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## United States Life Tables, 2010

by Elizabeth Arias, Ph.D., Division of Vital Statistics

### 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 2010.

**Methods**—Data used to prepare the 2010 life tables are 2010 final mortality statistics; April 1, 2010 population estimates based on the 2010 decennial census; and 2010 Medicare data for persons aged 66–99. The methodology used to estimate the 2010 life tables was first implemented with data year 2008. 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 2010, the overall expectation of life at birth was 78.7 years. Between 2009 and 2010, life expectancy at birth increased for all groups considered. Life expectancy increased for both males (from 76.0 to 76.2) and females (80.9 to 81.0) and for the white population (78.8 to 78.9), the black population (74.7 to 75.1), the Hispanic population (81.1 to 81.4), the non-Hispanic white population (78.7 to 78.8), and the non-Hispanic black population (74.4 to 74.7).

**Keywords:** life expectancy, survival, death rates, race, Hispanic origin

### Introduction

There are two types of life tables: the cohort (or generation) life table and the period (or current) life table. The cohort life table presents the mortality experience of a particular birth cohort—all persons born in the year 1900, for example—from the moment of birth through consecutive ages in successive calendar years. Based on age-specific death rates observed through consecutive calendar years, the cohort life table reflects the mortality experience of an actual cohort from birth until no lives remain in the group. To prepare just a single complete cohort life table requires data over many years. It is usually not feasible to construct cohort life tables entirely on the basis of observed data for real cohorts due to data unavailability or incompleteness (1). For example, a life table representation of the mortality experience of a cohort of persons born in 1970 would

require the use of data projection techniques to estimate deaths into the future (2,3).

Unlike the cohort life table, the period life table does not represent the mortality experience of an actual birth cohort. Rather, the period life table presents what would happen to a hypothetical cohort if it experienced throughout its entire life the mortality conditions of a particular period in time. For example, a period life table for 2010 assumes a hypothetical cohort that is subject throughout its lifetime to the age-specific death rates prevailing for the actual population in 2010. 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. The life tables by Hispanic origin are based on death rates that were adjusted for Hispanic origin misclassification (See [Technical Notes](#) for a detailed description of the methodology used to estimate Hispanic origin life tables).

### Data and Methods

The data used to prepare the U.S. life tables for 2010 are final numbers of deaths for the year 2010, April 1, 2010 population estimates based on the 2010 decennial census, and age-specific death and population counts for Medicare beneficiaries aged 66–99 for the year 2010 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.)



**Table 2. Life table for males: United States, 2010**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/63\\_07/Table02.xlsx](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/63_07/Table02.xlsx).

