Supplementary Online Content

Sasson I, Hayward MD. Association between educational attainment and causes of death among white and black US adults, 2010-2017. *JAMA*. doi:10.1001/jama.2019.11330

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Causes of Death Groupings by *ICD-10* Codes

Cause of death	***ICD-10* codes**
Circulatory diseases	I00–I99
Cancer (excluding smoking-related)	C16–C31, C35–C97, D00–D48
Smoking-related diseases (cancers of the lip, oral cavity, pharynx, esophagus, larynx, trachea, lung, and bronchus; bronchitis, emphysema, and chronic airway obstruction)	C00–C15, C32–C34, J40–J44
Diabetes	E10–E14
Drug poisoning (excluding intentional self-harm)	F11–F16, F19 Mental and behavioral disorders due to psychoactive substance use X40–X44 Accidental poisoning by and exposure to drugs Y10–Y14 Poisoning by and exposure to drugs, undetermined intent
Alcohol abuse	F10 Mental and behavioral disorders due to alcohol use K70 Alcoholic liver disease X45 Accidental poisoning by and exposure to alcohol Y15 Poisoning by and exposure to alcohol, undetermined intent
Suicide	X60–X84 Intentional self-poisoning or self-harm Y87.0 Sequelae of intentional self-harm
Firearm deaths (excluding intentional self-harm)	W32–W34 Accidental discharge of firearms X93–X95 Assault (homicide) by discharge of firearms Y22–Y24 Discharge of firearms, undetermined intent Y35.0 Legal intervention involving firearm discharge
Other	All remaining codes

Note: Smoking-related diseases include all causes in which the smoking attributable fraction of deaths exceeds 65% in both genders combined (see main text for details).

eTable 2. Exposures and Number of Deaths by Race, Sex, Education, and Cause

White men											
Education	**Exposures (PY)**	**Circulatory**	**Cancer**	**Smoking-related**	**Diabetes**	**Drug poisoning**	**Alcohol abuse**	**Suicide**	**Firearm deaths**	**Other**	**Total deaths**
2010											
Low	30,837,828	195,425	90,006	101,142	16,234	10,903	8,203	13,016	1,420	163,933	600,282
Middle	15,233,235	52,188	29,769	24,114	4,529	2,991	2,835	5,018	363	44,590	166,397
High	22,063,609	60,317	38,885	20,585	4,374	1,327	2,158	4,550	248	54,701	187,145
Total	68,134,672	307,930	158,660	145,841	25,137	15,221	13,196	22,584	2,031	263,224	953,824
2017											
Low	29,558,119	198,274	88,908	96,900	18,768	21,966	10,566	14,533	1,807	181,263	632,985
Middle	15,914,540	66,697	36,395	27,757	6,806	6,737	4,154	6,363	503	60,673	216,085
High	25,144,188	76,438	46,209	21,946	5,842	2,709	3,217	5,436	268	77,106	239,171
Total	70,616,847	341,409	171,512	146,603	31,416	31,412	17,937	26,332	2,578	319,042	1,088,241

White women											
Education	**Exposures (PY)**	**Circulatory**	**Cancer**	**Smoking-related**	**Diabetes**	**Drug poisoning**	**Alcohol abuse**	**Suicide**	**Firearm deaths**	**Other**	**Total deaths**
2010											
Low	33,241,245	235,786	99,214	94,029	16,929	6,534	2,877	3,011	493	236,607	695,480
Middle	17,318,233	50,627	31,346	22,005	3,560	2,602	1,199	1,737	214	55,275	168,565
High	22,305,450	36,214	28,423	12,925	2,130	1,039	855	1,456	124	41,345	124,511
Total	72,864,928	322,627	158,983	128,959	22,619	10,175	4,931	6,204	831	333,227	988,556
2017											
Low	29,978,045	221,685	91,438	93,900	16,102	10,386	3,924	3,360	526	256,425	697,746
Middle	17,956,047	60,414	36,739	26,045	4,843	4,335	2,063	2,320	285	73,185	210,229
High	26,910,181	44,971	35,004	14,892	2,858	1,583	1,436	1,915	165	58,469	161,293
Total	74,844,273	327,070	163,181	134,837	23,803	16,304	7,423	7,595	976	388,079	1,069,268

eTable 2. Exposures and Number of Deaths by Race, Sex, Education, and Cause *(Continued)*

