

ADDENDUM

WOULD RESOLVING RACIAL DISPARITIES IN HEALTH SAVE MORE LIVES IN THE UNITED STATES THAN IMPROVING THE “TECHNOLOGY” OF HEALTH CARE?

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EXPANDED METHODS DISCUSSION

Study question: Using the decade of 1991-2000 as our frame of reference, we sought to estimate the maximum number of deaths in the United States that were averted through generic improvements in health care and to compare that value with the number of deaths that might have been averted if the age-adjusted mortality rates of African Americans had been comparable to those of whites.

Deaths potentially averted by generic improvements in health care: We viewed the decline in age-adjusted mortality rates observed in the United States over 1991-2000 as a crude measure of the public health benefits of improving the “technology” of care. We recognized that decreases in age-adjusted mortality from one year to the next stem from multiple factors but, for purposes of this analysis, gave full credit to improved care so as to estimate the maximum number of averted deaths that could be attributed to such activities. We reasoned that the number of lives saved from generic improvements in health care is probably less, but can be no greater than this value.

We assumed that, in the absence of improved medical care, the age-adjusted mortality rate for the population in a given year would be no lower than that of the prior year. Accordingly, to estimate the maximum benefits that could be credited to such improvements, for each calendar year during 1991-2000 we performed an indirect standardization of mortality rates.¹ We multiplied the resident population in the United States by the difference between the crude mortality rate of that calendar year and a recalculated age-adjusted rate reflecting no improvement in mortality rates. We derived the latter for each calendar year by multiplying the age-specific population counts (for age groups under 1 year, 1-4 years, 5-14 years, 15-24 years, 25-34 years, 35-44 years, 45-54 years, 55-64 years, 65-74 years, 75-84 years, and 85 years and older) by the age-specific mortality rates for those age groups in the prior year and dividing by the total population. We summed the results for calendar years 1991-2000 to approximate the number of deaths averted over the decade.

We sought to refine the precision of our calculations by not relying on standard population estimates from the National Center for Health Statistics, which use values rounded to the nearest thousand.² Instead we obtained non-rounded intercensal estimates for 1991-2000 from the National Center for Health Statistics, developed with bridged-race methods³ in collaboration with the U.S. Census Bureau.^{4,5} For similar reasons we developed more precise mortality rate estimates than are available in general sources⁶ by obtaining raw death counts^{7,8,9} from the National Center for Health Statistics and computing directly crude and age-specific mortality rates to the third decimal space.

Deaths potentially averted by resolving racial disparities in mortality rates: We sought to estimate the number of African Americans who would not have died during 1991-2000 if their mortality rates had been comparable to whites. To do so we chose not to apply the age-adjusted mortality rates of whites directly to African Americans, an approach taken in earlier work by Levine et al.¹⁰, because we were concerned that differences in the age distributions of African Americans and the reference population (year 2000) would

artificially inflate such estimates. We therefore performed an indirect standardization of mortality rates¹ in which African Americans were used as the reference population:

For each calendar year we multiplied, for each gender, the age-specific mortality rate of white Americans in the 11 age groups noted above by the population of African Americans in the corresponding age groups. We then divided the total calculated deaths, summed across the age groups, by the population of African Americans of that gender to arrive at a gender-specific mortality rate. This hypothetical crude mortality rate (an approximation of what would have occurred if the African American population had experienced the age-specific death rates of whites) was subtracted from the actual African American crude mortality rate and multiplied by the total population of African Americans to estimate the number of deaths that would have been averted in that calendar year.

These calculations were performed separately for each gender, and the total for both genders in each calendar year in 1991-2000 was summed to derive the number of African American deaths that could have been averted over the decade. The non-rounded intercensal population estimates and mortality rates employed in these calculations were derived from data obtained directly from the National Center for Health Statistics as described above.

