	205	96,178	3,680,015	38.2
43-44	0.002348	96,076	226	95,963	3,583,837	37.3
44-45	0.002588	95,850	248	95,726	3,487,873	36.4
45-46	0.002833	95,602	271	95,467	3,392,147	35.5
46-47	0.003082	95,331	294	95,184	3,296,681	34.6
47-48	0.003350	95,038	318	94,878	3,201,496	33.7
48-49	0.003647	94,719	345	94,546	3,106,618	32.8
49-50	0.003974	94,374	375	94,186	3,012,071	31.9
50-51	0.004331	93,999	407	93,795	2,917,885	31.0
51-52	0.004703	93,592	440	93,371	2,824,090	30.2
52-53	0.005080	93,151	473	92,915	2,730,719	29.3
53-54	0.005455	92,678	506	92,425	2,637,804	28.5
54-55	0.005837	92,173	538	91,904	2,545,379	27.6
55-56	0.006244	91,635	572	91,348	2,453,475	26.8
56-57	0.006696	91,062	610	90,757	2,362,127	25.9
57-58	0.007200	90,453	651	90,127	2,271,369	25.1
58-59	0.007767	89,801	698	89,453	2,181,242	24.3
59-60	0.008397	89,104	748	88,730	2,091,790	23.5
60-61	0.009094	88,356	804	87,954	2,003,060	22.7
61-62	0.009850	87,552	862	87,121	1,915,106	21.9
62-63	0.010659	86,690	924	86,228	1,827,985	21.1

See footnote at end of table.

**Table 1. Life table for the total population: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table01.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table01.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.011524	85,766	988	85,272	1,741,757	20.3
64-65	0.012470	84,777	1,057	84,249	1,656,486	19.5
65-66	0.013556	83,720	1,135	83,153	1,572,237	18.8
66-67	0.014791	82,585	1,222	81,974	1,489,084	18.0
67-68	0.016128	81,364	1,312	80,708	1,407,110	17.3
68-69	0.017526	80,052	1,403	79,350	1,326,402	16.6
69-70	0.019016	78,649	1,496	77,901	1,247,052	15.9
70-71	0.020614	77,153	1,590	76,358	1,169,152	15.2
71-72	0.022470	75,563	1,698	74,714	1,092,794	14.5
72-73	0.024658	73,865	1,821	72,954	1,018,080	13.8
73-74	0.027108	72,043	1,953	71,067	945,126	13.1
74-75	0.029742	70,090	2,085	69,048	874,059	12.5
75-76	0.032550	68,006	2,214	66,899	805,011	11.8
76-77	0.035608	65,792	2,343	64,621	738,112	11.2
77-78	0.039071	63,449	2,479	62,210	673,491	10.6
78-79	0.043101	60,970	2,628	59,656	611,281	10.0
79-80	0.047659	58,343	2,781	56,952	551,625	9.5
80-81	0.052515	55,562	2,918	54,103	494,673	8.9
81-82	0.057686	52,644	3,037	51,126	440,570	8.4
82-83	0.063567	49,607	3,153	48,031	389,444	7.9
83-84	0.070564	46,454	3,278	44,815	341,413	7.3
84-85	0.078249	43,176	3,378	41,487	296,598	6.9
85-86	0.086853	39,797	3,457	38,069	255,112	6.4
86-87	0.096796	36,341	3,518	34,582	217,042	6.0
87-88	0.107836	32,823	3,540	31,054	182,460	5.6
88-89	0.119871	29,284	3,510	27,529	151,407	5.2
89-90	0.132929	25,774	3,426	24,060	123,878	4.8
90-91	0.147027	22,347	3,286	20,705	99,818	4.5
91-92	0.162166	19,062	3,091	17,516	79,113	4.2
92-93	0.178329	15,971	2,848	14,547	61,597	3.9
93-94	0.195479	13,123	2,565	11,840	47,050	3.6
94-95	0.213557	10,557	2,255	9,430	35,210	3.3
95-96	0.232482	8,303	1,930	7,338	25,780	3.1
96-97	0.252150	6,373	1,607	5,569	18,442	2.9
97-98	0.272439	4,766	1,298	4,117	12,873	2.7
98-99	0.293205	3,467	1,017	2,959	8,757	2.5
99-100	0.314293	2,451	770	2,066	5,798	2.4
100 and over	1.000000	1,680	1,680	3,732	3,732	2.2

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 2. Life table for males: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table02.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table02.xls).

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	0.007195	100,000	720	99,374	7,559,612	75.6
1-2	0.000504	99,280	50	99,255	7,460,238	75.1
2-3	0.000319	99,230	32	99,215	7,360,983	74.2
3-4	0.000248	99,199	25	99,187	7,261,768	73.2
4-5	0.000189	99,174	19	99,165	7,162,581	72.2
5-6	0.000172	99,155	17	99,147	7,063,417	71.2
6-7	0.000156	99,138	15	99,131	6,964,270	70.2
7-8	0.000140	99,123	14	99,116	6,865,139	69.3
8-9	0.000119	99,109	12	99,103	6,766,023	68.3
9-10	0.000093	99,097	9	99,093	6,666,920	67.3
10-11	0.000074	99,088	7	99,084	6,567,827	66.3
11-12	0.000080	99,081	8	99,077	6,468,743	65.3
12-13	0.000132	99,073	13	99,066	6,369,666	64.3
13-14	0.000239	99,060	24	99,048	6,270,600	63.3
14-15	0.000384	99,036	38	99,017	6,171,552	62.3
15-16	0.000535	98,998	53	98,972	6,072,535	61.3
16-17	0.000675	98,945	67	98,912	5,973,563	60.4
17-18	0.000813	98,878	80	98,838	5,874,651	59.4
18-19	0.000949	98,798	94	98,751	5,775,813	58.5
19-20	0.001081	98,704	107	98,651	5,677,062	57.5
20-21	0.001225	98,598	121	98,537	5,578,411	56.6
21-22	0.001359	98,477	134	98,410	5,479,874	55.6
22-23	0.001447	98,343	142	98,272	5,381,464	54.7
23-24	0.001470	98,201	144	98,129	5,283,192	53.8
24-25	0.001444	98,056	142	97,986	5,185,064	52.9
25-26	0.001403	97,915	137	97,846	5,087,078	52.0
26-27	0.001372	97,777	134	97,710	4,989,232	51.0
27-28	0.001352	97,643	132	97,577	4,891,522	50.1
28-29	0.001353	97,511	132	97,445	4,793,945	49.2
29-30	0.001371	97,379	134	97,313	4,696,499	48.2
30-31	0.001399	97,246	136	97,178	4,599,187	47.3
31-32	0.001427	97,110	139	97,040	4,502,009	46.4
32-33	0.001461	96,971	142	96,900	4,404,969	45.4
33-34	0.001504	96,829	146	96,757	4,308,068	44.5
34-35	0.001551	96,684	150	96,609	4,211,312	43.6
35-36	0.001611	96,534	156	96,456	4,114,703	42.6
36-37	0.001688	96,378	163	96,297	4,018,247	41.7
37-38	0.001782	96,216	171	96,130	3,921,950	40.8
38-39	0.001899	96,044	182	95,953	3,825,820	39.8
39-40	0.002042	95,862	196	95,764	3,729,866	38.9
40-41	0.002203	95,666	211	95,561	3,634,102	38.0
41-42	0.002388	95,455	228	95,342	3,538,542	37.1
42-43	0.002614	95,228	249	95,103	3,443,200	36.2
43-44	0.002881	94,979	274	94,842	3,348,097	35.3
44-45	0.003176	94,705	301	94,555	3,253,255	34.4
45-46	0.003478	94,404	328	94,240	3,158,701	33.5
46-47	0.003789	94,076	356	93,898	3,064,460	32.6
47-48	0.004132	93,719	387	93,526	2,970,563	31.7
48-49	0.004522	93,332	422	93,121	2,877,037	30.8
49-50	0.004958	92,910	461	92,680	2,783,916	30.0
50-51	0.005431	92,449	502	92,198	2,691,236	29.1
51-52	0.005922	91,947	545	91,675	2,599,038	28.3
52-53	0.006423	91,403	587	91,109	2,507,362	27.4
53-54	0.006925	90,816	629	90,501	2,416,253	26.6
54-55	0.007436	90,187	671	89,852	2,325,752	25.8
55-56	0.007983	89,516	715	89,159	2,235,900	25.0
56-57	0.008581	88,802	762	88,421	2,146,741	24.2
57-58	0.009219	88,040	812	87,634	2,058,321	23.4
58-59	0.009899	87,228	863	86,796	1,970,687	22.6
59-60	0.010626	86,364	918	85,906	1,883,891	21.8
60-61	0.011414	85,447	975	84,959	1,797,985	21.0
61-62	0.012274	84,471	1,037	83,953	1,713,026	20.3
62-63	0.013209	83,435	1,102	82,884	1,629,073	19.5

See footnote at end of table.

**Table 2. Life table for males: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table02.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table02.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.014236	82,333	1,172	81,747	1,546,189	18.8
64-65	0.015382	81,160	1,248	80,536	1,464,443	18.0
65-66	0.016699	79,912	1,334	79,245	1,383,907	17.3
66-67	0.018184	78,578	1,429	77,863	1,304,662	16.6
67-68	0.019793	77,149	1,527	76,385	1,226,799	15.9
68-69	0.021473	75,622	1,624	74,810	1,150,414	15.2
69-70	0.023251	73,998	1,720	73,138	1,075,604	14.5
70-71	0.025139	72,277	1,817	71,369	1,002,466	13.9
71-72	0.027310	70,460	1,924	69,498	931,097	13.2
72-73	0.029927	68,536	2,051	67,511	861,599	12.6
73-74	0.032876	66,485	2,186	65,392	794,088	11.9
74-75	0.036072	64,299	2,319	63,140	728,696	11.3
75-76	0.039506	61,980	2,449	60,756	665,557	10.7
76-77	0.043153	59,531	2,569	58,247	604,801	10.2
77-78	0.047308	56,962	2,695	55,615	546,554	9.6
78-79	0.052154	54,268	2,830	52,852	490,940	9.0
79-80	0.057697	51,437	2,968	49,953	438,087	8.5
80-81	0.063533	48,469	3,079	46,930	388,134	8.0
81-82	0.069684	45,390	3,163	43,809	341,204	7.5
82-83	0.076575	42,227	3,234	40,610	297,395	7.0
83-84	0.084612	38,994	3,299	37,344	256,785	6.6
84-85	0.093410	35,694	3,334	34,027	219,441	6.1
85-86	0.103950	32,360	3,364	30,678	185,414	5.7
86-87	0.115393	28,996	3,346	27,323	154,736	5.3
87-88	0.127809	25,650	3,278	24,011	127,412	5.0
88-89	0.141219	22,372	3,159	20,792	103,401	4.6
89-90	0.155630	19,213	2,990	17,718	82,609	4.3
90-91	0.171033	16,223	2,775	14,835	64,891	4.0
91-92	0.187401	13,448	2,520	12,188	50,056	3.7
92-93	0.204688	10,928	2,237	9,809	37,868	3.5
93-94	0.222829	8,691	1,937	7,723	28,059	3.2
94-95	0.241737	6,754	1,633	5,938	20,336	3.0
95-96	0.261304	5,122	1,338	4,452	14,398	2.8
96-97	0.281406	3,783	1,065	3,251	9,946	2.6
97-98	0.301903	2,719	821	2,308	6,695	2.5
98-99	0.322643	1,898	612	1,592	4,387	2.3
99-100	0.343465	1,286	442	1,065	2,795	2.2
100 and over	1.000000	844	844	1,730	1,730	2.0

SOURCE: CDC/NCHS, National Vital Statistics System.



**Table 3. Life table for females: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table03.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table03.xls).

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	0.005961	100,000	596	99,478	8,057,125	80.6
1-2	0.000416	99,404	41	99,383	7,957,647	80.1
2-3	0.000241	99,363	24	99,351	7,858,264	79.1
3-4	0.000188	99,339	19	99,329	7,758,913	78.1
4-5	0.000154	99,320	15	99,312	7,659,584	77.1
5-6	0.000137	99,305	14	99,298	7,560,271	76.1
6-7	0.000122	99,291	12	99,285	7,460,974	75.1
7-8	0.000111	99,279	11	99,274	7,361,688	74.2
8-9	0.000101	99,268	10	99,263	7,262,415	73.2
9-10	0.000093	99,258	9	99,253	7,163,152	72.2
10-11	0.000089	99,249	9	99,244	7,063,899	71.2
11-12	0.000094	99,240	9	99,235	6,964,654	70.2
12-13	0.000113	99,231	11	99,225	6,865,419	69.2
13-14	0.000150	99,219	15	99,212	6,766,194	68.2
14-15	0.000197	99,205	20	99,195	6,666,982	67.2
15-16	0.000249	99,185	25	99,173	6,567,787	66.2
16-17	0.000297	99,160	29	99,146	6,468,615	65.2
17-18	0.000337	99,131	33	99,114	6,369,469	64.3
18-19	0.000368	99,097	36	99,079	6,270,355	63.3
19-20	0.000392	99,061	39	99,042	6,171,276	62.3
20-21	0.000416	99,022	41	99,002	6,072,234	61.3
21-22	0.000442	98,981	44	98,959	5,973,233	60.3
22-23	0.000466	98,937	46	98,914	5,874,274	59.4
23-24	0.000485	98,891	48	98,867	5,775,359	58.4
24-25	0.000502	98,843	50	98,818	5,676,492	57.4
25-26	0.000519	98,794	51	98,768	5,577,674	56.5
26-27	0.000537	98,742	53	98,716	5,478,906	55.5
27-28	0.000556	98,689	55	98,662	5,380,190	54.5
28-29	0.000575	98,634	57	98,606	5,281,529	53.5
29-30	0.000597	98,578	59	98,548	5,182,923	52.6
30-31	0.000626	98,519	62	98,488	5,084,374	51.6
31-32	0.000662	98,457	65	98,424	4,985,887	50.6
32-33	0.000704	98,392	69	98,357	4,887,462	49.7
33-34	0.000754	98,323	74	98,286	4,789,105	48.7
34-35	0.000807	98,248	79	98,209	4,690,819	47.7
35-36	0.000865	98,169	85	98,127	4,592,611	46.8
36-37	0.000933	98,084	92	98,039	4,494,484	45.8
37-38	0.001013	97,993	99	97,943	4,396,445	44.9
38-39	0.001110	97,893	109	97,839	4,298,502	43.9
39-40	0.001225	97,785	120	97,725	4,200,663	43.0
40-41	0.001349	97,665	132	97,599	4,102,938	42.0
41-42	0.001485	97,533	145	97,461	4,005,339	41.1
42-43	0.001642	97,388	160	97,308	3,907,878	40.1
43-44	0.001818	97,229	177	97,140	3,810,570	39.2
44-45	0.002006	97,052	195	96,954	3,713,430	38.3
45-46	0.002196	96,857	213	96,751	3,616,475	37.3
46-47	0.002387	96,644	231	96,529	3,519,725	36.4
47-48	0.002584	96,414	249	96,289	3,423,196	35.5
48-49	0.002793	96,164	269	96,030	3,326,907	34.6
49-50	0.003018	95,896	289	95,751	3,230,877	33.7
50-51	0.003264	95,606	312	95,450	3,135,126	32.8
51-52	0.003524	95,294	336	95,126	3,039,675	31.9
52-53	0.003786	94,958	359	94,779	2,944,549	31.0
53-54	0.004044	94,599	383	94,408	2,849,770	30.1
54-55	0.004309	94,216	406	94,013	2,755,363	29.2
55-56	0.004589	93,810	431	93,595	2,661,349	28.4
56-57	0.004910	93,380	459	93,151	2,567,754	27.5
57-58	0.005295	92,921	492	92,675	2,474,603	26.6
58-59	0.005764	92,429	533	92,163	2,381,928	25.8
59-60	0.006312	91,897	580	91,607	2,289,765	24.9
60-61	0.006931	91,317	633	91,000	2,198,158	24.1
61-62	0.007600	90,684	689	90,339	2,107,158	23.2
62-63	0.008306	89,994	747	89,621	2,016,819	22.4

See footnote at end of table.

**Table 3. Life table for females: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table03.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table03.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.009039	89,247	807	88,844	1,927,198	21.6
64-65	0.009824	88,440	869	88,006	1,838,355	20.8
65-66	0.010728	87,571	940	87,102	1,750,349	20.0
66-67	0.011769	86,632	1,020	86,122	1,663,247	19.2
67-68	0.012896	85,612	1,104	85,060	1,577,125	18.4
68-69	0.014078	84,508	1,190	83,913	1,492,065	17.7
69-70	0.015354	83,319	1,279	82,679	1,408,151	16.9
70-71	0.016739	82,039	1,373	81,353	1,325,472	16.2
71-72	0.018376	80,666	1,482	79,925	1,244,120	15.4
72-73	0.020264	79,184	1,605	78,381	1,164,195	14.7
73-74	0.022376	77,579	1,736	76,711	1,085,814	14.0
74-75	0.024642	75,843	1,869	74,909	1,009,102	13.3
75-76	0.027052	73,974	2,001	72,974	934,194	12.6
76-77	0.029760	71,973	2,142	70,902	861,220	12.0
77-78	0.032820	69,831	2,292	68,685	790,318	11.3
78-79	0.036407	67,539	2,459	66,310	721,632	10.7
79-80	0.040456	65,080	2,633	63,764	655,323	10.1
80-81	0.044850	62,448	2,801	61,047	591,559	9.5
81-82	0.049610	59,647	2,959	58,167	530,511	8.9
82-83	0.055128	56,688	3,125	55,125	472,344	8.3
83-84	0.061786	53,563	3,309	51,908	417,219	7.8
84-85	0.069084	50,253	3,472	48,517	365,311	7.3
85-86	0.077278	46,782	3,615	44,974	316,793	6.8
86-87	0.086928	43,166	3,752	41,290	271,820	6.3
87-88	0.097615	39,414	3,847	37,490	230,529	5.8
88-89	0.109368	35,567	3,890	33,622	193,039	5.4
89-90	0.122232	31,677	3,872	29,741	159,418	5.0
90-91	0.136239	27,805	3,788	25,911	129,677	4.7
91-92	0.151405	24,017	3,636	22,199	103,766	4.3
92-93	0.167725	20,380	3,418	18,671	81,567	4.0
93-94	0.185173	16,962	3,141	15,392	62,896	3.7
94-95	0.203694	13,821	2,815	12,414	47,505	3.4
95-96	0.223209	11,006	2,457	9,778	35,091	3.2
96-97	0.243610	8,549	2,083	7,508	25,313	3.0
97-98	0.264762	6,467	1,712	5,611	17,805	2.8
98-99	0.286507	4,754	1,362	4,073	12,195	2.6
99-100	0.308667	3,392	1,047	2,869	8,122	2.4
100 and over	1.000000	2,345	2,345	5,253	5,253	2.2

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 4. Life table for the white population: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table04.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table04.xls).

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	0.005535	100,000	553	99,517	7,850,315	78.5
1-2	0.000429	99,447	43	99,425	7,750,798	77.9
2-3	0.000259	99,404	26	99,391	7,651,373	77.0
3-4	0.000197	99,378	20	99,368	7,551,982	76.0
4-5	0.000155	99,359	15	99,351	7,452,614	75.0
5-6	0.000141	99,343	14	99,336	7,353,263	74.0
6-7	0.000127	99,329	13	99,323	7,253,927	73.0
7-8	0.000115	99,316	11	99,311	7,154,604	72.0
8-9	0.000101	99,305	10	99,300	7,055,293	71.0
9-10	0.000086	99,295	9	99,291	6,955,993	70.1
10-11	0.000075	99,286	7	99,283	6,856,703	69.1
11-12	0.000080	99,279	8	99,275	6,757,420	68.1
12-13	0.000114	99,271	11	99,265	6,658,145	67.1
13-14	0.000182	99,260	18	99,251	6,558,880	66.1
14-15	0.000273	99,242	27	99,228	6,459,629	65.1
15-16	0.000369	99,214	37	99,196	6,360,401	64.1
16-17	0.000458	99,178	45	99,155	6,261,205	63.1
17-18	0.000544	99,132	54	99,105	6,162,050	62.2
18-19	0.000625	99,078	62	99,047	6,062,944	61.2
19-20	0.000702	99,016	70	98,982	5,963,897	60.2
20-21	0.000783	98,947	78	98,908	5,864,915	59.3
21-22	0.000861	98,869	85	98,827	5,766,007	58.3
22-23	0.000914	98,784	90	98,739	5,667,180	57.4
23-24	0.000933	98,694	92	98,648	5,568,441	56.4
24-25	0.000927	98,602	91	98,556	5,469,793	55.5
25-26	0.000914	98,510	90	98,465	5,371,237	54.5
26-27	0.000906	98,420	89	98,376	5,272,772	53.6
27-28	0.000904	98,331	89	98,287	5,174,396	52.6
28-29	0.000912	98,242	90	98,198	5,076,109	51.7
29-30	0.000930	98,153	91	98,107	4,977,911	50.7
30-31	0.000956	98,061	94	98,015	4,879,804	49.8
31-32	0.000986	97,968	97	97,919	4,781,790	48.8
32-33	0.001022	97,871	100	97,821	4,683,870	47.9
33-34	0.001066	97,771	104	97,719	4,586,049	46.9
34-35	0.001115	97,667	109	97,612	4,488,330	46.0
35-36	0.001173	97,558	114	97,501	4,390,718	45.0
36-37	0.001243	97,444	121	97,383	4,293,217	44.1
37-38	0.001327	97,322	129	97,258	4,195,834	43.1
38-39	0.001427	97,193	139	97,124	4,098,576	42.2
39-40	0.001547	97,055	150	96,980	4,001,452	41.2
40-41	0.001678	96,904	163	96,823	3,904,473	40.3
41-42	0.001828	96,742	177	96,653	3,807,649	39.4
42-43	0.002009	96,565	194	96,468	3,710,996	38.4
43-44	0.002222	96,371	214	96,264	3,614,528	37.5
44-45	0.002455	96,157	236	96,039	3,518,264	36.6
45-46	0.002692	95,921	258	95,792	3,422,225	35.7
46-47	0.002931	95,663	280	95,522	3,326,434	34.8
47-48	0.003184	95,382	304	95,230	3,230,911	33.9
48-49	0.003458	95,078	329	94,914	3,135,681	33.0
49-50	0.003757	94,750	356	94,572	3,040,767	32.1
50-51	0.004085	94,394	386	94,201	2,946,195	31.2
51-52	0.004429	94,008	416	93,800	2,851,994	30.3
52-53	0.004777	93,592	447	93,368	2,758,194	29.5
53-54	0.005124	93,145	477	92,906	2,664,826	28.6
54-55	0.005480	92,667	508	92,413	2,571,920	27.8
55-56	0.005859	92,160	540	91,890	2,479,507	26.9
56-57	0.006284	91,620	576	91,332	2,387,617	26.1
57-58	0.006773	91,044	617	90,736	2,296,286	25.2
58-59	0.007342	90,427	664	90,095	2,205,550	24.4
59-60	0.007984	89,763	717	89,405	2,115,455	23.6
60-61	0.008696	89,047	774	88,659	2,026,050	22.8
61-62	0.009459	88,272	835	87,855	1,937,390	21.9
62-63	0.010266	87,437	898	86,989	1,849,535	21.2

See footnote at end of table.

**Table 4. Life table for the white population: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table04.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table04.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.011118	86,540	962	86,059	1,762,547	20.4
64-65	0.012045	85,578	1,031	85,062	1,676,488	19.6
65-66	0.013117	84,547	1,109	83,992	1,591,426	18.8
66-67	0.014343	83,438	1,197	82,839	1,507,434	18.1
67-68	0.015679	82,241	1,289	81,596	1,424,594	17.3
68-69	0.017083	80,952	1,383	80,260	1,342,998	16.6
69-70	0.018583	79,569	1,479	78,829	1,262,738	15.9
70-71	0.020201	78,090	1,577	77,301	1,183,909	15.2
71-72	0.022101	76,513	1,691	75,667	1,106,607	14.5
72-73	0.024332	74,822	1,821	73,911	1,030,940	13.8
73-74	0.026811	73,001	1,957	72,022	957,029	13.1
74-75	0.029460	71,044	2,093	69,997	885,006	12.5
75-76	0.032266	68,951	2,225	67,839	815,009	11.8
76-77	0.035339	66,726	2,358	65,547	747,171	11.2
77-78	0.038842	64,368	2,500	63,118	681,623	10.6
78-79	0.042900	61,868	2,654	60,541	618,505	10.0
79-80	0.047548	59,214	2,815	57,806	557,965	9.4
80-81	0.052500	56,398	2,961	54,918	500,159	8.9
81-82	0.057746	53,437	3,086	51,894	445,241	8.3
82-83	0.063686	50,352	3,207	48,748	393,346	7.8
83-84	0.070722	47,145	3,334	45,478	344,598	7.3
84-85	0.078546	43,811	3,441	42,090	299,120	6.8
85-86	0.087300	40,370	3,524	38,607	257,030	6.4
86-87	0.096959	36,845	3,572	35,059	218,423	5.9
87-88	0.108272	33,273	3,603	31,472	183,364	5.5
88-89	0.120625	29,670	3,579	27,881	151,892	5.1
89-90	0.134049	26,091	3,498	24,343	124,011	4.8
90-91	0.148560	22,594	3,357	20,916	99,669	4.4
91-92	0.164159	19,237	3,158	17,658	78,753	4.1
92-93	0.180823	16,079	2,908	14,626	61,095	3.8
93-94	0.198511	13,172	2,615	11,864	46,469	3.5
94-95	0.217156	10,557	2,293	9,411	34,605	3.3
95-96	0.236666	8,265	1,956	7,287	25,194	3.0
96-97	0.256928	6,309	1,621	5,498	17,908	2.8
97-98	0.277804	4,688	1,302	4,037	12,410	2.6
98-99	0.299137	3,385	1,013	2,879	8,373	2.5
99-100	0.320758	2,373	761	1,992	5,494	2.3
100 and over	1.000000	1,612	1,612	3,502	3,502	2.2

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 5. Life table for white males: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table05.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table05.xls).