Black men											
Education	**Exposures (PY)**	**Circulatory**	**Cancer**	**Smoking-related**	**Diabetes**	**Drug poisoning**	**Alcohol abuse**	**Suicide**	**Firearm deaths**	**Other**	**Total deaths**
2010											
Low	6,468,227	34,670	16,275	13,067	4,164	1,528	1,210	847	2,621	29,029	103,411
Middle	2,617,390	6,651	3,488	2,016	900	354	249	294	509	5,388	19,849
High	1,691,059	3,958	2,314	970	512	93	95	177	96	3,084	11,299
Total	10,776,676	45,279	22,077	16,053	5,576	1,975	1,554	1,318	3,226	37,501	134,559
2017											
Low	6,980,603	39,428	17,107	12,619	5,253	4,932	1,542	1,049	4,105	33,763	119,798
Middle	3,071,092	9,934	4,795	2,429	1,473	1,108	382	464	790	8,155	29,530
High	2,308,129	5,606	3,099	1,069	770	252	160	218	114	4,518	15,806
Total	12,359,824	54,968	25,001	16,117	7,496	6,292	2,084	1,731	5,009	46,436	165,134
Black women											
Education	**Exposures (PY)**	**Circulatory**	**Cancer**	**Smoking-related**	**Diabetes**	**Drug poisoning**	**Alcohol abuse**	**Suicide**	**Firearm deaths**	**Other**	**Total deaths**
2010											
Low	6,633,031	35,543	16,168	8,434	4,803	795	427	126	248	31,907	98,451
Middle	3,595,970	7,264	5,161	1,920	1,100	307	134	97	96	6,673	22,752
High	2,532,915	4,330	3,268	966	509	72	40	70	39	4,197	13,491
Total	12,761,916	47,137	24,597	11,320	6,412	1,174	601	293	383	42,777	134,694
2017											
Low	6,799,477	36,014	16,118	8,633	4,940	1,752	528	215	341	35,394	103,935
Middle	4,140,847	10,605	6,954	2,676	1,621	617	206	130	157	10,347	33,313
High	3,464,318	5,970	4,692	1,290	723	126	95	115	48	6,146	19,205
Total	14,404,642	52,589	27,764	12,599	7,284	2,495	829	460	546	51,887	156,453

eTable 3. Estimated Mean Number of Years of Life Lost Between Ages 25 and 84 by Cause of Death, Non-Hispanic White Men 2010-2017

