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United States Life Tables, 2010

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Abstract

Objectives—This report presents complete period life tables for the United States by race, Hispanic origin, and sex, based on age-specific death rates in 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 14. Life table for non-Hispanic white males: United States, 2010Spreadsheet version available from: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/63_07/Table14.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	0.005601	100,000	560	99,512	7,641,155	76.4
1-2	0.000406	99,440	40	99,420	7,541,644	75.8
2-3	0.000291	99,400	29	99,385	7,442,224	74.9
3-4	0.000242	99,371	24	99,359	7,342,839	73.9
4-5	0.000155	99,347	15	99,339	7,243,480	72.9
5-6	0.000158	99,331	16	99,323	7,144,141	71.9
6-7	0.000141	99,315	14	99,308	7,044,818	70.9
7-8	0.000125	99,301	12	99,295	6,945,510	69.9
8-9	0.000107	99,289	11	99,284	6,846,215	69.0
9-10	0.000088	99,278	9	99,274	6,746,931	68.0
10-11	0.000077	99,270	8	99,266	6,647,657	67.0
11-12	0.000084	99,262	8	99,258	6,548,391	66.0
12-13	0.000122	99,254	12	99,248	6,449,133	65.0
13-14	0.000198	99,242	20	99,232	6,349,885	64.0
14-15	0.000302	99,222	30	99,207	6,250,653	63.0
15-16	0.000409	99,192	41	99,172	6,151,446	62.0
16-17	0.000513	99,151	51	99,126	6,052,275	61.0
17-18	0.000628	99,101	62	99,070	5,953,149	60.1
18-19	0.000757	99,038	75	99,001	5,854,079	59.1
19-20	0.000894	98,963	88	98,919	5,755,078	58.2
20-21	0.001042	98,875	103	98,823	5,656,159	57.2
21-22	0.001182	98,772	117	98,714	5,557,335	56.3
22-23	0.001284	98,655	127	98,592	5,458,622	55.3
23-24	0.001333	98,529	131	98,463	5,360,030	54.4
24-25	0.001343	98,397	132	98,331	5,261,567	53.5
25-26	0.001340	98,265	132	98,199	5,163,236	52.5
26-27	0.001344	98,133	132	98,067	5,065,037	51.6
27-28	0.001350	98,002	132	97,935	4,966,969	50.7
28-29	0.001365	97,869	134	97,802	4,869,034	49.8
29-30	0.001388	97,736	136	97,668	4,771,231	48.8
30-31	0.001416	97,600	138	97,531	4,673,564	47.9
31-32	0.001446	97,462	141	97,391	4,576,033	47.0
32-33	0.001478	97,321	144	97,249	4,478,641	46.0
33-34	0.001513	97,177	147	97,104	4,381,392	45.1
34-35	0.001554	97,030	151	96,955	4,284,289	44.2
35-36	0.001613	96,879	156	96,801	4,187,334	43.2
36-37	0.001690	96,723	163	96,641	4,090,533	42.3
37-38	0.001773	96,560	171	96,474	3,993,892	41.4
38-39	0.001861	96,388	179	96,299	3,897,418	40.4
39-40	0.001963	96,209	189	96,115	3,801,119	39.5
40-41	0.002075	96,020	199	95,921	3,705,005	38.6
41-42	0.002220	95,821	213	95,715	3,609,084	37.7
42-43	0.002426	95,608	232	95,492	3,513,369	36.7
43-44	0.002701	95,376	258	95,248	3,417,877	35.8
44-45	0.003019	95,119	287	94,975	3,322,630	34.9
45-46	0.003346	94,832	317	94,673	3,227,655	34.0
46-47	0.003668	94,514	347	94,341	3,132,982	33.1
47-48	0.004005	94,168	377	93,979	3,038,641	32.3
48-49	0.004363	93,790	409	93,586	2,944,662	31.4
49-50	0.004744	93,381	443	93,160	2,851,076	30.5
50-51	0.005144	92,938	478	92,699	2,757,916	29.7
51-52	0.005560	92,460	514	92,203	2,665,217	28.8
52-53	0.005997	91,946	551	91,670	2,573,014	28.0
53-54	0.006465	91,395	591	91,099	2,481,344	27.1
54-55	0.006968	90,804	633	90,487	2,390,244	26.3
55-56	0.007517	90,171	678	89,832	2,299,757	25.5
56-57	0.008107	89,493	726	89,130	2,209,925	24.7
57-58	0.008721	88,768	774	88,381	2,120,794	23.9
58-59	0.009341	87,994	822	87,583	2,032,413	23.1
59-60	0.009966	87,172	869	86,737	1,944,831	22.3
60-61	0.010613	86,303	916	85,845	1,858,094	21.5
61-62	0.011312	85,387	966	84,904	1,772,249	20.8

