
Vital and Health Statistics

Causes of Death Contributing to Changes in Life Expectancy: United States, 1984–89

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This report identifies the major cause of death and age groups that contributed most to the decrease in life expectancy at birth for black males and females and to the increase for white males and females in the United States from 1984–89. The report also identifies the major causes and age groups that contributed most to the increase in the gap in the life expectancy between the black and white populations, by sex, during the same time period.

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Symbols

- Data not available
 - . . . Category not applicable
 - Quantity zero
 - 0.0 Quantity more than zero but less than 0.05
 - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
 - * Figure does not meet standard of reliability or precision
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Causes of Death Contributing to Changes in Life Expectancy

by Kenneth D. Kochanek, M.A., Jeffrey D. Maurer, M.S.,
and Harry M. Rosenberg, Ph.D.

Highlights

During 1984–89, life expectancy increased for the total population (0.6 year), white males (0.9 year), and white females (0.5 year), while it decreased for black males (-0.8 year) and black females (-0.2 year).

These changes in life expectancy are the result of changes in mortality for specific age–race–sex groups and identifiable causes of death. Using a technique developed by Eduardo E. Arriaga (1,2), this report identifies major causes of death contributing to the change in life expectancy between 1984 and 1989. Refer to Technical notes for a brief description of this methodology. The technique partitions changes in life expectancy into positive contributions (which are those causes of death and age groups that contribute to an increase in life expectancy) and negative contributions (which are those that contribute to a decrease).

The report includes separate analyses by age and causes of death. For the total population, positive contributions occurred for the age groups under 15 years and age groups 45 years and over while negative contributions occurred for the age groups 15–44 years. The report also examines the combined contributions of age and causes of death for the total population and the four race-sex groups. For the total population, positive contributions to the increase in life expectancy were due to changes in mortality for Diseases of heart, under 1 and 35 years and over; Cerebrovascular diseases, 40 years and over; and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, 30–59 years. Negative contributions were largely due to HIV infection, 20–59 years; Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, 65 years and over; and Pneumonia and influenza, 75 years and over.

White males showed a pattern similar to that of the total population, with positive contributions from Diseases of heart,

under 1 and 35 years and over; Cerebrovascular diseases, 45 years and over; and Accidents and adverse effects, 1–4, 10–34, and 45–54 years. Negative contributions for white males were dominated by HIV infection, 20–64 years; Diabetes mellitus, 50–74 years; and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, 60–64 and 80 years and over. For white females, positive contributions were from Diseases of heart, 40 years and over; Cerebrovascular diseases, 40 years and over; and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, 30–59 years. Dominating the negative contributions for white females were Chronic obstructive pulmonary diseases and allied conditions, 55 years and over; Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, 60 years and over; and Pneumonia and influenza, 65–69 and 75 years and over. For black males, Diseases of heart, under 1 and 25 years and over, had a major positive impact, as did Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, 30–49 and 55–64 years; and Cerebrovascular diseases, 30–34 and 40 years and over. Negative effects for black males were dominated by HIV infection, under 5 and 20–69 years; Homicide and legal intervention, 1–4 and 10–34 years; and Accidents and adverse effects, for various ages. For black females, positive contributions were due to Diseases of heart, under 5 and 35–84 years; Cerebrovascular diseases, 35 years and over; and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, 25–29 and 40–59 years. Negative effects were led by HIV infection, under 5 and 20–59 years; Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, 65–79 and 85 years and over; and Diabetes mellitus 45–69 and 75 years and over.

The report also describes causes of death and age groups that contributed to the widening of the gap in life expectancy between major race groups from 1984 to 1989. The gap in life expectancy between white and black males, which increased from 6.2 years in 1984 to 7.9 years in 1989, widened due to mortality changes and differences in Diseases of heart (40 years and over), HIV infection (under 5 and 20–64 years), and Homicide and legal intervention (1–4 and 10–39 years). Selected causes of death and age groups kept the gap between white and black males from widening further. Among these were trends in mortality for Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (35–49 and

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55–64 years); Cerebrovascular diseases (55–59 and 65–74 years); and Homicide and legal intervention (45–64 years).

The gap in life expectancy between white and black females also increased—from 5.0 years in 1984 to 5.7 years in 1989. Contributing most to the growing gap were trends in mortality for Diseases of heart (60 years and over) and HIV

infection (under 5 and 20–64 years). Countervailing effects to the widening were mortality trends for Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (various ages); Chronic obstructive pulmonary diseases and allied conditions (60–64 and 70 years and over); and Diseases of heart (35–44 and 50–59 years).

Introduction

Life expectancy at birth is a commonly-used measure to describe and analyze change in mortality over time. Since 1900, life expectancy at birth in the United States generally increased. However, between 1984 and 1989 a countervailing trend in these data drew wide public attention: while life expectancy at birth generally increased for both white males and white females, it decreased for both black males and black females (table A and figure 1) (3).

The main purpose of this report is to decompose or partition the changes in life expectancy at birth into those major causes of death and age groups that contributed most substantially to the decline for black males and black females and to the increase for white males and white females. Also examined separately are the changes in the gaps of the life expectancy at birth between black and white males and between black and white females for the same time period.

Results of the partitioning are presented by age for the total population and the four major race-sex groups and then by cause of death for those population groups. Detailed tables show the further partitioning by age and cause of death for the race-sex groups and the total population.

The analysis uses a life table disaggregation technique developed by Eduardo E. Arriaga to "measure the pace of mortality change ... as well as the decomposition of a difference in life expectancy" (1,2). A summary measure like life expectancy at birth is a convenient measure of the mortality of a population. Life expectancy has the advantage of ready interpretation (4).

Table A. Life expectancy at birth, by specified race-sex groups: United States, 1984-89

Year	Total	White		Black	
		Male	Female	Male	Female
1989	75.3	72.7	79.2	64.8	73.5
1988	74.9	72.3	78.9	64.9	73.4
1987	75.0	72.2	78.9	65.2	73.6
1986	74.8	72.0	78.8	65.2	73.5
1985	74.7	71.9	78.7	65.3	73.5
1984	74.7	71.8	78.7	65.6	73.7

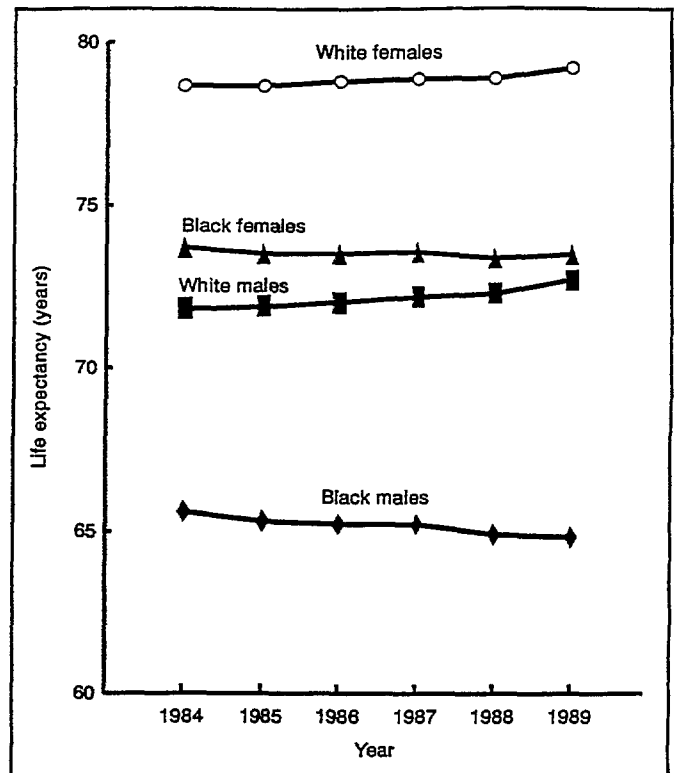


Figure 1. Life expectancy by specified race-sex groups: United States, 1984-89

Methods

To measure changes in mortality, Arriaga (1,2) developed a discrete method to estimate the contribution of mortality change by age and causes of death based on changes in life expectancy, which he describes as a procedure that “estimates the number of years added to or removed from life expectation because of the decrease or increase (respectively) of the central mortality rates of life tables” (2). With this method one is able to partition the change in life expectancy over time or between two separate groups of populations. In this report Arriaga’s technique is used to partition by age and cause of death changes in life expectancy at birth in the United States from 1984 to 1989 for the total population and for the four major race-sex groups. For a brief description of Arriaga’s method, see the Technical notes.

Arriaga’s method permits the partitioning of changes in life expectancy by age, race, sex, and cause of death. The causes used in this report are based on the 15 leading causes of death in 1984 and 1989 for the total population and for each of the four major race-sex groups, resulting in a total of 17 different causes. (For ranking causes of death, see Technical notes.) All other causes are in a residual category. The number of deaths from Human immunodeficiency virus (HIV) infection in 1984 is approximated with a count of deaths with mention of ICD-9 No. 279.1, Deficiency of cell-mediated immunity (see Technical notes).