					2010			
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	2.57	[2.56, 2.58]	3.18	[3.16, 3.21]	2.49	[2.46, 2.52]	1.61	[1.59, 1.63]
Cancer	1.62	[1.60, 1.63]	1.73	[1.72, 1.75]	1.68	[1.66, 1.70]	1.39	[1.37, 1.41]
Smoking	1.45	[1.44, 1.46]	1.94	[1.92, 1.95]	1.31	[1.29, 1.33]	0.67	[0.66, 0.68]
Diabetes	0.27	[0.26, 0.27]	0.34	[0.33, 0.35]	0.26	[0.26, 0.27]	0.15	[0.14, 0.15]
Drug poisoning	0.46	[0.45, 0.47]	0.76	[0.74, 0.78]	0.38	[0.37, 0.40]	0.12	[0.11, 0.12]
Alcohol abuse	0.25	[0.25, 0.26]	0.34	[0.33, 0.35]	0.25	[0.24, 0.26]	0.13	[0.12, 0.13]
Suicide	0.54	[0.53, 0.54]	0.70	[0.69, 0.72]	0.54	[0.52, 0.55]	0.31	[0.30, 0.32]
Firearm deaths	0.06	[0.06, 0.06]	0.10	[0.09, 0.10]	0.04	[0.04, 0.05]	0.02	[0.02, 0.02]
Other	2.38	[2.37, 2.40]	3.08	[3.05, 3.10]	2.23	[2.21, 2.26]	1.46	[1.44, 1.47]
Total	**9.60**	**[9.56, 9.63]**	**12.17**	**[12.12, 12.23]**	**9.18**	**[9.13, 9.26]**	**5.86**	**[5.80, 5.88]**
					2017			
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	2.49	[2.48, 2.50]	3.15	[3.13, 3.18]	2.56	[2.53, 2.59]	1.46	[1.44, 1.47]
Cancer	1.48	[1.47, 1.49]	1.60	[1.59, 1.62]	1.60	[1.58, 1.62]	1.21	[1.20, 1.23]
Smoking	1.20	[1.20, 1.21]	1.68	[1.67, 1.70]	1.11	[1.09, 1.13]	0.50	[0.49, 0.51]
Diabetes	0.30	[0.30, 0.31]	0.39	[0.38, 0.40]	0.33	[0.32, 0.34]	0.16	[0.15, 0.16]
Drug poisoning	0.98	[0.96, 0.99]	1.69	[1.66, 1.72]	0.91	[0.89, 0.93]	0.23	[0.22, 0.23]
Alcohol abuse	0.33	[0.32, 0.33]	0.43	[0.42, 0.44]	0.35	[0.33, 0.36]	0.17	[0.16, 0.18]
Suicide	0.61	[0.60, 0.62]	0.83	[0.81, 0.84]	0.67	[0.65, 0.69]	0.33	[0.32, 0.34]
Firearm deaths	0.08	[0.07, 0.08]	0.14	[0.13, 0.15]	0.06	[0.05, 0.06]	0.02	[0.02, 0.02]
Other	2.50	[2.48, 2.51]	3.32	[3.29, 3.34]	2.48	[2.45, 2.51]	1.44	[1.42, 1.45]
Total	**9.97**	**[9.94, 10.00]**	**13.23**	**[13.17, 13.29]**	**10.07**	**[10.00, 10.13]**	**5.52**	**[5.46, 5.54]**
Change from 2010 to 2017								
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	-0.08	[-0.10, -0.06]	-0.03	[-0.06, 0.00]	0.07	[0.03, 0.11]	-0.15	[-0.17, -0.12]
Cancer	-0.14	[-0.15, -0.12]	-0.13	[-0.15, -0.11]	-0.08	[-0.11, -0.05]	-0.18	[-0.20, -0.15]
Smoking	-0.25	[-0.26, -0.23]	-0.26	[-0.28, -0.23]	-0.20	[-0.23, -0.18]	-0.17	[-0.19, -0.16]
Diabetes	0.03	[0.03, 0.05]	0.05	[0.04, 0.06]	0.07	[0.05, 0.08]	0.01	[0.00, 0.02]
Drug poisoning	0.52	[0.50, 0.53]	0.93	[0.90, 0.96]	0.53	[0.50, 0.55]	0.11	[0.10, 0.12]
Alcohol abuse	0.08	[0.06, 0.08]	0.09	[0.07, 0.10]	0.10	[0.08, 0.11]	0.04	[0.03, 0.05]
Suicide	0.07	[0.06, 0.09]	0.13	[0.10, 0.15]	0.13	[0.11, 0.16]	0.02	[0.00, 0.03]
Firearm deaths	0.02	[0.01, 0.02]	0.04	[0.03, 0.06]	0.02	[0.01, 0.02]	0.00	[0.00, 0.00]
Other	0.12	[0.09, 0.13]	0.24	[0.20, 0.27]	0.25	[0.20, 0.29]	-0.02	[-0.05, 0.01]
Total	**0.37**	**[0.33, 0.42]**	**1.06**	**[0.99, 1.13]**	**0.89**	**[0.77, 0.97]**	**-0.34**	**[-0.40, -0.29]**

eTable 4. Estimated Mean Number of Years of Life Lost Between Ages 25 and 84 by Cause of Death, Non-Hispanic White Women 2010-2017