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	0.006040	100,000	604	99,474	7,605,194	76.1
1-2	0.000464	99,396	46	99,373	7,505,720	75.5
2-3	0.000299	99,350	30	99,335	7,406,347	74.5
3-4	0.000234	99,320	23	99,309	7,307,012	73.6
4-5	0.000167	99,297	17	99,289	7,207,703	72.6
5-6	0.000157	99,280	16	99,273	7,108,415	71.6
6-7	0.000140	99,265	14	99,258	7,009,142	70.6
7-8	0.000125	99,251	12	99,245	6,909,884	69.6
8-9	0.000106	99,239	10	99,233	6,810,640	68.6
9-10	0.000084	99,228	8	99,224	6,711,406	67.6
10-11	0.000068	99,220	7	99,216	6,612,182	66.6
11-12	0.000076	99,213	8	99,209	6,512,966	65.6
12-13	0.000124	99,205	12	99,199	6,413,757	64.7
13-14	0.000222	99,193	22	99,182	6,314,558	63.7
14-15	0.000353	99,171	35	99,154	6,215,376	62.7
15-16	0.000489	99,136	49	99,112	6,116,222	61.7
16-17	0.000617	99,088	61	99,057	6,017,110	60.7
17-18	0.000747	99,026	74	98,989	5,918,053	59.8
18-19	0.000877	98,952	87	98,909	5,819,064	58.8
19-20	0.001007	98,866	100	98,816	5,720,155	57.9
20-21	0.001145	98,766	113	98,710	5,621,339	56.9
21-22	0.001274	98,653	126	98,590	5,522,629	56.0
22-23	0.001358	98,527	134	98,460	5,424,039	55.1
23-24	0.001380	98,393	136	98,326	5,325,579	54.1
24-25	0.001356	98,258	133	98,191	5,227,253	53.2
25-26	0.001317	98,125	129	98,060	5,129,062	52.3
26-27	0.001288	97,995	126	97,932	5,031,002	51.3
27-28	0.001269	97,869	124	97,807	4,933,070	50.4
28-29	0.001269	97,745	124	97,683	4,835,263	49.5
29-30	0.001286	97,621	126	97,558	4,737,580	48.5
30-31	0.001311	97,495	128	97,431	4,640,022	47.6
31-32	0.001338	97,367	130	97,302	4,542,590	46.7
32-33	0.001371	97,237	133	97,171	4,445,288	45.7
33-34	0.001415	97,104	137	97,035	4,348,118	44.8
34-35	0.001464	96,966	142	96,896	4,251,082	43.8
35-36	0.001526	96,825	148	96,751	4,154,187	42.9
36-37	0.001604	96,677	155	96,599	4,057,436	42.0
37-38	0.001697	96,522	164	96,440	3,960,837	41.0
38-39	0.001809	96,358	174	96,271	3,864,397	40.1
39-40	0.001945	96,184	187	96,090	3,768,126	39.2
40-41	0.002096	95,996	201	95,896	3,672,036	38.3
41-42	0.002271	95,795	218	95,686	3,576,140	37.3
42-43	0.002488	95,578	238	95,459	3,480,454	36.4
43-44	0.002749	95,340	262	95,209	3,384,995	35.5
44-45	0.003039	95,078	289	94,933	3,289,786	34.6
45-46	0.003335	94,789	316	94,631	3,194,853	33.7
46-47	0.003636	94,473	343	94,301	3,100,222	32.8
47-48	0.003961	94,129	373	93,943	3,005,921	31.9
48-49	0.004322	93,756	405	93,554	2,911,979	31.1
49-50	0.004720	93,351	441	93,131	2,818,425	30.2
50-51	0.005155	92,911	479	92,671	2,725,294	29.3
51-52	0.005608	92,432	518	92,172	2,632,623	28.5
52-53	0.006068	91,913	558	91,634	2,540,450	27.6
53-54	0.006524	91,356	596	91,058	2,448,816	26.8
54-55	0.006990	90,759	634	90,442	2,357,758	26.0
55-56	0.007486	90,125	675	89,788	2,267,316	25.2
56-57	0.008035	89,450	719	89,091	2,177,528	24.3
57-58	0.008642	88,732	767	88,348	2,088,437	23.5
58-59	0.009318	87,965	820	87,555	2,000,089	22.7
59-60	0.010059	87,145	877	86,707	1,912,534	21.9
60-61	0.010870	86,269	938	85,800	1,825,827	21.2
61-62	0.011744	85,331	1,002	84,830	1,740,027	20.4
62-63	0.012677	84,329	1,069	83,794	1,655,198	19.6

See footnote at end of table.



**Table 5. Life table for white males: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table05.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table05.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.013681	83,260	1,139	82,690	1,571,404	18.9
64-65	0.014789	82,121	1,215	81,513	1,488,713	18.1
65-66	0.016069	80,906	1,300	80,256	1,407,200	17.4
66-67	0.017526	79,606	1,395	78,908	1,326,944	16.7
67-68	0.019123	78,211	1,496	77,463	1,248,036	16.0
68-69	0.020811	76,715	1,597	75,917	1,170,573	15.3
69-70	0.022610	75,119	1,698	74,269	1,094,656	14.6
70-71	0.024538	73,420	1,802	72,519	1,020,387	13.9
71-72	0.026769	71,619	1,917	70,660	947,867	13.2
72-73	0.029448	69,701	2,053	68,675	877,207	12.6
73-74	0.032446	67,649	2,195	66,551	808,532	12.0
74-75	0.035662	65,454	2,334	64,287	741,980	11.3
75-76	0.039058	63,120	2,465	61,887	677,694	10.7
76-77	0.042701	60,654	2,590	59,359	615,807	10.2
77-78	0.046896	58,064	2,723	56,703	556,447	9.6
78-79	0.051757	55,341	2,864	53,909	499,744	9.0
79-80	0.057367	52,477	3,010	50,972	445,835	8.5
80-81	0.063309	49,467	3,132	47,901	394,863	8.0
81-82	0.069561	46,335	3,223	44,723	346,963	7.5
82-83	0.076512	43,112	3,299	41,463	302,239	7.0
83-84	0.084685	39,813	3,372	38,127	260,777	6.5
84-85	0.093731	36,442	3,416	34,734	222,649	6.1
85-86	0.104141	33,026	3,439	31,306	187,915	5.7
86-87	0.115853	29,587	3,428	27,873	156,609	5.3
87-88	0.128581	26,159	3,364	24,477	128,736	4.9
88-89	0.142346	22,795	3,245	21,173	104,259	4.6
89-90	0.157154	19,550	3,072	18,014	83,087	4.2
90-91	0.172995	16,478	2,851	15,053	65,072	3.9
91-92	0.189837	13,627	2,587	12,334	50,020	3.7
92-93	0.207629	11,040	2,292	9,894	37,686	3.4
93-94	0.226298	8,748	1,980	7,758	27,791	3.2
94-95	0.245746	6,768	1,663	5,937	20,033	3.0
95-96	0.265856	5,105	1,357	4,427	14,096	2.8
96-97	0.286493	3,748	1,074	3,211	9,670	2.6
97-98	0.307502	2,674	822	2,263	6,459	2.4
98-99	0.328719	1,852	609	1,547	4,196	2.3
99-100	0.349975	1,243	435	1,026	2,648	2.1
100 and over	1.000000	808	808	1,623	1,623	2.0

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 6. Life table for white females: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table06.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table06.xls).

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	0.005005	100,000	500	99,562	8,090,312	80.9
1-2	0.000392	99,500	39	99,480	7,990,750	80.3
2-3	0.000217	99,461	22	99,450	7,891,270	79.3
3-4	0.000158	99,439	16	99,431	7,791,821	78.4
4-5	0.000143	99,423	14	99,416	7,692,389	77.4
5-6	0.000125	99,409	12	99,403	7,592,973	76.4
6-7	0.000114	99,397	11	99,391	7,493,570	75.4
7-8	0.000105	99,385	10	99,380	7,394,179	74.4
8-9	0.000097	99,375	10	99,370	7,294,799	73.4
9-10	0.000088	99,365	9	99,361	7,195,429	72.4
10-11	0.000082	99,356	8	99,352	7,096,069	71.4
11-12	0.000085	99,348	8	99,344	6,996,716	70.4
12-13	0.000104	99,340	10	99,335	6,897,372	69.4
13-14	0.000141	99,329	14	99,322	6,798,038	68.4
14-15	0.000189	99,315	19	99,306	6,698,715	67.4
15-16	0.000242	99,297	24	99,285	6,599,409	66.5
16-17	0.000291	99,273	29	99,258	6,500,124	65.5
17-18	0.000331	99,244	33	99,227	6,400,866	64.5
18-19	0.000359	99,211	36	99,193	6,301,639	63.5
19-20	0.000378	99,175	38	99,157	6,202,446	62.5
20-21	0.000398	99,138	39	99,118	6,103,289	61.6
21-22	0.000419	99,098	42	99,078	6,004,171	60.6
22-23	0.000438	99,057	43	99,035	5,905,093	59.6
23-24	0.000454	99,013	45	98,991	5,806,058	58.6
24-25	0.000467	98,969	46	98,945	5,707,067	57.7
25-26	0.000481	98,922	48	98,898	5,608,122	56.7
26-27	0.000497	98,875	49	98,850	5,509,223	55.7
27-28	0.000512	98,826	51	98,800	5,410,373	54.7
28-29	0.000529	98,775	52	98,749	5,311,573	53.8
29-30	0.000550	98,723	54	98,696	5,212,824	52.8
30-31	0.000577	98,668	57	98,640	5,114,129	51.8
31-32	0.000611	98,611	60	98,581	5,015,489	50.9
32-33	0.000651	98,551	64	98,519	4,916,907	49.9
33-34	0.000697	98,487	69	98,453	4,818,388	48.9
34-35	0.000747	98,418	74	98,382	4,719,935	48.0
35-36	0.000803	98,345	79	98,305	4,621,554	47.0
36-37	0.000867	98,266	85	98,223	4,523,248	46.0
37-38	0.000942	98,181	92	98,135	4,425,025	45.1
38-39	0.001031	98,088	101	98,038	4,326,890	44.1
39-40	0.001135	97,987	111	97,932	4,228,853	43.2
40-41	0.001248	97,876	122	97,815	4,130,921	42.2
41-42	0.001372	97,754	134	97,687	4,033,106	41.3
42-43	0.001518	97,620	148	97,546	3,935,419	40.3
43-44	0.001684	97,472	164	97,390	3,837,873	39.4
44-45	0.001863	97,307	181	97,217	3,740,484	38.4
45-46	0.002044	97,126	198	97,027	3,643,267	37.5
46-47	0.002224	96,928	216	96,820	3,546,240	36.6
47-48	0.002407	96,712	233	96,596	3,449,420	35.7
48-49	0.002597	96,479	251	96,354	3,352,824	34.8
49-50	0.002800	96,229	269	96,094	3,256,470	33.8
50-51	0.003024	95,959	290	95,814	3,160,376	32.9
51-52	0.003263	95,669	312	95,513	3,064,562	32.0
52-53	0.003506	95,357	334	95,190	2,969,049	31.1
53-54	0.003749	95,023	356	94,845	2,873,859	30.2
54-55	0.004003	94,667	379	94,477	2,779,014	29.4
55-56	0.004272	94,288	403	94,086	2,684,537	28.5
56-57	0.004584	93,885	430	93,670	2,590,451	27.6
57-58	0.004967	93,454	464	93,222	2,496,781	26.7
58-59	0.005442	92,990	506	92,737	2,403,559	25.8
59-60	0.005997	92,484	555	92,207	2,310,822	25.0
60-61	0.006623	91,930	609	91,625	2,218,615	24.1
61-62	0.007294	91,321	666	90,988	2,126,990	23.3
62-63	0.007995	90,655	725	90,292	2,036,002	22.5

See footnote at end of table.

**Table 6. Life table for white females: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table06.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table06.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.008721	89,930	784	89,538	1,945,710	21.6
64-65	0.009501	89,146	847	88,722	1,856,172	20.8
65-66	0.010408	88,299	919	87,839	1,767,450	20.0
66-67	0.011453	87,380	1,001	86,879	1,679,611	19.2
67-68	0.012585	86,379	1,087	85,835	1,592,732	18.4
68-69	0.013768	85,292	1,174	84,705	1,506,897	17.7
69-70	0.015039	84,117	1,265	83,485	1,422,192	16.9
70-71	0.016423	82,852	1,361	82,172	1,338,708	16.2
71-72	0.018087	81,492	1,474	80,755	1,256,536	15.4
72-73	0.019998	80,018	1,600	79,218	1,175,781	14.7
73-74	0.022115	78,417	1,734	77,550	1,096,563	14.0
74-75	0.024382	76,683	1,870	75,748	1,019,013	13.3
75-76	0.026808	74,814	2,006	73,811	943,265	12.6
76-77	0.029536	72,808	2,150	71,733	869,454	11.9
77-78	0.032623	70,658	2,305	69,505	797,721	11.3
78-79	0.036241	68,352	2,477	67,114	728,216	10.7
79-80	0.040391	65,875	2,661	64,545	661,102	10.0
80-81	0.044871	63,215	2,836	61,796	596,557	9.4
81-82	0.049684	60,378	3,000	58,878	534,761	8.9
82-83	0.055265	57,378	3,171	55,793	475,883	8.3
83-84	0.061913	54,207	3,356	52,529	420,090	7.7
84-85	0.069306	50,851	3,524	49,089	367,561	7.2
85-86	0.077663	47,327	3,676	45,489	318,472	6.7
86-87	0.086926	43,651	3,794	41,754	272,983	6.3
87-88	0.097865	39,857	3,901	37,907	231,229	5.8
88-89	0.109920	35,956	3,952	33,980	193,322	5.4
89-90	0.123139	32,004	3,941	30,033	159,342	5.0
90-91	0.137554	28,063	3,860	26,133	129,309	4.6
91-92	0.153182	24,203	3,707	22,349	103,176	4.3
92-93	0.170014	20,495	3,484	18,753	80,827	3.9
93-94	0.188018	17,011	3,198	15,412	62,074	3.6
94-95	0.207135	13,813	2,861	12,382	46,662	3.4
95-96	0.227271	10,951	2,489	9,707	34,280	3.1
96-97	0.248308	8,463	2,101	7,412	24,573	2.9
97-98	0.270095	6,361	1,718	5,502	17,161	2.7
98-99	0.292457	4,643	1,358	3,964	11,659	2.5
99-100	0.315199	3,285	1,035	2,767	7,695	2.3
100 and over	1.000000	2,250	2,250	4,927	4,927	2.2

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 7. Life table for the black population: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table07.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table07.xls).

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	0.012725	100,000	1,272	98,889	7,402,691	74.0
1-2	0.00658	98,728	65	98,695	7,303,802	74.0
2-3	0.000407	98,663	40	98,642	7,205,107	73.0
3-4	0.000335	98,622	33	98,606	7,106,464	72.1
4-5	0.000260	98,589	26	98,577	7,007,858	71.1
5-6	0.000230	98,564	23	98,552	6,909,282	70.1
6-7	0.000206	98,541	20	98,531	6,810,730	69.1
7-8	0.000185	98,521	18	98,512	6,712,199	68.1
8-9	0.000159	98,502	16	98,495	6,613,687	67.1
9-10	0.000132	98,487	13	98,480	6,515,193	66.2
10-11	0.000111	98,474	11	98,468	6,416,712	65.2
11-12	0.000117	98,463	11	98,457	6,318,244	64.2
12-13	0.000167	98,451	16	98,443	6,219,787	63.2
13-14	0.000271	98,435	27	98,422	6,121,344	62.2
14-15	0.000408	98,408	40	98,388	6,022,922	61.2
15-16	0.000550	98,368	54	98,341	5,924,534	60.2
16-17	0.000679	98,314	67	98,281	5,826,193	59.3
17-18	0.000801	98,247	79	98,208	5,727,912	58.3
18-19	0.000917	98,169	90	98,124	5,629,704	57.3
19-20	0.001032	98,078	101	98,028	5,531,581	56.4
20-21	0.001161	97,977	114	97,920	5,433,553	55.5
21-22	0.001291	97,863	126	97,800	5,335,632	54.5
22-23	0.001390	97,737	136	97,669	5,237,832	53.6
23-24	0.001435	97,601	140	97,531	5,140,163	52.7
24-25	0.001440	97,461	140	97,391	5,042,632	51.7
25-26	0.001430	97,321	139	97,251	4,945,241	50.8
26-27	0.001431	97,182	139	97,112	4,847,989	49.9
27-28	0.001442	97,043	140	96,973	4,750,877	49.0
28-29	0.001476	96,903	143	96,831	4,653,905	48.0
29-30	0.001531	96,760	148	96,686	4,557,074	47.1
30-31	0.001600	96,611	155	96,534	4,460,388	46.2
31-32	0.001676	96,457	162	96,376	4,363,854	45.2
32-33	0.001765	96,295	170	96,210	4,267,478	44.3
33-34	0.001824	96,125	175	96,038	4,171,267	43.4
34-35	0.001893	95,950	182	95,859	4,075,230	42.5
35-36	0.001969	95,768	189	95,674	3,979,371	41.6
36-37	0.002067	95,580	198	95,481	3,883,697	40.6
37-38	0.002195	95,382	209	95,278	3,788,216	39.7
38-39	0.002362	95,173	225	95,060	3,692,938	38.8
39-40	0.002568	94,948	244	94,826	3,597,878	37.9
40-41	0.002799	94,704	265	94,572	3,503,052	37.0
41-42	0.003050	94,439	288	94,295	3,408,480	36.1
42-43	0.003334	94,151	314	93,994	3,314,185	35.2
43-44	0.003650	93,837	343	93,666	3,220,190	34.3
44-45	0.003992	93,495	373	93,308	3,126,524	33.4
45-46	0.004339	93,122	404	92,920	3,033,216	32.6
46-47	0.004706	92,718	436	92,499	2,940,297	31.7
47-48	0.005135	92,281	474	92,044	2,847,797	30.9
48-49	0.005652	91,807	519	91,548	2,755,753	30.0
49-50	0.006251	91,288	571	91,003	2,664,205	29.2
50-51	0.006904	90,718	626	90,405	2,573,202	28.4
51-52	0.007575	90,092	682	89,750	2,482,797	27.6
52-53	0.008261	89,409	739	89,040	2,393,047	26.8
53-54	0.008943	88,670	793	88,274	2,304,007	26.0
54-55	0.009628	87,877	846	87,454	2,215,733	25.2
55-56	0.010369	87,031	902	86,580	2,128,279	24.5
56-57	0.011165	86,129	962	85,648	2,041,699	23.7
57-58	0.011957	85,167	1,018	84,658	1,956,051	23.0
58-59	0.012731	84,149	1,071	83,613	1,871,393	22.2
59-60	0.013520	83,078	1,123	82,516	1,787,780	21.5
60-61	0.014375	81,954	1,178	81,365	1,705,264	20.8
61-62	0.015349	80,776	1,240	80,156	1,623,898	20.1
62-63	0.016445	79,537	1,308	78,883	1,543,742	19.4

See footnote at end of table.

**Table 7. Life table for the black population: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table07.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table07.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.017664	78,229	1,382	77,538	1,464,859	18.7
64-65	0.018980	76,847	1,459	76,117	1,387,322	18.1
65-66	0.020419	75,388	1,539	74,618	1,311,204	17.4
66-67	0.021954	73,849	1,621	73,038	1,236,586	16.7
67-68	0.023492	72,227	1,697	71,379	1,163,548	16.1
68-69	0.025020	70,531	1,765	69,648	1,092,169	15.5
69-70	0.026587	68,766	1,828	67,852	1,022,520	14.9
70-71	0.028118	66,938	1,882	65,997	954,668	14.3
71-72	0.029760	65,056	1,936	64,088	888,672	13.7
72-73	0.031875	63,119	2,012	62,114	824,584	13.1
73-74	0.034383	61,108	2,101	60,057	762,471	12.5
74-75	0.037350	59,006	2,204	57,905	702,414	11.9
75-76	0.040705	56,803	2,312	55,646	644,509	11.3
76-77	0.044039	54,490	2,400	53,291	588,863	10.8
77-78	0.047854	52,091	2,493	50,844	535,572	10.3
78-79	0.052133	49,598	2,586	48,305	484,728	9.8
79-80	0.056188	47,012	2,642	45,691	436,423	9.3
80-81	0.060737	44,371	2,695	43,023	390,731	8.8
81-82	0.065515	41,676	2,730	40,311	347,708	8.3
82-83	0.070880	38,945	2,760	37,565	307,398	7.9
83-84	0.077834	36,185	2,816	34,777	269,832	7.5
84-85	0.084582	33,368	2,822	31,957	235,056	7.0
85-86	0.092079	30,546	2,813	29,140	203,098	6.6
86-87	0.100126	27,733	2,777	26,345	173,959	6.3
87-88	0.108743	24,957	2,714	23,600	147,614	5.9
88-89	0.117947	22,243	2,623	20,931	124,014	5.6
89-90	0.127752	19,619	2,506	18,366	103,083	5.3
90-91	0.138167	17,113	2,364	15,931	84,717	5.0
91-92	0.149196	14,748	2,200	13,648	68,786	4.7
92-93	0.160837	12,548	2,018	11,539	55,138	4.4
93-94	0.173083	10,530	1,823	9,619	43,599	4.1
94-95	0.185919	8,707	1,619	7,898	33,980	3.9
95-96	0.199322	7,088	1,413	6,382	26,082	3.7
96-97	0.213263	5,676	1,210	5,070	19,700	3.5
97-98	0.227703	4,465	1,017	3,957	14,630	3.3
98-99	0.242598	3,448	837	3,030	10,673	3.1
99-100	0.257896	2,612	674	2,275	7,643	2.9
100 and over	1.000000	1,938	1,938	5,368	5,368	2.8

SOURCE: CDC/NCHS, National Vital Statistics System.



**Table 8. Life table for black males: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table08.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table08.xls).