Table 14. Life table for non-Hispanic white males: United States, 2010—Con.Spreadsheet version available from: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/63_07/Table14.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)
62-63	0.012094	84,421	1,021	83,911	1,687,345	20.0
63-64	0.013013	83,400	1,085	82,857	1,603,434	19.2
64-65	0.014099	82,315	1,161	81,734	1,520,577	18.5
65-66	0.015386	81,154	1,249	80,530	1,438,842	17.7
66-67	0.016841	79,906	1,346	79,233	1,358,313	17.0
67-68	0.018373	78,560	1,443	77,838	1,279,080	16.3
68-69	0.019917	77,117	1,536	76,349	1,201,242	15.6
69-70	0.021569	75,581	1,630	74,765	1,124,893	14.9
70-71	0.023381	73,950	1,729	73,086	1,050,128	14.2
71-72	0.025414	72,221	1,835	71,304	977,042	13.5
72-73	0.027782	70,386	1,955	69,408	905,738	12.9
73-74	0.030476	68,430	2,085	67,388	836,330	12.2
74-75	0.033560	66,345	2,227	65,232	768,942	11.6
75-76	0.036825	64,118	2,361	62,938	703,711	11.0
76-77	0.040276	61,757	2,487	60,514	640,773	10.4
77-78	0.044441	59,270	2,634	57,953	580,259	9.8
78-79	0.049066	56,636	2,779	55,246	522,306	9.2
79-80	0.054255	53,857	2,922	52,396	467,060	8.7
80-81	0.060021	50,935	3,057	49,406	414,664	8.1
81-82	0.066623	47,878	3,190	46,283	365,257	7.6
82-83	0.073579	44,688	3,288	43,044	318,974	7.1
83-84	0.080853	41,400	3,347	39,726	275,930	6.7
84-85	0.091608	38,053	3,486	36,310	236,204	6.2
85-86	0.102058	34,567	3,528	32,803	199,894	5.8
86-87	0.113465	31,039	3,522	29,278	167,091	5.4
87-88	0.125863	27,517	3,463	25,785	137,813	5.0
88-89	0.139274	24,054	3,350	22,379	112,028	4.7
89-90	0.153709	20,704	3,182	19,112	89,649	4.3
90-91	0.169159	17,521	2,964	16,039	70,537	4.0
91-92	0.185601	14,557	2,702	13,206	54,497	3.7
92-93	0.202989	11,856	2,407	10,652	41,291	3.5
93-94	0.221256	9,449	2,091	8,404	30,639	3.2
94-95	0.240316	7,358	1,768	6,474	22,235	3.0
95-96	0.260058	5,590	1,454	4,863	15,761	2.8
96-97	0.280356	4,136	1,160	3,556	10,898	2.6
97-98	0.301066	2,977	896	2,529	7,341	2.5
98-99	0.322030	2,080	670	1,745	4,813	2.3
99-100	0.343083	1,411	484	1,169	3,067	2.2
100 and over	1.000000	927	927	1,899	1,899	2.0

Table 15. Life table for non-Hispanic white females: United States, 2010Spreadsheet version available from: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/63_07/Table15.xlsx