					2010			
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	1.43	[1.42, 1.44]	1.77	[1.76, 1.79]	1.34	[1.32, 1.36]	0.83	[0.81, 0.84]
Cancer	1.56	[1.55, 1.57]	1.63	[1.61, 1.64]	1.64	[1.62, 1.66]	1.42	[1.40, 1.44]
Smoking	1.11	[1.10, 1.12]	1.40	[1.39, 1.42]	1.01	[0.99, 1.02]	0.53	[0.52, 0.54]
Diabetes	0.18	[0.17, 0.18]	0.23	[0.23, 0.24]	0.16	[0.16, 0.17]	0.08	[0.08, 0.09]
Drug poisoning	0.28	[0.28, 0.29]	0.50	[0.49, 0.52]	0.28	[0.26, 0.29]	0.08	[0.07, 0.08]
Alcohol abuse	0.10	[0.10, 0.10]	0.14	[0.13, 0.15]	0.10	[0.09, 0.10]	0.06	[0.05, 0.06]
Suicide	0.15	[0.15, 0.16]	0.19	[0.18, 0.20]	0.17	[0.16, 0.18]	0.11	[0.10, 0.11]
Firearm	0.02	[0.02, 0.02]	0.04	[0.03, 0.04]	0.02	[0.02, 0.03]	0.01	[0.01, 0.01]
Other	1.72	[1.71, 1.73]	2.19	[2.17, 2.21]	1.66	[1.64, 1.68]	1.09	[1.07, 1.10]
Total	**6.55**	**[6.54, 6.59]**	**8.09**	**[8.06, 8.14]**	**6.38**	**[6.33, 6.43]**	**4.21**	**[4.16, 4.24]**
					2017			
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	1.40	[1.39, 1.41]	1.84	[1.83, 1.86]	1.42	[1.40, 1.44]	0.76	[0.75, 0.77]
Cancer	1.45	[1.44, 1.46]	1.55	[1.53, 1.57]	1.58	[1.56, 1.60]	1.25	[1.23, 1.26]
Smoking	0.98	[0.98, 0.99]	1.36	[1.35, 1.38]	0.91	[0.89, 0.92]	0.39	[0.38, 0.40]
Diabetes	0.19	[0.19, 0.19]	0.27	[0.26, 0.28]	0.20	[0.19, 0.21]	0.09	[0.08, 0.09]
Drug poisoning	0.49	[0.48, 0.49]	1.00	[0.97, 1.02]	0.52	[0.50, 0.53]	0.11	[0.10, 0.11]
Alcohol abuse	0.15	[0.15, 0.15]	0.22	[0.21, 0.23]	0.17	[0.16, 0.18]	0.08	[0.07, 0.08]
Suicide	0.19	[0.18, 0.19]	0.25	[0.24, 0.26]	0.24	[0.23, 0.25]	0.12	[0.11, 0.12]
Firearm deaths	0.03	[0.02, 0.03]	0.05	[0.04, 0.05]	0.03	[0.03, 0.04]	0.01	[0.01, 0.01]
Other	1.89	[1.88, 1.91]	2.58	[2.56, 2.61]	1.93	[1.91, 1.96]	1.11	[1.10, 1.13]
Total	**6.77**	**[6.75, 6.80]**	**9.12**	**[9.08, 9.18]**	**7.00**	**[6.94, 7.05]**	**3.92**	**[3.88, 3.94]**
Change from 2010 to 2017								
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	-0.03	[-0.05, -0.02]	0.07	[0.04, 0.10]	0.08	[0.05, 0.11]	-0.07	[-0.09, -0.05]
Cancer	-0.11	[-0.12, -0.09]	-0.08	[-0.10, -0.05]	-0.06	[-0.09, -0.03]	-0.17	[-0.20, -0.15]
Smoking	-0.13	[-0.14, -0.12]	-0.04	[-0.06, -0.02]	-0.10	[-0.12, -0.07]	-0.14	[-0.16, -0.13]
Diabetes	0.01	[0.01, 0.02]	0.04	[0.02, 0.05]	0.04	[0.02, 0.05]	0.01	[-0.01, 0.01]
Drug poisoning	0.21	[0.19, 0.21]	0.50	[0.47, 0.52]	0.24	[0.22, 0.26]	0.03	[0.02, 0.04]
Alcohol abuse	0.05	[0.05, 0.05]	0.08	[0.07, 0.09]	0.07	[0.06, 0.09]	0.02	[0.01, 0.03]
Suicide	0.04	[0.03, 0.04]	0.06	[0.05, 0.08]	0.07	[0.05, 0.08]	0.01	[0.00, 0.02]
Firearm deaths	0.01	[0.00, 0.01]	0.01	[0.00, 0.02]	0.01	[0.00, 0.01]	0.00	[0.00, 0.00]
Other	0.17	[0.16, 0.19]	0.39	[0.36, 0.43]	0.27	[0.24, 0.31]	0.02	[0.00, 0.05]
Total	**0.22**	**[0.18, 0.25]**	**1.03**	**[0.96, 1.09]**	**0.62**	**[0.55, 0.70]**	**-0.29**	**[-0.34, -0.24]**