Table 1. Derivation of Deaths Averted by Secular Reduction in Age-Specific Mortality in the United States

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Age (yrs)												
< 1	Population*	4,003,780	3,972,775	3,894,191	3,837,113	3,791,386	3,744,999	3,751,141	3,762,809	3,795,762	3,805,648	
	Death rate¶	971.9	918.282	871.633	859.383	826.403	780.269	760.668	747.639	753.985	736.005	736.668
	Deaths-PYR¶	38,913	36,481	33,943	32,975	31,332	29,221	28,534	28,132	28,132	28,619	28,010
1–4	Population*	15,204,266	15,555,266	15,835,084	15,939,749	15,835,119	15,663,273	15,481,530	15,382,114	15,339,782	15,370,150	
	Death rate¶	46.8	47.447	43.484	44.622	42.661	40.372	37.974	35.533	34.137	34.218	32.394
	Deaths-PYR¶	7,116	7,381	6,886	7,113	6,755	6,324	5,879	5,466	5,237	5,259	
5–14	Population*	36,037,085	36,676,867	37,367,359	38,025,965	38,645,220	39,295,639	39,854,729	40,335,509	40,819,824	41,077,577	
	Death rate¶	24.0	23.529	22.338	23.170	22.258	22.243	21.198	20.226	19.315	18.606	18.046
	Deaths-PYR¶	8,649	8,630	8,347	8,811	8,602	8,741	8,448	8,158	7,884	7,643	
15–24	Population*	36,504,705	36,434,242	36,463,777	36,531,873	36,674,212	36,796,805	37,307,767	38,006,835	38,676,031	39,183,891	
	Death rate¶	99.2	99.856	94.823	97.310	96.466	93.374	88.168	84.551	80.583	79.264	79.898
	Deaths-PYR¶	36,213	36,382	34,576	35,549	35,378	34,359	32,894	32,135	31,166	31,059	
25–34	Population*	43,224,002	42,996,970	42,652,396	42,329,554	42,052,123	41,809,305	41,344,963	40,756,512	40,178,406	39,891,724	
	Death rate¶	139.2	137.951	136.012	139.840	140.027	137.318	122.334	110.142	104.317	102.209	101.402
	Deaths-PYR¶	60,168	59,315	58,012	59,194	58,884	57,412	50,579	44,890	41,913	40,773	
35–44	Population*	39,329,466	39,976,334	40,911,550	41,818,866	42,710,768	43,551,263	44,228,415	44,748,354	45,076,677	45,148,527	
	Death rate¶	223.2	224.061	228.360	234.745	237.938	239.448	220.506	202.151	198.591	198.009	198.895
	Deaths-PYR¶	87,783	89,571	93,426	98,168	101,625	104,283	97,526	90,459	89,518	89,398	
45–54	Population*	25,820,152	27,547,718	28,863,949	30,152,761	31,480,239	32,799,965	34,177,508	35,231,857	36,577,819	37,677,952	
	Death rate¶	473.4	467.371	453.867	456.677	457.328	454.253	440.028	423.910	415.757	418.215	425.557
	Deaths-PYR¶	122,233	128,750	131,004	137,701	143,968	148,995	150,391	149,351	152,075	157,575	
55–64	Population*	21,045,861	20,998,058	21,028,471	21,159,137	21,320,022	21,589,986	22,099,311	23,010,955	23,778,026	24,274,684	
	Death rate¶	1,196.9	1,178.750	1,147.682	1,148.828	1,120.646	1,104.652	1,082.562	1,049.775	1,015.708	1,005.041	992.169
	Deaths-PYR¶	251,898	247,515	241,340	243,082	238,922	238,494	239,239	241,563	241,515	243,971	
65–74	Population*	18,293,904	18,486,019	18,692,619	18,789,791	18,866,088	18,824,488	18,683,874	18,570,247	18,418,909	18,390,986	
	Death rate¶	2,648.6	2,616.369	2,585.284	2,609.688	2,574.105	2,548.965	2,517.434	2,484.892	2,471.599	2,457.257	2,399.050