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	0.013918	100,000	1,392	98,784	7,056,211	70.6
1-2	0.000764	98,608	75	98,571	6,957,428	70.6
2-3	0.000463	98,533	46	98,510	6,858,857	69.6
3-4	0.000347	98,487	34	98,470	6,760,347	68.6
4-5	0.000311	98,453	31	98,438	6,661,877	67.7
5-6	0.000270	98,422	27	98,409	6,563,439	66.7
6-7	0.000252	98,396	25	98,384	6,465,030	65.7
7-8	0.000230	98,371	23	98,360	6,366,646	64.7
8-9	0.000191	98,349	19	98,339	6,268,287	63.7
9-10	0.000140	98,330	14	98,323	6,169,947	62.7
10-11	0.000095	98,316	9	98,311	6,071,624	61.8
11-12	0.000090	98,307	9	98,302	5,973,313	60.8
12-13	0.000165	98,298	16	98,290	5,875,011	59.8
13-14	0.000334	98,282	33	98,265	5,776,721	58.8
14-15	0.000562	98,249	55	98,221	5,678,456	57.8
15-16	0.000798	98,194	78	98,154	5,580,235	56.8
16-17	0.001010	98,115	99	98,066	5,482,080	55.9
17-18	0.001207	98,016	118	97,957	5,384,014	54.9
18-19	0.001391	97,898	136	97,830	5,286,057	54.0
19-20	0.001568	97,762	153	97,685	5,188,228	53.1
20-21	0.001767	97,608	172	97,522	5,090,543	52.2
21-22	0.001965	97,436	191	97,340	4,993,020	51.2
22-23	0.002109	97,245	205	97,142	4,895,680	50.3
23-24	0.002165	97,039	210	96,934	4,798,538	49.4
24-25	0.002153	96,829	209	96,725	4,701,604	48.6
25-26	0.002115	96,621	204	96,519	4,604,879	47.7
26-27	0.002090	96,416	202	96,316	4,508,360	46.8
27-28	0.002083	96,215	200	96,115	4,412,044	45.9
28-29	0.002114	96,014	203	95,913	4,315,930	45.0
29-30	0.002178	95,811	209	95,707	4,220,017	44.0
30-31	0.002260	95,603	216	95,495	4,124,309	43.1
31-32	0.002342	95,387	223	95,275	4,028,815	42.2
32-33	0.002448	95,163	233	95,047	3,933,539	41.3
33-34	0.002482	94,930	236	94,813	3,838,493	40.4
34-35	0.002534	94,695	240	94,575	3,743,680	39.5
35-36	0.002595	94,455	245	94,332	3,649,105	38.6
36-37	0.002685	94,210	253	94,083	3,554,773	37.7
37-38	0.002808	93,957	264	93,825	3,460,689	36.8
38-39	0.002978	93,693	279	93,554	3,366,864	35.9
39-40	0.003195	93,414	298	93,265	3,273,311	35.0
40-41	0.003444	93,116	321	92,955	3,180,046	34.2
41-42	0.003723	92,795	345	92,622	3,087,091	33.3
42-43	0.004041	92,449	374	92,263	2,994,469	32.4
43-44	0.004398	92,076	405	91,873	2,902,206	31.5
44-45	0.004791	91,671	439	91,451	2,810,333	30.7
45-46	0.005192	91,232	474	90,995	2,718,881	29.8
46-47	0.005631	90,758	511	90,502	2,627,887	29.0
47-48	0.006174	90,247	557	89,968	2,537,384	28.1
48-49	0.006865	89,690	616	89,382	2,447,416	27.3
49-50	0.007687	89,074	685	88,732	2,358,034	26.5
50-51	0.008585	88,389	759	88,010	2,269,303	25.7
51-52	0.009511	87,630	833	87,214	2,181,293	24.9
52-53	0.010484	86,797	910	86,342	2,094,079	24.1
53-54	0.011486	85,887	987	85,394	2,007,737	23.4
54-55	0.012520	84,900	1,063	84,369	1,922,343	22.6
55-56	0.013662	83,838	1,145	83,265	1,837,974	21.9
56-57	0.014876	82,692	1,230	82,077	1,754,709	21.2
57-58	0.016025	81,462	1,305	80,809	1,672,632	20.5
58-59	0.017043	80,157	1,366	79,474	1,591,823	19.9
59-60	0.017981	78,790	1,417	78,082	1,512,350	19.2
60-61	0.018943	77,374	1,466	76,641	1,434,268	18.5
61-62	0.020060	75,908	1,523	75,147	1,357,627	17.9
62-63	0.021384	74,385	1,591	73,590	1,282,480	17.2

See footnote at end of table.

**Table 8. Life table for black males: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table08.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table08.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.022975	72,795	1,672	71,958	1,208,890	16.6
64-65	0.024792	71,122	1,763	70,241	1,136,932	16.0
65-66	0.026815	69,359	1,860	68,429	1,066,691	15.4
66-67	0.028913	67,499	1,952	66,523	998,262	14.8
67-68	0.030936	65,547	2,028	64,534	931,739	14.2
68-69	0.032808	63,520	2,084	62,478	867,205	13.7
69-70	0.034586	61,436	2,125	60,373	804,728	13.1
70-71	0.036216	59,311	2,148	58,237	744,354	12.6
71-72	0.038044	57,163	2,175	56,076	686,117	12.0
72-73	0.040536	54,988	2,229	53,874	630,042	11.5
73-74	0.043518	52,759	2,296	51,611	576,168	10.9
74-75	0.047282	50,463	2,386	49,270	524,557	10.4
75-76	0.051712	48,077	2,486	46,834	475,286	9.9
76-77	0.056127	45,591	2,559	44,312	428,452	9.4
77-78	0.061077	43,032	2,628	41,718	384,141	8.9
78-79	0.066419	40,404	2,684	39,062	342,423	8.5
79-80	0.071903	37,720	2,712	36,364	303,360	8.0
80-81	0.077689	35,008	2,720	33,648	266,996	7.6
81-82	0.083498	32,288	2,696	30,940	233,348	7.2
82-83	0.090466	29,592	2,677	28,254	202,407	6.8
83-84	0.097918	26,915	2,636	25,598	174,154	6.5
84-85	0.105872	24,280	2,571	22,995	148,556	6.1
85-86	0.114341	21,709	2,482	20,468	125,562	5.8
86-87	0.123339	19,227	2,371	18,041	105,093	5.5
87-88	0.132875	16,856	2,240	15,736	87,052	5.2
88-89	0.142954	14,616	2,089	13,571	71,317	4.9
89-90	0.153577	12,526	1,924	11,565	57,745	4.6
90-91	0.164742	10,603	1,747	9,729	46,181	4.4
91-92	0.176439	8,856	1,563	8,075	36,451	4.1
92-93	0.188655	7,293	1,376	6,605	28,377	3.9
93-94	0.201369	5,917	1,192	5,322	21,771	3.7
94-95	0.214555	4,726	1,014	4,219	16,450	3.5
95-96	0.228181	3,712	847	3,288	12,231	3.3
96-97	0.242209	2,865	694	2,518	8,942	3.1
97-98	0.256594	2,171	557	1,892	6,424	3.0
98-99	0.271288	1,614	438	1,395	4,532	2.8
99-100	0.286237	1,176	337	1,008	3,137	2.7
100 and over	1.000000	839	839	2,129	2,129	2.5

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 9. Life table for black females: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table09.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table09.xls).

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	0.011492	100,000	1,149	98,997	7,717,329	77.2
1-2	0.000548	98,851	54	98,824	7,618,332	77.1
2-3	0.000350	98,797	35	98,779	7,519,508	76.1
3-4	0.000322	98,762	32	98,746	7,420,729	75.1
4-5	0.000207	98,730	20	98,720	7,321,983	74.2
5-6	0.000190	98,710	19	98,700	7,223,263	73.2
6-7	0.000159	98,691	16	98,683	7,124,562	72.2
7-8	0.000138	98,675	14	98,669	7,025,879	71.2
8-9	0.000127	98,662	12	98,655	6,927,210	70.2
9-10	0.000123	98,649	12	98,643	6,828,555	69.2
10-11	0.000129	98,637	13	98,631	6,729,912	68.2
11-12	0.000144	98,624	14	98,617	6,631,281	67.2
12-13	0.000170	98,610	17	98,602	6,532,664	66.2
13-14	0.000206	98,593	20	98,583	6,434,062	65.3
14-15	0.000249	98,573	25	98,561	6,335,479	64.3
15-16	0.000294	98,549	29	98,534	6,236,918	63.3
16-17	0.000339	98,520	33	98,503	6,138,384	62.3
17-18	0.000384	98,486	38	98,467	6,039,881	61.3
18-19	0.000430	98,448	42	98,427	5,941,413	60.4
19-20	0.000480	98,406	47	98,383	5,842,986	59.4
20-21	0.000537	98,359	53	98,333	5,744,603	58.4
21-22	0.000597	98,306	59	98,277	5,646,271	57.4
22-23	0.000650	98,247	64	98,216	5,547,994	56.5
23-24	0.000690	98,184	68	98,150	5,449,779	55.5
24-25	0.000718	98,116	70	98,081	5,351,629	54.5
25-26	0.000745	98,045	73	98,009	5,253,548	53.6
26-27	0.000777	97,972	76	97,934	5,155,539	52.6
27-28	0.000814	97,896	80	97,856	5,057,605	51.7
28-29	0.000858	97,817	84	97,775	4,959,748	50.7
29-30	0.000913	97,733	89	97,688	4,861,974	49.7
30-31	0.000981	97,643	96	97,595	4,764,286	48.8
31-32	0.001060	97,548	103	97,496	4,666,690	47.8
32-33	0.001149	97,444	112	97,388	4,569,194	46.9
33-34	0.001230	97,332	120	97,272	4,471,806	45.9
34-35	0.001315	97,212	128	97,149	4,374,534	45.0
35-36	0.001406	97,085	136	97,016	4,277,385	44.1
36-37	0.001513	96,948	147	96,875	4,180,369	43.1
37-38	0.001645	96,802	159	96,722	4,083,494	42.2
38-39	0.001812	96,642	175	96,555	3,986,772	41.3
39-40	0.002011	96,467	194	96,370	3,890,217	40.3
40-41	0.002225	96,273	214	96,166	3,793,847	39.4
41-42	0.002453	96,059	236	95,941	3,697,681	38.5
42-43	0.002708	95,823	260	95,694	3,601,740	37.6
43-44	0.002991	95,564	286	95,421	3,506,046	36.7
44-45	0.003290	95,278	314	95,121	3,410,625	35.8
45-46	0.003592	94,965	341	94,794	3,315,504	34.9
46-47	0.003900	94,623	369	94,439	3,220,710	34.0
47-48	0.004232	94,254	399	94,055	3,126,271	33.2
48-49	0.004604	93,856	432	93,640	3,032,216	32.3
49-50	0.005013	93,423	468	93,189	2,938,576	31.5
50-51	0.005459	92,955	507	92,701	2,845,387	30.6
51-52	0.005917	92,448	547	92,174	2,752,685	29.8
52-53	0.006367	91,901	585	91,608	2,660,511	28.9
53-54	0.006789	91,316	620	91,006	2,568,903	28.1
54-55	0.007196	90,696	653	90,369	2,477,897	27.3
55-56	0.007622	90,043	686	89,700	2,387,528	26.5
56-57	0.008094	89,357	723	88,995	2,297,828	25.7
57-58	0.008618	88,633	764	88,252	2,208,833	24.9
58-59	0.009217	87,870	810	87,465	2,120,581	24.1
59-60	0.009907	87,060	862	86,628	2,033,117	23.4
60-61	0.010701	86,197	922	85,736	1,946,488	22.6
61-62	0.011589	85,275	988	84,781	1,860,752	21.8
62-63	0.012543	84,287	1,057	83,758	1,775,972	21.1

See footnote at end of table.

**Table 9. Life table for black females: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table09.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table09.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.013515	83,229	1,125	82,667	1,692,214	20.3
64-65	0.014498	82,105	1,190	81,509	1,609,547	19.6
65-66	0.015556	80,914	1,259	80,285	1,528,038	18.9
66-67	0.016729	79,655	1,333	78,989	1,447,753	18.2
67-68	0.017968	78,323	1,407	77,619	1,368,764	17.5
68-69	0.019294	76,916	1,484	76,174	1,291,144	16.8
69-70	0.020749	75,432	1,565	74,649	1,214,971	16.1
70-71	0.022247	73,866	1,643	73,045	1,140,322	15.4
71-72	0.023808	72,223	1,720	71,363	1,067,277	14.8
72-73	0.025736	70,504	1,814	69,596	995,914	14.1
73-74	0.028023	68,689	1,925	67,727	926,318	13.5
74-75	0.030602	66,764	2,043	65,743	858,591	12.9
75-76	0.033418	64,721	2,163	63,640	792,848	12.3
76-77	0.036264	62,558	2,269	61,424	729,209	11.7
77-78	0.039609	60,290	2,388	59,096	667,785	11.1
78-79	0.043469	57,902	2,517	56,643	608,689	10.5
79-80	0.046965	55,385	2,601	54,084	552,046	10.0
80-81	0.051123	52,784	2,698	51,434	497,962	9.4
81-82	0.055872	50,085	2,798	48,686	446,527	8.9
82-83	0.060939	47,287	2,882	45,846	397,842	8.4
83-84	0.067889	44,405	3,015	42,898	351,996	7.9
84-85	0.074821	41,391	3,097	39,842	309,098	7.5
85-86	0.082239	38,294	3,149	36,719	269,256	7.0
86-87	0.090119	35,144	3,167	33,561	232,537	6.6
87-88	0.098628	31,977	3,154	30,400	198,976	6.2
88-89	0.107789	28,823	3,107	27,270	168,576	5.8
89-90	0.117626	25,717	3,025	24,204	141,306	5.5
90-91	0.128154	22,692	2,908	21,238	117,102	5.2
91-92	0.139385	19,784	2,758	18,405	95,864	4.8
92-93	0.151323	17,026	2,576	15,738	77,459	4.5
93-94	0.163967	14,450	2,369	13,265	61,721	4.3
94-95	0.177303	12,080	2,142	11,009	48,456	4.0
95-96	0.191312	9,938	1,901	8,988	37,447	3.8
96-97	0.205961	8,037	1,655	7,209	28,459	3.5
97-98	0.221210	6,382	1,412	5,676	21,250	3.3
98-99	0.237007	4,970	1,178	4,381	15,574	3.1
99-100	0.253291	3,792	961	3,312	11,193	3.0
100 and over	1.000000	2,832	2,832	7,881	7,881	2.8

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 10. Life table for the Hispanic population: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table10.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table10.xls).

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	0.005576	100,000	558	99,513	8,097,187	81.0
1-2	0.000407	99,442	40	99,422	7,997,674	80.4
2-3	0.000238	99,402	24	99,390	7,898,252	79.5
3-4	0.000178	99,378	18	99,369	7,798,862	78.5
4-5	0.000156	99,361	15	99,353	7,699,492	77.5
5-6	0.000134	99,345	13	99,338	7,600,140	76.5
6-7	0.000119	99,332	12	99,326	7,500,801	75.5
7-8	0.000106	99,320	11	99,315	7,401,475	74.5
8-9	0.000094	99,309	9	99,305	7,302,160	73.5
9-10	0.000081	99,300	8	99,296	7,202,856	72.5
10-11	0.000073	99,292	7	99,288	7,103,560	71.5
11-12	0.000079	99,285	8	99,281	7,004,271	70.5
12-13	0.000109	99,277	11	99,272	6,904,990	69.6
13-14	0.000169	99,266	17	99,258	6,805,719	68.6
14-15	0.000252	99,249	25	99,237	6,706,461	67.6
15-16	0.000344	99,224	34	99,207	6,607,224	66.6
16-17	0.000432	99,190	43	99,169	6,508,017	65.6
17-18	0.000517	99,147	51	99,122	6,408,848	64.6
18-19	0.000596	99,096	59	99,067	6,309,726	63.7
19-20	0.000669	99,037	66	99,004	6,210,660	62.7
20-21	0.000748	98,971	74	98,934	6,111,656	61.8
21-22	0.000823	98,897	81	98,856	6,012,722	60.8
22-23	0.000870	98,815	86	98,772	5,913,866	59.8
23-24	0.000876	98,729	86	98,686	5,815,093	58.9
24-25	0.000854	98,643	84	98,601	5,716,407	58.0
25-26	0.000825	98,559	81	98,518	5,617,806	57.0
26-27	0.000803	98,477	79	98,438	5,519,288	56.0
27-28	0.000785	98,398	77	98,360	5,420,850	55.1
28-29	0.000775	98,321	76	98,283	5,322,490	54.1
29-30	0.000772	98,245	76	98,207	5,224,207	53.2
30-31	0.000771	98,169	76	98,131	5,126,001	52.2
31-32	0.000772	98,093	76	98,056	5,027,869	51.3
32-33	0.000773	98,018	76	97,980	4,929,814	50.3
33-34	0.000817	97,942	80	97,902	4,831,834	49.3
34-35	0.000862	97,862	84	97,820	4,733,932	48.4
35-36	0.000916	97,778	90	97,733	4,636,113	47.4
36-37	0.000977	97,688	95	97,640	4,538,380	46.5
37-38	0.001052	97,593	103	97,541	4,440,740	45.5
38-39	0.001142	97,490	111	97,434	4,343,198	44.6
39-40	0.001246	97,379	121	97,318	4,245,764	43.6
40-41	0.001364	97,257	133	97,191	4,148,446	42.7
41-42	0.001493	97,124	145	97,052	4,051,255	41.7
42-43	0.001631	96,979	158	96,900	3,954,203	40.8
43-44	0.001774	96,821	172	96,735	3,857,303	39.8
44-45	0.001925	96,650	186	96,557	3,760,568	38.9
45-46	0.002085	96,464	201	96,363	3,664,011	38.0
46-47	0.002259	96,262	218	96,154	3,567,648	37.1
47-48	0.002451	96,045	235	95,927	3,471,494	36.1
48-49	0.002666	95,809	255	95,682	3,375,567	35.2
49-50	0.002905	95,554	278	95,415	3,279,885	34.3
50-51	0.003170	95,276	302	95,125	3,184,470	33.4
51-52	0.003457	94,974	328	94,810	3,089,345	32.5
52-53	0.003765	94,646	356	94,468	2,994,534	31.6
53-54	0.004089	94,290	386	94,097	2,900,066	30.8
54-55	0.004431	93,904	416	93,696	2,805,970	29.9
55-56	0.004806	93,488	449	93,263	2,712,273	29.0
56-57	0.005216	93,039	485	92,796	2,619,010	28.1
57-58	0.005634	92,554	521	92,293	2,526,214	27.3
58-59	0.006051	92,032	557	91,754	2,433,921	26.4
59-60	0.006478	91,475	593	91,179	2,342,167	25.6
60-61	0.006931	90,883	630	90,568	2,250,988	24.8
61-62	0.007441	90,253	672	89,917	2,160,421	23.9
62-63	0.008035	89,581	720	89,221	2,070,504	23.1

See footnote at end of table.

**Table 10. Life table for the Hispanic population: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table10.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table10.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.008745	88,861	777	88,473	1,981,282	22.3
64-65	0.009577	88,084	844	87,662	1,892,810	21.5
65-66	0.010531	87,241	919	86,781	1,805,147	20.7
66-67	0.011587	86,322	1,000	85,822	1,718,366	19.9
67-68	0.012718	85,322	1,085	84,779	1,632,544	19.1
68-69	0.013876	84,236	1,169	83,652	1,547,765	18.4
69-70	0.015054	83,068	1,251	82,442	1,464,113	17.6
70-71	0.016264	81,817	1,331	81,152	1,381,671	16.9
71-72	0.017587	80,486	1,416	79,779	1,300,519	16.2
72-73	0.019105	79,071	1,511	78,316	1,220,740	15.4
73-74	0.020909	77,560	1,622	76,749	1,142,425	14.7
74-75	0.022990	75,938	1,746	75,066	1,065,676	14.0
75-76	0.025203	74,193	1,870	73,258	990,610	13.4
76-77	0.027558	72,323	1,993	71,326	917,352	12.7
77-78	0.030232	70,330	2,126	69,267	846,026	12.0
78-79	0.033360	68,203	2,275	67,066	776,760	11.4
79-80	0.037020	65,928	2,441	64,708	709,694	10.8
80-81	0.041080	63,488	2,608	62,184	644,986	10.2
81-82	0.045525	60,880	2,772	59,494	582,802	9.6
82-83	0.050235	58,108	2,919	56,649	523,308	9.0
83-84	0.055838	55,189	3,082	53,648	466,660	8.5
84-85	0.062092	52,107	3,235	50,490	413,012	7.9
85-86	0.069112	48,872	3,378	47,183	362,522	7.4
86-87	0.076852	45,494	3,496	43,746	315,339	6.9
87-88	0.085979	41,998	3,611	40,192	271,593	6.5
88-89	0.095992	38,387	3,685	36,545	231,400	6.0
89-90	0.106932	34,702	3,711	32,847	194,856	5.6
90-91	0.118829	30,991	3,683	29,150	162,009	5.2
91-92	0.131699	27,309	3,597	25,510	132,859	4.9
92-93	0.145547	23,712	3,451	21,987	107,349	4.5
93-94	0.160358	20,261	3,249	18,636	85,362	4.2
94-95	0.176100	17,012	2,996	15,514	66,726	3.9
95-96	0.192718	14,016	2,701	12,666	51,212	3.7
96-97	0.210136	11,315	2,378	10,126	38,546	3.4
97-98	0.228258	8,937	2,040	7,917	28,420	3.2
98-99	0.246966	6,897	1,703	6,046	20,503	3.0
99-100	0.266125	5,194	1,382	4,503	14,457	2.8
100 and over	1.000000	3,812	3,812	9,954	9,954	2.6

SOURCE: CDC/NCHS, National Vital Statistics System.



**Table 11. Life table for Hispanic males: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table11.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table11.xls).

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	0.006064	100,000	606	99,471	7,839,100	78.4
1-2	0.000442	99,394	44	99,372	7,739,629	77.9
2-3	0.000285	99,350	28	99,335	7,640,258	76.9
3-4	0.000193	99,321	19	99,312	7,540,922	75.9
4-5	0.000172	99,302	17	99,294	7,441,610	74.9
5-6	0.000147	99,285	15	99,278	7,342,317	74.0
6-7	0.000129	99,270	13	99,264	7,243,039	73.0
7-8	0.000112	99,258	11	99,252	7,143,775	72.0
8-9	0.000092	99,247	9	99,242	7,044,523	71.0
9-10	0.000069	99,237	7	99,234	6,945,281	70.0
10-11	0.000052	99,231	5	99,228	6,846,047	69.0
11-12	0.000056	99,225	6	99,223	6,746,819	68.0
12-13	0.000100	99,220	10	99,215	6,647,596	67.0
13-14	0.000195	99,210	19	99,200	6,548,382	66.0
14-15	0.000329	99,191	33	99,174	6,449,181	65.0
15-16	0.000475	99,158	47	99,134	6,350,007	64.0
16-17	0.000616	99,111	61	99,080	6,250,873	63.1
17-18	0.000755	99,050	75	99,012	6,151,792	62.1
18-19	0.000890	98,975	88	98,931	6,052,780	61.2
19-20	0.001018	98,887	101	98,837	5,953,849	60.2
20-21	0.001155	98,786	114	98,729	5,855,012	59.3
21-22	0.001282	98,672	126	98,609	5,756,283	58.3
22-23	0.001352	98,546	133	98,479	5,657,674	57.4
23-24	0.001345	98,413	132	98,346	5,559,195	56.5
24-25	0.001288	98,280	127	98,217	5,460,849	55.6
25-26	0.001218	98,154	120	98,094	5,362,632	54.6
26-27	0.001163	98,034	114	97,977	5,264,538	53.7
27-28	0.001122	97,920	110	97,865	5,166,561	52.8
28-29	0.001101	97,810	108	97,756	5,068,696	51.8
29-30	0.001097	97,702	107	97,649	4,970,939	50.9
30-31	0.001095	97,595	107	97,542	4,873,291	49.9
31-32	0.001093	97,488	107	97,435	4,775,749	49.0
32-33	0.001081	97,382	105	97,329	4,678,314	48.0
33-34	0.001133	97,277	110	97,221	4,580,984	47.1
34-35	0.001177	97,166	114	97,109	4,483,763	46.1
35-36	0.001229	97,052	119	96,992	4,386,654	45.2
36-37	0.001293	96,933	125	96,870	4,289,661	44.3
37-38	0.001378	96,807	133	96,741	4,192,791	43.3
38-39	0.001490	96,674	144	96,602	4,096,050	42.4
39-40	0.001624	96,530	157	96,452	3,999,448	41.4
40-41	0.001778	96,373	171	96,288	3,902,997	40.5
41-42	0.001943	96,202	187	96,108	3,806,709	39.6
42-43	0.002112	96,015	203	95,914	3,710,601	38.6
43-44	0.002278	95,812	218	95,703	3,614,687	37.7
44-45	0.002445	95,594	234	95,477	3,518,984	36.8
45-46	0.002623	95,360	250	95,235	3,423,507	35.9
46-47	0.002823	95,110	268	94,976	3,328,272	35.0
47-48	0.003049	94,841	289	94,697	3,233,297	34.1
48-49	0.003311	94,552	313	94,396	3,138,600	33.2
49-50	0.003613	94,239	340	94,069	3,044,204	32.3
50-51	0.003946	93,899	371	93,713	2,950,135	31.4
51-52	0.004309	93,528	403	93,327	2,856,422	30.5
52-53	0.004715	93,125	439	92,906	2,763,095	29.7
53-54	0.005166	92,686	479	92,447	2,670,189	28.8
54-55	0.005657	92,207	522	91,946	2,577,743	28.0
55-56	0.006211	91,686	569	91,401	2,485,796	27.1
56-57	0.006807	91,116	620	90,806	2,394,396	26.3
57-58	0.007390	90,496	669	90,162	2,303,589	25.5
58-59	0.007925	89,827	712	89,471	2,213,428	24.6
59-60	0.008428	89,115	751	88,740	2,123,957	23.8
60-61	0.008940	88,364	790	87,969	2,035,217	23.0
61-62	0.009524	87,574	834	87,157	1,947,248	22.2
62-63	0.010223	86,740	887	86,297	1,860,091	21.4

See footnote at end of table.

Table 11. Life table for Hispanic males: United States, 2008—Con.

Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table11.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table11.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.011095	85,853	953	85,377	1,773,794	20.7
64-65	0.012147	84,901	1,031	84,385	1,688,417	19.9
65-66	0.013348	83,870	1,120	83,310	1,604,031	19.1
66-67	0.014660	82,750	1,213	82,144	1,520,722	18.4
67-68	0.016063	81,537	1,310	80,882	1,438,578	17.6
68-69	0.017492	80,227	1,403	79,526	1,357,696	16.9
69-70	0.018934	78,824	1,492	78,078	1,278,170	16.2
70-71	0.020407	77,331	1,578	76,542	1,200,093	15.5
71-72	0.021992	75,753	1,666	74,920	1,123,550	14.8
72-73	0.023751	74,087	1,760	73,208	1,048,630	14.2
73-74	0.025774	72,328	1,864	71,396	975,422	13.5
74-75	0.028067	70,464	1,978	69,475	904,027	12.8
75-76	0.030466	68,486	2,087	67,443	834,552	12.2
76-77	0.033122	66,399	2,199	65,300	767,110	11.6
77-78	0.036268	64,200	2,328	63,036	701,810	10.9
78-79	0.040082	61,872	2,480	60,632	638,774	10.3
79-80	0.044661	59,392	2,653	58,065	578,142	9.7
80-81	0.049813	56,739	2,826	55,326	520,077	9.2
81-82	0.055465	53,913	2,990	52,418	464,751	8.6
82-83	0.061044	50,923	3,109	49,368	412,333	8.1
83-84	0.067633	47,814	3,234	46,197	362,965	7.6
84-85	0.074957	44,580	3,342	42,909	316,768	7.1
85-86	0.083424	41,239	3,440	39,518	273,859	6.6
86-87	0.092938	37,798	3,513	36,042	234,340	6.2
87-88	0.103324	34,285	3,543	32,514	198,298	5.8
88-89	0.114611	30,743	3,523	28,981	165,784	5.4
89-90	0.126821	27,219	3,452	25,493	136,803	5.0
90-91	0.139962	23,767	3,327	22,104	111,310	4.7
91-92	0.154028	20,441	3,148	18,867	89,206	4.4
92-93	0.168995	17,292	2,922	15,831	70,339	4.1
93-94	0.184821	14,370	2,656	13,042	54,508	3.8
94-95	0.201448	11,714	2,360	10,534	41,466	3.5
95-96	0.218792	9,354	2,047	8,331	30,931	3.3
96-97	0.236757	7,308	1,730	6,443	22,600	3.1
97-98	0.255223	5,578	1,424	4,866	16,158	2.9
98-99	0.274060	4,154	1,138	3,585	11,292	2.7
99-100	0.293124	3,016	884	2,574	7,707	2.6
100 and over	1.000000	2,132	2,132	5,133	5,133	2.4

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 12. Life table for Hispanic females: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table12.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table12.xls).

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	0.005066	100,000	507	99,558	8,334,718	83.3
1-2	0.000370	99,493	37	99,475	8,235,160	82.8
2-3	0.000189	99,457	19	99,447	8,135,685	81.8
3-4	0.000162	99,438	16	99,430	8,036,238	80.8
4-5	0.000138	99,422	14	99,415	7,936,808	79.8
5-6	0.000120	99,408	12	99,402	7,837,394	78.8
6-7	0.000108	99,396	11	99,391	7,737,992	77.9
7-8	0.000100	99,385	10	99,380	7,638,601	76.9
8-9	0.000095	99,375	9	99,371	7,539,221	75.9
9-10	0.000094	99,366	9	99,361	7,439,850	74.9
10-11	0.000096	99,356	10	99,352	7,340,489	73.9
11-12	0.000103	99,347	10	99,342	7,241,138	72.9
12-13	0.000119	99,337	12	99,331	7,141,796	71.9
13-14	0.000142	99,325	14	99,318	7,042,465	70.9
14-15	0.000172	99,311	17	99,302	6,943,147	69.9
15-16	0.000205	99,294	20	99,284	6,843,845	68.9
16-17	0.000238	99,273	24	99,262	6,744,561	67.9
17-18	0.000264	99,250	26	99,237	6,645,300	67.0
18-19	0.000283	99,224	28	99,210	6,546,063	66.0
19-20	0.000295	99,195	29	99,181	6,446,854	65.0
20-21	0.000306	99,166	30	99,151	6,347,673	64.0
21-22	0.000319	99,136	32	99,120	6,248,522	63.0
22-23	0.000330	99,104	33	99,088	6,149,402	62.0
23-24	0.000340	99,072	34	99,055	6,050,314	61.1
24-25	0.000349	99,038	35	99,021	5,951,259	60.1
25-26	0.000358	99,003	35	98,986	5,852,239	59.1
26-27	0.000367	98,968	36	98,950	5,753,253	58.1
27-28	0.000373	98,931	37	98,913	5,654,304	57.2
28-29	0.000375	98,895	37	98,876	5,555,391	56.2
29-30	0.000376	98,857	37	98,839	5,456,515	55.2
30-31	0.000377	98,820	37	98,802	5,357,676	54.2
31-32	0.000384	98,783	38	98,764	5,258,874	53.2
32-33	0.000399	98,745	39	98,725	5,160,110	52.3
33-34	0.000440	98,706	43	98,684	5,061,385	51.3
34-35	0.000490	98,662	48	98,638	4,962,701	50.3
35-36	0.000549	98,614	54	98,587	4,864,063	49.3
36-37	0.000612	98,560	60	98,530	4,765,476	48.4
37-38	0.000677	98,499	67	98,466	4,666,947	47.4
38-39	0.000745	98,433	73	98,396	4,568,481	46.4
39-40	0.000817	98,359	80	98,319	4,470,085	45.4
40-41	0.000896	98,279	88	98,235	4,371,765	44.5
41-42	0.000985	98,191	97	98,143	4,273,531	43.5
42-43	0.001090	98,094	107	98,041	4,175,388	42.6
43-44	0.001213	97,987	119	97,928	4,077,347	41.6
44-45	0.001352	97,868	132	97,802	3,979,419	40.7
45-46	0.001500	97,736	147	97,663	3,881,617	39.7
46-47	0.001655	97,590	161	97,509	3,783,954	38.8
47-48	0.001817	97,428	177	97,340	3,686,445	37.8
48-49	0.001989	97,251	193	97,154	3,589,106	36.9
49-50	0.002173	97,058	211	96,952	3,491,951	36.0
50-51	0.002378	96,847	230	96,732	3,394,999	35.1
51-52	0.002597	96,616	251	96,491	3,298,268	34.1
52-53	0.002816	96,365	271	96,230	3,201,777	33.2
53-54	0.003024	96,094	291	95,949	3,105,547	32.3
54-55	0.003225	95,803	309	95,649	3,009,598	31.4
55-56	0.003437	95,495	328	95,330	2,913,949	30.5
56-57	0.003678	95,166	350	94,991	2,818,619	29.6
57-58	0.003955	94,816	375	94,629	2,723,628	28.7
58-59	0.004278	94,441	404	94,239	2,628,999	27.8
59-60	0.004652	94,037	438	93,818	2,534,759	27.0
60-61	0.005072	93,600	475	93,362	2,440,941	26.1
61-62	0.005537	93,125	516	92,867	2,347,579	25.2
62-63	0.006059	92,609	561	92,329	2,254,712	24.3

See footnote at end of table.

**Table 12. Life table for Hispanic females: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table12.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table12.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.006646	92,048	612	91,742	2,162,383	23.5
64-65	0.007308	91,436	668	91,102	2,070,640	22.6
65-66	0.008073	90,768	733	90,402	1,979,538	21.8
66-67	0.008940	90,035	805	89,633	1,889,136	21.0
67-68	0.009875	89,230	881	88,790	1,799,504	20.2
68-69	0.010843	88,349	958	87,870	1,710,714	19.4
69-70	0.011846	87,391	1,035	86,874	1,622,843	18.6
70-71	0.012883	86,356	1,113	85,800	1,535,970	17.8
71-72	0.014039	85,244	1,197	84,645	1,450,170	17.0
72-73	0.015416	84,047	1,296	83,399	1,365,525	16.2
73-74	0.017104	82,751	1,415	82,044	1,282,126	15.5
74-75	0.019087	81,336	1,552	80,560	1,200,082	14.8
75-76	0.021225	79,783	1,693	78,937	1,119,522	14.0
76-77	0.023419	78,090	1,829	77,176	1,040,586	13.3
77-78	0.025836	76,261	1,970	75,276	963,410	12.6
78-79	0.028605	74,291	2,125	73,228	888,134	12.0
79-80	0.031814	72,166	2,296	71,018	814,906	11.3
80-81	0.035384	69,870	2,472	68,634	743,888	10.6
81-82	0.039356	67,398	2,653	66,071	675,254	10.0
82-83	0.043855	64,745	2,839	63,325	609,183	9.4
83-84	0.049241	61,906	3,048	60,382	545,858	8.8
84-85	0.055260	58,857	3,252	57,231	485,476	8.2
85-86	0.062089	55,605	3,452	53,879	428,245	7.7
86-87	0.069671	52,152	3,633	50,336	374,366	7.2
87-88	0.078700	48,519	3,818	46,610	324,030	6.7
88-89	0.088709	44,701	3,965	42,718	277,421	6.2
89-90	0.099753	40,735	4,063	38,703	234,703	5.8
90-91	0.111879	36,672	4,103	34,620	195,999	5.3
91-92	0.125121	32,569	4,075	30,531	161,379	5.0
92-93	0.139495	28,494	3,975	26,506	130,848	4.6
93-94	0.154998	24,519	3,800	22,619	104,341	4.3
94-95	0.171601	20,719	3,555	18,941	81,722	3.9
95-96	0.189252	17,163	3,248	15,539	62,781	3.7
96-97	0.207868	13,915	2,893	12,469	47,242	3.4
97-98	0.227339	11,023	2,506	9,770	34,773	3.2
98-99	0.247527	8,517	2,108	7,463	25,003	2.9
99-100	0.268271	6,409	1,719	5,549	17,541	2.7
100 and over	1.000000	4,689	4,689	11,992	11,992	2.6

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 13. Life table for the non-Hispanic white population: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table13.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table13.xls).

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	0.005503	100,000	550	99,520	7,837,249	78.4
1-2	0.000425	99,450	42	99,429	7,737,729	77.8
2-3	0.000259	99,407	26	99,395	7,638,300	76.8
3-4	0.000201	99,382	20	99,372	7,538,906	75.9
4-5	0.000153	99,362	15	99,354	7,439,534	74.9
5-6	0.000141	99,347	14	99,340	7,340,180	73.9
6-7	0.000128	99,333	13	99,326	7,240,840	72.9
7-8	0.000116	99,320	12	99,314	7,141,514	71.9
8-9	0.000102	99,308	10	99,303	7,042,200	70.9
9-10	0.000085	99,298	8	99,294	6,942,897	69.9
10-11	0.000073	99,290	7	99,286	6,843,603	68.9
11-12	0.000078	99,282	8	99,279	6,744,317	67.9
12-13	0.000112	99,275	11	99,269	6,645,038	66.9
13-14	0.000182	99,264	18	99,255	6,545,769	65.9
14-15	0.000274	99,245	27	99,232	6,446,515	65.0
15-16	0.000369	99,218	37	99,200	6,347,283	64.0
16-17	0.000457	99,182	45	99,159	6,248,083	63.0
17-18	0.000542	99,136	54	99,110	6,148,924	62.0
18-19	0.000621	99,083	62	99,052	6,049,814	61.1
19-20	0.000696	99,021	69	98,987	5,950,762	60.1
20-21	0.000776	98,952	77	98,914	5,851,776	59.1
21-22	0.000852	98,875	84	98,833	5,752,862	58.2
22-23	0.000907	98,791	90	98,746	5,654,029	57.2
23-24	0.000930	98,702	92	98,656	5,555,282	56.3
24-25	0.000931	98,610	92	98,564	5,456,627	55.3
25-26	0.000926	98,518	91	98,472	5,358,063	54.4
26-27	0.000926	98,427	91	98,381	5,259,590	53.4
27-28	0.000931	98,336	92	98,290	5,161,209	52.5
28-29	0.000946	98,244	93	98,198	5,062,920	51.5
29-30	0.000972	98,151	95	98,103	4,964,722	50.6
30-31	0.001007	98,056	99	98,006	4,866,619	49.6
31-32	0.001047	97,957	103	97,906	4,768,612	48.7
32-33	0.001096	97,854	107	97,801	4,670,706	47.7
33-34	0.001138	97,747	111	97,692	4,572,906	46.8
34-35	0.001184	97,636	116	97,578	4,475,214	45.8
35-36	0.001240	97,520	121	97,460	4,377,636	44.9
36-37	0.001310	97,399	128	97,336	4,280,176	43.9
37-38	0.001392	97,272	135	97,204	4,182,840	43.0
38-39	0.001492	97,136	145	97,064	4,085,636	42.1
39-40	0.001612	96,991	156	96,913	3,988,572	41.1
40-41	0.001743	96,835	169	96,751	3,891,659	40.2
41-42	0.001892	96,666	183	96,575	3,794,908	39.3
42-43	0.002077	96,483	200	96,383	3,698,333	38.3
43-44	0.002297	96,283	221	96,172	3,601,950	37.4
44-45	0.002538	96,062	244	95,940	3,505,778	36.5
45-46	0.002779	95,818	266	95,685	3,409,838	35.6
46-47	0.003019	95,552	289	95,407	3,314,153	34.7
47-48	0.003273	95,263	312	95,107	3,218,746	33.8
48-49	0.003549	94,951	337	94,783	3,123,638	32.9
49-50	0.003850	94,614	364	94,432	3,028,855	32.0
50-51	0.004180	94,250	394	94,053	2,934,423	31.1
51-52	0.004523	93,856	425	93,644	2,840,370	30.3
52-53	0.004868	93,432	455	93,204	2,746,726	29.4
53-54	0.005207	92,977	484	92,735	2,653,522	28.5
54-55	0.005552	92,493	514	92,236	2,560,787	27.7
55-56	0.005919	91,979	544	91,707	2,468,551	26.8
56-57	0.006333	91,435	579	91,145	2,376,844	26.0
57-58	0.006818	90,856	619	90,546	2,285,699	25.2
58-59	0.007391	90,236	667	89,903	2,195,153	24.3
59-60	0.008043	89,569	720	89,209	2,105,250	23.5
60-61	0.008767	88,849	779	88,459	2,016,041	22.7
61-62	0.009542	88,070	840	87,650	1,927,581	21.9
62-63	0.010360	87,230	904	86,778	1,839,932	21.1

See footnote at end of table.

**Table 13. Life table for the non-Hispanic white population: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table13.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table13.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.011225	86,326	969	85,841	1,753,154	20.3
64-65	0.012167	85,357	1,039	84,838	1,667,313	19.5
65-66	0.013260	84,318	1,118	83,759	1,582,475	18.8
66-67	0.014507	83,200	1,207	82,597	1,498,716	18.0
67-68	0.015859	81,993	1,300	81,343	1,416,119	17.3
68-69	0.017274	80,693	1,394	79,996	1,334,776	16.5
69-70	0.018782	79,299	1,489	78,554	1,254,780	15.8
70-71	0.020413	77,810	1,588	77,015	1,176,226	15.1
71-72	0.022336	76,221	1,702	75,370	1,099,211	14.4
72-73	0.024591	74,519	1,832	73,602	1,023,841	13.7
73-74	0.027088	72,686	1,969	71,702	950,238	13.1
74-75	0.029748	70,717	2,104	69,665	878,537	12.4
75-76	0.032556	68,614	2,234	67,497	808,871	11.8
76-77	0.035632	66,380	2,365	65,197	741,374	11.2
77-78	0.039142	64,015	2,506	62,762	676,177	10.6
78-79	0.043216	61,509	2,658	60,180	613,415	10.0
79-80	0.047881	58,851	2,818	57,442	553,235	9.4
80-81	0.052838	56,033	2,961	54,553	495,794	8.8
81-82	0.058081	53,072	3,082	51,531	441,241	8.3
82-83	0.064023	49,990	3,200	48,390	389,710	7.8
83-84	0.071073	46,789	3,325	45,127	341,320	7.3
84-85	0.078919	43,464	3,430	41,749	296,194	6.8
85-86	0.087693	40,034	3,511	38,278	254,445	6.4
86-87	0.097330	36,523	3,555	34,746	216,167	5.9
87-88	0.108641	32,968	3,582	31,177	181,421	5.5
88-89	0.120988	29,387	3,555	27,609	150,244	5.1
89-90	0.134399	25,831	3,472	24,095	122,635	4.7
90-91	0.148891	22,359	3,329	20,695	98,539	4.4
91-92	0.164464	19,030	3,130	17,465	77,845	4.1
92-93	0.181095	15,901	2,880	14,461	60,379	3.8
93-94	0.198742	13,021	2,588	11,727	45,918	3.5
94-95	0.217340	10,433	2,268	9,299	34,191	3.3
95-96	0.236797	8,166	1,934	7,199	24,892	3.0
96-97	0.257000	6,232	1,602	5,431	17,693	2.8
97-98	0.277812	4,630	1,286	3,987	12,262	2.6
98-99	0.299080	3,344	1,000	2,844	8,275	2.5
99-100	0.320633	2,344	752	1,968	5,431	2.3
100 and over	1.000000	1,592	1,592	3,462	3,462	2.2

SOURCE: CDC/NCHS, National Vital Statistics System.



**Table 14. Life table for non-Hispanic white males: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table14.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table14.xls).

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	0.006000	100,000	600	99,479	7,593,024	75.9
1-2	0.000455	99,400	45	99,377	7,493,545	75.4
2-3	0.000296	99,355	29	99,340	7,394,168	74.4
3-4	0.000243	99,325	24	99,313	7,294,828	73.4
4-5	0.000164	99,301	16	99,293	7,195,515	72.5
5-6	0.000157	99,285	16	99,277	7,096,222	71.5
6-7	0.000141	99,269	14	99,262	6,996,945	70.5
7-8	0.000126	99,255	13	99,249	6,897,682	69.5
8-9	0.000107	99,243	11	99,238	6,798,433	68.5
9-10	0.000086	99,232	8	99,228	6,699,196	67.5
10-11	0.000070	99,224	7	99,220	6,599,968	66.5
11-12	0.000078	99,217	8	99,213	6,500,748	65.5
12-13	0.000127	99,209	13	99,203	6,401,535	64.5
13-14	0.000224	99,196	22	99,185	6,302,332	63.5
14-15	0.000352	99,174	35	99,157	6,203,147	62.5
15-16	0.000484	99,139	48	99,115	6,103,990	61.6
16-17	0.000607	99,091	60	99,061	6,004,875	60.6
17-18	0.000732	99,031	72	98,995	5,905,814	59.6
18-19	0.000859	98,959	85	98,916	5,806,819	58.7
19-20	0.000986	98,874	98	98,825	5,707,903	57.7
20-21	0.001123	98,776	111	98,721	5,609,078	56.8
21-22	0.001250	98,665	123	98,604	5,510,357	55.8
22-23	0.001337	98,542	132	98,476	5,411,753	54.9
23-24	0.001367	98,410	134	98,343	5,313,277	54.0
24-25	0.001355	98,276	133	98,209	5,214,934	53.1
25-26	0.001329	98,143	130	98,077	5,116,725	52.1
26-27	0.001313	98,012	129	97,948	5,018,648	51.2
27-28	0.001304	97,883	128	97,820	4,920,700	50.3
28-29	0.001314	97,756	128	97,692	4,822,881	49.3
29-30	0.001339	97,627	131	97,562	4,725,189	48.4
30-31	0.001374	97,497	134	97,430	4,627,627	47.5
31-32	0.001413	97,363	138	97,294	4,530,198	46.5
32-33	0.001465	97,225	142	97,154	4,432,904	45.6
33-34	0.001501	97,083	146	97,010	4,335,750	44.7
34-35	0.001548	96,937	150	96,862	4,238,740	43.7
35-36	0.001608	96,787	156	96,709	4,141,878	42.8
36-37	0.001685	96,631	163	96,550	4,045,169	41.9
37-38	0.001776	96,468	171	96,383	3,948,620	40.9
38-39	0.001884	96,297	181	96,206	3,852,237	40.0
39-40	0.002016	96,116	194	96,019	3,756,031	39.1
40-41	0.002162	95,922	207	95,818	3,660,012	38.2
41-42	0.002334	95,715	223	95,603	3,564,194	37.2
42-43	0.002555	95,491	244	95,369	3,468,591	36.3
43-44	0.002826	95,247	269	95,113	3,373,222	35.4
44-45	0.003127	94,978	297	94,830	3,278,109	34.5
45-46	0.003429	94,681	325	94,519	3,183,280	33.6
46-47	0.003733	94,356	352	94,180	3,088,761	32.7
47-48	0.004061	94,004	382	93,813	2,994,581	31.9
48-49	0.004426	93,622	414	93,415	2,900,768	31.0
49-50	0.004829	93,208	450	92,983	2,807,352	30.1
50-51	0.005268	92,758	489	92,514	2,714,370	29.3
51-52	0.005721	92,269	528	92,005	2,621,856	28.4
52-53	0.006174	91,741	566	91,458	2,529,851	27.6
53-54	0.006618	91,175	603	90,873	2,438,392	26.7
54-55	0.007066	90,572	640	90,252	2,347,519	25.9
55-56	0.007541	89,932	678	89,593	2,257,268	25.1
56-57	0.008070	89,254	720	88,893	2,167,675	24.3
57-58	0.008665	88,533	767	88,150	2,078,782	23.5
58-59	0.009339	87,766	820	87,356	1,990,632	22.7
59-60	0.010087	86,946	877	86,508	1,903,276	21.9
60-61	0.010906	86,069	939	85,600	1,816,768	21.1
61-62	0.011788	85,131	1,004	84,629	1,731,168	20.3
62-63	0.012732	84,127	1,071	83,592	1,646,539	19.6

See footnote at end of table.

**Table 14. Life table for non-Hispanic white males: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table14.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table14.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.013751	83,056	1,142	82,485	1,562,947	18.8
64-65	0.014881	81,914	1,219	81,304	1,480,462	18.1
65-66	0.016192	80,695	1,307	80,042	1,399,158	17.3
66-67	0.017680	79,388	1,404	78,687	1,319,116	16.6
67-68	0.019303	77,985	1,505	77,232	1,240,429	15.9
68-69	0.021008	76,479	1,607	75,676	1,163,197	15.2
69-70	0.022817	74,873	1,708	74,019	1,087,521	14.5
70-71	0.024760	73,164	1,812	72,259	1,013,503	13.9
71-72	0.027017	71,353	1,928	70,389	941,244	13.2
72-73	0.029726	69,425	2,064	68,393	870,855	12.5
73-74	0.032751	67,361	2,206	66,258	802,462	11.9
74-75	0.035986	65,155	2,345	63,983	736,203	11.3
75-76	0.039392	62,811	2,474	61,573	672,221	10.7
76-77	0.043042	60,336	2,597	59,038	610,647	10.1
77-78	0.047250	57,739	2,728	56,375	551,609	9.6
78-79	0.052133	55,011	2,868	53,577	495,234	9.0
79-80	0.057772	52,143	3,012	50,637	441,657	8.5
80-81	0.063732	49,131	3,131	47,565	391,020	8.0
81-82	0.069993	46,000	3,220	44,390	343,455	7.5
82-83	0.076960	42,780	3,292	41,134	299,065	7.0
83-84	0.085164	39,488	3,363	37,806	257,931	6.5
84-85	0.094254	36,125	3,405	34,422	220,125	6.1
85-86	0.104721	32,720	3,426	31,007	185,703	5.7
86-87	0.116432	29,293	3,411	27,588	154,696	5.3
87-88	0.129152	25,883	3,343	24,211	127,108	4.9
88-89	0.142900	22,540	3,221	20,929	102,897	4.6
89-90	0.157682	19,319	3,046	17,796	81,968	4.2
90-91	0.173488	16,273	2,823	14,861	64,172	3.9
91-92	0.190285	13,450	2,559	12,170	49,311	3.7
92-93	0.208022	10,890	2,265	9,758	37,141	3.4
93-94	0.226627	8,625	1,955	7,648	27,383	3.2
94-95	0.246002	6,670	1,641	5,850	19,736	3.0
95-96	0.266033	5,029	1,338	4,360	13,886	2.8
96-97	0.286584	3,691	1,058	3,162	9,526	2.6
97-98	0.307504	2,633	810	2,229	6,363	2.4
98-99	0.328630	1,824	599	1,524	4,135	2.3
99-100	0.349794	1,224	428	1,010	2,610	2.1
100 and over	1.000000	796	796	1,600	1,600	2.0

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 15. Life table for non-Hispanic white females: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table15.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table15.xls).