Arriaga’s method is additive; that is, the sum of the age groups equals the total contribution for the specified race-sex group. Because the numbers, expressed in years, are very small, they are presented to four significant digits after the decimal.

The analysis by age and cause of death for the race-sex groups is limited to selected leading causes of death and to 19 5-year age groups. The combination of 19 age groups and 17 selected causes of death (19×17) results in 323 possible age-cause combinations for the total population and for each of the four major race-sex groups. While the residual category

is not mentioned in the analysis of age-race-sex-cause groups, it is shown in the detailed tables.

Detailed tables 1–5 show the contribution to the change in life expectancy for the total population and the four major race-sex groups, by age and each leading cause. Tables 6–10 show the rank ordering of the contribution of leading causes of death and major age groups to the change in life expectancy for the total population and the four major race-sex groups. Tables 6–10 were constructed by adding the positive and negative contributions for each cause by age in tables 1–5. Positive contributions are causes of death and/or age groups that contribute to an increase in life expectancy, while negative contributions are causes of death and/or age groups that contribute to a decrease in life expectancy. For example, in table 1, in the column for Diseases of heart, all the positive contributions by age add to the total of 0.6270 year, the positive contribution to the change in life expectancy for Diseases of heart shown in the top panel of table 6. The negative contribution (-0.0001) is shown in the bottom panel. This procedure was repeated for each race-sex group. The age groups shown are those that contributed, either positively or negatively, at least 1 day (0.0027 year) to the change in life expectancy at birth during 1984–89. The change in life expectancy includes the sum of all ages, positive and negative, regardless of the size of the contribution.

Tables 11 and 12 show the changes between 1984 and 1989 in the “gap” or difference in life expectancy between white and black males and white and black females, respectively. The gap for males, for example, is the arithmetic difference between the change in life expectancy (tables 2 and 4) by age and cause of death for black males and the corresponding change for white males. For tables 11 and 12, positive contributions are causes of death and age groups that tend to contribute to closing the gap in life expectancy between white and black populations, and negative contributions are those that contribute to widening the gap.

Results

Age, race, and sex

During 1984–89, life expectancy at birth increased for the total population by 0.6 year, from 74.7 to 75.3 years (table A). The expectation of life at birth for a given year 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 that given year (3). During the same period, life expectancy increased for white males and white females (0.9 and 0.5 year, respectively) but decreased for black males and black females (-0.8 and -0.2 year, respectively). As of 1989, the life expectancy at birth of the race-sex groups was as follows: white females, 79.2 years; black females, 73.5; white males, 72.7; and black males, 64.8.

For the total population, positive contributions occurred for the age groups under 15 and 45 years and over (table B) while negative contributions occurred for the age groups 15–44 years. (Total contribution to the change in life expectancy in table B may not add to the calculated difference between life expectancy in table A due to rounding.) These changes reflect declines in age-specific death rates among the younger and older populations. Similar positive and negative

contributions occurred for white males and white females. For black males, declining life expectancy reflect negative contributions for a somewhat broader range of ages, namely, under 5, 10–54, 75–79, and 85 years and over. For black females, negative contributions occurred at ages under 5, 10–44, 65–69, 75–79, and 85 years and over.

The greatest positive contribution to life expectancy for the total population resulted from the reduction in mortality for ages 70–74 years, contributing a positive 0.0974 year (table C), or almost 15 percent of the total positive contribution. This was followed by the age group 65–69 years (13.8 percent). A total of 97.5 percent of the positive contribution can be attributed to the mortality improvements for persons under 1 year and 45 years and over.

The greatest negative contribution for the total population (-0.0511 year) was for persons 35–39 years of age (33.7 percent); followed by the age group 30–34 years (30.5 percent). The majority of the negative contribution (82.4 percent) can

Table B. Contribution to the change in life expectancy (in years) from birth to 85 years and over, by age and specified race-sex groups: United States, 1984–89

Age	Total	White		Black	
		Male	Female	Male	Female
All ages	0.5135	0.8306	0.4984	-0.7298	-0.1784
Under 1 year	0.0713	0.1075	0.0916	-0.0121	-0.0209
1–4 years	0.0075	0.0115	0.0094	-0.0078	-0.0008
5–9 years	0.0056	0.0081	0.0023	0.0084	0.0041
10–14 years	0.0033	0.0056	0.0055	-0.0044	-0.0057
15–19 years	-0.0185	0.0006	-0.0085	-0.1575	-0.0110
20–24 years	-0.0030	0.0235	0.0106	-0.1799	-0.0234
25–29 years	-0.0276	-0.0256	-0.0035	-0.1274	-0.0462
30–34 years	-0.0462	-0.0539	-0.0070	-0.1546	-0.0705
35–39 years	-0.0511	-0.0689	0.0106	-0.2096	-0.0562
40–44 years	-0.0052	-0.0124	0.0204	-0.1380	-0.0010
45–49 years	0.0328	0.0320	0.0407	-0.0445	0.0257
50–54 years	0.0674	0.1012	0.0451	-0.0136	0.0594
55–59 years	0.0757	0.1121	0.0418	0.0795	0.0931
60–64 years	0.0841	0.1149	0.0463	0.1607	0.0326
65–69 years	0.0917	0.1492	0.0519	0.0216	-0.0388
70–74 years	0.0974	0.1448	0.0453	0.0949	0.0695
75–79 years	0.0659	0.1056	0.0470	-0.0241	-0.0464
80–84 years	0.0400	0.0417	0.0350	0.0145	0.0380
85 years and over	0.0225	0.0329	0.0140	-0.0358	-0.1799

NOTE: Figures may not add to totals because of rounding.

Table C. Rank ordering of the contribution of age to the change in life expectancy (in years) from birth to 85 years and over for the total population: United States, 1984–89

Age	Change in life expectancy	Cumulative change	Percent	Cumulative percent
Total contribution				
All ages	0.5135	0.5135	...	...
Positive contribution				
70–74 years	0.0974	0.0974	14.6	14.6
65–69 years	0.0917	0.1891	13.8	28.4
60–64 years	0.0841	0.2732	12.6	41.1
55–59 years	0.0757	0.3488	11.4	52.4
Under 1 year	0.0713	0.4201	10.7	63.2
50–54 years	0.0674	0.4875	10.1	73.3
75–79 years	0.0659	0.5534	9.9	83.2
80–84 years	0.0400	0.5934	6.0	89.2
45–49 years	0.0328	0.6263	4.9	94.2
85 years and over	0.0225	0.6488	3.4	97.5
1–4 years	0.0075	0.6563	1.1	98.7
5–9 years	0.0056	0.6619	0.8	99.5
10–14 years	0.0033	0.6651	0.5	100.0
Negative contribution				
35–39 years	-0.0511	-0.0511	33.7	33.7
30–34 years	-0.0462	-0.0973	30.5	64.2
25–29 years	-0.0276	-0.1249	18.2	82.4
15–19 years	-0.0185	-0.1434	12.2	94.6
40–44 years	-0.0052	-0.1486	3.4	98.0
20–24 years	-0.0030	-0.1516	2.0	100.0

NOTE: Figures may not add to totals because of rounding.

be attributed to increases in mortality for persons between the ages of 25–39 years.

For white males (table D), most age groups contributed positively to the increase in life expectancy, especially those in the age groups 50–79 years of age and under 1 year, accounting for 0.8354 year or 84.3 percent of the total positive contribution. Negative contributions were concentrated in the age group 25–39 years. Age-specific patterns for white females (table E) were similar to those for white males; that is, the majority of age groups that contributed positively to the change in life expectancy were under 1 year and 40–79 years of age, with the largest positive contribution, 17.7 percent, being for those under 1 year of age. Negative contributions for white females were concentrated in the younger age groups, 15–19 and 30–34 years, accounting for a total of 81.6 percent to the negative contribution.

For black males (table F), more age groups contributed negatively to overall life expectancy resulting in the decrease between 1984 and 1989 in life expectancy at birth for this group. Negative contributions (87.2 percent) were clustered in the younger ages, 15–44 years, while 94.0 percent of the positive contributions were for the age groups 55–74 years. For black females (table G), more age groups also contributed negatively than positively, resulting in a decrease in life expectancy. Negative contributions (61.2 percent) were concentrated in the ages 30–39 and 85 years and over, while positive contributions were for age groups 50–64, 70–74, and 80–84 years.