	Deaths-PYR¶	484,532	483,662	483,257	490,355	485,633	479,830	470,354	461,451	455,242	451,914	
75–84	Population*	10,328,581	10,555,315	10,763,626	10,979,980	11,222,494	11,523,669	11,812,211	12,016,377	12,224,914	12,361,180	
	Death rate¶¶	6007.2	5,881.640	5,777.677	5,927.724	5,830.739	5,811.337	5,755.893	5,676.583	5,672.783	5,714.478	5,666.490
	Deaths-PYR¶	620,459	620,826	621,888	650,863	654,354	669,679	679,898	682,120	693,493	706,377	
≥ 85	Population*	3,189,139	3,314,660	3,445,566	3,561,032	3,680,722	3,794,892	3,905,476	4,032,535	4,154,018	4,239,587	
	Death rate¶¶	15,327.4	14,969.589	14,705.762	15,336.726	15,127.356	15,248.612	15,192.554	15,211.155	15,190.817	15,554.603	15,524.413
	Deaths-PYR¶	488,812	496,191	506,697	546,146	556,796	578,668	593,342	613,395	631,029	659,451	
Total population*		252,980,941	256,514,224	259,918,588	263,125,821	266,278,393	269,394,284	272,646,925	275,854,104	279,040,168	281,421,906	
Total deaths at prior rate§		2,206,775	2,214,703	2,219,375	2,309,956	2,322,250	2,356,004	2,357,083	2,357,121	2,377,692	2,421,429	
Crude death rate (PYR)‡		872.309	863.384	853.873	877.890	872.114	874.556	864.519	854.481	852.097	860.427	
Crude death rate¶¶		857.582	848.145	872.794	866.123	868.314	859.220	848.807	847.280	857.009	854.003	
Difference in crude rates		14.727	15.239	-18.921	11.767	3.800	15.336	15.712	7.201	-4.912	6.424	
Deaths averted (annually)†		37,256	39,091	-49,178	30,962	10,117	41,315	42,837	19,864	-13,708	18,077	
Cumulative deaths averted		37,256	76,346	27,168	58,130	68,247	109,562	152,399	172,263	158,555	176,633	

* National Center for Health Statistics. (a) Bridged-race intercensal estimates of the July 1, 1990-July 1, 1999, United States resident population by State, county, age, sex, race, and Hispanic origin, prepared by the U.S. Census Bureau with support from the National Cancer Institute, 2003. (b) Estimates of the April 1, 2000, United States resident population by age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau, 2003. Accessed 12/6/03 at: <http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm>.

¶¶ Age-specific all-cause mortality rate (per 100,000) derived from: Table 290A. Deaths for 72 selected causes, by 10-year age groups, race, and sex: United States, 1979-98, National Center for Health Statistics. Accessed 12/6/03 at <http://www.cdc.gov/nchs/data/statab/gmwk290a.pdf>; Table 250A. Deaths from 113 selected causes, by 10-year age groups, race, and sex: United States, 1999, National Center for Health Statistics. Accessed 12/6/03 at http://www.cdc.gov/nchs/data/statab/VS00199_TABL250F.pdf; Table 250A. Deaths from 113 selected causes, by 10-year age groups, race, and sex: United States, 2000, National Center for Health Statistics. Accessed 12/6/03 at <http://www.cdc.gov/nchs/data/dvs/tab1250a.pdf>. Death rates for 1990 taken from Table 35. Death rates for all causes, according to sex, race, Hispanic origin, and age: United States, selected years 1950-2001, Accessed 12/6/03 at ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/Health_US/hus03/Table035.xls. 1990 mortality rates are not taken to three decimal spaces because raw data for making this calculation were unavailable.

¶ Deaths assuming the age-specific mortality rate of the prior year; PYR = prior-year rate. Derived by multiplying the population by the age-specific mortality rate reported for the prior year (preceding column).

§ Total deaths had Americans died at the age-specific mortality rates of the prior year (sum of preceding age-specific values).

‡ Recalculated (indirectly standardized) crude death rate (per 100,000) if Americans had died at the age-specific mortality rates of the prior year. Derived by dividing the number of deaths (preceding row) by the population size for that year.

† Deaths averted if Americans experienced the mortality rate of the prior year. Derived by multiplying the population size by the difference in crude rates (preceding row).