	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
Age	q(x)	l(x)	d(x)	L(x)	T(x)	e(x)
0-1	0.004697	100,000	470	99,590	8,110,864	81.1
1-2	0.000386	99,530	38	99,511	8,011,274	80.5
2-3	0.000201	99,492	20	99,482	7,911,763	79.5
3-4	0.000167	99,472	17	99,464	7,812,282	78.5
4-5	0.000126	99,455	13	99,449	7,712,818	77.6
5-6	0.000121	99,443	12	99,437	7,613,369	76.6
6-7	0.000110	99,431	11	99,425	7,513,932	75.6
7-8	0.000102	99,420	10	99,415	7,414,507	74.6
8-9	0.000094	99,410	9	99,405	7,315,093	73.6
9-10	0.000086	99,400	9	99,396	7,215,688	72.6
10-11	0.000081	99,392	8	99,388	7,116,292	71.6
11-12	0.000084	99,384	8	99,380	7,016,904	70.6
12-13	0.000100	99,375	10	99,370	6,917,525	69.6
13-14	0.000132	99,365	13	99,359	6,818,154	68.6
14-15	0.000175	99,352	17	99,344	6,718,795	67.6
15-16	0.000221	99,335	22	99,324	6,619,452	66.6
16-17	0.000265	99,313	26	99,300	6,520,128	65.7
17-18	0.000305	99,287	30	99,272	6,420,828	64.7
18-19	0.000341	99,256	34	99,239	6,321,556	63.7
19-20	0.000373	99,223	37	99,204	6,222,317	62.7
20-21	0.000406	99,186	40	99,165	6,123,113	61.7
21-22	0.000440	99,145	44	99,124	6,023,947	60.8
22-23	0.000470	99,102	47	99,078	5,924,824	59.8
23-24	0.000495	99,055	49	99,031	5,825,745	58.8
24-25	0.000517	99,006	51	98,981	5,726,715	57.8
25-26	0.000538	98,955	53	98,928	5,627,734	56.9
26-27	0.000562	98,902	56	98,874	5,528,806	55.9
27-28	0.000587	98,846	58	98,817	5,429,932	54.9
28-29	0.000617	98,788	61	98,758	5,331,114	54.0
29-30	0.000650	98,727	64	98,695	5,232,357	53.0
30-31	0.000691	98,663	68	98,629	5,133,662	52.0
31-32	0.000735	98,595	73	98,559	5,035,033	51.1
32-33	0.000781	98,522	77	98,484	4,936,474	50.1
33-34	0.000826	98,445	81	98,405	4,837,990	49.1
34-35	0.000871	98,364	86	98,321	4,739,586	48.2
35-36	0.000926	98,278	91	98,233	4,641,264	47.2
36-37	0.000991	98,187	97	98,139	4,543,031	46.3
37-38	0.001059	98,090	104	98,038	4,444,893	45.3
38-39	0.001130	97,986	111	97,931	4,346,855	44.4
39-40	0.001209	97,876	118	97,816	4,248,924	43.4
40-41	0.001293	97,757	126	97,694	4,151,107	42.5
41-42	0.001393	97,631	136	97,563	4,053,413	41.5
42-43	0.001525	97,495	149	97,420	3,955,850	40.6
43-44	0.001689	97,346	164	97,264	3,858,430	39.6
44-45	0.001873	97,182	182	97,091	3,761,166	38.7
45-46	0.002057	97,000	200	96,900	3,664,075	37.8
46-47	0.002238	96,800	217	96,692	3,567,175	36.9
47-48	0.002433	96,584	235	96,466	3,470,483	35.9
48-49	0.002647	96,349	255	96,221	3,374,017	35.0
49-50	0.002878	96,094	277	95,955	3,277,796	34.1
50-51	0.003131	95,817	300	95,667	3,181,841	33.2
51-52	0.003389	95,517	324	95,355	3,086,174	32.3
52-53	0.003638	95,193	346	95,020	2,990,819	31.4
53-54	0.003872	94,847	367	94,663	2,895,799	30.5
54-55	0.004106	94,480	388	94,286	2,801,136	29.6
55-56	0.004354	94,092	410	93,887	2,706,850	28.8
56-57	0.004644	93,682	435	93,464	2,612,963	27.9
57-58	0.004995	93,247	466	93,014	2,519,499	27.0
58-59	0.005421	92,781	503	92,530	2,426,485	26.2
59-60	0.005908	92,278	545	92,006	2,333,955	25.3
60-61	0.006438	91,733	591	91,438	2,241,949	24.4
61-62	0.007000	91,142	638	90,823	2,150,512	23.6