Table D. Rank ordering of the contribution of age to the change in life expectancy (in years) from birth to 85 years and over for white males: United States, 1984–89

Age	Change in life expectancy	Cumulative change	Percent	Cumulative percent
Total contribution				
All ages	0.8306	0.8306	...	...
Positive contribution				
65–69 years	0.1492	0.1492	15.1	15.1
70–74 years	0.1448	0.2940	14.6	29.7
60–64 years	0.1149	0.4089	11.6	41.2
55–59 years	0.1121	0.5211	11.3	52.6
Under 1 year	0.1075	0.6286	10.8	63.4
75–79 years	0.1056	0.7342	10.7	74.1
50–54 years	0.1012	0.8354	10.2	84.3
80–84 years	0.0417	0.8771	4.2	88.5
85 years and over	0.0329	0.9100	3.3	91.8
45–49 years	0.0320	0.9420	3.2	95.0
20–24 years	0.0235	0.9655	2.4	97.4
1–4 years	0.0115	0.9770	1.2	98.6
5–9 years	0.0081	0.9851	0.8	99.4
10–14 years	0.0056	0.9907	0.6	99.9
15–19 years	0.0006	0.9913	0.1	100.0
Negative contribution				
35–39 years	–0.0689	–0.0689	42.8	42.8
30–34 years	–0.0539	–0.1227	33.5	76.4
25–29 years	–0.0256	–0.1483	15.9	92.3
40–44 years	–0.0124	–0.1607	7.7	100.0

NOTE: Figures may not add to totals because of rounding.

Table E. Rank ordering of the contribution of age to the change in life expectancy (in years) from birth to 85 years and over for white females: United States, 1984–89

Age	Change in life expectancy	Cumulative change	Percent	Cumulative percent
Total contribution				
All ages	0.4984	0.4984	...	...
Positive contribution				
Under 1 year	0.0916	0.0916	17.7	17.7
65–69 years	0.0519	0.1435	10.0	27.7
75–79 years	0.0470	0.1905	9.1	36.8
60–64 years	0.0463	0.2368	8.9	45.8
70–74 years	0.0453	0.2821	8.8	54.5
50–54 years	0.0451	0.3272	8.7	63.2
55–59 years	0.0418	0.3690	8.1	71.3
45–49 years	0.0407	0.4097	7.9	79.2
80–84 years	0.0350	0.4447	6.8	85.9
40–44 years	0.0204	0.4651	3.9	89.9
85 years and over	0.0140	0.4790	2.7	92.6
35–39 years	0.0106	0.4896	2.1	94.6
20–24 years	0.0106	0.5002	2.0	96.7
1–4 years	0.0094	0.5096	1.8	98.5
10–14 years	0.0055	0.5151	1.1	99.6
5–9 years	0.0023	0.5174	0.4	100.0
Negative contribution				
15–19 years	–0.0085	–0.0085	44.9	44.9
30–34 years	–0.0070	–0.0155	36.7	81.6
25–29 years	–0.0035	–0.0190	18.4	100.0

NOTE: Figures may not add to totals because of rounding.

Cause of death by race and sex

For the total population in 1989, the 17 leading causes of death in this report accounted for 87.4 percent of all deaths;

Table F. Rank ordering of the contribution of age to the change in life expectancy (in years) from birth to 85 years and over for black males: United States, 1984–89

Age	Change in life expectancy	Cumulative change	Percent	Cumulative percent
Total contribution				
All ages	–0.7298	–0.7298	...	...
Positive contribution				
60–64 years	0.1607	0.1607	42.3	42.3
70–74 years	0.0949	0.2556	25.0	67.3
55–59 years	0.0795	0.3351	20.9	88.3
65–69 years	0.0216	0.3567	5.7	94.0
80–84 years	0.0145	0.3712	3.8	97.8
5–9 years	0.0084	0.3795	2.2	100.0
Negative contribution				
35–39 years	–0.2096	–0.2096	18.9	18.9
20–24 years	–0.1799	–0.3895	16.2	35.1
15–19 years	–0.1575	–0.5470	14.2	49.3
30–34 years	–0.1546	–0.7016	13.9	63.2
40–44 years	–0.1380	–0.8396	12.4	75.7
25–29 years	–0.1274	–0.9670	11.5	87.2
45–49 years	–0.0445	–1.0115	4.0	91.2
85 years and over	–0.0358	–1.0473	3.2	94.4
75–79 years	–0.0241	–1.0714	2.2	96.6
50–54 years	–0.0136	–1.0850	1.2	97.8
Under 1 year	–0.0121	–1.0972	1.1	98.9
1–4 years	–0.0078	–1.1049	0.7	99.6
10–14 years	–0.0044	–1.1093	0.4	100.0

NOTE: Figures may not add to totals because of rounding.

Table G. Rank ordering of the contribution of age to the change in life expectancy (in years) from birth to 85 years and over for black females: United States, 1984-89

Age	Change in life expectancy	Cumulative change	Percent	Cumulative percent
Total contribution				
All ages	-0.1784	-0.1784	...	...
Positive contribution				
55-59 years	0.0931	0.0931	28.9	28.9
70-74 years	0.0695	0.1626	21.6	50.4
50-54 years	0.0594	0.2220	18.4	68.9
80-84 years	0.0380	0.2600	11.8	80.7
60-64 years	0.0326	0.2926	10.1	90.8
45-49 years	0.0257	0.3183	8.0	98.7
5-9 years	0.0041	0.3224	1.3	100.0
Negative contribution				
85 years and over	-0.1799	-0.1799	35.9	35.9
30-34 years	-0.0705	-0.2504	14.1	50.0
35-39 years	-0.0562	-0.3066	11.2	61.2
75-79 years	-0.0464	-0.3531	9.3	70.5
25-29 years	-0.0462	-0.3992	9.2	79.7
65-69 years	-0.0388	-0.4380	7.7	87.5
20-24 years	-0.0234	-0.4614	4.7	92.1
Under 1 year	-0.0209	-0.4824	4.2	96.3
15-19 years	-0.0110	-0.4934	2.2	98.5
10-14 years	-0.0057	-0.4990	1.1	99.6
40-44 years	-0.0010	-0.5000	0.2	99.8
1-4 years	-0.0008	-0.5008	0.2	100.0

NOTE: Figures may not add to totals because of rounding.

for white males, 88.5 percent; for white females, 86.9 percent; for black males, 86.5 percent; and for black females, 85.0 percent. Therefore, the residual category accounts for only 12 to 15 percent of all deaths.

For the total population, the cause of death with the largest positive contribution to the change in life expectancy between 1984 and 1989 was Diseases of heart, whose contribution was 0.6270 year (66.6 percent of the positive contribution), or 1.2 times that of the total increase in life expectancy (0.5135 year) for all causes of death combined, followed by Cerebrovascular diseases (13.9 percent) (table H). These positive contributions were partially offset by negative contributions for other causes of death, the largest of which was for HIV infection (-0.1922 year) (44.8 percent), Diabetes mellitus (10.6 percent), and Pneumonia and influenza (10.2 percent). The leading positive and negative causes of death contributing to the change in life expectancy are also shown in figure 2.

For white males (table J and figure 3), the patterns of leading causes of death making the greatest positive contribution were similar to those for the total population; that is, Diseases of heart contributed the most (0.7712 year) to the increase in life expectancy (65.8 percent of the positive contribution), followed by Cerebrovascular diseases (8.6 percent) and Accidents and adverse effects (7.6 percent). Negative contributions included HIV infection (-0.264 year) (77.5 percent) and Diabetes mellitus (10.1 percent). White females (table K and figure 4) showed positive contributions, similar to those of white males: for Diseases of heart (0.5142 year) (60.7 percent), Cerebrovascular diseases (18.8 percent), and Atherosclerosis (5.6 percent); with negative contributions for Chronic obstructive pulmonary diseases and allied conditions

(-0.0972 year) (27.9 percent), Pneumonia and influenza (18.1 percent), and Diabetes mellitus (12.8 percent).

While life expectancy increased during 1984-89 for both white males and white females, it decreased for black males and black females. For black males (table L and figure 5), the greatest negative contributor was HIV infection (-0.6641 year) (50.6 percent), followed by Homicide and legal intervention (22.5 percent), and Diabetes mellitus (5.1 percent). Offsetting to some extent the negative effect on life expectancy of these conditions were positive contributions from some causes of death, the greatest of which was Diseases of heart (0.3495 year) (60.0 percent); Cerebrovascular diseases (18.7 percent); and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (12.0 percent). For black females (table M and figure 6), the major cause of the decrease in life expectancy can be attributed to HIV infection (-0.1884 year) (27.6 percent); Diabetes mellitus (13.4 percent); and Pneumonia and influenza (11.3 percent). Positive contributions were led by Diseases of heart (0.2684 year) (53.4 percent); Cerebrovascular diseases (29.7 percent); and Chronic liver disease and cirrhosis (8.5 percent).

When comparing the cause-of-death contributions among the four race-sex groups there are a number of similarities. Diseases of heart made the greatest positive contribution to the change in life expectancy followed by Cerebrovascular diseases for all four race-sex groups. On the other hand, HIV infection made the greatest negative contribution for all race-sex groups, except white females. In addition, Diabetes mellitus made either the second or third highest negative contribution for all four race-sex groups and Pneumonia and influenza made the second or third highest negative contribution for all race-sex groups, except black males.

Different patterns of change were exhibited by males and females of the two major race groups. For example, while overall mortality from Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, decreased during 1984-89 the change in mortality from this cause made a positive contribution for white and black males but a negative contribution for white and black females. Negative contributions were made by Accidents and adverse effects, Chronic obstructive pulmonary diseases and allied conditions, and Hypertension with or without renal disease, for white females, black males, and black females but not for white males.