Table 2. Derivation of Deaths Avertable by Correcting Disparities in Mortality Rates of African Americans and Whites

		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Age (yrs)		African American Males									
< 1	AA population*	322,244	322,549	320,522	311,916	300,477	289,104	295,451	299,701	307,443	312,650
	White death rate¶	842.288	785.719	775.904	743.684	720.703	692.223	690.551	678.251	667.004	667.619
	Deaths at white rate¶	2,714	2,534	2,487	2,320	2,166	2,001	2,040	2,033	2,051	2,087
1–4	AA population*	1,233,019	1,280,001	1,316,241	1,331,603	1,330,374	1,315,521	1,288,702	1,270,316	1,264,461	1,270,615
	White death rate¶	45.546	42.695	42.996	40.613	38.975	37.192	35.315	32.594	33.923	32.625
	Deaths at white rate¶	562	546	566	541	519	489	455	414	429	415
5–14	AA population*	2,798,670	2,873,213	2,959,154	3,047,149	3,124,566	3,210,349	3,286,414	3,359,772	3,423,744	3,453,587
	White death rate¶	26.441	24.606	25.065	24.058	24.255	22.795	21.667	20.695	19.736	19.814
	Deaths at white rate¶	740	707	742	733	758	732	712	695	676	684
15–24	AA population*	2,651,631	2,676,939	2,692,573	2,724,092	2,758,605	2,774,689	2,810,876	2,854,085	2,897,187	2,932,161
	White death rate¶	127.984	120.659	121.656	122.388	120.071	113.123	107.877	105.719	102.836	105.811
	Deaths at white rate¶	3,394	3,230	3,276	3,334	3,312	3,139	3,032	3,017	2,979	3,103
25–34	AA population*	2,624,463	2,635,039	2,635,022	2,625,474	2,621,984	2,634,776	2,633,414	2,620,914	2,599,698	2,585,890
	White death rate¶	174.435	173.033	176.823	174.922	171.935	148.790	133.908	125.771	125.365	124.072
	Deaths at white rate¶	4,578	4,559	4,659	4,593	4,508	3,920	3,526	3,296	3,259	3,208
35–44	AA population*	2,100,406	2,193,430	2,278,946	2,357,663	2,430,841	2,497,225	2,565,521	2,628,678	2,678,409	2,704,687
	White death rate¶	268.690	276.668	282.151	286.394	286.830	259.816	235.383	232.086	230.793	233.618
	Deaths at white rate¶	5,644	6,069	6,430	6,752	6,972	6,488	6,039	6,101	6,182	6,319

45–54	AA population*	1,214,347	1,283,708	1,349,024	1,425,035	1,506,501	1,593,380	1,681,191	1,769,323	1,872,376	1,956,747
	White death rate¶	542.733	530.798	530.345	531.068	528.323	509.888	489.221	481.284	484.611	496.907
	Deaths at white rate¶	6,591	6,814	7,154	7,568	7,959	8,124	8,225	8,515	9,074	9,723
55–64	AA population*	889,866	898,874	913,265	927,870	946,487	963,590	992,888	1,026,115	1,061,216	1,090,261
	White death rate¶	1,439.968	1,393.264	1,387.617	1,355.226	1,319.349	1,291.158	1,236.168	1,196.494	1,179.745	1,163.300
	Deaths at white rate¶	12,814	12,524	12,673	12,575	12,487	12,441	12,274	12,277	12,520	12,683
65–74	AA population*	626,334	636,212	646,875	653,789	659,910	665,974	669,735	674,882	679,960	683,457
	White death rate¶	3,337.733	3,274.231	3,290.984	3,226.125	3,173.336	3,123.386	3,081.658	3,041.752	2,998.722	2,905.717
	Deaths at white rate¶	20,905	20,831	21,289	21,092	20,941	20,801	20,639	20,528	20,390	19,859
75–84	AA population*	279,775	282,979	286,392	292,086	298,927	306,365	313,869	320,358	325,255	330,261
	White death rate¶	7,633.233	7,460.388	7,607.929	7,403.869	7,347.256	7,231.670	7,117.203	7,053.421	7,040.118	6,933.137
	Deaths at white rate¶	21,356	21,111	21,789	21,626	21,963	22,155	22,339	22,596	22,898	22,897
≥ 85	AA population*	68,984	71,367	73,429	75,187	77,868	79,645	81,293	83,616	85,342	86,713
	White death rate¶	17,956.396	17,832.225	18,339.387	18,087.002	18,050.656	17,918.439	17,833.248	17,534.247	17,752.861	17,716.387
	Deaths at white rate¶	12,387	12,726	13,466	13,599	14,056	14,271	14,497	14,661	15,151	15,362
Male AA population*		14,809,739	15,154,311	15,471,443	15,771,864	16,056,540	16,330,618	16,619,354	16,907,760	17,195,091	17,407,029
Male deaths at white rate§		91,684	91,652	94,530	94,732	95,641	94,563	93,778	94,135	95,608	96,341
Crude death rate, at white rate‡		619.078	604.792	610.998	600.637	595.652	579.053	564.271	556.758	556.018	553.461
AA crude death rate¶		994.825	967.579	992.163	970.202	960.201	915.287	867.122	848.232	847.352	834.054
Difference in crude rates		375.747	362.787	381.165	369.565	364.549	336.234	302.851	291.474	291.334	280.593
Male deaths averted (annually)†		55,647	54,978	58,972	58,287	58,534	54,909	50,332	49,282	50,095	48,843