eTable 5. Estimated Mean Number of Years of Life Lost Between Ages 25 and 84 by Cause of Death, Non-Hispanic Black Men 2010-2017

					2010			
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	4.10	[4.06, 4.16]	4.55	[4.49, 4.62]	3.53	[3.42, 3.64]	2.80	[2.69, 2.91]
Cancer	1.99	[1.95, 2.02]	2.07	[2.03, 2.11]	1.87	[1.80, 1.95]	1.71	[1.63, 1.80]
Smoking	1.47	[1.45, 1.50]	1.71	[1.68, 1.75]	1.09	[1.04, 1.15]	0.71	[0.66, 0.76]
Diabetes	0.54	[0.52, 0.55]	0.58	[0.56, 0.60]	0.50	[0.47, 0.53]	0.39	[0.36, 0.43]
Drug poisoning	0.28	[0.27, 0.29]	0.36	[0.34, 0.38]	0.21	[0.18, 0.23]	0.08	[0.06, 0.10]
Alcohol abuse	0.19	[0.18, 0.20]	0.23	[0.22, 0.24]	0.14	[0.12, 0.16]	0.08	[0.06, 0.10]
Suicide	0.21	[0.20, 0.23]	0.23	[0.21, 0.25]	0.19	[0.17, 0.21]	0.18	[0.15, 0.21]
Firearm deaths	0.60	[0.58, 0.63]	0.85	[0.82, 0.89]	0.36	[0.32, 0.39]	0.11	[0.09, 0.13]
Other	3.61	[3.56, 3.65]	4.21	[4.15, 4.27]	2.88	[2.80, 2.98]	2.16	[2.07, 2.26]
Total	**12.99**	**[12.88, 13.10]**	**14.79**	**[14.65, 14.93]**	**10.77**	**[10.56, 10.99]**	**8.22**	**[8.01, 8.47]**
					2017			
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	4.02	[3.97, 4.06]	4.46	[4.40, 4.53]	3.75	[3.66, 3.86]	2.60	[2.51, 2.70]
Cancer	1.79	[1.76, 1.82]	1.85	[1.81, 1.88]	1.78	[1.72, 1.84]	1.52	[1.46, 1.59]
Smoking	1.10	[1.08, 1.12]	1.30	[1.27, 1.33]	0.87	[0.84, 0.91]	0.48	[0.45, 0.52]
Diabetes	0.59	[0.57, 0.60]	0.64	[0.62, 0.67]	0.58	[0.55, 0.61]	0.39	[0.36, 0.42]
Drug poisoning	0.81	[0.79, 0.83]	1.11	[1.08, 1.15]	0.57	[0.54, 0.61]	0.18	[0.15, 0.20]
Alcohol abuse	0.21	[0.20, 0.22]	0.26	[0.24, 0.27]	0.17	[0.15, 0.19]	0.10	[0.08, 0.11]
Suicide	0.25	[0.23, 0.26]	0.27	[0.26, 0.29]	0.26	[0.24, 0.28]	0.16	[0.14, 0.19]
Firearm deaths	0.79	[0.77, 0.82]	1.20	[1.16, 1.24]	0.46	[0.43, 0.50]	0.09	[0.07, 0.11]
Other	3.59	[3.55, 3.63]	4.21	[4.15, 4.28]	3.16	[3.08, 3.25]	2.04	[1.97, 2.12]
Total	**13.15**	**[13.04, 13.25]**	**15.30**	**[15.18, 15.45]**	**11.60**	**[11.42, 11.83]**	**7.56**	**[7.38, 7.77]**
Change from 2010 to 2017								
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	-0.08	[-0.16, -0.02]	-0.09	[-0.18, 0.00]	0.22	[0.09, 0.37]	-0.20	[-0.33, -0.05]
Cancer	-0.20	[-0.24, -0.15]	-0.22	[-0.28, -0.17]	-0.09	[-0.18, 0.01]	-0.19	[-0.30, -0.08]
Smoking	-0.37	[-0.41, -0.34]	-0.41	[-0.46, -0.37]	-0.22	[-0.29, -0.15]	-0.23	[-0.29, -0.17]
Diabetes	0.05	[0.03, 0.07]	0.06	[0.04, 0.10]	0.08	[0.04, 0.13]	0.00	[-0.05, 0.04]
Drug poisoning	0.53	[0.50, 0.55]	0.75	[0.71, 0.79]	0.36	[0.32, 0.41]	0.10	[0.07, 0.12]
Alcohol abuse	0.02	[0.01, 0.04]	0.03	[0.01, 0.05]	0.03	[0.01, 0.06]	0.02	[-0.01, 0.04]
Suicide	0.04	[0.02, 0.05]	0.04	[0.02, 0.07]	0.07	[0.03, 0.10]	-0.02	[-0.05, 0.02]
Firearm deaths	0.19	[0.16, 0.22]	0.35	[0.30, 0.41]	0.10	[0.06, 0.15]	-0.02	[-0.05, 0.01]
Other	-0.02	[-0.09, 0.04]	0.00	[-0.08, 0.10]	0.28	[0.15, 0.40]	-0.12	[-0.24, 0.02]
Total	**0.16**	**[0.00, 0.30]**	**0.51**	**[0.33, 0.71]**	**0.83**	**[0.54, 1.16]**	**-0.66**	**[-0.94, -0.36]**