Cause of death and age by race and sex

For the total population, over one-half (59.4 percent) of the positive contribution (0.6271 year) to the change in life expectancy during 1984-89 was due to changes in mortality for Diseases of heart for ages under 1 and 35 years and over (table 6). Also making a large contribution (12.4 percent) was Cerebrovascular diseases, for ages 40 years and over; and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, for ages 30-59 years (6.3 percent). These three causes of death accounted for over three-fourths (78.0 percent) of the positive contribution to the change in life expectancy during this period. The leading positive and negative

Table H. Rank ordering of the contribution of leading causes of death to the change in life expectancy (in years) from birth to 85 years and over for the total population: United States, 1984–89

<i>Cause of death</i>	<i>Change in life expectancy</i>	<i>Cumulative change</i>	<i>Percent</i>	<i>Cumulative percent</i>
Total contribution				
All causes	0.5135	0.5135	...	...
Positive contribution				
Diseases of heart	0.6270	0.6270	66.6	66.6
Cerebrovascular diseases	0.1307	0.7577	13.9	80.5
Certain conditions originating in the perinatal period	0.0370	0.7947	3.9	84.4
Atherosclerosis	0.0346	0.8293	3.7	88.1
Accidents and adverse effects	0.0332	0.8625	3.5	91.6
Congenital anomalies	0.0247	0.8871	2.6	94.2
Chronic liver disease and cirrhosis	0.0246	0.9117	2.6	96.8
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	0.0162	0.9279	1.7	98.5
Nephritis, nephrotic syndrome, and nephrosis	0.0085	0.9364	0.9	99.4
Suicide	0.0054	0.9418	0.6	100.0
Negative contribution				
Human immunodeficiency virus infection ¹	-0.1922	-0.1922	44.8	44.8
Diabetes mellitus	-0.0453	-0.2375	10.6	55.4
Pneumonia and influenza	-0.0435	-0.2810	10.2	65.6
Chronic obstructive pulmonary diseases and allied conditions	-0.0396	-0.3206	9.2	74.8
Homicide and legal intervention	-0.0342	-0.3548	8.0	82.8
Septicemia	-0.0119	-0.3667	2.8	85.6
Hypertension with or without renal disease	-0.0008	-0.3675	0.2	85.7
Residual	-0.0611	-0.4286	14.3	100.0

¹Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.

NOTE: Figures may not add to totals because of rounding.

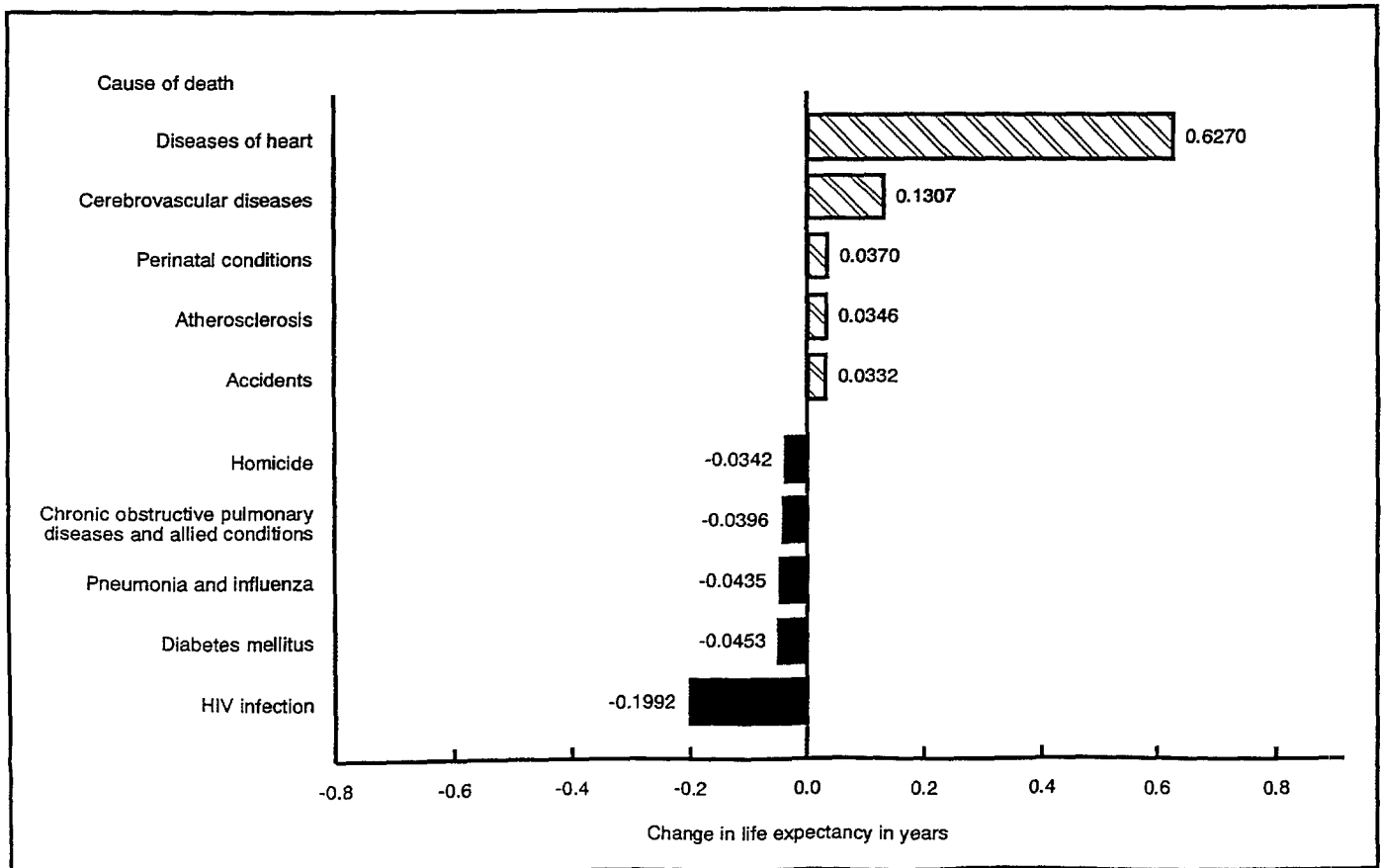


Figure 2. Contribution of leading causes of death to the change in life expectancy, total population: United States, 1984–89

Table J. Rank ordering of the contribution of leading causes of death to the change in life expectancy (in years) from birth to 85 years and over for white males: United States, 1984–89

<i>Cause of death</i>	<i>Change in life expectancy</i>	<i>Cumulative change</i>	<i>Percent</i>	<i>Cumulative percent</i>
Total contribution				
All causes	0.8306	0.8306	...	...
Positive contribution				
Diseases of heart	0.7712	0.7712	65.8	65.8
Cerebrovascular diseases	0.1010	0.8722	8.6	74.5
Accidents and adverse effects	0.0891	0.9613	7.6	82.1
Certain conditions originating in the perinatal period	0.0591	1.0204	5.0	87.1
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	0.0485	1.0689	4.1	91.2
Congenital anomalies	0.0315	1.1004	2.7	93.9
Chronic liver disease and cirrhosis	0.0241	1.1245	2.1	96.0
Atherosclerosis	0.0230	1.1476	2.0	98.0
Chronic obstructive pulmonary diseases and allied conditions	0.0118	1.1594	1.0	99.0
Nephritis, nephrotic syndrome, and nephrosis	0.0116	1.1710	1.0	100.0
Hypertension with or without renal disease	0.0005	1.1715	0.0	100.0
Negative contribution				
Human immunodeficiency virus infection ¹	-0.2643	-0.2643	77.5	77.5
Diabetes mellitus	-0.0346	-0.2989	10.1	87.6
Pneumonia and influenza	-0.0189	-0.3178	5.5	93.1
Septicemia	-0.0053	-0.3231	1.5	94.7
Homicide and legal intervention	-0.0015	-0.3246	0.4	95.1
Suicide	-0.0004	-0.3250	0.1	95.3
Residual	-0.0162	-0.3412	4.7	100.0

¹Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.
NOTE: Figures may not add to totals because of rounding.