African American Females

< 1 AA population* 297,942

		315,038	314,688	311,894	304,285	294,030	282,378	287,557	290,717		302,41
	<i>White death rate</i> [¶]	<i>644.651</i>	<i>623.016</i>	<i>621.756</i>	<i>608.636</i>	<i>574.365</i>	<i>566.693</i>	<i>556.221</i>	<i>570.510</i>	<i>542.011</i>	<i>550.499</i>
	Deaths at white rate [¶]	2,031	1,961	1,939	1,852	1,689	1,600	1,599	1,659	1,615	1,665
1-4	AA population*	1,204,325	1,249,382	1,283,075	1,296,190	1,293,510	1,278,912	1,252,513	1,234,180	1,226,088	1,228,210
	<i>White death rate</i> [¶]	<i>37.615</i>	<i>33.341</i>	<i>33.693</i>	<i>32.428</i>	<i>31.281</i>	<i>28.607</i>	<i>28.098</i>	<i>27.616</i>	<i>27.510</i>	<i>25.519</i>
	Deaths at white rate [¶]	453	417	432	420	405	366	352	341	337	313
5-14	AA population*	2,733,812	2,802,451	2,882,417	2,965,072	3,038,420	3,119,547	3,190,829	3,259,390	3,319,428	3,348,206
	<i>White death rate</i> [¶]	<i>17.144</i>	<i>16.091</i>	<i>17.196</i>	<i>16.109</i>	<i>16.469</i>	<i>16.095</i>	<i>15.280</i>	<i>14.710</i>	<i>14.605</i>	<i>14.093</i>
	Deaths at white rate [¶]	469	451	496	478	500	502	488	479	485	472
15-24	AA population*	2,685,908	2,702,083	2,719,556	2,753,479	2,787,500	2,803,378	2,841,334	2,886,439	2,933,172	2,970,776
	<i>White death rate</i> [¶]	<i>46.417</i>	<i>43.596</i>	<i>44.057</i>	<i>43.739</i>	<i>43.692</i>	<i>42.053</i>	<i>42.954</i>	<i>40.604</i>	<i>41.548</i>	<i>41.093</i>
	Deaths at white rate [¶]	1,247	1,178	1,198	1,204	1,218	1,179	1,220	1,172	1,219	1,221
25-34	AA population*	2,935,364	2,938,265	2,940,116	2,928,312	2,922,374	2,933,402	2,928,982	2,913,772	2,885,410	2,865,609
	<i>White death rate</i> [¶]	<i>61.333</i>	<i>59.878</i>	<i>61.856</i>	<i>62.680</i>	<i>62.933</i>	<i>60.952</i>	<i>57.954</i>	<i>56.514</i>	<i>56.156</i>	<i>55.086</i>
	Deaths at white rate [¶]	1,800	1,759	1,819	1,835	1,839	1,788	1,697	1,647	1,620	1,579
35-44	AA population*	2,431,756	2,529,967	2,621,893	2,708,197	2,785,673	2,855,521	2,923,476	2,984,697	3,032,529	3,054,629
	<i>White death rate</i> [¶]	<i>117.214</i>	<i>117.184</i>	<i>120.220</i>	<i>121.333</i>	<i>125.466</i>	<i>121.407</i>	<i>120.649</i>	<i>121.964</i>	<i>123.246</i>	<i>125.735</i>
	Deaths at white rate [¶]	2,850	2,965	3,152	3,286	3,495	3,467	3,527	3,640	3,737	3,841
45-54	AA population*	1,460,229	1,537,181	1,611,541	1,697,510	1,789,727	1,887,549	1,984,719	2,079,531	2,186,930	2,273,678
	<i>White death rate</i> [¶]	<i>305.318</i>	<i>292.900</i>	<i>295.295</i>	<i>295.217</i>	<i>291.899</i>	<i>287.593</i>	<i>281.642</i>	<i>274.837</i>	<i>277.860</i>	<i>281.443</i>
	Deaths at white rate [¶]	4,458	4,502	4,759	5,011	5,224	5,428	5,590	5,715	6,077	6,399
55-64	AA population*	1,142,772	1,150,376	1,163,087	1,178,893	1,197,923	1,216,374	1,247,408	1,283,284	1,323,143	1,352,876
	<i>White death rate</i> [¶]	<i>820.281</i>	<i>796.682</i>	<i>807.594</i>	<i>788.232</i>	<i>783.356</i>	<i>772.960</i>	<i>758.688</i>	<i>733.042</i>	<i>731.032</i>	<i>730.856</i>