eTable 6. Estimated Mean Number of Years of Life Lost Between Ages 25 and 84 by Cause of Death, Non-Hispanic Black Women 2010-2017

					2010			
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	2.69	[2.65, 2.72]	3.04	[2.99, 3.10]	2.52	[2.44, 2.59]	1.87	[1.80, 1.95]
Cancer	1.98	[1.95, 2.01]	1.99	[1.95, 2.04]	2.09	[2.03, 2.16]	1.87	[1.80, 1.95]
Smoking	0.83	[0.81, 0.85]	0.94	[0.92, 0.97]	0.76	[0.73, 0.80]	0.53	[0.49, 0.57]
Diabetes	0.44	[0.43, 0.46]	0.51	[0.49, 0.53]	0.43	[0.41, 0.46]	0.26	[0.23, 0.28]
Drug poisoning	0.15	[0.14, 0.16]	0.21	[0.20, 0.23]	0.13	[0.12, 0.15]	0.05	[0.04, 0.06]
Alcohol abuse	0.07	[0.06, 0.08]	0.10	[0.09, 0.10]	0.06	[0.05, 0.07]	0.02	[0.02, 0.03]
Suicide	0.04	[0.04, 0.05]	0.04	[0.03, 0.04]	0.05	[0.04, 0.06]	0.04	[0.03, 0.06]
Firearm deaths	0.06	[0.05, 0.07]	0.09	[0.08, 0.10]	0.05	[0.04, 0.06]	0.03	[0.02, 0.04]
Other	2.63	[2.59, 2.66]	3.12	[3.07, 3.18]	2.33	[2.26, 2.41]	1.80	[1.74, 1.87]
Total	**8.89**	**[8.81, 8.96]**	**10.04**	**[9.93, 10.16]**	**8.42**	**[8.26, 8.60]**	**6.47**	**[6.31, 6.66]**
					2017			
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	2.54	[2.51, 2.58]	2.94	[2.89, 2.99]	2.53	[2.47, 2.60]	1.66	[1.60, 1.72]
Cancer	1.84	[1.81, 1.86]	1.82	[1.78, 1.86]	2.01	[1.95, 2.07]	1.72	[1.66, 1.78]
Smoking	0.71	[0.70, 0.73]	0.84	[0.81, 0.86]	0.68	[0.65, 0.72]	0.40	[0.38, 0.43]
Diabetes	0.43	[0.42, 0.44]	0.51	[0.49, 0.53]	0.45	[0.42, 0.47]	0.24	[0.22, 0.25]
Drug poisoning	0.31	[0.29, 0.32]	0.49	[0.47, 0.52]	0.25	[0.23, 0.27]	0.06	[0.05, 0.07]