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	0.004980	100,000	498	99,563	8,074,913	80.7
1-2	0.000392	99,502	39	99,483	7,975,350	80.2
2-3	0.000220	99,463	22	99,452	7,875,867	79.2
3-4	0.000158	99,441	16	99,433	7,776,415	78.2
4-5	0.000142	99,425	14	99,418	7,676,982	77.2
5-6	0.000125	99,411	12	99,405	7,577,563	76.2
6-7	0.000114	99,399	11	99,393	7,478,158	75.2
7-8	0.000106	99,388	10	99,382	7,378,765	74.2
8-9	0.000096	99,377	9	99,372	7,279,383	73.3
9-10	0.000085	99,368	8	99,363	7,180,010	72.3
10-11	0.000077	99,359	8	99,355	7,080,647	71.3
11-12	0.000078	99,352	8	99,348	6,981,291	70.3
12-13	0.000097	99,344	10	99,339	6,881,944	69.3
13-14	0.000137	99,334	14	99,327	6,782,605	68.3
14-15	0.000190	99,321	19	99,311	6,683,277	67.3
15-16	0.000247	99,302	25	99,289	6,583,966	66.3
16-17	0.000299	99,277	30	99,262	6,484,677	65.3
17-18	0.000341	99,247	34	99,231	6,385,415	64.3
18-19	0.000370	99,214	37	99,195	6,286,184	63.4
19-20	0.000390	99,177	39	99,158	6,186,989	62.4
20-21	0.000409	99,138	41	99,118	6,087,831	61.4
21-22	0.000432	99,098	43	99,076	5,988,713	60.4
22-23	0.000452	99,055	45	99,032	5,889,637	59.5
23-24	0.000471	99,010	47	98,987	5,790,605	58.5
24-25	0.000489	98,963	48	98,939	5,691,618	57.5
25-26	0.000507	98,915	50	98,890	5,592,679	56.5
26-27	0.000527	98,865	52	98,839	5,493,789	55.6
27-28	0.000548	98,813	54	98,786	5,394,950	54.6
28-29	0.000571	98,759	56	98,730	5,296,164	53.6
29-30	0.000598	98,702	59	98,673	5,197,434	52.7
30-31	0.000634	98,643	63	98,612	5,098,761	51.7
31-32	0.000678	98,581	67	98,547	5,000,149	50.7
32-33	0.000726	98,514	71	98,478	4,901,602	49.8
33-34	0.000772	98,442	76	98,404	4,803,124	48.8
34-35	0.000818	98,366	80	98,326	4,704,720	47.8
35-36	0.000869	98,286	85	98,243	4,606,394	46.9
36-37	0.000931	98,200	91	98,155	4,508,151	45.9
37-38	0.001005	98,109	99	98,060	4,409,996	44.9
38-39	0.001096	98,010	107	97,957	4,311,936	44.0
39-40	0.001206	97,903	118	97,844	4,213,979	43.0
40-41	0.001323	97,785	129	97,720	4,116,135	42.1
41-42	0.001450	97,656	142	97,585	4,018,415	41.1
42-43	0.001600	97,514	156	97,436	3,920,830	40.2
43-44	0.001771	97,358	172	97,272	3,823,394	39.3
44-45	0.001951	97,186	190	97,091	3,726,122	38.3
45-46	0.002133	96,996	207	96,892	3,629,032	37.4
46-47	0.002312	96,789	224	96,677	3,532,139	36.5
47-48	0.002493	96,565	241	96,445	3,435,462	35.6
48-49	0.002683	96,324	258	96,195	3,339,017	34.7
49-50	0.002885	96,066	277	95,928	3,242,822	33.8
50-51	0.003108	95,789	298	95,640	3,146,895	32.9
51-52	0.003346	95,491	320	95,331	3,051,254	32.0
52-53	0.003587	95,172	341	95,001	2,955,923	31.1
53-54	0.003825	94,830	363	94,649	2,860,922	30.2
54-55	0.004074	94,468	385	94,275	2,766,273	29.3
55-56	0.004339	94,083	408	93,879	2,671,998	28.4
56-57	0.004647	93,674	435	93,457	2,578,119	27.5
57-58	0.005031	93,239	469	93,005	2,484,662	26.6
58-59	0.005514	92,770	511	92,514	2,391,658	25.8
59-60	0.006082	92,259	561	91,978	2,299,143	24.9
60-61	0.006723	91,697	616	91,389	2,207,165	24.1
61-62	0.007407	91,081	675	90,744	2,115,776	23.2
62-63	0.008119	90,406	734	90,039	2,025,032	22.4

See footnote at end of table.

**Table 15. Life table for non-Hispanic white females: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table15.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table15.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.008854	89,672	794	89,275	1,934,993	21.6
64-65	0.009641	88,878	857	88,450	1,845,718	20.8
65-66	0.010558	88,021	929	87,557	1,757,268	20.0
66-67	0.011613	87,092	1,011	86,586	1,669,711	19.2
67-68	0.012751	86,081	1,098	85,532	1,583,124	18.4
68-69	0.013939	84,983	1,185	84,391	1,497,593	17.6
69-70	0.015214	83,799	1,275	83,161	1,413,202	16.9
70-71	0.016610	82,524	1,371	81,838	1,330,041	16.1
71-72	0.018292	81,153	1,484	80,411	1,248,202	15.4
72-73	0.020221	79,668	1,611	78,863	1,167,792	14.7
73-74	0.022351	78,057	1,745	77,185	1,088,929	14.0
74-75	0.024624	76,313	1,879	75,373	1,011,744	13.3
75-76	0.027048	74,434	2,013	73,427	936,371	12.6
76-77	0.029777	72,420	2,156	71,342	862,944	11.9
77-78	0.032873	70,264	2,310	69,109	791,602	11.3
78-79	0.036506	67,954	2,481	66,714	722,493	10.6
79-80	0.040671	65,473	2,663	64,142	655,779	10.0
80-81	0.045155	62,810	2,836	61,392	591,638	9.4
81-82	0.049963	59,974	2,996	58,476	530,245	8.8
82-83	0.055543	56,978	3,165	55,395	471,770	8.3
83-84	0.062198	53,813	3,347	52,139	416,374	7.7
84-85	0.069603	50,466	3,513	48,710	364,235	7.2
85-86	0.077965	46,953	3,661	45,123	315,525	6.7
86-87	0.087203	43,293	3,775	41,405	270,402	6.2
87-88	0.098144	39,517	3,878	37,578	228,997	5.8
88-89	0.110197	35,639	3,927	33,675	191,419	5.4
89-90	0.123409	31,712	3,913	29,755	157,744	5.0
90-91	0.137812	27,798	3,831	25,883	127,989	4.6
91-92	0.153422	23,967	3,677	22,129	102,106	4.3
92-93	0.170231	20,290	3,454	18,563	79,978	3.9
93-94	0.188205	16,836	3,169	15,252	61,415	3.6
94-95	0.207286	13,667	2,833	12,251	46,163	3.4
95-96	0.227381	10,834	2,464	9,603	33,912	3.1
96-97	0.248371	8,371	2,079	7,331	24,309	2.9
97-98	0.270108	6,292	1,699	5,442	16,978	2.7
98-99	0.292417	4,592	1,343	3,921	11,536	2.5
99-100	0.315104	3,249	1,024	2,737	7,615	2.3
100 and over	1.000000	2,226	2,226	4,877	4,877	2.2

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 16. Life table for the non-Hispanic black population: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table16.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table16.xls).

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	0.012660	100,000	1,266	98,896	7,370,365	73.7
1-2	0.000716	98,734	71	98,699	7,271,469	73.6
2-3	0.000446	98,663	44	98,641	7,172,770	72.7
3-4	0.000363	98,619	36	98,601	7,074,129	71.7
4-5	0.000276	98,584	27	98,570	6,975,528	70.8
5-6	0.000245	98,556	24	98,544	6,876,958	69.8
6-7	0.000218	98,532	21	98,521	6,778,413	68.8
7-8	0.000195	98,511	19	98,501	6,679,892	67.8
8-9	0.000169	98,492	17	98,483	6,581,391	66.8
9-10	0.000141	98,475	14	98,468	6,482,907	65.8
10-11	0.000121	98,461	12	98,455	6,384,439	64.8
11-12	0.000128	98,449	13	98,443	6,285,984	63.9
12-13	0.000181	98,437	18	98,428	6,187,542	62.9
13-14	0.000288	98,419	28	98,405	6,089,114	61.9
14-15	0.000427	98,391	42	98,370	5,990,709	60.9
15-16	0.000572	98,348	56	98,320	5,892,340	59.9
16-17	0.000703	98,292	69	98,258	5,794,019	58.9
17-18	0.000827	98,223	81	98,182	5,695,762	58.0
18-19	0.000946	98,142	93	98,095	5,597,579	57.0
19-20	0.001064	98,049	104	97,997	5,499,484	56.1
20-21	0.001196	97,945	117	97,886	5,401,487	55.1
21-22	0.001330	97,828	130	97,762	5,303,601	54.2
22-23	0.001432	97,697	140	97,627	5,205,838	53.3
23-24	0.001481	97,558	145	97,485	5,108,211	52.4
24-25	0.001490	97,413	145	97,340	5,010,726	51.4
25-26	0.001485	97,268	144	97,196	4,913,385	50.5
26-27	0.001490	97,123	145	97,051	4,816,189	49.6
27-28	0.001506	96,979	146	96,906	4,719,138	48.7
28-29	0.001543	96,833	149	96,758	4,622,233	47.7
29-30	0.001601	96,683	155	96,606	4,525,475	46.8
30-31	0.001674	96,528	162	96,448	4,428,869	45.9
31-32	0.001754	96,367	169	96,282	4,332,422	45.0
32-33	0.001851	96,198	178	96,109	4,236,139	44.0
33-34	0.001913	96,020	184	95,928	4,140,030	43.1
34-35	0.001986	95,836	190	95,741	4,044,103	42.2
35-36	0.002067	95,646	198	95,547	3,948,362	41.3
36-37	0.002170	95,448	207	95,344	3,852,815	40.4
37-38	0.002303	95,241	219	95,131	3,757,470	39.5
38-39	0.002476	95,022	235	94,904	3,662,339	38.5
39-40	0.002689	94,786	255	94,659	3,567,435	37.6
40-41	0.002927	94,531	277	94,393	3,472,776	36.7
41-42	0.003185	94,255	300	94,105	3,378,383	35.8
42-43	0.003475	93,954	327	93,791	3,284,278	35.0
43-44	0.003794	93,628	355	93,450	3,190,487	34.1
44-45	0.004136	93,273	386	93,080	3,097,037	33.2
45-46	0.004482	92,887	416	92,679	3,003,957	32.3
46-47	0.004849	92,471	448	92,247	2,911,278	31.5
47-48	0.005282	92,022	486	91,779	2,819,032	30.6
48-49	0.005806	91,536	531	91,271	2,727,252	29.8
49-50	0.006415	91,005	584	90,713	2,635,982	29.0
50-51	0.007077	90,421	640	90,101	2,545,269	28.1
51-52	0.007761	89,781	697	89,433	2,455,168	27.3
52-53	0.008469	89,084	754	88,707	2,365,735	26.6
53-54	0.009188	88,330	812	87,924	2,277,028	25.8
54-55	0.009922	87,518	868	87,084	2,189,104	25.0
55-56	0.010719	86,650	929	86,186	2,102,020	24.3
56-57	0.011571	85,721	992	85,225	2,015,834	23.5
57-58	0.012413	84,729	1,052	84,203	1,930,609	22.8
58-59	0.013226	83,678	1,107	83,124	1,846,406	22.1
59-60	0.014043	82,571	1,160	81,991	1,763,281	21.4
60-61	0.014929	81,411	1,215	80,804	1,681,290	20.7
61-62	0.015938	80,196	1,278	79,557	1,600,487	20.0
62-63	0.017058	78,918	1,346	78,245	1,520,930	19.3

See footnote at end of table.

**Table 16. Life table for the non-Hispanic black population: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table16.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table16.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.018281	77,572	1,418	76,863	1,442,685	18.6
64-65	0.019584	76,154	1,491	75,408	1,365,822	17.9
65-66	0.020996	74,662	1,568	73,878	1,290,415	17.3
66-67	0.022486	73,095	1,644	72,273	1,216,536	16.6
67-68	0.023993	71,451	1,714	70,594	1,144,264	16.0
68-69	0.025516	69,737	1,779	68,847	1,073,670	15.4
69-70	0.027096	67,957	1,841	67,037	1,004,823	14.8
70-71	0.028646	66,116	1,894	65,169	937,786	14.2
71-72	0.030303	64,222	1,946	63,249	872,617	13.6
72-73	0.032431	62,276	2,020	61,266	809,369	13.0
73-74	0.034950	60,256	2,106	59,203	748,103	12.4
74-75	0.037923	58,150	2,205	57,048	688,900	11.8
75-76	0.041286	55,945	2,310	54,790	631,852	11.3
76-77	0.044627	53,635	2,394	52,438	577,062	10.8
77-78	0.048448	51,242	2,483	50,000	524,624	10.2
78-79	0.052727	48,759	2,571	47,474	474,623	9.7
79-80	0.056780	46,188	2,623	44,877	427,150	9.2
80-81	0.061319	43,566	2,671	42,230	382,273	8.8
81-82	0.066085	40,894	2,702	39,543	340,043	8.3
82-83	0.071444	38,192	2,729	36,827	300,500	7.9
83-84	0.078403	35,463	2,780	34,073	263,673	7.4
84-85	0.085139	32,683	2,783	31,291	229,600	7.0
85-86	0.092631	29,900	2,770	28,515	198,308	6.6
86-87	0.100667	27,130	2,731	25,765	169,793	6.3
87-88	0.109268	24,399	2,666	23,066	144,028	5.9
88-89	0.118450	21,733	2,574	20,446	120,962	5.6
89-90	0.128226	19,159	2,457	17,931	100,516	5.2
90-91	0.138605	16,702	2,315	15,545	82,585	4.9
91-92	0.149591	14,387	2,152	13,311	67,040	4.7
92-93	0.161181	12,235	1,972	11,249	53,729	4.4
93-94	0.173369	10,263	1,779	9,373	42,480	4.1
94-95	0.186138	8,484	1,579	7,694	33,107	3.9
95-96	0.199468	6,905	1,377	6,216	25,412	3.7
96-97	0.213329	5,527	1,179	4,938	19,196	3.5
97-98	0.227684	4,348	990	3,853	14,259	3.3
98-99	0.242488	3,358	814	2,951	10,405	3.1
99-100	0.257689	2,544	656	2,216	7,454	2.9
100 and over	1.000000	1,888	1,888	5,238	5,238	2.8

SOURCE: CDC/NCHS, National Vital Statistics System.



**Table 17. Life table for non-Hispanic black males: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table17.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table17.xls).

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	0.013942	100,000	1,394	98,783	7,017,692	70.2
1-2	0.000812	98,606	80	98,566	6,918,909	70.2
2-3	0.000493	98,526	49	98,501	6,820,343	69.2
3-4	0.000368	98,477	36	98,459	6,721,842	68.3
4-5	0.000321	98,441	32	98,425	6,623,383	67.3
5-6	0.000280	98,409	28	98,396	6,524,957	66.3
6-7	0.000261	98,382	26	98,369	6,426,562	65.3
7-8	0.000238	98,356	23	98,344	6,328,193	64.3
8-9	0.000198	98,333	19	98,323	6,229,849	63.4
9-10	0.000145	98,313	14	98,306	6,131,526	62.4
10-11	0.000098	98,299	10	98,294	6,033,219	61.4
11-12	0.000094	98,289	9	98,285	5,934,925	60.4
12-13	0.000173	98,280	17	98,272	5,836,640	59.4
13-14	0.000350	98,263	34	98,246	5,738,369	58.4
14-15	0.000587	98,229	58	98,200	5,640,123	57.4
15-16	0.000831	98,171	82	98,130	5,541,923	56.5
16-17	0.001049	98,090	103	98,038	5,443,793	55.5
17-18	0.001252	97,987	123	97,925	5,345,754	54.6
18-19	0.001440	97,864	141	97,793	5,247,829	53.6
19-20	0.001621	97,723	158	97,644	5,150,036	52.7
20-21	0.001822	97,565	178	97,476	5,052,392	51.8
21-22	0.002025	97,387	197	97,288	4,954,916	50.9
22-23	0.002173	97,190	211	97,084	4,857,628	50.0
23-24	0.002235	96,978	217	96,870	4,760,544	49.1
24-25	0.002228	96,762	216	96,654	4,663,674	48.2
25-26	0.002196	96,546	212	96,440	4,567,020	47.3
26-27	0.002177	96,334	210	96,229	4,470,580	46.4
27-28	0.002175	96,124	209	96,020	4,374,351	45.5
28-29	0.002209	95,915	212	95,809	4,278,331	44.6
29-30	0.002276	95,703	218	95,595	4,182,522	43.7
30-31	0.002361	95,486	225	95,373	4,086,927	42.8
31-32	0.002447	95,260	233	95,144	3,991,554	41.9
32-33	0.002563	95,027	244	94,905	3,896,410	41.0
33-34	0.002599	94,784	246	94,660	3,801,505	40.1
34-35	0.002659	94,537	251	94,412	3,706,845	39.2
35-36	0.002729	94,286	257	94,157	3,612,433	38.3
36-37	0.002827	94,029	266	93,896	3,518,276	37.4
37-38	0.002957	93,763	277	93,624	3,424,380	36.5
38-39	0.003131	93,485	293	93,339	3,330,756	35.6
39-40	0.003350	93,193	312	93,037	3,237,417	34.7
40-41	0.003603	92,881	335	92,713	3,144,381	33.9
41-42	0.003887	92,546	360	92,366	3,051,667	33.0
42-43	0.004214	92,186	389	91,992	2,959,301	32.1
43-44	0.004585	91,798	421	91,587	2,867,309	31.2
44-45	0.004995	91,377	456	91,149	2,775,722	30.4
45-46	0.005413	90,920	492	90,674	2,684,574	29.5
46-47	0.005868	90,428	531	90,163	2,593,899	28.7
47-48	0.006431	89,898	578	89,608	2,503,737	27.9
48-49	0.007143	89,319	638	89,000	2,414,128	27.0
49-50	0.007990	88,681	709	88,327	2,325,128	26.2
50-51	0.008914	87,973	784	87,581	2,236,800	25.4
51-52	0.009869	87,189	860	86,758	2,149,220	24.7
52-53	0.010877	86,328	939	85,859	2,062,461	23.9
53-54	0.011924	85,389	1,018	84,880	1,976,603	23.1
54-55	0.013010	84,371	1,098	83,822	1,891,722	22.4
55-56	0.014210	83,273	1,183	82,682	1,807,900	21.7
56-57	0.015482	82,090	1,271	81,455	1,725,219	21.0
57-58	0.016687	80,819	1,349	80,145	1,643,764	20.3
58-59	0.017757	79,470	1,411	78,765	1,563,619	19.7
59-60	0.018744	78,059	1,463	77,328	1,484,854	19.0
60-61	0.019763	76,596	1,514	75,839	1,407,527	18.4
61-62	0.020938	75,082	1,572	74,296	1,331,687	17.7
62-63	0.022288	73,510	1,638	72,691	1,257,391	17.1

See footnote at end of table.

**Table 17. Life table for non-Hispanic black males: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table17.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table17.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.023855	71,872	1,715	71,015	1,184,700	16.5
64-65	0.025601	70,157	1,796	69,259	1,113,685	15.9
65-66	0.027522	68,361	1,881	67,421	1,044,426	15.3
66-67	0.029498	66,480	1,961	65,499	977,005	14.7
67-68	0.031428	64,519	2,028	63,505	911,506	14.1
68-69	0.033261	62,491	2,079	61,452	848,001	13.6
69-70	0.035043	60,413	2,117	59,354	786,549	13.0
70-71	0.036686	58,296	2,139	57,226	727,195	12.5
71-72	0.038524	56,157	2,163	55,075	669,969	11.9
72-73	0.041047	53,994	2,216	52,885	614,894	11.4
73-74	0.044085	51,777	2,283	50,636	562,008	10.9
74-75	0.047923	49,495	2,372	48,309	511,372	10.3
75-76	0.052445	47,123	2,471	45,887	463,064	9.8
76-77	0.056951	44,651	2,543	43,380	417,177	9.3
77-78	0.061966	42,108	2,609	40,804	373,797	8.9
78-79	0.067329	39,499	2,659	38,169	332,993	8.4
79-80	0.072797	36,840	2,682	35,499	294,824	8.0
80-81	0.078550	34,158	2,683	32,816	259,325	7.6
81-82	0.084271	31,475	2,652	30,149	226,508	7.2
82-83	0.091240	28,822	2,630	27,507	196,360	6.8
83-84	0.098688	26,193	2,585	24,900	168,852	6.4
84-85	0.106631	23,608	2,517	22,349	143,952	6.1
85-86	0.115085	21,090	2,427	19,877	121,603	5.8
86-87	0.124060	18,663	2,315	17,506	101,726	5.5
87-88	0.133565	16,348	2,184	15,256	84,221	5.2
88-89	0.143606	14,164	2,034	13,147	68,965	4.9
89-90	0.154183	12,130	1,870	11,195	55,818	4.6
90-91	0.165294	10,260	1,696	9,412	44,622	4.3
91-92	0.176928	8,564	1,515	7,806	35,210	4.1
92-93	0.189073	7,049	1,333	6,382	27,404	3.9
93-94	0.201708	5,716	1,153	5,140	21,021	3.7
94-95	0.214807	4,563	980	4,073	15,882	3.5
95-96	0.228340	3,583	818	3,174	11,809	3.3
96-97	0.242267	2,765	670	2,430	8,635	3.1
97-98	0.256547	2,095	537	1,826	6,205	3.0
98-99	0.271132	1,558	422	1,346	4,379	2.8
99-100	0.285967	1,135	325	973	3,032	2.7
100 and over	1.000000	811	811	2,060	2,060	2.5

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 18. Life table for non-Hispanic black females: United States, 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table18.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table18.xls).

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	0.011335	100,000	1,134	99,012	7,692,943	76.9
1-2	0.000588	98,866	58	98,837	7,593,932	76.8
2-3	0.000380	98,808	38	98,790	7,495,094	75.9
3-4	0.000343	98,771	34	98,754	7,396,305	74.9
4-5	0.000218	98,737	22	98,726	7,297,551	73.9
5-6	0.000200	98,715	20	98,706	7,198,824	72.9
6-7	0.000166	98,696	16	98,687	7,100,119	71.9
7-8	0.000144	98,679	14	98,672	7,001,431	71.0
8-9	0.000132	98,665	13	98,659	6,902,759	70.0
9-10	0.000129	98,652	13	98,646	6,804,101	69.0
10-11	0.000135	98,639	13	98,633	6,705,455	68.0
11-12	0.000151	98,626	15	98,619	6,606,822	67.0
12-13	0.000178	98,611	18	98,602	6,508,204	66.0
13-14	0.000214	98,594	21	98,583	6,409,601	65.0
14-15	0.000257	98,573	25	98,560	6,311,018	64.0
15-16	0.000301	98,547	30	98,532	6,212,458	63.0
16-17	0.000346	98,518	34	98,500	6,113,926	62.1
17-18	0.000392	98,483	39	98,464	6,015,425	61.1
18-19	0.000439	98,445	43	98,423	5,916,961	60.1
19-20	0.000491	98,402	48	98,377	5,818,538	59.1
20-21	0.000551	98,353	54	98,326	5,720,161	58.2
21-22	0.000614	98,299	60	98,269	5,621,835	57.2
22-23	0.000671	98,239	66	98,206	5,523,566	56.2
23-24	0.000714	98,173	70	98,138	5,425,360	55.3
24-25	0.000745	98,103	73	98,066	5,327,222	54.3
25-26	0.000776	98,030	76	97,992	5,229,156	53.3
26-27	0.000812	97,954	80	97,914	5,131,165	52.4
27-28	0.000853	97,874	83	97,832	5,033,251	51.4
28-29	0.000901	97,790	88	97,746	4,935,419	50.5
29-30	0.000959	97,702	94	97,656	4,837,672	49.5
30-31	0.001032	97,609	101	97,558	4,740,017	48.6
31-32	0.001116	97,508	109	97,454	4,642,458	47.6
32-33	0.001211	97,399	118	97,340	4,545,005	46.7
33-34	0.001294	97,281	126	97,218	4,447,665	45.7
34-35	0.001382	97,155	134	97,088	4,350,447	44.8
35-36	0.001473	97,021	143	96,950	4,253,359	43.8
36-37	0.001582	96,878	153	96,801	4,156,409	42.9
37-38	0.001718	96,725	166	96,642	4,059,607	42.0
38-39	0.001892	96,559	183	96,467	3,962,966	41.0
39-40	0.002101	96,376	203	96,275	3,866,498	40.1
40-41	0.002328	96,174	224	96,062	3,770,223	39.2
41-42	0.002564	95,950	246	95,827	3,674,162	38.3
42-43	0.002822	95,704	270	95,569	3,578,335	37.4
43-44	0.003098	95,433	296	95,286	3,482,767	36.5
44-45	0.003384	95,138	322	94,977	3,387,481	35.6
45-46	0.003671	94,816	348	94,642	3,292,504	34.7
46-47	0.003966	94,468	375	94,281	3,197,862	33.9
47-48	0.004290	94,093	404	93,891	3,103,582	33.0
48-49	0.004658	93,690	436	93,471	3,009,690	32.1
49-50	0.005069	93,253	473	93,017	2,916,219	31.3
50-51	0.005515	92,780	512	92,525	2,823,202	30.4
51-52	0.005976	92,269	551	91,993	2,730,678	29.6
52-53	0.006440	91,717	591	91,422	2,638,685	28.8
53-54	0.006894	91,127	628	90,813	2,547,263	28.0
54-55	0.007346	90,498	665	90,166	2,456,450	27.1
55-56	0.007826	89,834	703	89,482	2,366,284	26.3
56-57	0.008352	89,131	744	88,758	2,276,802	25.5
57-58	0.008921	88,386	788	87,992	2,188,044	24.8
58-59	0.009549	87,598	836	87,179	2,100,052	24.0
59-60	0.010253	86,761	890	86,316	2,012,872	23.2
60-61	0.011060	85,872	950	85,397	1,926,556	22.4
61-62	0.011967	84,922	1,016	84,414	1,841,159	21.7
62-63	0.012942	83,906	1,086	83,363	1,756,746	20.9

See footnote at end of table.