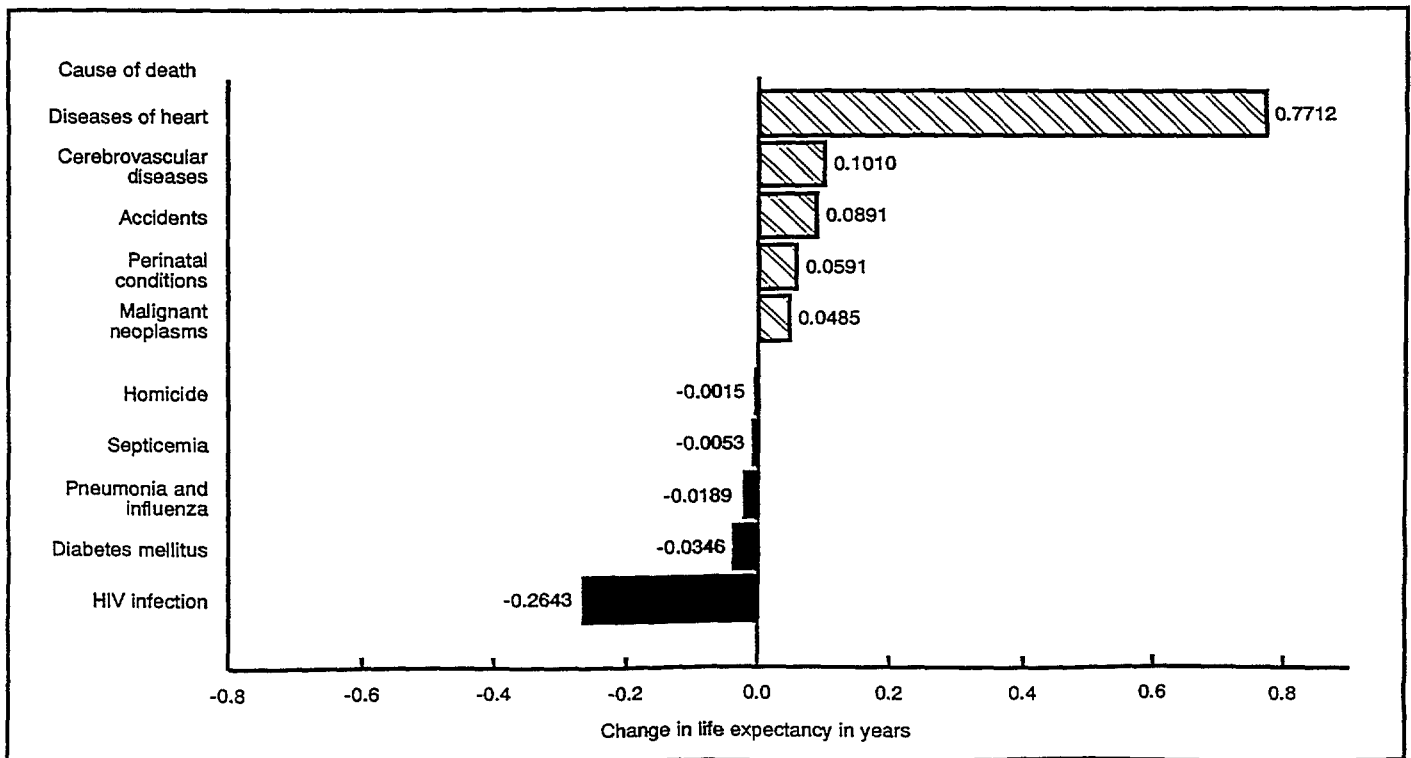


Figure 3. Contribution of leading causes of death to the change in life expectancy, white males: United States, 1984–89

Table K. Rank ordering of the contribution of leading causes of death to the change in life expectancy (in years) from birth to 85 years and over for white females: United States, 1984–89

<i>Cause of death</i>	<i>Change in life expectancy</i>	<i>Cumulative change</i>	<i>Percent</i>	<i>Cumulative percent</i>
Total contribution				
All causes	0.4984	0.4984	...	...
Positive contribution				
Diseases of heart	0.5142	0.5142	60.7	60.7
Cerebrovascular diseases	0.1590	0.6733	18.8	79.5
Atherosclerosis	0.0475	0.7208	5.6	85.1
Certain conditions originating in the perinatal period	0.0468	0.7676	5.5	90.7
Congenital anomalies	0.0270	0.7945	3.2	93.9
Chronic liver disease and cirrhosis	0.0212	0.8158	2.5	96.4
Suicide	0.0206	0.8363	2.4	98.8
Nephritis, nephrotic syndrome, and nephrosis	0.0086	0.8449	1.0	99.8
Homicide and legal intervention	0.0016	0.8465	0.2	100.0
Negative contribution				
Chronic obstructive pulmonary diseases and allied conditions	-0.0972	-0.0972	27.9	27.9
Pneumonia and influenza	-0.0629	-0.1601	18.1	46.0
Diabetes mellitus	-0.0446	-0.2047	12.8	58.8
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	-0.0248	-0.2295	7.1	65.9
Human immunodeficiency virus infection ¹	-0.0232	-0.2527	6.7	72.6
Septicemia	-0.0172	-0.2699	4.9	77.5
Accidents and adverse effects	-0.0012	-0.2711	0.3	77.9
Hypertension with or without renal disease	-0.0004	-0.2715	0.1	78.0
Residual	-0.0766	-0.3481	22.0	100.0

¹Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.

NOTE: Figures may not add to totals because of rounding.

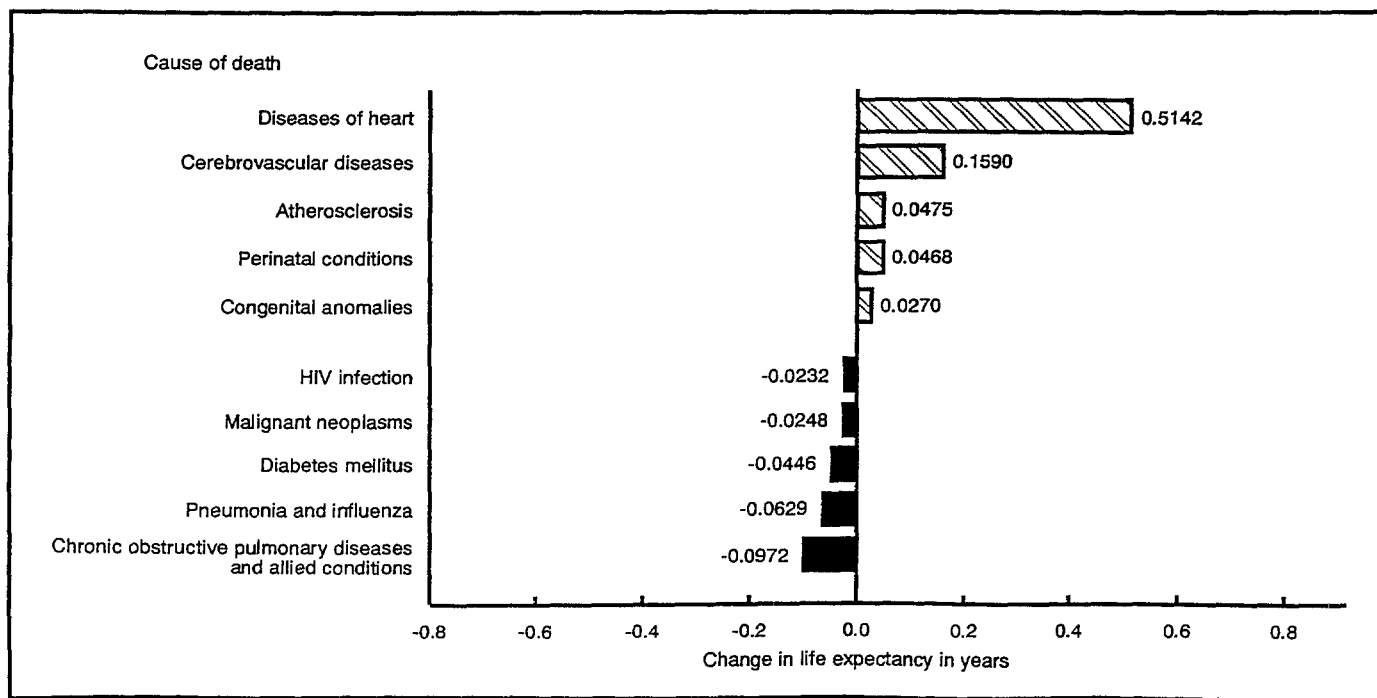


Figure 4. Contribution of leading causes of death to the change in life expectancy, white females: United States, 1984–89

Table L. Rank ordering of the contribution of leading causes of death to the change in life expectancy (in years) from birth to 85 years and over for black males: United States, 1984–89

<i>Cause of death</i>	<i>Change in life expectancy</i>	<i>Cumulative change</i>	<i>Percent</i>	<i>Cumulative percent</i>
Total contribution				
All causes	-0.7298	-0.7298	...	...
Positive contribution				
Diseases of heart	0.3495	0.3495	60.0	60.0
Cerebrovascular diseases	0.1087	0.4582	18.7	78.7
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	0.0702	0.5284	12.0	90.7
Chronic liver disease and cirrhosis	0.0358	0.5641	6.1	96.9
Atherosclerosis	0.0183	0.5825	3.1	100.0
Negative contribution				
Human immunodeficiency virus infection ¹	-0.6641	-0.6641	50.6	50.6
Homicide and legal intervention	-0.2951	-0.9592	22.5	73.0
Diabetes mellitus	-0.0671	-1.0263	5.1	78.2
Accidents and adverse effects	-0.0482	-1.0745	3.7	81.8
Pneumonia and influenza	-0.0396	-1.1142	3.0	84.8
Suicide	-0.0336	-1.1478	2.6	87.4
Chronic obstructive pulmonary diseases and allied conditions	-0.0273	-1.1751	2.1	89.5
Certain conditions originating in the perinatal period	-0.0139	-1.1890	1.1	90.5
Nephritis, nephrotic syndrome, and nephrosis	-0.0139	-1.2028	1.1	91.6
Septicemia	-0.0114	-1.2143	0.9	92.5
Hypertension with or without renal disease	-0.0067	-1.2210	0.5	93.0
Congenital anomalies	-0.0003	-1.2212	0.0	93.0
Residual	-0.0919	-1.3131	7.0	100.0

¹Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.