Table 15. Life table for non-Hispanic white females: United States, 2010—Con.Spreadsheet version available from: ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/NVSR/63_07/Table15.xlsx

	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
Age	q(x)	l(x)	d(x)	L(x)	T(x)	e(x)
62-63.....	0.007610	90,504	689	90,160	2,059,688	22.8
63-64.....	0.008291	89,816	745	89,443	1,969,528	21.9
64-65.....	0.009067	89,071	808	88,667	1,880,085	21.1
65-66.....	0.009990	88,264	882	87,823	1,791,417	20.3
66-67.....	0.011046	87,382	965	86,899	1,703,595	19.5
67-68.....	0.012155	86,417	1,050	85,891	1,616,695	18.7
68-69.....	0.013274	85,366	1,133	84,800	1,530,804	17.9
69-70.....	0.014462	84,233	1,218	83,624	1,446,005	17.2
70-71.....	0.015809	83,015	1,312	82,359	1,362,381	16.4
71-72.....	0.017396	81,702	1,421	80,992	1,280,022	15.7
72-73.....	0.019142	80,281	1,537	79,513	1,199,031	14.9
73-74.....	0.021118	78,744	1,663	77,913	1,119,518	14.2
74-75.....	0.023333	77,081	1,799	76,182	1,041,605	13.5
75-76.....	0.025789	75,283	1,941	74,312	965,423	12.8
76-77.....	0.028476	73,341	2,088	72,297	891,111	12.2
77-78.....	0.031585	71,253	2,251	70,128	818,814	11.5
78-79.....	0.035156	69,002	2,426	67,789	748,686	10.9
79-80.....	0.039006	66,577	2,597	65,278	680,897	10.2
80-81.....	0.043118	63,980	2,759	62,600	615,619	9.6
81-82.....	0.047862	61,221	2,930	59,756	553,018	9.0
82-83.....	0.053338	58,291	3,109	56,736	493,262	8.5
83-84.....	0.059726	55,182	3,296	53,534	436,526	7.9
84-85.....	0.067468	51,886	3,501	50,136	382,992	7.4
85-86.....	0.075744	48,385	3,665	46,553	332,857	6.9
86-87.....	0.085144	44,720	3,808	42,817	286,304	6.4
87-88.....	0.095522	40,913	3,908	38,959	243,487	6.0
88-89.....	0.106932	37,005	3,957	35,026	204,529	5.5
89-90.....	0.119420	33,048	3,947	31,074	169,503	5.1
90-91.....	0.133019	29,101	3,871	27,166	138,428	4.8
91-92.....	0.147750	25,230	3,728	23,366	111,263	4.4
92-93.....	0.163611	21,502	3,518	19,743	87,896	4.1
93-94.....	0.180583	17,984	3,248	16,361	68,153	3.8
94-95.....	0.198619	14,737	2,927	13,273	51,793	3.5
95-96.....	0.217651	11,810	2,570	10,524	38,519	3.3
96-97.....	0.237581	9,239	2,195	8,142	27,995	3.0
97-98.....	0.258286	7,044	1,819	6,134	19,853	2.8
98-99.....	0.279620	5,225	1,461	4,494	13,719	2.6
99-100.....	0.301415	3,764	1,134	3,197	9,224	2.5
100 and over.....	1.000000	2,629	2,629	6,028	6,028	2.3