**Table 18. Life table for non-Hispanic black females: United States, 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table18.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table18.xls).

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 $x$
	$q_x$	$l_x$	$d_x$	$L_x$	$T_x$	$e_x$
63-64	0.013939	82,820	1,154	82,242	1,673,383	20.2
64-65	0.014949	81,665	1,221	81,055	1,591,140	19.5
65-66	0.016032	80,444	1,290	79,800	1,510,086	18.8
66-67	0.017212	79,155	1,362	78,474	1,430,286	18.1
67-68	0.018462	77,792	1,436	77,074	1,351,812	17.4
68-69	0.019808	76,356	1,512	75,600	1,274,738	16.7
69-70	0.021287	74,844	1,593	74,047	1,199,138	16.0
70-71	0.022813	73,250	1,671	72,415	1,125,091	15.4
71-72	0.024396	71,579	1,746	70,706	1,052,676	14.7
72-73	0.026328	69,833	1,839	68,914	981,970	14.1
73-74	0.028596	67,995	1,944	67,022	913,056	13.4
74-75	0.031138	66,050	2,057	65,022	846,034	12.8
75-76	0.033910	63,994	2,170	62,909	781,012	12.2
76-77	0.036717	61,823	2,270	60,688	718,103	11.6
77-78	0.040036	59,553	2,384	58,361	657,415	11.0
78-79	0.043888	57,169	2,509	55,915	599,054	10.5
79-80	0.047390	54,660	2,590	53,365	543,139	9.9
80-81	0.051552	52,070	2,684	50,728	489,774	9.4
81-82	0.056299	49,386	2,780	47,995	439,046	8.9
82-83	0.061373	46,605	2,860	45,175	391,051	8.4
83-84	0.068340	43,745	2,990	42,250	345,876	7.9
84-85	0.075295	40,755	3,069	39,221	303,626	7.4
85-86	0.082708	37,687	3,117	36,128	264,405	7.0
86-87	0.090584	34,570	3,131	33,004	228,276	6.6
87-88	0.099083	31,438	3,115	29,881	195,272	6.2
88-89	0.108229	28,323	3,065	26,791	165,392	5.8
89-90	0.118043	25,258	2,982	23,767	138,601	5.5
90-91	0.128543	22,276	2,863	20,845	114,834	5.2
91-92	0.139739	19,413	2,713	18,057	93,989	4.8
92-93	0.151635	16,700	2,532	15,434	75,933	4.5
93-94	0.164228	14,168	2,327	13,004	60,499	4.3
94-95	0.177507	11,841	2,102	10,790	47,494	4.0
95-96	0.191450	9,739	1,865	8,807	36,704	3.8
96-97	0.206028	7,875	1,622	7,063	27,897	3.5
97-98	0.221198	6,252	1,383	5,561	20,834	3.3
98-99	0.236911	4,869	1,154	4,292	15,273	3.1
99-100	0.253106	3,716	940	3,245	10,981	3.0
100 and over	1.000000	2,775	2,775	7,735	7,735	2.8

SOURCE: CDC/NCHS, National Vital Statistics System.

**Table 19. Estimated life expectancy at birth, in years, by race and sex: Death-registration states, 1900–1928, and United States, 1929–2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table19.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table19.xls).

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

Area and year	All races			White			Black <sup>1</sup>		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
United States <sup>2</sup>									
2008 <sup>3</sup>	78.1	75.6	80.6	78.5	76.1	80.9	74.0	70.6	77.2
2007	77.9	75.4	80.4	78.4	75.9	80.8	73.6	70.0	76.8
2006	77.7	75.1	80.2	78.2	75.7	80.6	73.2	69.7	76.5
2005	77.4	74.9	79.9	77.9	75.4	80.4	72.8	69.3	76.0
2004	77.5	74.9	79.9	77.9	75.4	80.4	72.8	69.3	76.0
2003	77.1	74.5	79.6	77.6	75.0	80.0	72.3	68.8	75.6
2002	76.9	74.3	79.5	77.4	74.9	79.9	72.1	68.6	75.4
2001	76.9	74.2	79.4	77.4	74.8	79.9	72.0	68.4	75.2
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	77.2	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 <sup>4</sup>	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
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 <sup>5</sup>	69.9	66.6	73.4	70.8	67.4	74.4	63.7	61.0	66.6
1962 <sup>5</sup>	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

See footnotes at end of table.

**Table 19. Estimated life expectancy at birth, in years, by race and sex: Death-registration states, 1900–1928, and United States, 1929–2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table19.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table19.xls).

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

Area and year	All races			White			Black <sup>1</sup>		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
United States <sup>2</sup> —Con.									
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	60.0	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
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

<sup>1</sup>Prior to 1970, data for the black population are not available. Data shown for 1900–1969 are for the nonwhite population. See Technical Notes.<sup>2</sup>Alaska was included in 1959 and Hawaii in 1960.<sup>3</sup>Life expectancies for 2008 were calculated using a revised methodology described in the Technical Notes.<sup>4</sup>Deaths based on a 50% sample.<sup>5</sup>Figures by race exclude data for residents of New Jersey; see Technical Notes.

SOURCE: CDC/NCHS, National Vital Statistics System.



**Table 20. Survivorship by age, race, and sex: Death-registration states, 1900–1902 to 1919–1921, and United States, 1929–1931 to 2008**

Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table20.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table20.xls).

[Alaska and Hawaii were included beginning in 1959. For decennial periods prior to 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; 1919–1921, 34 states and the District of Columbia. Beginning with 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 <sub>x</sub> )											
	2008	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
<b>All races</b>												
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 . . . . .	99,341	99,305	99,064	98,740	97,998	97,407	97,024	95,290	94,028	92,515	88,538	87,552
5 . . . . .	99,228	99,176	98,877	98,495	97,668	96,998	96,482	94,220	91,978	83,389	83,887	81,804
10 . . . . .	99,167	99,097	98,766	98,347	97,460	96,765	96,177	93,710	91,106	88,129	82,458	80,052
15 . . . . .	99,089	98,998	98,635	98,196	97,261	96,551	95,885	93,235	90,385	87,144	81,506	78,963
20 . . . . .	98,804	98,664	98,215	97,741	96,716	96,111	95,366	92,435	89,089	85,441	80,074	77,239
25 . . . . .	98,341	98,202	97,671	97,110	96,000	95,517	94,676	91,335	87,269	83,146	78,046	74,768
30 . . . . .	97,863	97,750	97,070	96,477	95,307	94,905	93,919	90,078	85,302	80,642	75,779	72,043
35 . . . . .	97,328	97,199	96,322	95,808	94,482	94,144	92,976	88,573	83,118	77,961	73,127	69,078
40 . . . . .	96,639	96,419	95,373	94,926	93,322	93,064	91,648	86,650	80,557	75,114	70,042	65,890
45 . . . . .	95,602	95,268	94,154	93,599	91,587	91,378	89,634	84,069	77,343	72,036	66,561	62,436
50 . . . . .	93,999	93,591	92,370	91,526	88,972	88,756	86,591	80,487	73,321	68,429	62,460	58,514
55 . . . . .	91,635	91,211	89,658	88,348	85,110	84,711	82,176	75,557	68,182	63,947	57,555	53,852
60 . . . . .	88,356	87,595	85,537	83,726	79,529	79,067	75,921	68,924	61,563	58,079	51,138	47,946
65 . . . . .	83,720	82,224	79,519	77,107	71,933	71,147	67,555	60,366	53,195	50,560	43,194	40,911
70 . . . . .	77,153	74,794	71,357	68,248	61,984	60,857	56,987	49,655	42,768	41,090	33,816	32,390
75 . . . . .	68,006	64,561	60,449	56,799	49,705	48,170	43,903	36,735	30,789	29,729	23,552	22,960
80 . . . . .	55,562	50,819	47,084	43,180	35,285	33,576	29,313	22,883	18,580	18,298	13,712	13,529
85 . . . . .	39,797	34,471	31,770	27,960	20,908	18,542	15,785	11,073	8,542	8,683	6,001	6,053
90 . . . . .	22,347	18,472	17,046	14,154	9,297	7,080	6,144	3,796	2,998	2,941	1,868	1,867
95 . . . . .	8,303	6,871	6,282	5,043	2,786	1,524	1,511	857	636	646	361	344
100 . . . . .	1,680	1,477	1,424	1,150	542	183	199	123	62	67	40	31
<b>Male</b>												
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 . . . . .	99,280	99,239	98,961	98,607	97,755	97,087	96,661	94,762	93,440	91,745	87,505	86,426
5 . . . . .	99,155	99,095	98,754	98,333	97,395	96,643	96,077	93,624	91,294	88,505	82,718	80,548
10 . . . . .	99,088	99,008	98,627	98,160	97,151	96,375	95,726	93,054	90,346	87,184	81,249	78,775
15 . . . . .	98,998	98,890	98,464	97,972	96,904	96,107	95,366	92,508	89,561	86,156	80,261	77,681
20 . . . . .	98,598	98,426	97,854	97,316	96,126	95,491	94,695	91,617	88,220	84,440	78,792	75,984
25 . . . . .	97,915	97,746	97,049	96,361	95,040	94,631	93,791	90,385	86,359	82,252	76,675	73,472
30 . . . . .	97,246	97,112	96,166	95,430	94,072	93,826	92,861	89,009	84,346	79,890	74,378	70,747
35 . . . . .	96,534	96,382	95,091	94,501	92,997	92,889	91,760	87,371	82,075	77,514	71,614	67,752
40 . . . . .	95,666	95,384	93,761	93,345	91,541	91,572	90,207	85,246	79,357	74,432	68,297	64,447
45 . . . . .	94,404	93,931	92,139	91,649	89,369	89,492	87,819	82,336	75,882	71,244	64,518	60,849
50 . . . . .	92,449	91,800	89,865	89,007	86,070	86,199	84,158	78,254	71,518	67,553	60,118	56,736
55 . . . . .	89,516	88,862	86,492	84,936	81,139	81,039	78,781	72,627	65,981	62,965	54,970	51,939
60 . . . . .	85,447	84,478	81,378	79,012	73,958	73,887	71,246	65,142	58,909	56,917	48,343	45,895
65 . . . . .	79,912	78,083	73,971	70,646	64,318	64,177	61,566	55,776	50,154	49,218	40,264	38,736
70 . . . . .	72,277	69,350	64,107	59,681	52,296	52,244	49,950	44,588	39,516	39,668	31,023	30,217
75 . . . . .	61,980	57,572	51,385	46,272	38,797	38,950	36,756	31,864	27,718	28,316	21,213	21,076
80 . . . . .	48,469	42,683	36,749	31,810	24,921	25,300	25,237	18,995	16,172	17,128	11,942	12,084
85 . . . . .	32,360	26,473	21,815	18,020	13,168	12,845	11,750	8,693	7,107	7,920	5,059	5,179
90 . . . . .	16,223	12,447	9,878	7,732	5,107	4,609	4,197	2,787	2,283	2,527	1,502	1,508
95 . . . . .	5,122	3,847	2,927	2,279	1,326	970	955	586	451	556	289	262
100 . . . . .	844	643	529	423	222	117	121	78	40	62	33	22
<b>Female</b>												
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 . . . . .	99,404	99,375	99,172	98,880	98,254	97,744	97,406	95,848	94,728	93,383	89,623	88,733
5 . . . . .	99,305	99,261	99,006	98,666	97,955	97,371	96,908	94,848	92,789	90,380	85,117	83,119
10 . . . . .	99,249	99,190	98,911	98,544	97,784	97,173	96,652	94,402	92,008	89,186	83,728	81,390
15 . . . . .	99,185	99,111	98,814	98,432	97,636	97,016	96,431	94,000	91,364	88,247	82,813	80,307
20 . . . . .	99,022	98,915	98,597	98,184	97,331	96,756	96,066	93,293	90,116	86,556	81,418	78,555
25 . . . . .	98,794	98,682	98,325	97,883	96,966	96,418	95,583	92,322	88,328	84,135	79,481	76,119
30 . . . . .	98,519	98,418	98,013	97,551	96,544	95,996	94,933	91,182	86,398	81,463	77,247	73,394
35 . . . . .	98,169	98,052	97,596	97,140	95,966	95,409	94,206	89,810	84,304	78,713	74,719	70,463
40 . . . . .	97,665	97,492	97,033	96,531	95,097	94,560	93,101	88,092	81,927	75,907	71,894	67,407
45 . . . . .	96,857	96,645	96,222	95,570	93,793	93,265	91,469	85,856	79,041	72,954	68,755	64,121
50 . . . . .	95,606	95,420	94,932	94,060	91,852	91,327	89,075	82,828	75,456	69,452	65,001	60,415

See footnotes 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 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table20.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table20.xls).

[Alaska and Hawaii were included beginning in 1959. For decennial periods prior to 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; 1919–1921, 34 states and the District of Columbia. Beginning with 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>L<sub>x</sub></i> )											
	2008	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
Female—Con.												
55. . . . .	93,810	93,597	92,881	91,760	89,066	88,451	85,694	78,708	70,832	65,099	60,392	55,908
60. . . . .	91,317	90,739	89,742	88,414	85,139	84,430	80,890	73,093	64,795	59,438	54,226	50,155
65. . . . .	87,571	86,367	85,075	83,520	79,698	78,462	74,119	65,523	56,924	52,126	46,438	43,246
70. . . . .	82,039	80,158	78,522	76,720	71,955	70,100	64,873	55,449	46,774	42,741	36,916	34,721
75. . . . .	73,974	71,257	69,287	67,186	61,107	58,394	52,111	42,425	34,600	31,344	26,155	24,994
80. . . . .	62,448	58,411	56,986	54,372	46,445	43,063	36,486	27,524	21,578	19,613	15,682	15,129
85. . . . .	46,782	41,798	41,115	37,772	29,538	25,269	20,668	13,972	10,322	9,515	7,051	7,063
90. . . . .	27,805	23,918	23,666	20,578	14,160	10,056	8,548	5,044	3,656	3,314	2,269	2,306
95. . . . .	11,006	9,553	9,346	7,862	4,565	2,193	2,207	1,195	807	728	441	452
100. . . . .	2,345	2,181	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. . . . .	99,447	99,429	99,233	98,898	98,224	97,714	97,278	95,685	94,392	92,780	88,709	87,762
5. . . . .	99,343	99,312	99,068	98,675	97,930	97,353	96,790	94,713	92,466	89,771	84,147	82,071
10. . . . .	99,286	99,239	98,966	98,536	97,733	97,131	96,502	94,228	91,627	88,536	82,734	80,371
15. . . . .	99,214	99,146	98,843	98,391	97,546	96,928	96,228	93,792	90,982	87,633	81,816	79,344
20. . . . .	98,947	98,826	98,455	97,939	97,036	96,508	95,763	93,117	89,933	86,159	80,407	77,998
25. . . . .	98,510	98,405	97,972	97,340	96,406	95,965	95,169	92,213	88,454	84,106	78,392	75,202
30. . . . .	98,061	98,000	97,451	96,774	95,824	95,440	94,536	91,185	86,836	81,787	76,167	72,317
35. . . . .	97,558	97,504	96,810	96,192	95,152	94,798	93,750	89,941	85,004	79,277	73,568	69,522
40. . . . .	96,904	96,796	96,000	95,427	94,190	93,870	92,616	88,318	82,803	76,642	70,525	66,082
45. . . . .	95,921	95,755	94,932	94,257	92,681	92,374	90,847	86,069	79,989	73,705	67,090	62,920
50. . . . .	94,394	94,233	93,326	92,384	90,306	89,958	88,110	82,833	76,340	70,250	62,994	58,647
55. . . . .	92,160	92,032	90,833	89,427	86,688	86,173	84,027	78,218	71,551	65,875	58,163	54,450
60. . . . .	89,047	88,614	86,943	85,031	81,323	80,811	78,066	71,785	65,100	60,013	51,822	48,288
65. . . . .	84,547	83,423	81,123	78,585	73,889	73,102	69,850	63,201	56,655	52,411	43,904	41,505
70. . . . .	78,090	76,132	73,106	69,801	63,991	62,834	59,189	52,165	45,841	42,736	34,484	32,902
75. . . . .	68,951	65,946	62,175	58,299	51,586	49,895	45,688	38,610	33,406	31,086	24,151	23,356
80. . . . .	56,398	52,100	48,583	44,409	36,659	34,697	30,438	23,976	20,260	19,149	14,100	13,794
85. . . . .	40,370	35,421	32,850	28,768	21,578	19,017	16,239	11,483	9,325	9,078	6,178	6,192
90. . . . .	22,594	18,943	17,571	14,471	9,433	7,149	6,201	3,819	3,066	2,991	1,918	1,919
95. . . . .	8,265	6,963	6,416	5,067	2,743	1,521	1,500	801	636	643	364	355
100. . . . .	1,612	1,453	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. . . . .	99,396	99,373	99,138	98,769	97,994	97,408	96,931	95,188	93,768	91,975	87,674	86,655
5. . . . .	99,280	99,243	98,956	98,519	97,671	97,015	96,403	94,150	91,738	88,842	82,972	80,864
10. . . . .	99,220	99,163	98,839	98,357	97,441	96,758	96,069	93,601	90,810	87,530	81,519	79,109
15. . . . .	99,136	99,052	98,686	98,176	97,208	96,503	95,728	93,089	90,074	86,546	80,549	78,037
20. . . . .	98,766	98,615	98,134	97,525	96,480	95,908	95,104	92,293	88,904	84,997	79,116	76,376
25. . . . .	98,125	98,002	97,430	96,616	95,524	95,106	94,294	91,241	87,371	83,061	77,047	73,907
30. . . . .	97,495	97,434	96,662	95,783	94,716	94,401	93,489	90,092	85,707	80,888	74,810	71,219
35. . . . .	96,825	96,772	95,731	94,980	93,843	93,589	92,543	88,713	83,812	78,441	72,108	68,245
40. . . . .	95,996	95,855	94,588	93,984	92,631	92,427	91,173	86,880	81,457	75,733	68,848	64,954
45. . . . .	94,789	94,522	93,167	92,494	90,725	90,533	89,002	84,285	78,345	72,696	65,115	61,369
50. . . . .	92,911	92,573	91,124	90,105	87,690	87,424	85,601	80,521	74,288	69,107	60,741	57,274
55. . . . .	90,125	89,854	88,022	86,303	83,001	82,463	80,496	75,156	68,981	64,574	55,622	52,491
60. . . . .	86,269	85,710	83,182	80,625	75,969	75,485	73,172	67,787	61,933	58,498	48,987	46,452
65. . . . .	80,906	79,515	75,962	72,393	66,343	65,834	63,541	58,305	52,964	50,663	40,862	39,245
70. . . . .	73,420	70,912	66,181	61,384	54,138	53,825	51,735	46,739	41,880	40,873	31,527	30,640
75. . . . .	63,120	59,139	53,308	47,712	40,324	40,207	38,104	33,404	29,471	29,205	21,585	21,387
80. . . . .	49,467	44,043	38,245	32,788	25,885	25,993	24,005	19,860	17,221	17,655	12,160	12,266
85. . . . .	33,026	27,376	22,720	18,538	13,527	13,065	12,015	9,013	7,572	8,154	5,145	5,252
90. . . . .	16,478	12,817	10,214	7,891	5,125	4,600	4,209	2,812	2,356	2,568	1,523	1,523
95. . . . .	5,105	3,892	2,988	2,279	1,274	956	942	552	461	556	289	263
100. . . . .	808	624	523	404	189	115	118	65	40	61	31	22

See footnotes 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 2008—Con.**

Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table20.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table20.xls).

[Alaska and Hawaii were included beginning in 1959. For decennial periods prior to 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; 1919–1921, 34 states and the District of Columbia. Beginning with 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 <sub>x</sub> )											
	2008	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
<b>White female</b>												
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 . . . . .	99,500	99,488	99,333	99,035	98,468	98,036	97,645	96,211	95,037	93,608	89,774	88,939
5 . . . . .	99,409	99,385	99,187	98,841	98,203	97,709	97,199	95,309	93,216	90,721	85,349	83,426
10 . . . . .	99,356	99,319	99,099	98,725	98,042	97,525	96,960	94,890	92,466	89,564	83,979	81,723
15 . . . . .	99,297	99,245	99,007	98,618	97,902	97,375	96,756	94,534	91,894	88,712	83,093	80,680
20 . . . . .	99,138	99,049	98,795	98,374	97,618	97,135	96,454	93,984	90,939	87,281	81,750	78,978
25 . . . . .	98,922	98,835	98,547	98,093	97,299	96,844	96,072	93,228	89,524	85,163	79,865	76,588
30 . . . . .	98,668	98,601	98,283	97,802	96,945	96,499	95,605	92,320	87,972	82,740	77,676	73,887
35 . . . . .	98,345	98,282	97,939	97,445	96,474	96,026	94,977	91,211	86,248	80,206	75,200	70,971
40 . . . . .	97,876	97,789	97,472	96,913	95,762	95,326	94,080	89,805	84,256	77,624	72,425	67,935
45 . . . . .	97,126	97,047	96,768	96,065	94,649	94,228	92,725	87,920	81,780	74,871	69,341	64,677
50 . . . . .	95,959	95,958	95,608	94,710	92,924	92,522	90,685	85,267	78,572	71,547	65,629	61,005
55 . . . . .	94,288	94,284	93,730	92,594	90,383	89,967	87,699	81,520	74,321	67,323	61,053	56,509
60 . . . . .	91,930	91,591	90,789	89,451	86,726	86,339	83,279	76,200	68,462	61,704	54,900	50,752
65 . . . . .	88,299	87,391	86,339	84,764	81,579	80,739	76,773	68,701	60,499	54,299	47,086	43,806
70 . . . . .	82,852	81,346	79,984	78,139	74,101	72,507	67,545	58,363	49,932	44,638	37,482	35,206
75 . . . . .	74,814	72,546	70,834	68,712	63,290	60,461	54,397	44,685	37,024	32,777	26,569	25,362
80 . . . . .	63,215	59,681	58,454	55,770	48,182	44,676	38,026	28,882	23,053	20,492	15,929	15,349
85 . . . . .	47,327	42,820	42,274	38,774	30,490	26,046	21,348	14,487	10,937	9,909	7,152	7,149
90 . . . . .	28,063	24,475	24,270	20,996	14,406	10,219	8,662	5,061	3,719	3,372	2,291	2,322
95 . . . . .	10,951	9,673	9,495	7,900	4,526	2,203	2,200	1,109	797	721	434	448
100 . . . . .	2,250	2,145	2,239	1,858	872	265	294	139	74	63	44	41
<b>Black<sup>1</sup></b>												
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 . . . . .	98,728	98,578	98,187	97,885	96,731	95,732	95,407	92,584	92,035	90,379	79,784	76,609
5 . . . . .	98,564	98,382	97,884	97,522	96,207	95,051	94,482	90,983	89,303	86,174	70,691	66,222
10 . . . . .	98,474	98,271	97,720	97,322	95,928	94,745	94,060	90,339	88,258	84,690	68,437	63,410
15 . . . . .	98,368	98,139	97,539	97,134	95,661	94,460	93,646	89,591	87,156	83,180	66,410	61,060
20 . . . . .	97,977	97,701	96,925	96,652	94,887	93,880	92,738	87,839	84,386	79,641	63,165	57,931
25 . . . . .	97,321	96,944	95,972	95,804	93,513	92,925	91,321	85,210	80,320	74,973	59,608	54,512
30 . . . . .	96,611	96,140	94,809	94,680	91,934	91,699	89,584	82,194	75,962	70,492	56,112	51,287
35 . . . . .	95,768	95,160	93,260	93,288	89,977	90,046	87,402	78,683	71,141	65,865	52,125	48,007
40 . . . . .	94,704	93,801	91,239	91,439	87,304	87,766	84,478	74,466	65,974	61,244	47,866	44,518
45 . . . . .	93,122	91,754	88,689	88,834	83,700	84,501	80,507	69,284	59,827	56,442	43,054	40,628
50 . . . . .	90,718	88,726	85,285	85,044	78,938	80,172	74,976	62,702	53,141	51,422	37,800	36,103
55 . . . . .	87,031	84,588	80,635	79,816	72,826	73,893	67,660	54,846	45,558	45,803	32,233	31,404
60 . . . . .	81,954	78,869	74,335	72,913	65,250	65,795	58,593	46,318	37,654	39,418	26,046	25,698
65 . . . . .	75,388	71,448	66,154	64,391	56,102	56,038	48,649	37,838	30,015	32,738	19,806	20,474
70 . . . . .	66,938	62,126	56,192	54,617	45,785	45,434	38,616	29,654	22,505	25,585	14,021	14,960
75 . . . . .	56,803	50,804	44,872	43,274	34,262	34,531	28,968	21,798	15,546	18,011	9,139	9,956
80 . . . . .	44,371	37,828	33,149	31,711	23,710	24,815	20,003	14,408	9,589	11,376	5,158	5,750
85 . . . . .	30,546	24,589	21,352	19,939	15,044	15,337	12,433	8,326	4,900	5,794	2,414	2,782
90 . . . . .	17,113	13,157	11,646	10,713	8,087	7,195	6,394	4,077	2,044	2,317	913	1,054
95 . . . . .	7,088	5,349	4,729	4,463	3,252	1,777	2,010	1,557	638	689	324	296
100 . . . . .	1,938	1,485	1,376	1,360	1,036	214	301	399	120	129	77	57
<b>Black male<sup>1</sup></b>												
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 . . . . .	98,608	98,437	98,023	97,703	96,394	95,301	94,911	91,772	91,268	89,499	78,065	74,674
5 . . . . .	98,422	98,219	97,688	97,300	95,826	94,570	93,921	90,082	88,412	85,195	68,589	64,385
10 . . . . .	98,316	98,093	97,501	97,061	95,497	94,234	93,453	89,393	87,311	83,768	66,377	61,730
15 . . . . .	98,194	97,930	97,268	96,826	95,161	93,874	92,965	88,610	86,152	82,332	64,478	59,667
20 . . . . .	97,608	97,274	96,301	96,132	94,053	93,108	91,941	86,968	83,621	79,057	61,426	56,733
25 . . . . .	96,621	96,099	94,809	94,827	91,904	91,825	90,285	84,227	79,516	74,540	57,736	53,285
30 . . . . .	95,603	94,934	93,070	93,125	89,584	90,270	88,327	80,979	75,083	70,344	54,073	49,867
35 . . . . .	94,455	93,631	90,827	91,080	86,885	88,331	85,940	77,221	70,049	65,873	49,865	46,541
40 . . . . .	93,116	91,930	87,948	88,490	83,441	85,744	82,832	72,780	64,710	61,353	45,414	42,989
45 . . . . .	91,232	89,411	84,467	84,997	78,976	82,075	78,686	67,346	58,432	56,589	40,563	39,230
50 . . . . .	88,389	85,596	79,984	80,065	73,282	77,239	72,891	60,495	51,748	51,880	35,427	34,766

See footnotes 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 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table20.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table20.xls).