Alcohol abuse	0.08	[0.08, 0.09]	0.11	[0.10, 0.12]	0.07	[0.06, 0.08]	0.04	[0.03, 0.05]
Suicide	0.06	[0.06, 0.07]	0.07	[0.06, 0.08]	0.06	[0.05, 0.07]	0.06	[0.05, 0.07]
Firearm deaths	0.08	[0.07, 0.09]	0.12	[0.11, 0.13]	0.07	[0.06, 0.08]	0.03	[0.02, 0.03]
Other	2.62	[2.59, 2.66]	3.16	[3.11, 3.22]	2.56	[2.49, 2.62]	1.66	[1.60, 1.71]
Total	**8.67**	**[8.60, 8.75]**	**10.06**	**[9.96, 10.19]**	**8.68**	**[8.53, 8.83]**	**5.87**	**[5.73, 5.99]**
Change from 2010 to 2017								
Cause of death	**Total**	**95% CI**	**Low**	**95% CI**	**Mid**	**95% CI**	**High**	**95% CI**
Circulatory	-0.15	[-0.19, -0.09]	-0.10	[-0.17, -0.03]	0.01	[-0.08, 0.12]	-0.21	[-0.31, -0.13]
Cancer	-0.14	[-0.18, -0.10]	-0.17	[-0.23, -0.11]	-0.08	[-0.18, 0.00]	-0.15	[-0.25, -0.06]
Smoking	-0.12	[-0.14, -0.10]	-0.10	[-0.14, -0.07]	-0.08	[-0.13, -0.03]	-0.13	[-0.17, -0.08]
Diabetes	-0.01	[-0.03, 0.01]	0.00	[-0.03, 0.03]	0.02	[-0.02, 0.05]	-0.02	[-0.06, 0.01]
Drug poisoning	0.16	[0.14, 0.17]	0.28	[0.25, 0.31]	0.12	[0.09, 0.15]	0.01	[0.00, 0.03]
Alcohol abuse	0.01	[0.01, 0.02]	0.01	[0.00, 0.03]	0.01	[0.00, 0.03]	0.02	[0.01, 0.03]
Suicide	0.02	[0.01, 0.03]	0.03	[0.02, 0.05]	0.01	[0.00, 0.03]	0.02	[0.00, 0.03]
Firearm deaths	0.02	[0.01, 0.03]	0.03	[0.01, 0.05]	0.02	[0.01, 0.04]	0.00	[-0.02, 0.01]
Other	-0.01	[-0.06, 0.04]	0.04	[-0.05, 0.12]	0.23	[0.13, 0.32]	-0.14	[-0.23, -0.05]
Total	**-0.22**	**[-0.32, -0.10]**	**0.02**	**[-0.14, 0.19]**	**0.26**	**[0.05, 0.50]**	**-0.60**	**[-0.85, -0.41]**

eTable 7. Change in Education Gap in YLL Between High and Low Education Groups, 2010-2017