NOTE: Figures may not add to totals because of rounding.

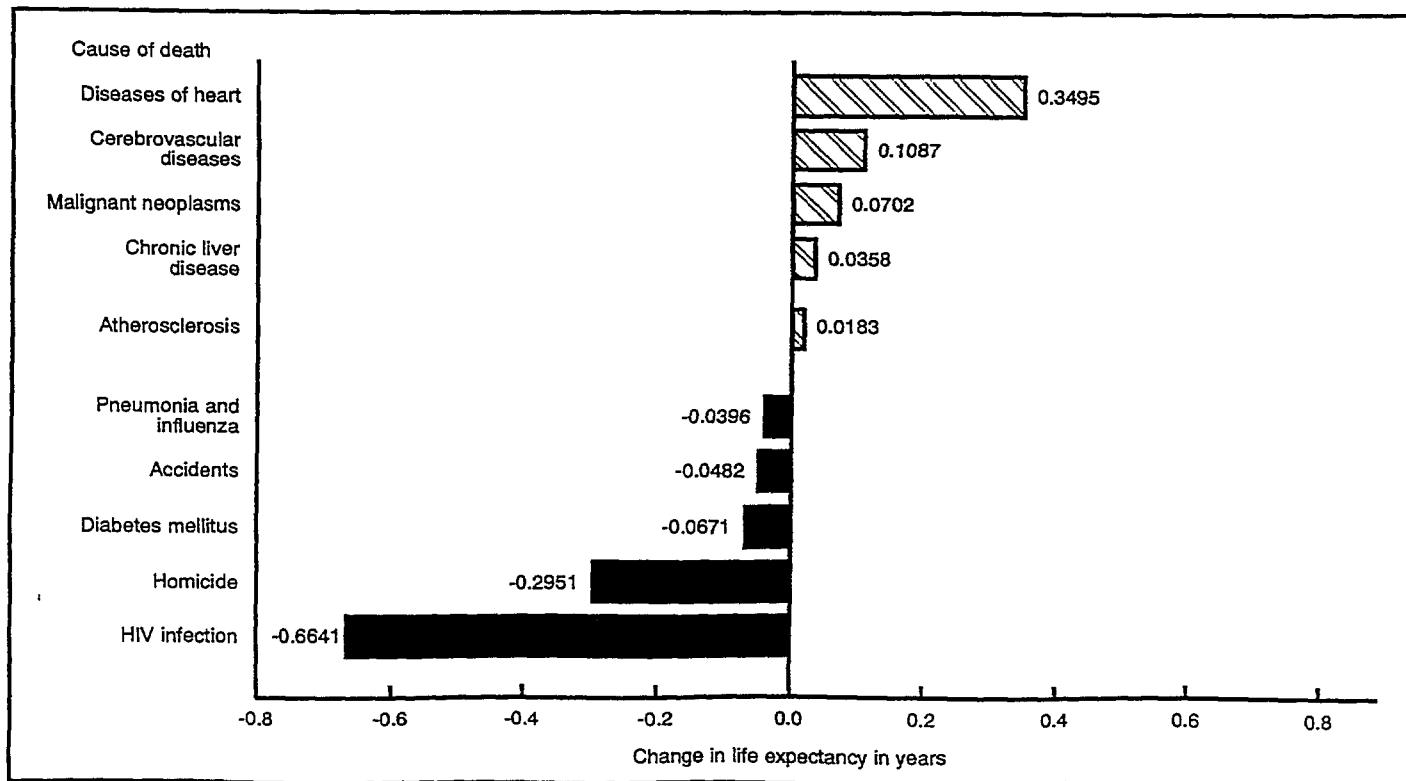


Figure 5. Contribution of leading causes of death to the change in life expectancy, black males: United States, 1984–89

Table M. Rank ordering of the contribution of leading causes of death to the change in life expectancy (in years) from birth to 85 years and over for black females: United States, 1984–89

Cause of death	Change in life expectancy	Cumulative change	Percent	Cumulative percent
All causes	Total contribution	-0.1784		
		-0.1784	...	...
	Positive contribution			
Diseases of heart	0.2684	0.2684	53.4	53.4
Cerebrovascular diseases	0.1493	0.4177	29.7	83.1
Chronic liver disease and cirrhosis	0.0429	0.4607	8.5	91.6
Atherosclerosis	0.0236	0.4842	4.7	96.3
Nephritis, nephrotic syndrome, and nephrosis	0.0097	0.4940	1.9	98.2
Congenital anomalies	0.0089	0.5029	1.8	100.0
	Negative contribution			
Human immunodeficiency virus infection ¹	-0.1884	-0.1884	27.6	27.6
Diabetes mellitus	-0.0911	-0.2794	13.4	41.0
Pneumonia and influenza	-0.0774	-0.3568	11.3	52.3
Chronic obstructive pulmonary diseases and allied conditions	-0.0617	-0.4185	9.0	61.4
Accidents and adverse effects	-0.0443	-0.4627	6.5	67.9
Homicide and legal intervention	-0.0437	-0.5064	6.4	74.3
Septicemia	-0.0216	-0.5280	3.2	77.4
Certain conditions originating in the perinatal period	-0.0159	-0.5439	2.3	79.8
Suicide	-0.0045	-0.5485	0.7	80.4
Hypertension with or without renal disease	-0.0032	-0.5517	0.5	80.9
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	-0.0013	-0.5530	0.2	81.1
Residual	-0.1288	-0.6818	18.9	100.0

¹Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.

NOTE: Figures may not add to totals because of rounding.

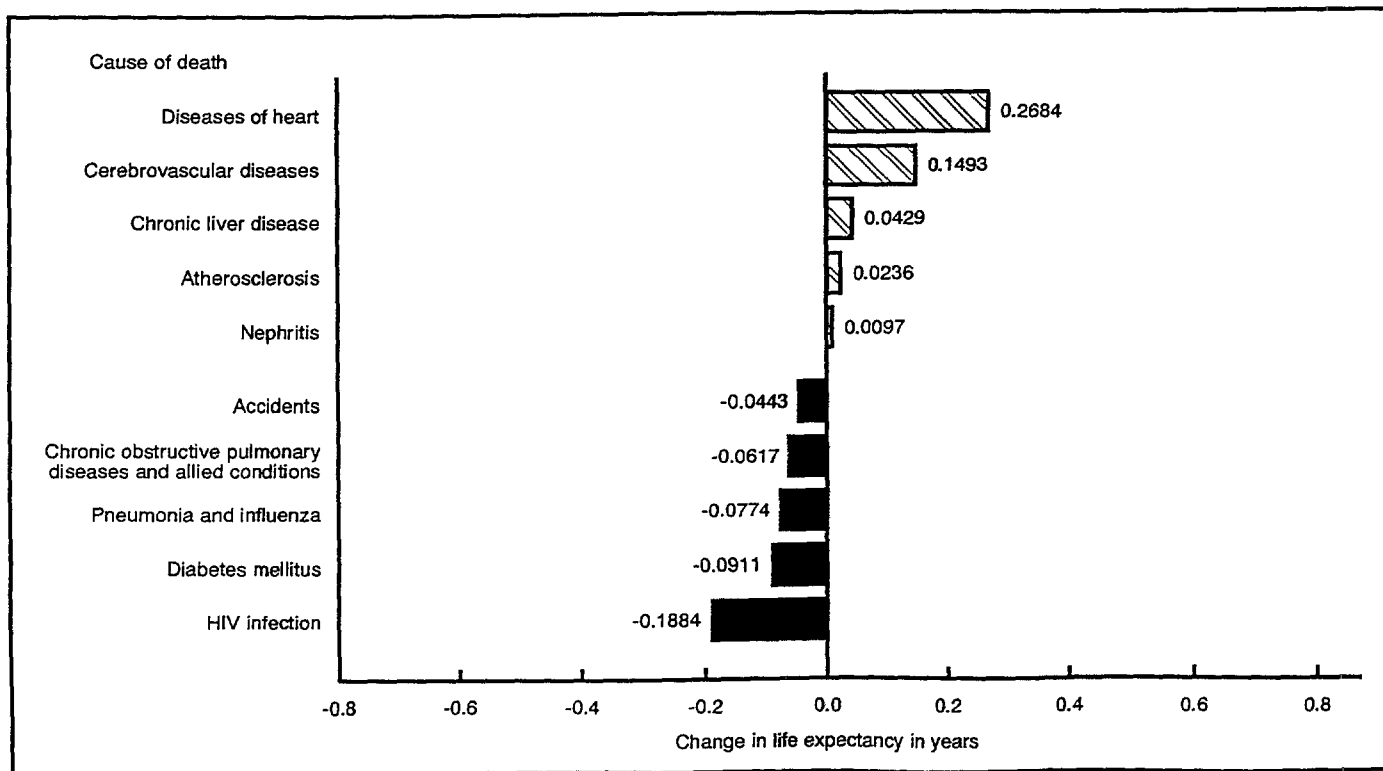


Figure 6. Contribution of leading causes of death to the change in life expectancy, black females: United States, 1984–89

causes of death and age groups contributing to the change in life expectancy are also shown in figure 7.