[Alaska and Hawaii were included beginning in 1959. For decennial periods prior to 1929–1931, data are for groups of registration states as follows: 1900–1902 and 1909–1911, 10 states and the District of Columbia; 1919–1921, 34 states and the District of Columbia. Beginning with 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>l<sub>x</sub></i> )											
	2008	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
<b>Black male<sup>1</sup>—Con.</b>												
55. . . . .	83,838	80,417	74,095	73,413	66,101	70,351	65,122	52,426	44,436	46,581	29,754	29,987
60. . . . .	77,374	73,369	66,334	64,980	57,457	61,669	55,535	43,833	36,790	40,506	23,750	24,194
65. . . . .	69,359	64,588	56,795	55,061	47,485	51,392	45,198	35,371	29,314	34,042	17,806	19,015
70. . . . .	59,311	53,926	45,690	44,213	36,925	39,914	35,018	27,236	21,741	26,923	12,295	13,829
75. . . . .	48,077	41,441	33,755	32,717	25,921	29,064	25,472	19,456	14,419	18,854	7,494	8,892
80. . . . .	35,008	28,326	22,549	22,017	16,560	19,994	16,904	12,186	8,239	11,615	3,894	4,831
85. . . . .	21,709	16,433	12,709	12,383	9,648	11,620	9,898	6,444	3,660	5,605	1,747	2,030
90. . . . .	10,603	7,579	5,972	5,708	4,696	5,174	4,642	2,836	1,246	2,040	595	634
95. . . . .	3,712	2,549	1,971	2,009	1,721	1,240	1,342	961	307	552	189	137
100. . . . .	839	560	466	513	489	149	192	209	41	77	40	18
<b>Black female<sup>1</sup></b>												
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. . . . .	98,851	98,723	98,356	98,073	97,076	96,172	95,913	93,416	92,796	91,251	81,493	78,525
5. . . . .	98,710	98,550	98,087	97,751	96,598	95,543	95,055	91,906	90,185	87,149	72,768	68,056
10. . . . .	98,637	98,455	97,946	97,590	96,369	95,265	94,679	91,308	89,201	85,607	70,508	65,111
15. . . . .	98,549	98,354	97,818	97,450	96,172	95,057	94,343	90,594	88,088	83,954	68,218	62,384
20. . . . .	98,359	98,141	97,566	97,180	95,729	94,660	93,544	88,736	85,078	80,154	64,764	59,053
25. . . . .	98,045	97,784	97,140	96,754	95,035	94,005	92,336	86,198	81,067	75,359	61,430	55,795
30. . . . .	97,643	97,313	96,514	96,150	94,114	93,070	90,799	83,384	76,816	70,633	58,281	52,773
35. . . . .	97,085	96,630	95,599	95,338	92,807	91,670	88,805	80,092	72,192	65,857	54,595	49,567
40. . . . .	96,273	95,585	94,364	94,137	90,817	89,676	86,052	76,084	67,271	61,130	50,568	46,146
45. . . . .	94,965	93,970	92,676	92,322	88,001	86,793	82,257	71,157	61,365	56,230	45,947	42,279
50. . . . .	92,955	91,661	90,277	89,563	84,168	82,979	77,007	64,885	54,920	50,780	40,886	37,681
55. . . . .	90,043	88,478	86,793	85,653	79,177	77,362	70,196	57,314	47,074	44,742	35,415	33,124
60. . . . .	86,197	83,963	81,886	80,293	72,820	69,941	61,758	48,928	38,761	37,954	28,908	27,524
65. . . . .	80,914	77,781	75,031	73,266	64,716	60,825	52,358	40,504	30,852	31,044	22,302	21,995
70. . . . .	73,866	69,634	66,278	64,729	54,873	51,274	42,612	32,354	23,341	24,107	15,871	16,140
75. . . . .	64,721	59,239	55,684	53,831	43,193	40,540	32,981	24,502	16,576	17,216	10,657	11,066
80. . . . .	52,784	46,358	43,622	41,686	31,756	30,315	23,712	17,039	10,822	11,151	6,324	6,708
85. . . . .	38,294	31,987	30,089	28,004	21,358	19,744	15,550	10,622	6,033	5,972	3,029	3,567
90. . . . .	22,692	18,309	17,536	16,260	12,210	9,675	8,590	5,652	2,774	2,579	1,206	1,492
95. . . . .	9,938	7,972	7,687	7,312	5,217	2,438	2,875	2,345	941	818	448	462
100. . . . .	2,832	2,346	2,364	2,398	1,803	293	445	659	193	179	112	97

<sup>1</sup>For 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: CDC/NCHS, National Vital Statistics System.

**Table 21. Life expectancy by age, race, and sex: Death-registration states, 1900–1902 to 1919–1921, and United States, 1929–1931 to 2008**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table21.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table21.xls).

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

Age (years), race, and sex	Average number of years of life remaining ( $e_x$ )											
	2008	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
<b>All races</b>												
0 . . . . .	78.1	76.83	75.37	73.88	70.75	69.89	68.07	63.62	59.20	56.40	51.49	49.24
1 . . . . .	77.6	76.37	75.08	73.82	71.19	70.75	69.16	65.76	61.94	59.94	57.11	55.20
5 . . . . .	73.7	72.47	71.22	70.00	67.43	67.04	65.54	62.49	59.29	57.99	56.21	54.98
10 . . . . .	68.8	67.52	66.29	65.10	62.57	62.19	60.74	57.82	54.84	53.79	52.15	51.14
15 . . . . .	63.8	62.59	61.38	60.19	57.69	57.33	55.91	53.10	50.25	49.37	47.73	46.81
20 . . . . .	59.0	57.79	56.63	55.46	53.00	52.58	51.20	48.54	45.94	45.30	43.53	42.79
25 . . . . .	54.3	53.05	51.93	50.81	48.37	47.89	46.56	44.09	41.85	41.47	39.60	39.12
30 . . . . .	49.5	48.28	47.23	46.12	43.71	43.18	41.91	39.67	37.75	37.68	35.70	35.51
35 . . . . .	44.8	43.54	42.58	41.43	39.07	38.51	37.31	35.30	33.68	33.89	31.90	31.92
40 . . . . .	40.1	38.87	37.98	36.79	34.52	33.92	32.81	31.03	29.67	30.08	28.20	28.34
45 . . . . .	35.5	34.31	33.44	32.27	30.12	29.50	28.49	26.90	25.79	26.25	24.54	24.77
50 . . . . .	31.0	29.88	29.03	27.94	25.93	25.29	24.40	22.98	22.06	22.50	20.98	21.26
55 . . . . .	26.8	25.59	24.83	23.85	21.99	21.37	20.57	19.31	18.53	18.90	17.55	17.88
60 . . . . .	22.7	21.54	20.90	20.02	18.34	17.71	17.04	15.91	15.24	15.54	14.42	14.76
65 . . . . .	18.8	17.77	17.28	16.51	15.00	14.39	13.83	12.80	12.23	12.47	11.60	11.86
70 . . . . .	15.2	14.27	13.96	13.32	12.00	11.38	10.92	10.00	9.58	9.74	9.11	9.30
75 . . . . .	11.8	11.12	11.00	10.48	9.32	8.71	8.40	7.62	7.32	7.49	6.99	7.08
80 . . . . .	8.9	8.42	8.40	7.98	7.10	6.39	6.34	5.73	5.50	5.63	5.25	5.30
85 . . . . .	6.4	6.22	6.23	5.96	5.28	4.58	4.69	4.31	4.19	4.21	4.00	3.96
90 . . . . .	4.5	4.49	4.50	4.43	3.94	3.22	3.44	3.30	3.15	3.22	3.03	2.95
95 . . . . .	3.1	3.19	3.29	3.34	3.06	2.43	2.54	2.61	2.26	2.32	2.35	2.18
100 . . . . .	2.2	2.27	2.46	2.73	2.62	1.91	1.92	2.13	1.51	1.53	1.85	1.58
<b>Male</b>												
0 . . . . .	75.6	74.10	71.83	70.11	67.04	66.80	65.47	61.60	57.71	55.50	49.86	47.88
1 . . . . .	75.1	73.66	71.58	70.10	67.58	67.80	66.73	64.00	60.75	59.47	55.95	54.35
5 . . . . .	71.2	69.77	67.73	66.29	63.82	64.10	63.12	60.76	58.14	57.60	55.11	54.22
10 . . . . .	66.3	64.83	62.81	61.41	58.98	59.27	58.35	56.12	53.75	53.44	51.07	50.39
15 . . . . .	61.3	59.90	57.91	56.52	54.12	54.43	53.56	51.43	49.18	49.05	46.66	46.06
20 . . . . .	56.6	55.17	53.25	51.88	49.54	49.77	48.92	46.91	44.88	44.99	42.48	42.03
25 . . . . .	52.0	50.54	48.67	47.37	45.07	45.19	44.36	42.51	40.79	41.11	38.59	38.38
30 . . . . .	47.3	45.85	44.10	42.81	40.51	40.56	39.78	38.13	36.71	37.26	34.70	34.76
35 . . . . .	42.6	41.18	39.57	38.20	35.95	35.94	35.23	33.79	32.65	33.43	30.94	31.19
40 . . . . .	38.0	36.58	35.09	33.64	31.48	31.42	30.79	29.57	28.68	29.63	27.32	27.65
45 . . . . .	33.5	32.10	30.66	29.22	27.18	27.09	26.55	25.52	24.87	25.84	23.77	24.14
50 . . . . .	29.1	27.79	26.37	25.00	23.12	23.02	22.59	21.72	21.25	22.11	20.32	20.70
55 . . . . .	25.0	23.62	22.30	21.08	19.36	19.32	18.96	18.20	17.79	18.53	16.98	17.38
60 . . . . .	21.0	19.71	18.53	17.46	15.99	15.94	15.68	14.99	14.62	15.22	13.95	14.33
65 . . . . .	17.3	16.11	15.12	14.21	12.99	12.95	12.74	12.07	11.72	12.20	11.24	11.50
70 . . . . .	13.9	12.80	12.05	11.35	10.39	10.33	10.11	9.46	9.18	9.52	8.83	9.02
75 . . . . .	10.7	9.89	9.39	8.90	8.13	7.99	7.83	7.22	7.02	7.31	6.75	6.84
80 . . . . .	8.0	7.44	7.12	6.80	6.27	5.95	5.94	5.44	5.27	5.49	5.10	5.11
85 . . . . .	5.7	5.47	5.31	5.13	4.73	4.39	4.41	4.11	4.02	4.10	3.90	3.82
90 . . . . .	4.0	3.95	3.89	3.89	3.60	3.18	3.30	3.17	3.06	3.21	3.01	2.86
95 . . . . .	2.8	2.82	2.92	2.98	2.82	2.43	2.49	2.52	2.21	2.38	2.36	2.13
100 . . . . .	2.0	2.03	2.25	2.49	2.43	1.91	1.92	2.05	1.50	1.58	1.81	1.55
<b>Female</b>												
0 . . . . .	80.6	79.45	78.81	77.62	74.64	73.24	70.96	65.89	60.90	57.40	53.24	50.70
1 . . . . .	80.1	78.95	78.47	77.50	74.97	73.93	71.84	67.73	65.37	60.45	58.37	56.10
5 . . . . .	76.1	75.04	74.60	73.67	71.19	70.21	68.21	64.43	60.66	58.41	57.39	55.80
10 . . . . .	71.2	70.09	69.67	68.75	66.31	65.35	63.38	59.73	56.16	54.16	53.31	51.94
15 . . . . .	66.2	65.15	64.73	63.83	61.41	60.45	58.52	54.97	51.54	49.71	48.87	47.60
20 . . . . .	61.3	60.27	59.87	58.98	56.59	55.60	53.73	50.37	47.21	45.63	44.66	43.60
25 . . . . .	56.5	55.41	55.03	54.16	51.80	50.79	48.99	45.87	43.11	41.86	40.69	39.92
30 . . . . .	51.6	50.55	50.19	49.33	47.01	46.00	44.28	41.41	39.02	38.15	36.79	36.30
35 . . . . .	46.8	45.73	45.40	44.53	42.28	41.27	39.63	37.01	34.92	34.40	32.95	32.71
40 . . . . .	42.0	40.98	40.65	39.80	37.64	36.61	35.06	32.68	30.86	30.58	29.15	29.08
45 . . . . .	37.3	36.31	35.97	35.17	33.13	32.09	30.64	28.46	26.89	26.71	25.36	25.44
50 . . . . .	32.8	31.74	31.42	30.69	28.77	27.71	26.40	24.40	23.05	22.92	21.67	21.84

See footnotes 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 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table21.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table21.xls).

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

Age (years), race, and sex	Average number of years of life remaining ( $e_x$ )											
	2008	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
<b>Female—Con.</b>												
55. . . . .	28.4	27.31	27.05	26.39	24.59	23.53	22.33	20.54	19.38	19.28	18.13	18.39
60. . . . .	24.1	23.09	22.90	22.29	20.60	19.52	18.50	16.92	15.94	15.87	14.90	15.21
65. . . . .	20.0	19.12	19.02	18.44	16.83	15.80	14.95	13.57	12.78	12.73	11.96	12.22
70. . . . .	16.2	15.40	15.38	14.84	13.35	12.37	11.71	10.56	9.99	9.96	9.38	9.59
75. . . . .	12.6	11.99	12.08	11.58	10.26	9.33	8.94	8.01	7.61	7.65	7.20	7.34
80. . . . .	9.5	9.05	9.13	8.69	7.68	6.72	6.67	5.99	5.70	5.75	5.37	5.51
85. . . . .	6.8	6.62	6.66	6.38	5.63	4.71	4.90	4.47	4.32	4.30	4.08	4.12
90. . . . .	4.7	4.71	4.73	4.66	4.14	3.25	3.54	3.39	3.24	3.23	3.05	3.04
95. . . . .	3.2	3.29	3.40	3.48	3.18	2.43	2.57	2.67	2.30	2.27	2.34	2.24
100. . . . .	2.2	2.29	2.52	2.81	2.69	1.91	1.93	2.17	1.52	1.48	1.91	1.61
<b>White</b>												
0. . . . .	78.5	77.41	76.13	74.53	71.62	70.73	69.02	64.92	60.86	57.42	51.90	49.64
1. . . . .	77.9	76.85	75.72	74.35	71.91	71.38	69.95	66.84	63.46	60.87	57.46	55.47
5. . . . .	74.0	72.94	71.84	70.52	68.12	67.64	66.29	63.52	60.75	58.86	56.51	55.18
10. . . . .	69.1	67.99	66.92	65.62	63.26	62.79	61.48	58.83	56.29	54.65	52.43	51.34
15. . . . .	64.1	63.05	61.99	60.71	58.37	57.92	56.65	54.09	51.69	50.21	48.01	47.01
20. . . . .	59.3	58.25	57.23	55.98	53.66	53.16	51.91	49.47	47.28	46.04	43.77	43.17
25. . . . .	54.5	53.48	52.50	51.30	49.00	48.44	47.22	44.92	43.02	42.07	39.79	39.26
30. . . . .	49.8	48.70	47.76	46.59	44.28	43.69	42.52	40.40	38.76	38.17	35.86	35.51
35. . . . .	45.0	43.93	43.06	41.86	39.58	38.97	37.86	35.93	34.50	34.27	32.03	32.01
40. . . . .	40.3	39.23	38.41	37.17	34.95	34.33	33.29	31.54	30.33	30.38	28.29	28.28
45. . . . .	35.7	34.63	33.81	32.60	30.48	29.84	28.88	27.29	26.29	26.45	24.60	24.82
50. . . . .	31.2	30.15	29.34	28.21	26.21	25.57	24.70	23.26	22.42	22.64	21.01	21.18
55. . . . .	26.9	25.80	25.08	24.05	22.19	21.58	20.77	19.47	18.75	18.97	17.57	17.91
60. . . . .	22.8	21.70	21.08	20.16	18.48	17.84	17.15	15.98	15.37	15.57	14.43	14.73
65. . . . .	18.8	17.88	17.40	16.59	15.08	14.44	13.86	12.80	12.28	12.47	11.60	11.87
70. . . . .	15.2	14.34	14.02	13.35	12.01	11.37	10.89	9.96	9.58	9.72	9.10	9.31
75. . . . .	11.8	11.15	11.03	10.47	9.27	8.65	8.34	7.55	7.30	7.47	6.98	7.08
80. . . . .	8.9	8.42	8.39	7.95	7.01	6.33	6.27	5.64	5.45	5.59	5.22	5.30
85. . . . .	6.4	6.19	6.20	5.90	5.19	4.53	4.62	4.20	4.12	4.15	3.97	3.95
90. . . . .	4.4	4.44	4.46	4.36	3.84	3.20	3.41	3.16	3.10	3.17	3.00	2.93
95. . . . .	3.0	3.14	3.25	3.25	2.92	2.43	2.53	2.45	2.22	2.28	2.29	2.16
100. . . . .	2.2	2.22	2.43	2.62	2.41	1.91	1.92	1.95	1.48	1.50	1.71	1.56
<b>White male</b>												
0. . . . .	76.1	74.74	72.72	70.82	67.94	67.55	66.31	62.81	59.12	56.34	50.23	48.23
1. . . . .	75.5	74.21	72.35	70.70	68.33	68.34	67.41	64.98	62.04	60.24	56.26	54.61
5. . . . .	71.6	70.31	68.48	66.87	64.55	64.61	63.77	61.68	59.38	58.31	55.37	54.43
10. . . . .	66.6	65.36	63.55	61.98	59.69	59.78	58.98	57.03	54.96	54.15	51.32	50.59
15. . . . .	61.7	60.43	58.65	57.09	54.83	54.93	54.18	52.33	50.39	49.74	46.91	46.25
20. . . . .	56.9	55.69	53.96	52.45	50.22	50.25	49.52	47.76	46.02	45.60	42.71	42.19
25. . . . .	52.3	51.02	49.33	47.92	45.70	45.65	44.93	43.28	41.78	41.60	38.79	38.52
30. . . . .	47.6	46.30	44.71	43.31	41.07	40.97	40.29	38.80	37.54	37.65	34.87	34.88
35. . . . .	42.9	41.60	40.12	38.66	36.43	36.31	35.68	34.36	33.33	33.74	31.08	31.29
40. . . . .	38.3	36.98	35.57	34.04	31.87	31.73	31.17	30.03	29.22	29.86	27.43	27.74
45. . . . .	33.7	32.46	31.07	29.55	27.48	27.34	26.87	25.87	25.28	26.00	23.86	24.21
50. . . . .	29.3	28.09	26.71	25.26	23.34	23.22	22.83	21.96	21.51	22.22	20.39	20.76
55. . . . .	25.2	23.86	22.56	21.25	19.51	19.45	19.11	18.34	17.97	18.59	17.03	17.42
60. . . . .	21.2	19.88	18.71	17.56	16.07	16.01	15.76	15.05	14.72	15.25	13.98	14.35
65. . . . .	17.4	16.22	15.24	14.26	13.02	12.97	12.75	12.07	11.77	12.21	11.25	11.51
70. . . . .	13.9	12.87	12.11	11.35	10.38	10.29	10.07	9.42	9.20	9.51	8.83	9.03
75. . . . .	10.7	9.92	9.40	8.87	8.06	7.92	7.77	7.17	7.02	7.30	6.75	6.84
80. . . . .	8.0	7.43	7.11	6.76	6.18	5.89	5.88	5.38	5.26	5.47	5.09	5.10
85. . . . .	5.7	5.43	5.28	5.09	4.63	4.34	4.35	4.02	3.99	4.06	3.88	3.81
90. . . . .	3.9	3.90	3.85	3.83	3.49	3.16	3.27	3.06	3.03	3.18	2.99	2.85
95. . . . .	2.8	2.77	2.88	2.91	2.67	2.43	2.48	2.40	2.19	2.36	2.31	2.12
100. . . . .	2.0	1.98	2.21	2.41	2.20	1.91	1.92	1.96	1.49	1.58	1.68	1.55

See footnotes 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 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table21.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table21.xls).