	Deaths at white rate¶	9,374	9,165	9,393	9,292	9,384	9,402	9,464	9,407	9,673	9,888
65–74	AA population*	898,586	909,778	922,065	930,883	938,798	946,248	952,122	959,603	964,120	971,291
	White death rate¶¶	1,908.134	1,906.188	1,932.109	1,921.757	1,913.239	1,902.291	1,880.366	1,893.065	1,893.888	1,868.298
	Deaths at white rate¶	17,146	17,342	17,815	17,889	17,961	18,000	17,903	18,166	18,259	18,147
75–84	AA population*	505,286	514,433	522,312	532,046	542,005	553,300	565,927	573,090	580,981	586,642
	White death rate¶¶	4,738.509	4,686.910	4,811.718	4,780.090	4,775.282	4,752.521	4,705.777	4,721.841	4,787.754	4,785.335
	Deaths at white rate¶	23,943	24,111	25,132	25,432	25,882	26,296	26,631	27,060	27,816	28,073
≥ 85	AA population*	167,928	177,067	185,336	192,250	200,806	208,251	213,458	221,677	228,287	232,962
	White death rate¶¶	14,028.490	13,734.814	14,411.586	14,242.589	14,405.814	14,384.524	14,415.751	14,498.878	14,900.565	14,890.732
	Deaths at white rate¶	23,558	24,320	26,710	27,381	28,928	29,956	30,772	32,141	34,016	34,690
	Female AA population*	16,481,004	16,825,671	17,163,292	17,487,117	17,790,766	18,084,860	18,388,325	18,686,380	18,978,030	19,187,280
	Female deaths at white rate§	87,329	88,170	92,845	94,082	96,526	97,984	99,244	101,427	104,854	106,286
	Crude death rate at white rate‡	529.878	524.023	540.952	538.010	542.560	541.804	539.712	542.786	552.502	553.939
	AA crude death rate¶¶	741.423	728.583	749.559	739.745	743.228	733.304	720.076	722.574	734.328	732.996
	Difference in crude rates	211.545	204.561	208.607	201.735	200.668	191.500	180.365	179.788	181.826	179.057
	Female deaths averted (annually)†	34,865	34,419	35,804	35,278	35,700	34,633	33,166	33,596	34,507	34,356
	AA deaths averted (annually)	90,512	89,397	94,776	93,565	94,234	89,542	83,498	82,878	84,602	83,199
	Cumulative deaths averted	90,512	179,909	274,684	368,249	462,483	552,025	635,523	718,401	803,003	886,202