Negative contributions for the total population were largely attributable to HIV infection, which accounted for one-third (35.4 percent) of the negative contribution (-0.1922 year) to the change in life expectancy between 1984–89. For this cause, the negative contribution was concentrated in the ages 20–59 years. Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, for ages 65 years and over, accounted for 9.3 percent of the negative contribution. Pneumonia and influenza, for ages 75 years and over, accounted for 8.6 percent of the negative contribution. Diabetes mellitus also showed a negative contribution for all ages 45 years and over.

Causes of death may show sizable positive contributions for some age groups and sizable negative contributions for other age groups. This is particularly the case for Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, for which mortality for persons 30–59 years of age made a 6.3 percent positive contribution to life expectancy change during 1984–89, while for ages 65 years and over increasing mortality from this cause contributed 9.3 percent to the negative change in life expectancy. Generally, other causes of death tend to have either a much greater positive contribution than the negative contribution or the reverse.

White males showed a pattern similar to that of the total population, with a total positive contribution of 59.1 percent

(0.7723 year) from the age-cause combinations of Diseases of heart, under 1 and 35 years and over; Cerebrovascular diseases, 45 years and over (7.8 percent); Accidents and adverse effects, 1–4, 10–34, and 45–54 years (7.0 percent); and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, 15–19, 30–34, 40–59, and 65–69 years (5.9 percent) (table 7 and figure 8). Mortality from HIV infection showed no positive effect on life expectancy. For the total population, for white males ages 20–64, negative contributions to life expectancy were dominated by HIV infection—representing 55.5 percent of all negative contributions (-0.2643 year). Also contributing to the negative effect were Diabetes mellitus, ages 50–74 years (7.3 percent); and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, ages 60–64 and 80 years and over (5.9 percent). Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, ranked fourth in positive and third in negative contributions to the change in life expectancy for white males, although the contributing age groups were younger men and older men, respectively.

For white females, causes of death making large positive contributions were Diseases of heart, for ages under 1 and 40 years and over (52.5 percent) (0.5148 year); Cerebrovascular diseases, for ages 40 years and over (16.2 percent); and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, for ages 30–59 years (6.1 percent) (table 8 and figure 9). Dominating the negative contributions

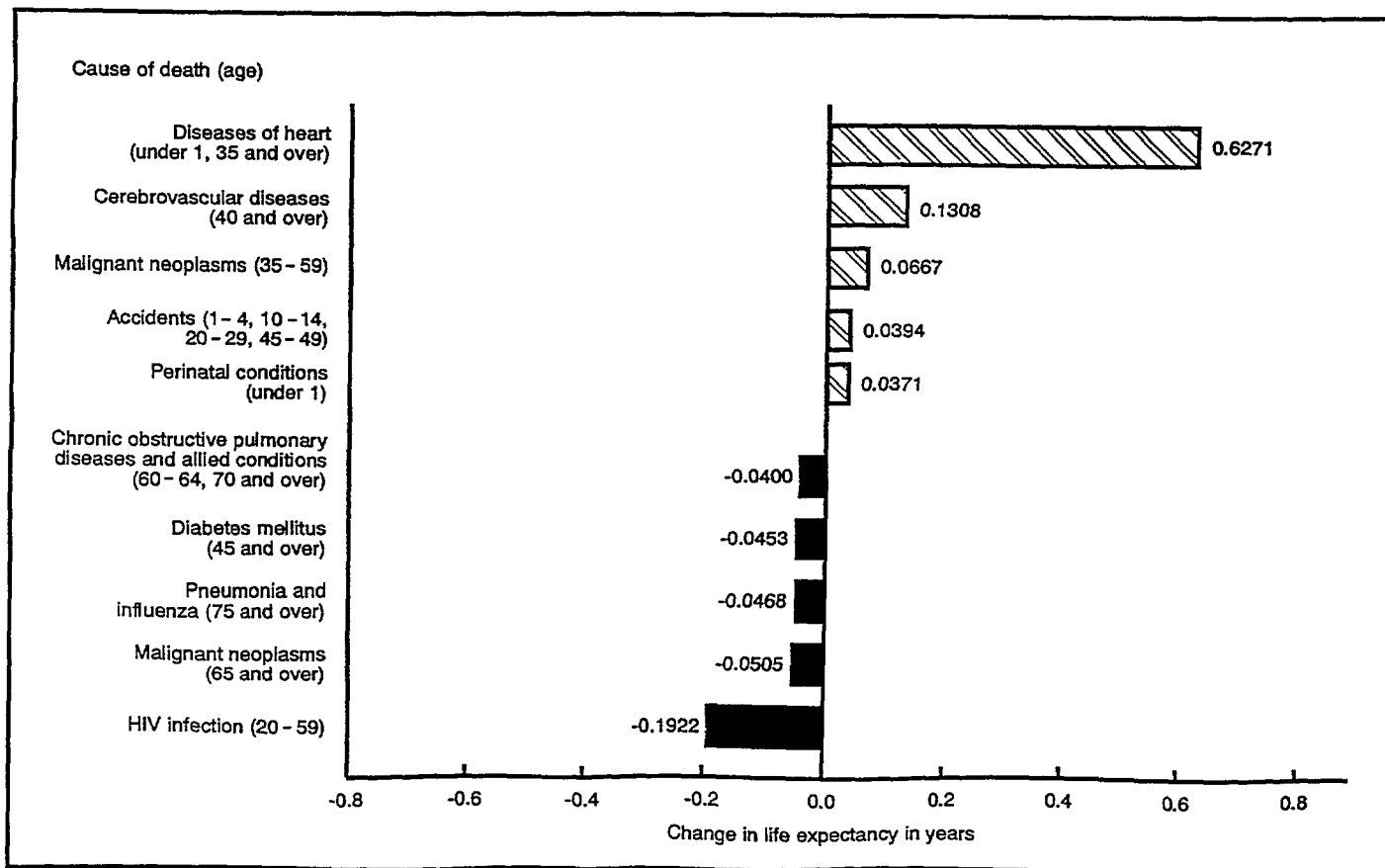


Figure 7. Contribution of leading causes of death and age groups to the change in life expectancy, total population: United States, 1984–89