	White men				White women		
Cause of death	Lwr 95%	Estimate	Upr 95%		Lwr 95%	Estimate	Upr 95%
Circulatory	0.08	0.12	0.16		0.10	0.14	0.17
Cancer	0.01	0.04	0.08		0.06	0.10	0.13
Smoking	-0.10	-0.08	-0.05		0.07	0.10	0.12
Diabetes	0.03	0.04	0.06		0.02	0.04	0.05
Drug poisoning	0.79	0.82	0.86		0.44	0.47	0.50
Alcohol abuse	0.03	0.05	0.06		0.04	0.06	0.07
Suicide	0.08	0.11	0.14		0.03	0.05	0.07
Firearm deaths	0.03	0.04	0.06		0.00	0.01	0.02
Other	0.21	0.26	0.30		0.32	0.36	0.41
Total	**1.31**	**1.40**	**1.50**		**1.23**	**1.32**	**1.40**
	Black men				**Black women**		
Cause of death	Lwr 95%	Estimate	Upr 95%		Lwr 95%	Estimate	Upr 95%
Circulatory	-0.06	0.10	0.28		-0.01	0.11	0.25
Cancer	-0.15	-0.03	0.09		-0.13	-0.02	0.09
Smoking	-0.26	-0.19	-0.11		-0.03	0.02	0.08
Diabetes	0.02	0.07	0.13		-0.02	0.03	0.07
Drug poisoning	0.61	0.65	0.70		0.23	0.27	0.31
Alcohol abuse	-0.02	0.01	0.04		-0.02	0.00	0.02
Suicide	0.02	0.06	0.10		0.00	0.02	0.04
Firearm deaths	0.31	0.37	0.44		0.01	0.03	0.06
Other	-0.04	0.12	0.27		0.06	0.19	0.30
Total	**0.82**	**1.18**	**1.55**		**0.38**	**0.65**	**0.91**

eMethods. Decomposition of Years of Life Lost

In order to estimate the number of years of life lost (YLL) to each cause of death, a decomposition method established by Andersen, Canudas-Romo, and Keiding was applied.[25] The method is based on the multiple-decrement life table and has several advantages: (1) it represents the absolute number of years lost in the life-table population; (2) YLL to different causes of death are additive to the total YLL; (c) competing risks need not be assumed independent.

YLL is defined based on the temporary life expectancy in a given age interval (e.g., 25–84):

$$(1) \qquad YLL = 60 - {}_{60}e_{25}$$

where *YLL* is the expected number of life years lost from all-cause mortality between ages 25 and 84 and ${}_{60}e_{25}$ is the temporary life expectancy in the same age interval.

Using conventional life table notation, ${}_nL_x$ is the mean number of years lived by an individual between ages *x* and *x+n* (when the life-table radix is 1). ${}_n\text{ל}_x$ is defined the mean number of years lost in the same interval of length *n* (i.e., the complement of ${}_nL_x$):

$$(2) \qquad {}_n\text{ל}_x = n - {}_nL_x$$

The mean number of years lost in the interval can then be decomposed into different causes of death, based on their cumulative incidence:

$$(3) \qquad {}_n\text{ל}_x^i = n \cdot {}_xd_{25}^i + (n \cdot l_x - {}_nL_x) \cdot \frac{{}_nd_x^i}{{}_nd_x}$$

where ${}_n\daleth_x^i$ is the mean number of years lost to cause *i* between age *x* and age *x+n*, *n* is the length of the interval, l_x is the number of survivors to age *x*, ${}_nd_x$ is the total number of life-table deaths between age *x* and age *x+n*, ${}_xd_{25}^i$ is the cumulative number of deaths from cause *i* by age *x*, and $\frac{{}_nd_x^i}{{}_nd_x}$ is the fraction of deaths from cause *i* in the age interval *x+n*.

YLL is then the sum of years lost to all causes *i* across all *j* intervals of length *n*:

(4) $$YLL = \sum_j \sum_i {}_n\daleth_x^i$$

After multiple-decrement life tables were constructed for each race-gender-education group, in 2010 and in 2017, the decomposition was applied using 9 major causes of death groupings: circulatory diseases, smoking-related diseases, cancer (excluding smoking-related), diabetes, drug poisoning, and alcohol abuse, suicide, firearm deaths, and all remaining causes of death.