Age	Probability of dying between ages x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to 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.....	0.006667	100,000	667	99,419	7,619,510	76.2
1-2.....	0.000449	99,333	45	99,311	7,520,090	75.7
2-3.....	0.000322	99,289	32	99,273	7,420,779	74.7
3-4.....	0.000247	99,257	25	99,245	7,321,507	73.8
4-5.....	0.000178	99,232	18	99,223	7,222,262	72.8
5-6.....	0.000166	99,215	17	99,206	7,123,039	71.8
6-7.....	0.000147	99,198	15	99,191	7,023,832	70.8
7-8.....	0.000129	99,183	13	99,177	6,924,642	69.8
8-9.....	0.000109	99,171	11	99,165	6,825,465	68.8
9-10.....	0.000087	99,160	9	99,156	6,726,299	67.8
10-11.....	0.000072	99,151	7	99,148	6,627,144	66.8
11-12.....	0.000078	99,144	8	99,140	6,527,996	65.8
12-13.....	0.000121	99,136	12	99,130	6,428,856	64.8
13-14.....	0.000209	99,124	21	99,114	6,329,726	63.9
14-15.....	0.000328	99,103	32	99,087	6,230,612	62.9
15-16.....	0.000451	99,071	45	99,049	6,131,525	61.9
16-17.....	0.000569	99,026	56	98,998	6,032,476	60.9
17-18.....	0.000690	98,970	68	98,936	5,933,478	60.0
18-19.....	0.000817	98,902	81	98,861	5,834,542	59.0
19-20.....	0.000945	98,821	93	98,774	5,735,681	58.0
20-21.....	0.001084	98,727	107	98,674	5,636,907	57.1
21-22.....	0.001216	98,620	120	98,560	5,538,233	56.2
22-23.....	0.001311	98,501	129	98,436	5,439,672	55.2
23-24.....	0.001354	98,371	133	98,305	5,341,237	54.3
24-25.....	0.001358	98,238	133	98,171	5,242,932	53.4
25-26.....	0.001348	98,105	132	98,039	5,144,760	52.4
26-27.....	0.001344	97,973	132	97,907	5,046,722	51.5
27-28.....	0.001345	97,841	132	97,775	4,948,815	50.6
28-29.....	0.001359	97,709	133	97,643	4,851,040	49.6
29-30.....	0.001384	97,576	135	97,509	4,753,397	48.7
30-31.....	0.001414	97,441	138	97,373	4,655,888	47.8
31-32.....	0.001444	97,304	140	97,233	4,558,516	46.8
32-33.....	0.001475	97,163	143	97,091	4,461,282	45.9
33-34.....	0.001506	97,020	146	96,947	4,364,191	45.0
34-35.....	0.001542	96,874	149	96,799	4,267,244	44.0
35-36.....	0.001592	96,724	154	96,647	4,170,445	43.1
36-37.....	0.001659	96,570	160	96,490	4,073,798	42.2
37-38.....	0.001738	96,410	168	96,326	3,977,307	41.3
38-39.....	0.001830	96,243	176	96,154	3,880,981	40.3
39-40.....	0.001941	96,066	186	95,973	3,784,827	39.4
40-41.....	0.002064	95,880	198	95,781	3,688,853	38.5
41-42.....	0.002217	95,682	212	95,576	3,593,072	37.6
42-43.....	0.002421	95,470	231	95,354	3,497,496	36.6
43-44.....	0.002684	95,239	256	95,111	3,402,142	35.7
44-45.....	0.002987	94,983	284	94,841	3,307,031	34.8
45-46.....	0.003303	94,699	313	94,543	3,212,190	33.9
46-47.....	0.003624	94,387	342	94,216	3,117,647	33.0
47-48.....	0.003968	94,045	373	93,858	3,023,431	32.1
48-49.....	0.004342	93,671	407	93,468	2,929,573	31.3
49-50.....	0.004746	93,265	443	93,043	2,836,105	30.4
50-51.....	0.005172	92,822	480	92,582	2,743,061	29.6
51-52.....	0.005617	92,342	519	92,083	2,650,479	28.7
52-53.....	0.006093	91,823	559	91,544	2,558,397	27.9
53-54.....	0.006611	91,264	603	90,962	2,466,853	27.0
54-55.....	0.007174	90,660	650	90,335	2,375,891	26.2
55-56.....	0.007792	90,010	701	89,659	2,285,556	25.4
56-57.....	0.008451	89,309	755	88,931	2,195,897	24.6
57-58.....	0.009121	88,554	808	88,150	2,106,965	23.8
58-59.....	0.009775	87,746	858	87,317	2,018,815	23.0
59-60.....	0.010415	86,889	905	86,436	1,931,498	22.2
60-61.....	0.011075	85,984	952	85,507	1,845,062	21.5
61-62.....	0.011791	85,031	1,003	84,530	1,759,554	20.7

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Age	Probability of dying between ages x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to 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)
62-63.....	0.012577	84,029	1,057	83,500	1,675,024	19.9
63-64.....	0.013484	82,972	1,119	82,412	1,591,524	19.2
64-65.....	0.014542	81,853	1,190	81,258	1,509,111	18.4
65-66.....	0.015783	80,663	1,273	80,026	1,427,853	17.7
66-67.....	0.017195	79,390	1,365	78,707	1,347,827	17.0
67-68.....	0.018699	78,025	1,459	77,295	1,269,120	16.3
68-69.....	0.020247	76,566	1,550	75,790	1,191,825	15.6
69-70.....	0.021917	75,015	1,644	74,193	1,116,035	14.9
70-71.....	0.023725	73,371	1,741	72,501	1,041,841	14.2
71-72.....	0.025734	71,631	1,843	70,709	969,340	13.5
72-73.....	0.028077	69,787	1,959	68,808	898,631	12.9
73-74.....	0.030750	67,828	2,086	66,785	829,824	12.2
74-75.....	0.033815	65,742	2,223	64,631	763,039	11.6
75-76.....	0.037090	63,519	2,356	62,341	698,408	11.0
76-77.....	0.040540	61,163	2,480	59,923	636,067	10.4
77-78.....	0.044677	58,684	2,622	57,373	576,144	9.8
78-79.....	0.049227	56,062	2,760	54,682	518,771	9.3
79-80.....	0.054348	53,302	2,897	51,854	464,089	8.7
80-81.....	0.060110	50,405	3,030	48,890	412,236	8.2
81-82.....	0.066576	47,375	3,154	45,798	363,346	7.7
82-83.....	0.073449	44,221	3,248	42,597	317,547	7.2
83-84.....	0.080709	40,973	3,307	39,320	274,950	6.7
84-85.....	0.090777	37,666	3,419	35,957	235,630	6.3
85-86.....	0.101080	34,247	3,462	32,516	199,674	5.8
86-87.....	0.112324	30,785	3,458	29,056	167,157	5.4
87-88.....	0.124544	27,327	3,403	25,626	138,101	5.1
88-89.....	0.137762	23,924	3,296	22,276	112,475	4.7
89-90.....	0.151991	20,628	3,135	19,061	90,199	4.4
90-91.....	0.167224	17,493	2,925	16,030	71,139	4.1
91-92.....	0.183440	14,568	2,672	13,232	55,108	3.8
92-93.....	0.200596	11,895	2,386	10,702	41,877	3.5
93-94.....	0.218632	9,509	2,079	8,470	31,175	3.3
94-95.....	0.237462	7,430	1,764	6,548	22,705	3.1
95-96.....	0.256985	5,666	1,456	4,938	16,157	2.9
96-97.....	0.277076	4,210	1,166	3,627	11,219	2.7
97-98.....	0.297597	3,043	906	2,591	7,593	2.5
98-99.....	0.318395	2,138	681	1,797	5,002	2.3
99-100.....	0.339311	1,457	494	1,210	3,205	2.2
100 and over.....	1.000000	963	963	1,995	1,995	2.1