* AA=African American. Source data obtained from National Center for Health Statistics: (a) Bridged-race intercensal estimates of the July 1, 1990-July 1, 1999, United States resident population by State, county, age, sex, race, and Hispanic origin, prepared by the U.S. Census Bureau with support from the National Cancer Institute, 2003. (b) Estimates of the April 1, 2000, United States resident population by age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau, 2003. Accessed 12/6/03 at: <http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm>.

¶ Age-specific all-cause mortality rate (per 100,000) derived from: Table 290A. Deaths for 72 selected causes, by 10-year age groups, race, and sex: United States, 1979-98, National Center for Health Statistics. Accessed 12/6/03 at <http://www.cdc.gov/nchs/data/statab/gmwk290a.pdf>; Table 250A. Deaths from 113 selected causes, by 10-year age groups, race, and sex: United States, 1999, National Center for Health Statistics. Accessed 12/6/03 at http://www.cdc.gov/nchs/data/statab/VS00199_TABL250F.pdf; Table 250A. Deaths from 113 selected causes, by 10-year age groups, race, and sex: United States, 2000, National Center for Health Statistics. Accessed 12/6/03 at <http://www.cdc.gov/nchs/data/dvs/tab250a.pdf>.

¶ Age-specific white death rate (preceding row) multiplied by the age-specific African American population.

§ Total gender-specific deaths among African Americans had they died at white age-specific mortality rates (sum of preceding age-specific values).

□ Recalculated (indirectly standardized) crude death rate (per 100,000) if African Americans died at white age-specific mortality rates. Derived by dividing the number of deaths (preceding row) by the African American population (all ages) for that gender and year.

† Deaths averted if African Americans experienced mortality rate comparable to whites. Derived by multiplying African American population by difference in crude rates (preceding row).

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¹ Lilienfeld AM, Lilienfeld DE. Foundations of Epidemiology, 2nd ed. New York: Oxford University Press, 1980.

² Resident population, according to age, sex, race, and Hispanic origin, United States.

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³ Ingram DD, Weed JA, Parker,JD, et al. U.S. Census 2000 with bridged race categories. Vital and Health Statistics. Series 2. Forthcoming 2003.

⁴ National Center for Health Statistics. Bridged-race intercensal estimates of the July 1, 1990-July 1, 1999, United States resident population by State, county, age, sex, race, and Hispanic origin, prepared by the U.S. Census Bureau with support from the National Cancer Institute, 2003. Accessed 12/6/03 at:

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⁵ National Center for Health Statistics. Estimates of the April 1, 2000, United States resident population by age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau, 2003. Accessed 12/6/03 at:

<http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm>.

⁶ Table 35. Death rates for all causes, according to sex, race, Hispanic origin, and age: United States, selected years 1950-2001, taken from

ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/Health_US/hus03/Table035.xls

⁷ Table 290A. Deaths for 72 selected causes, by 10-year age groups, race, and sex: United States, 1979-98, National Center for Health Statistics. Accessed 12/6/03 at

<http://www.cdc.gov/nchs/data/statab/gmwk290a.pdf>

⁸ Table 250A. Deaths from 113 selected causes, by 10-year age groups, race, and sex: United States, 1999, National Center for Health Statistics. Accessed 12/6/03 at

http://www.cdc.gov/nchs/data/statab/VS00199_TABL250F.pdf

⁹ Table 250A. Deaths from 113 selected causes, by 10-year age groups, race, and sex: United States, 2000, National Center for Health Statistics. Accessed 12/6/03 at

<http://www.cdc.gov/nchs/data/dvs/tab250a.pdf>

¹⁰ Levine RS, Foster JE, Fullilove RE, et al. Black-white inequalities in mortality and life expectancy, 1933-1999: implications for healthy people 2010. Public Health Rep 2001;116:474-83.