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

Age (years), race, and sex	Average number of years of life remaining ( $e_x$ )											
	2008	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
<b>White female</b>												
0 . . . . .	80.9	79.97	79.45	78.22	75.49	74.19	72.03	67.29	62.67	58.53	53.62	51.08
1 . . . . .	80.3	79.38	78.99	77.98	75.66	74.68	72.77	68.93	64.93	61.51	58.69	56.39
5 . . . . .	76.4	75.46	75.10	74.13	71.86	70.92	69.09	65.57	62.17	59.43	57.67	56.03
10 . . . . .	71.4	70.51	70.16	69.21	66.97	66.05	64.26	60.85	57.65	55.17	53.57	52.15
15 . . . . .	66.5	65.56	65.23	64.29	62.07	61.15	59.39	56.07	53.00	50.67	49.12	47.79
20 . . . . .	61.6	60.69	60.36	59.44	57.24	56.29	54.56	51.38	48.52	46.46	44.88	43.77
25 . . . . .	56.7	55.81	55.51	54.60	52.42	51.45	49.77	46.78	44.25	42.55	40.88	40.05
30 . . . . .	51.8	50.94	50.65	49.76	47.60	46.63	45.00	42.21	39.99	38.72	36.96	36.42
35 . . . . .	47.0	46.10	45.82	44.93	42.82	41.84	40.28	37.70	35.73	34.86	33.09	32.82
40 . . . . .	42.2	41.31	41.03	40.16	38.12	37.13	35.64	33.25	31.52	30.94	29.26	29.17
45 . . . . .	37.5	36.61	36.30	35.49	33.54	32.53	31.12	28.90	27.39	26.98	25.45	25.51
50 . . . . .	32.9	31.99	31.71	30.96	29.11	28.08	26.76	24.72	23.41	23.12	21.74	21.89
55 . . . . .	28.5	27.52	27.29	26.61	24.85	23.81	22.58	20.73	19.60	19.40	18.18	18.43
60 . . . . .	24.1	23.25	23.09	22.45	20.79	19.69	18.64	17.00	16.05	15.93	14.92	15.23
65 . . . . .	20.0	19.23	19.14	18.55	16.93	15.88	15.00	13.56	12.81	12.75	11.97	12.23
70 . . . . .	16.2	15.47	15.46	14.89	13.37	12.38	11.68	10.50	9.98	9.94	9.38	9.59
75 . . . . .	12.6	12.02	12.11	11.58	10.21	9.28	8.87	7.92	7.56	7.62	7.20	7.33
80 . . . . .	9.4	9.04	9.12	8.65	7.59	6.67	6.59	5.88	5.63	5.70	5.35	5.50
85 . . . . .	6.7	6.59	6.62	6.32	5.54	4.66	4.83	4.34	4.24	4.24	4.06	4.10
90 . . . . .	4.6	4.67	4.69	4.59	4.05	3.23	3.51	3.24	3.17	3.16	3.00	3.02
95 . . . . .	3.1	3.24	3.36	3.39	3.04	2.43	2.56	2.47	2.24	2.20	2.27	2.21
100 . . . . .	2.2	2.24	2.49	2.70	2.49	1.91	1.92	1.95	1.48	1.42	1.74	1.58
<b>Black<sup>1</sup></b>												
0 . . . . .	74.0	71.74	69.16	68.52	64.11	63.91	60.73	53.85	48.53	47.03	35.87	33.80
1 . . . . .	74.0	71.78	69.43	68.99	65.27	65.75	62.65	57.15	51.71	51.01	43.84	43.00
5 . . . . .	70.1	67.92	65.64	65.25	61.62	62.21	59.25	54.13	49.25	49.44	45.34	45.55
10 . . . . .	65.2	62.99	60.75	60.38	56.79	57.41	54.50	49.50	44.80	45.26	41.74	42.46
15 . . . . .	60.2	58.07	55.86	55.49	51.94	52.57	49.73	44.89	40.37	41.02	38.02	39.04
20 . . . . .	55.5	53.32	51.19	50.75	47.34	47.88	45.19	40.73	36.62	37.72	34.86	36.03
25 . . . . .	50.8	48.71	46.67	46.18	43.00	43.35	40.85	36.91	33.32	34.91	31.72	33.04
30 . . . . .	46.2	44.10	42.22	41.69	38.70	38.89	36.59	33.17	30.07	31.98	28.43	29.96
35 . . . . .	41.6	39.53	37.87	37.28	34.48	34.56	32.44	29.53	26.94	29.07	25.39	26.82
40 . . . . .	37.0	35.06	33.65	32.98	30.46	30.39	28.48	26.06	23.82	26.07	22.41	23.73
45 . . . . .	32.6	30.79	29.55	28.87	26.65	26.46	24.75	22.82	20.97	23.17	19.58	20.67
50 . . . . .	28.4	26.75	25.62	25.03	23.11	22.74	21.38	19.94	18.22	20.17	16.84	17.95
55 . . . . .	24.5	22.93	21.95	21.50	19.83	19.45	18.41	17.43	15.80	17.33	14.33	15.23
60 . . . . .	20.8	19.40	18.59	18.29	16.83	16.53	15.87	15.18	13.62	14.72	12.16	13.06
65 . . . . .	17.4	16.14	15.56	15.37	14.16	13.96	13.59	13.02	11.49	12.22	10.22	10.87
70 . . . . .	14.3	13.18	12.87	12.67	11.77	11.63	11.48	10.93	9.54	9.90	8.59	8.96
75 . . . . .	11.3	10.54	10.48	10.32	9.89	9.52	9.48	8.97	7.84	8.00	7.08	7.24
80 . . . . .	8.8	8.29	8.30	8.17	8.20	7.28	7.62	7.31	6.19	6.22	5.80	5.79
85 . . . . .	6.6	6.41	6.51	6.54	6.54	5.27	5.79	5.91	4.92	4.88	4.80	4.56
90 . . . . .	5.0	4.90	4.94	5.13	5.09	3.48	3.97	4.64	3.83	3.84	4.26	3.60
95 . . . . .	3.7	3.71	3.82	4.08	4.28	2.43	2.70	3.51	2.83	2.90	3.31	2.82
100 . . . . .	2.8	2.81	2.91	3.58	3.93	1.91	1.94	2.57	1.87	1.94	2.27	2.18
<b>Black male<sup>1</sup></b>												
0 . . . . .	70.6	68.08	64.47	64.10	60.00	61.48	58.91	52.26	47.55	47.14	34.05	32.54
1 . . . . .	70.6	68.16	64.76	64.60	61.24	63.50	61.06	55.93	51.08	51.63	42.53	42.46
5 . . . . .	66.7	64.31	60.98	60.86	57.60	59.98	57.69	52.95	48.69	50.18	44.25	45.06
10 . . . . .	61.8	59.39	56.09	56.01	52.79	55.19	52.96	48.34	44.27	45.99	40.65	41.90
15 . . . . .	56.8	54.48	51.22	51.14	47.96	50.39	48.23	43.74	39.83	41.75	36.77	38.26
20 . . . . .	52.2	49.83	46.71	46.48	43.49	45.78	43.73	39.52	35.95	38.36	33.46	35.11
25 . . . . .	47.7	45.41	42.40	42.09	39.45	41.38	39.49	35.72	32.67	35.54	30.44	32.21
30 . . . . .	43.1	40.94	38.14	37.81	35.40	37.05	35.31	32.05	29.45	32.51	27.33	29.25
35 . . . . .	38.6	36.47	34.02	33.60	31.42	32.81	31.21	28.48	26.39	29.54	24.42	26.16
40 . . . . .	34.2	32.10	30.05	29.51	27.61	28.72	27.29	25.06	23.36	26.53	21.57	23.12
45 . . . . .	29.8	27.92	26.18	25.61	24.03	24.89	23.59	21.88	20.59	23.55	18.85	20.09
50 . . . . .	25.7	24.05	22.50	22.03	20.69	21.28	20.25	19.06	17.92	20.47	16.21	17.34

See footnotes 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 2008—Con.**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/61\\_03/Table21.xls](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/61_03/Table21.xls).

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

Age (years), race, and sex	Average number of years of life remaining ( $e_x$ )											
	2008	1999–2001	1989–1991	1979–1981	1969–1971	1959–1961	1949–1951	1939–1941	1929–1931	1919–1921	1909–1911	1900–1902
<b>Black male<sup>1</sup></b>												
55. . . . .	21.9	20.43	19.08	18.79	17.66	18.11	17.36	16.60	15.46	17.50	13.82	14.69
60. . . . .	18.5	17.14	16.01	15.89	14.93	15.29	14.91	14.37	13.15	14.74	11.67	12.62
65. . . . .	15.4	14.12	13.27	13.29	12.53	12.84	12.75	12.21	10.87	12.07	9.74	10.38
70. . . . .	12.6	11.40	10.88	10.94	10.40	10.81	10.74	10.11	8.78	9.58	8.00	8.33
75. . . . .	9.9	9.07	8.84	8.90	8.76	8.93	8.83	8.17	6.99	7.61	6.58	6.60
80. . . . .	7.6	7.12	7.01	7.03	7.35	6.87	7.07	6.58	5.42	5.83	5.53	5.12
85. . . . .	5.8	5.52	5.58	5.61	5.92	5.08	5.38	5.34	4.30	4.53	4.48	4.04
90. . . . .	4.4	4.23	4.24	4.47	4.68	3.42	3.78	4.23	3.42	3.60	4.01	3.21
95. . . . .	3.3	3.24	3.37	3.62	3.92	2.43	2.64	3.20	2.54	2.61	3.15	2.50
100. . . . .	2.5	2.48	2.63	3.24	3.61	1.91	1.93	2.29	1.68	1.64	2.14	1.89
<b>Black female<sup>1</sup></b>												
0. . . . .	77.2	75.12	73.73	72.88	68.32	66.47	62.70	55.56	49.51	46.92	37.67	35.04
1. . . . .	77.1	75.09	73.96	73.31	69.37	68.10	64.37	58.46	52.33	50.39	45.15	43.54
5. . . . .	73.2	71.22	70.16	69.54	65.70	64.54	60.93	55.40	49.81	48.70	46.42	46.04
10. . . . .	68.2	66.28	65.26	64.65	60.85	59.72	56.17	50.75	45.33	44.54	42.84	43.02
15. . . . .	63.3	61.35	60.34	59.74	55.97	54.85	51.36	46.13	40.87	40.36	39.18	39.79
20. . . . .	58.4	56.48	55.49	54.90	51.22	50.07	46.77	42.04	37.22	37.15	36.14	36.89
25. . . . .	53.6	51.67	50.72	50.13	46.57	45.40	42.35	38.20	33.93	34.35	32.97	33.90
30. . . . .	48.8	46.91	46.03	45.43	42.00	40.83	38.02	34.40	30.67	31.48	29.61	30.70
35. . . . .	44.1	42.22	41.45	40.79	37.56	36.41	33.82	30.83	27.47	28.58	26.44	27.52
40. . . . .	39.4	37.65	36.96	36.28	33.32	32.16	29.82	27.19	24.30	25.60	23.34	24.37
45. . . . .	34.9	33.26	32.58	31.94	29.31	28.14	26.07	23.89	21.39	22.61	20.43	21.36
50. . . . .	30.6	29.03	28.38	27.84	25.52	24.31	22.67	20.95	18.60	19.76	17.65	18.67
55. . . . .	26.5	24.98	24.41	24.00	21.97	20.89	19.62	18.38	16.27	17.09	14.98	15.88
60. . . . .	22.6	21.18	20.71	20.42	18.66	17.83	16.95	16.10	14.22	14.69	12.78	13.60
65. . . . .	18.9	17.65	17.37	17.13	15.67	15.12	14.54	13.95	12.24	12.41	10.82	11.38
70. . . . .	15.4	14.41	14.32	14.05	13.02	12.46	12.29	11.82	10.38	10.25	9.22	9.62
75. . . . .	12.3	11.49	11.56	11.37	10.85	10.10	10.15	9.81	8.62	8.37	7.55	7.90
80. . . . .	9.4	8.96	9.05	8.95	8.87	7.66	8.15	8.02	6.90	6.58	6.05	6.48
85. . . . .	7.0	6.86	6.99	7.09	7.00	5.44	6.15	6.41	5.48	5.22	5.09	5.10
90. . . . .	5.2	5.16	5.24	5.47	5.41	3.52	4.13	4.96	4.20	4.07	4.50	4.01
95. . . . .	3.8	3.84	3.97	4.30	4.58	2.43	2.74	3.71	3.09	3.18	3.45	3.15
100. . . . .	2.8	2.84	2.97	3.69	4.20	1.91	1.94	2.70	2.04	2.23	2.39	2.49

<sup>1</sup>For 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: CDC/NCHS, National Vital Statistics System.

## Technical Notes

### The life table program

Three series of complete life tables for the U.S. population are prepared by the Centers for Disease Control and Prevention's (CDC) 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 preliminary life tables* are based on a sample of approximately 90% of death records. *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 (13). The methodology was again revised for data years 2000–2007 using a methodology similar to that of the 1999–2001 decennial life tables (7). 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.

The methodology used to estimate the 2008 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 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. A full description of the methodology used to estimate the 2008 life tables is provided below. See "United States Life Tables, 2005" (7) 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. Prior to 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 (9,14,15). 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" (9).

### 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.

### 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 prior to 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* (<http://www.cdc.gov/nchs/products/vsus.htm>) for 1989 and earlier years. Life table values for 1991–1999 are based on postcensal population estimates of the population enumerated in the 1990 decennial census, whereas life table values for 2000–2008 are based on postcensal population estimates of the population enumerated in the 2000 decennial census. As a result, life expectancy values across the 1990s are not comparable with those estimated for 2000–2008. A comparison of life expectancy values for 2000, estimated alternately with 1990-based postcensal estimates of the 2000 population and population counts based on the 2000 census, revealed that 2000 life expectancy values estimated using the 2000 census population counts were slightly higher throughout the entire age range (16).

### 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 have been 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, figures for the black population during the periods 1939–1941 and 1949–1951 were

estimated using figures 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. Figures 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 figures 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 figures in [Table 19](#) by race and sex for the following years were estimated using a procedure other than the abridged life table methodology (17):

<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 prior to 1970. In [Table 19](#), life expectancy for the black population for years prior to 1970 is estimated using figures 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 2008 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 (18). 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 2008, 34 states and the District of Columbia had adopted the 1997 OMB standards, while 16 others continued to collect race and ethnicity data according to the 1977 OMB standards (19). 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 (20).

### 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 2000 census. Reflecting the 1997 OMB guidelines on race and ethnicity reporting (18), the 2000 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 2000 census (the denominators for the rates). To produce death rates for 2008, it was necessary to bridge the reported population data for multiple-race persons back to single-race categories. In addition, the 2000 census counts were modified to be consistent with the 1977 OMB race categories, that is, 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 (21). The procedures used to produce the bridged populations are described elsewhere (20).

### 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 (13). 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 (22). 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 (22). 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 (9,23). 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 (9). 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 (9).

To estimate the probability of death for the Medicare population for the white, black, non-Hispanic white, and non-Hispanic black populations in 2008, age-specific numbers of deaths and population counts by sex and race for the population aged 66–99 from the 2008 Medicare file were used. The data file is created by CMS for the Social Security Administration, which under a special agreement shares the files with NCHS.

## Preliminary adjustment of the data

### Adjustments 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<sup>a</sup>* 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 2008.

### 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 of race and Hispanic origin on death certificates in the United States accounts for a net underestimate of 5% for total Hispanic deaths, a net underestimate of 1% for total non-Hispanic black deaths, and a net overestimate of less than one-half percent for non-Hispanic white deaths, but no underestimate for the population racially classified as white or black, irrespective of Hispanic origin (14,15). 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 1990–1998 (14,15).

NLMS linked records are used to estimate sex-age-specific ratios of CPS race and Hispanic origin counts to death certificate counts (14,15). 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 (14,15). 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 (18).

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

Table I. Values for *F* used to adjust for not-stated age based on 2008 mortality data

Race, Hispanic origin, and sex	Total deaths	Total deaths for which age was not stated	<i>F</i>
Total . . . . .	2,471,984	147	1.00005947
Male . . . . .	1,226,197	102	1.00008319
Female . . . . .	1,245,787	45	1.00003612
White . . . . .	2,120,233	118	1.00005566
Male . . . . .	1,046,183	83	1.00007934
Female . . . . .	1,074,050	35	1.00003259
Black . . . . .	289,072	23	1.00007957
Male . . . . .	147,143	17	1.00011555
Female . . . . .	141,929	6	1.00004228
Hispanic . . . . .	139,241	9	1.00006464
Male . . . . .	76,861	9	1.00011711
Female . . . . .	62,380	0	1.00000000
Non-Hispanic white . . . . .	1,981,034	79	1.00003988
Male . . . . .	969,288	52	1.00005365
Female . . . . .	1,011,746	27	1.00002669
Non-Hispanic black . . . . .	285,522	20	1.00007005
Male . . . . .	145,168	14	1.00009645
Female . . . . .	140,354	6	1.00004275

SOURCE: CDC/NCHS, National Vital Statistics System.

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

where  ${}_nD_x^F$  is the age-specific number of deaths adjusted for unknown age as described above,  ${}_nCR_x$  are the sex- and age-specific classification ratios used to correct for the misclassification of race and Hispanic origin on death certificates, and  ${}_nD_x$  are 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 2007 and 2008 linked birth/infant death data files rather than the traditional birth and death data files (24,25). 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 1.2% for Hispanic infants and by 3.7% for non-Hispanic black infants. There is no difference between the two sources 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



**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	1.0501	1.0415	1.0614	0.9960	0.9954	0.9966	1.0055	1.0066	1.0043
0†	1.0119	1.0137	1.0093	1.0001	1.0050	0.9968	1.0371	1.0298	1.0473
1-14	*0.9198	*1.0000	*0.7994	0.9930	0.9869	1.0011	1.0200	1.0000	*1.0689
15-24	0.9650	0.9770	0.9290	1.0032	1.0040	1.0010	0.9997	0.9996	1.0000
25-34	1.0189	1.0542	0.9288	0.9975	0.9872	1.0212	1.0043	1.0034	1.0060
35-44	1.0803	1.0863	1.0657	0.9902	0.9864	0.9971	1.0066	1.0081	1.0045
45-54	1.0501	1.0152	1.1208	0.9938	0.9943	0.9930	1.0023	1.0144	0.9880
55-64	1.0260	1.0291	1.0216	0.9932	0.9915	0.9958	1.0135	1.0174	1.0087
65-74	1.0700	1.0640	1.0779	0.9950	0.9961	0.9935	1.0036	0.9979	1.0095
75-84	1.0473	1.0316	1.0651	0.9967	0.9964	0.9971	1.0040	1.0058	1.0023
85-94	1.0468	1.0261	1.0614	0.9978	0.9975	0.9979	1.0083	1.0101	1.0072
95 or over	1.1277	1.1700	1.1000	0.9981	0.9927	0.9998	0.9979	1.0300	0.9881

\* 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.

†Ratios for age 0 are estimated as the ratio of infant mortality rates based on traditional death and birth files to infant mortality rates based on the 2008 linked birth/infant death data file and are shown for illustration purposes only; see text for details.

SOURCE: CDC/NCHS, National Vital Statistics System.

NVSS due to return migration, and therefore the resulting death rates may be biased irrespective of correction for ethnic misclassification (9,26).

**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 (1,13). Graduation techniques are often used to eliminate these anomalies and to derive a smooth curve by age. Beer’s 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  ${}_n P_x$  from age 0 to 99 and  ${}_n D_x$  from age 5 to 99, and where  ${}_n D_x$  has first been adjusted for not-reported age and race and Hispanic origin misclassification on the death certificate (see reference 13 for details on the application of Beer’s 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,  $m_x$  (3,27). 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:

$$q_x = \frac{m_x}{1 + (1 - a_x)m_x} \tag{3}$$

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,

$$q_x = \frac{m_x}{1 + \frac{1}{2} m_x} \tag{4}$$

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

$$q_x = \frac{M_x}{1 + \frac{1}{2} M_x} = \frac{D_x}{P_x + \frac{1}{2} D_x} \tag{5}$$

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

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

where  $D_o$  is the number of infant deaths adjusted for not-stated age in 2008,  $B^t$  is the number of live births in 2008, and  $B^{t-1}$  is the number of live births in 2007. Table III shows separation factors and numbers of births for 2007–2008.

### 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  $x = 66, \dots, 94$ ,

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

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

[7]

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 (28). 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 oversmoothing and thus altering the underlying mortality pattern observed in the population of interest (29). 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,  $x$  (28). 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 estimated values of parameters  $\ln(\alpha)$  and  $\beta$ , respectively, given by fitting model [9]. Estimated parameters and the starting age for the modeled age span by population in 2008 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 (14,15,26,30). 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 (3,31–33). 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 (3,31–33).

Table III. Births in 2007 and 2008, deaths in 2008 of infants born in 2007 and 2008, and separation factors, by race, Hispanic origin, and sex: United States

Births and deaths	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:																		
2007 . . . . .	4,316,233	2,208,071	2,108,791	3,336,626	1,708,315	1,628,311	675,676	343,279	332,397	1,062,779	542,174	520,605	2,310,333	1,184,634	1,125,699	627,191	318,692	308,499
2008 . . . . .	4,247,694	2,173,389	2,074,305	3,274,163	1,676,718	1,597,445	670,809	340,885	329,924	1,041,239	531,999	509,240	2,267,817	1,162,622	1,105,195	623,031	316,447	306,584
Deaths in 2008 of infants born in:																		
2007 . . . . .	3,589	2,041	1,548	2,306	1,313	993	1,081	599	482	739	411	329	1,601	916	678	1,010	561	445
2008 . . . . .	24,470	13,628	10,842	15,858	8,838	7,020	7,462	4,149	3,313	5,082	2,823	2,258	10,908	6,077	4,838	6,884	3,855	3,033
Separation factor (f) . .	0.128	0.130	0.125	0.127	0.129	0.124	0.127	0.126	0.127	0.127	0.127	0.127	0.128	0.131	0.123	0.128	0.127	0.128

SOURCE: CDC/NCHS, National Vital Statistics System.

Table IV. Estimated parameters  $\alpha$  and  $\beta$  used for predicting  $m_x$  and starting age of modeled age span: United States life tables, 2008

[Values in parentheses are standard errors]

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 . . . . .	86	85	86	86	85	86	84	81	85	86	85	86	84	81	85
$\ln(\alpha)$ . . . . .	-13.1495 (0.144)	-12.7174 (0.167)	-13.8747 (0.157)	-13.3917 (0.132)	-12.9395 (0.157)	-14.1353 (0.144)	-10.5568 (0.094)	-9.8154 (0.145)	-11.2987 (0.113)	-13.3526 (0.129)	-12.8864 (0.153)	-14.1037 (0.142)	-10.4998 (0.091)	-9.7500 (0.142)	-11.2456 (0.001)
$\beta$ . . . . .	0.1276 (0.002)	0.1250 (0.002)	0.1346 (0.002)	0.1304 (0.001)	0.1276 (0.002)	0.1376 (0.002)	0.0979 (0.001)	0.0922 (0.002)	0.1051 (0.001)	0.1300 (0.001)	0.1271 (0.002)	0.1373 (0.002)	0.0973 (0.001)	0.0915 (0.002)	0.1045 (0.001)

SOURCE: CDC/NCHS, National Vital Statistics System.



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:

$$\bar{Y}_x = \alpha + \beta Y_x^S \tag{12}$$

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.,

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

$\alpha$  is the predicted parameter that measures the level of mortality of the population of interest relative to the standard population, and  $\beta$  is the predicted parameter that measures the slope of the mortality function of the population of interest relative to the standard population (3,31–33). Table V shows values of predicted  $\alpha$  and  $\beta$  and their standard errors.

Ordinary least squares regression was used to fit equation 12 in the age range 45–80. The resulting predicted parameters  $\alpha$  and  $\beta$  were then used to estimate the predicted probability of death for ages 76–120 in the Hispanic population. The value  $\bar{q}_x$  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:

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

To ensure a smooth transition from vital  $q_x^V$  and predicted  $\bar{q}_x$ , the two were blended from ages 76 to 80 with a graduating process as follows:

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

when  $x = 76, \dots, 80$ . [14]

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

**Table V. Estimated Brass relational logit model parameters  $\alpha$  and  $\beta$ , Hispanic origin population, 2008**

Parameter	Total (SE)	Male (SE)	Female (SE)
$\alpha$ . . . . .	-0.2660 (0.026)	-0.2642 (0.041)	-0.2189 (0.023)
$\beta$ . . . . .	0.9967 (0.006)	0.9938 (0.009)	1.0105 (0.005)

NOTE: SE is standard error.  
SOURCE: CDC/NCHS, National Vital Statistics System.

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

$$l_x = l_{x-1}(1 - q_{x-1}) \tag{15}$$

#### Decrement function ( $d_x$ )

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

$$d_x = l_x - l_{x+1} = l_x q_x \tag{16}$$

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 is calculated assuming that the survivor function declines linearly between ages  $x$  and  $x + 1$ . This gives the formula

$$L_x = \frac{1}{2} (l_x + l_{x+1}) = l_x = \frac{1}{2} d_x \tag{17}$$

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

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

$$L_0 = f l_0 + (1 - f) l_1 \tag{18}$$

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  $x$ :

$$T_x = \sum_{x=0}^{\infty} L_x \tag{19}$$

#### Life expectancy at age $x$ ( $e_x$ )

Life expectancy at exact age  $x$  is calculated as

$$e_x = \frac{T_x}{l_x} \tag{20}$$

### 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 when publishing life table data by

single years of age. 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  $x$ , that is, 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 B and C 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:

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

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

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

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 2008 U.S. total population abridged from Table 1.

Table VI. Life table for the total population: United States, 2008

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 $x$
	${}_nq_x$	$l_x$	${}_nd_x$	${}_nL_x$	$T_x$	$e_x$
0–1	0.006593	100,000	659	99,425	7,812,389	78.1
1–4	0.001132	99,341	112	397,092	7,712,964	77.6
5–9	0.000623	99,228	62	495,972	7,315,872	73.7
10–14	0.000779	99,167	77	495,692	6,819,900	68.8
15–19	0.002875	99,089	285	494,821	6,324,208	63.8
20–24	0.004689	98,804	463	492,902	5,829,387	59.0
25–29	0.004861	98,341	478	490,514	5,336,485	54.3
30–34	0.005466	97,863	535	488,017	4,845,971	49.5
35–39	0.007077	97,328	689	485,012	4,357,954	44.8
40–44	0.010733	96,639	1,037	480,795	3,872,942	40.1
45–49	0.016773	95,602	1,604	474,262	3,392,147	35.5
50–54	0.025150	93,999	2,364	464,410	2,917,885	31.0
55–59	0.035784	91,635	3,279	450,415	2,453,475	26.8
60–64	0.052463	88,356	4,635	430,823	2,003,060	22.7
65–69	0.078443	83,720	6,567	403,086	1,572,237	18.8
70–74	0.118559	77,153	9,147	364,140	1,169,152	15.2
75–79	0.182982	68,006	12,444	310,338	805,011	11.8
80–84	0.283728	55,562	15,764	239,561	494,673	8.9
85–89	0.438470	39,797	17,450	155,294	255,112	6.4
90–94	0.628469	22,347	14,045	74,038	99,818	4.5
95–99	0.797603	8,303	6,622	22,048	25,780	3.1
100 and over	1.000000	1,680	1,680	3,732	3,732	2.2

SOURCE: CDC/NCHS, National Vital Statistics System.

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