**Table 3. Life table for females: United States, 2010**Spreadsheet version available from: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Publications/NVSR/63\\_07/Table03.xlsx](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/63_07/Table03.xlsx)

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	q(x)	l(x)	d(x)	L(x)	T(x)	e(x)
0-1.....	0.005553	100,000	555	99,514	8,104,166	81.0
1-2.....	0.000407	99,445	41	99,424	8,004,653	80.5
2-3.....	0.000226	99,404	22	99,393	7,905,228	79.5
3-4.....	0.000172	99,382	17	99,373	7,805,835	78.5
4-5.....	0.000136	99,365	14	99,358	7,706,462	77.6
5-6.....	0.000123	99,351	12	99,345	7,607,104	76.6
6-7.....	0.000108	99,339	11	99,334	7,507,759	75.6
7-8.....	0.000097	99,328	10	99,323	7,408,425	74.6
8-9.....	0.000090	99,319	9	99,314	7,309,102	73.6
9-10.....	0.000086	99,310	9	99,305	7,209,788	72.6
10-11.....	0.000087	99,301	9	99,297	7,110,483	71.6
11-12.....	0.000094	99,292	9	99,288	7,011,186	70.6
12-13.....	0.000111	99,283	11	99,278	6,911,898	69.6
13-14.....	0.000138	99,272	14	99,265	6,812,621	68.6
14-15.....	0.000172	99,258	17	99,250	6,713,356	67.6
15-16.....	0.000209	99,241	21	99,231	6,614,106	66.6
16-17.....	0.000246	99,220	24	99,208	6,514,875	65.7
17-18.....	0.000282	99,196	28	99,182	6,415,667	64.7
18-19.....	0.000317	99,168	31	99,152	6,316,485	63.7
19-20.....	0.000351	99,137	35	99,119	6,217,332	62.7
20-21.....	0.000387	99,102	38	99,083	6,118,213	61.7
21-22.....	0.000424	99,064	42	99,042	6,019,130	60.8
22-23.....	0.000456	99,021	45	98,999	5,920,088	59.8
23-24.....	0.000479	98,976	47	98,953	5,821,089	58.8
24-25.....	0.000496	98,929	49	98,904	5,722,136	57.8
25-26.....	0.000513	98,880	51	98,854	5,623,232	56.9
26-27.....	0.000533	98,829	53	98,803	5,524,377	55.9
27-28.....	0.000555	98,776	55	98,749	5,425,575	54.9
28-29.....	0.000579	98,722	57	98,693	5,326,826	54.0
29-30.....	0.000608	98,664	60	98,634	5,228,133	53.0
30-31.....	0.000641	98,604	63	98,573	5,129,498	52.0
31-32.....	0.000679	98,541	67	98,508	5,030,925	51.1
32-33.....	0.000722	98,474	71	98,439	4,932,418	50.1
33-34.....	0.000768	98,403	76	98,365	4,833,979	49.1
34-35.....	0.000819	98,328	81	98,287	4,735,613	48.2
35-36.....	0.000880	98,247	86	98,204	4,637,326	47.2
36-37.....	0.000949	98,161	93	98,114	4,539,122	46.2
37-38.....	0.001021	98,068	100	98,018	4,441,008	45.3
38-39.....	0.001095	97,967	107	97,914	4,342,990	44.3
39-40.....	0.001177	97,860	115	97,803	4,245,077	43.4
40-41.....	0.001266	97,745	124	97,683	4,147,274	42.4
41-42.....	0.001371	97,621	134	97,554	4,049,591	41.5
42-43.....	0.001507	97,487	147	97,414	3,952,037	40.5
43-44.....	0.001676	97,340	163	97,259	3,854,623	39.6
44-45.....	0.001867	97,177	181	97,087	3,757,364	38.7
45-46.....	0.002060	96,996	200	96,896	3,660,278	37.7
46-47.....	0.002253	96,796	218	96,687	3,563,382	36.8
47-48.....	0.002462	96,578	238	96,459	3,466,695	35.9
48-49.....	0.002692	96,340	259	96,210	3,370,236	35.0
49-50.....	0.002941	96,081	283	95,940	3,274,025	34.1
50-51.....	0.003212	95,798	308	95,644	3,178,086	33.2
51-52.....	0.003489	95,491	333	95,324	3,082,441	32.3
52-53.....	0.003756	95,157	357	94,979	2,987,117	31.4
53-54.....	0.004009	94,800	380	94,610	2,892,139	30.5
54-55.....	0.004261	94,420	402	94,219	2,797,529	29.6
55-56.....	0.004527	94,018	426	93,805	2,703,310	28.8
56-57.....	0.004833	93,592	452	93,366	2,609,505	27.9
57-58.....	0.005191	93,140	483	92,898	2,516,140	27.0
58-59.....	0.005614	92,656	520	92,396	2,423,242	26.2
59-60.....	0.006092	92,136	561	91,855	2,330,846	25.3
60-61.....	0.006613	91,575	606	91,272	2,238,990	24.4
61-62.....	0.007169	90,969	652	90,643	2,147,719	23.6

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Age	Probability of dying between ages x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to 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)
62-63.....	0.007773	90,317	702	89,966	2,057,076	22.8
63-64.....	0.008444	89,615	757	89,237	1,967,110	22.0
64-65.....	0.009208	88,858	818	88,449	1,877,873	21.1
65-66.....	0.010110	88,040	890	87,595	1,789,424	20.3
66-67.....	0.011148	87,150	972	86,664	1,701,829	19.5
67-68.....	0.012250	86,178	1,056	85,650	1,615,165	18.7
68-69.....	0.013376	85,123	1,139	84,553	1,529,515	18.0
69-70.....	0.014569	83,984	1,224	83,372	1,444,961	17.2
70-71.....	0.015912	82,760	1,317	82,102	1,361,589	16.5
71-72.....	0.017467	81,444	1,423	80,732	1,279,487	15.7
72-73.....	0.019183	80,021	1,535	79,254	1,198,755	15.0
73-74.....	0.021138	78,486	1,659	77,657	1,119,501	14.3
74-75.....	0.023301	76,827	1,790	75,932	1,041,845	13.6
75-76.....	0.025719	75,037	1,930	74,072	965,913	12.9
76-77.....	0.028370	73,107	2,074	72,070	891,841	12.2
77-78.....	0.031447	71,033	2,234	69,916	819,771	11.5
78-79.....	0.034960	68,799	2,405	67,597	749,855	10.9
79-80.....	0.038765	66,394	2,574	65,107	682,258	10.3
80-81.....	0.042954	63,820	2,741	62,450	617,151	9.7
81-82.....	0.047669	61,079	2,912	59,623	554,702	9.1
82-83.....	0.053044	58,167	3,085	56,625	495,078	8.5
83-84.....	0.059332	55,082	3,268	53,448	438,454	8.0
84-85.....	0.066963	51,814	3,470	50,079	385,006	7.4
85-86.....	0.075561	48,344	3,653	46,518	334,927	6.9
86-87.....	0.084776	44,691	3,789	42,797	288,409	6.5
87-88.....	0.094934	40,903	3,883	38,961	245,613	6.0
88-89.....	0.106088	37,019	3,927	35,056	206,652	5.6
89-90.....	0.118281	33,092	3,914	31,135	171,596	5.2
90-91.....	0.131547	29,178	3,838	27,259	140,461	4.8
91-92.....	0.145904	25,340	3,697	23,491	113,202	4.5
92-93.....	0.161356	21,643	3,492	19,896	89,711	4.1
93-94.....	0.177886	18,150	3,229	16,536	69,814	3.8
94-95.....	0.195454	14,922	2,917	13,463	53,278	3.6
95-96.....	0.213997	12,005	2,569	10,721	39,815	3.3
96-97.....	0.233428	9,436	2,203	8,335	29,094	3.1
97-98.....	0.253635	7,233	1,835	6,316	20,759	2.9
98-99.....	0.274483	5,399	1,482	4,658	14,443	2.7
99-100.....	0.295817	3,917	1,159	3,338	9,785	2.5
100 and over.....	1.000000	2,758	2,758	6,448	6,448	2.3