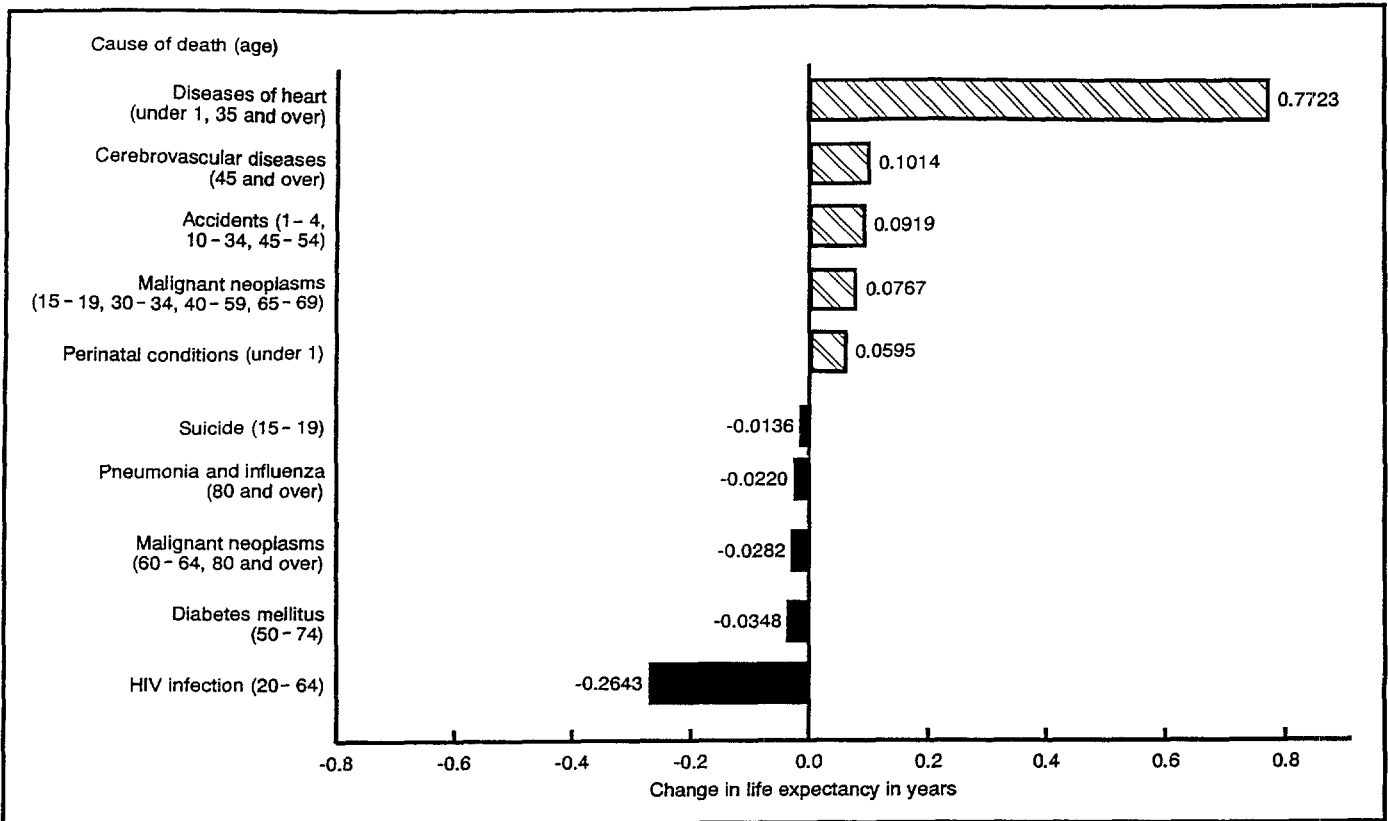


Figure 8. Contribution of leading causes of death and age groups to the change in life expectancy, white males: United States, 1984-89

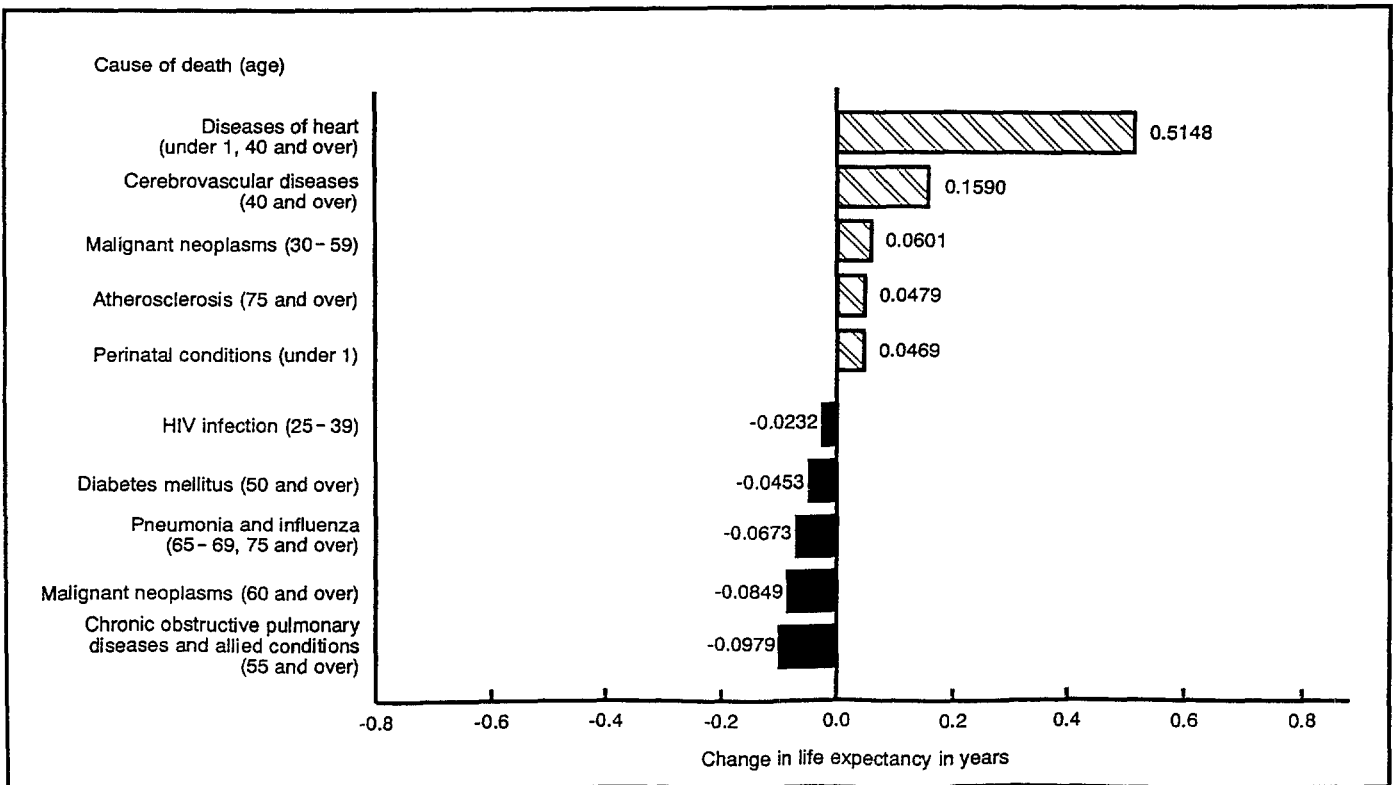


Figure 9. Contribution of leading causes of death and age groups to the change in life expectancy, white females: United States, 1984-89

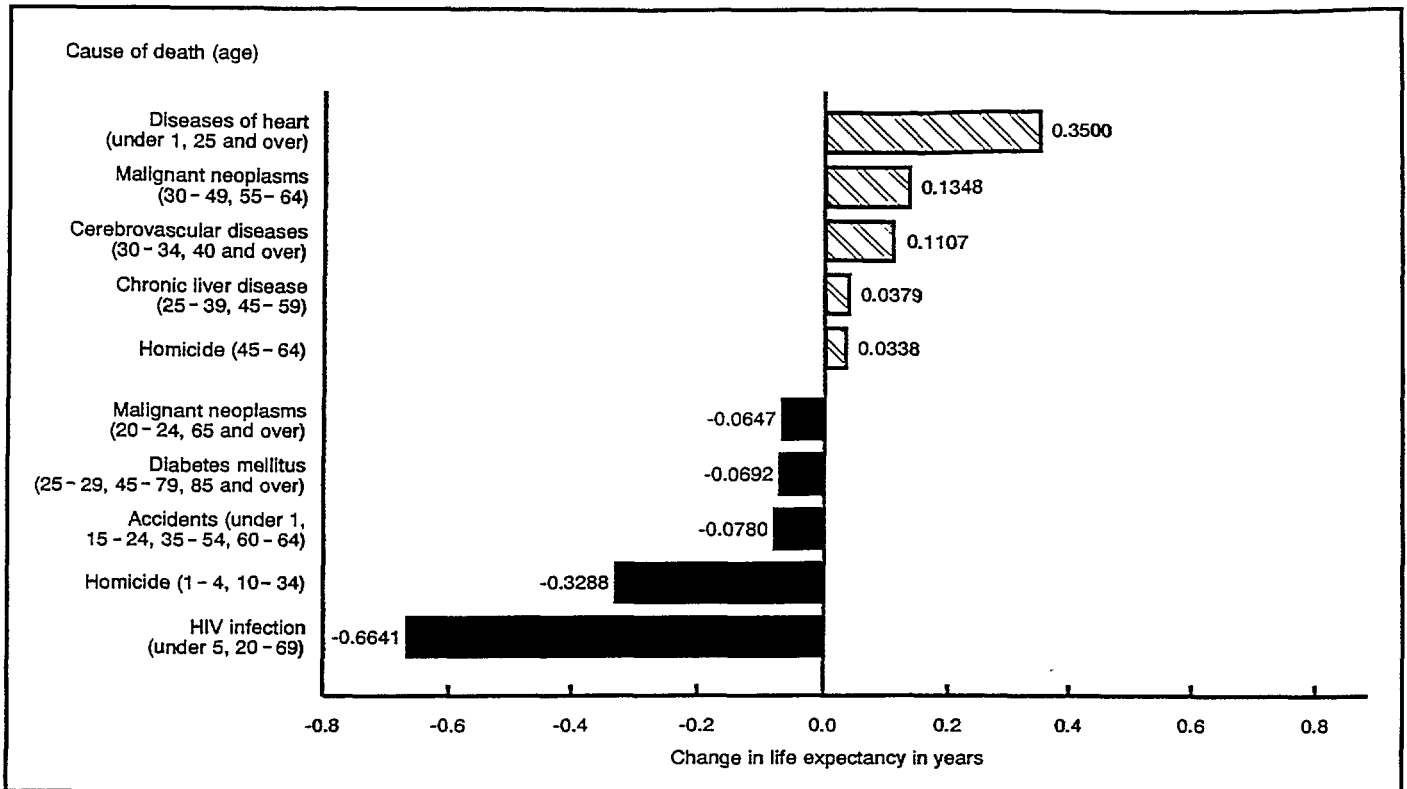


Figure 10. Contribution of leading causes of death and age groups to the change in life expectancy, black males: United States, 1984-89

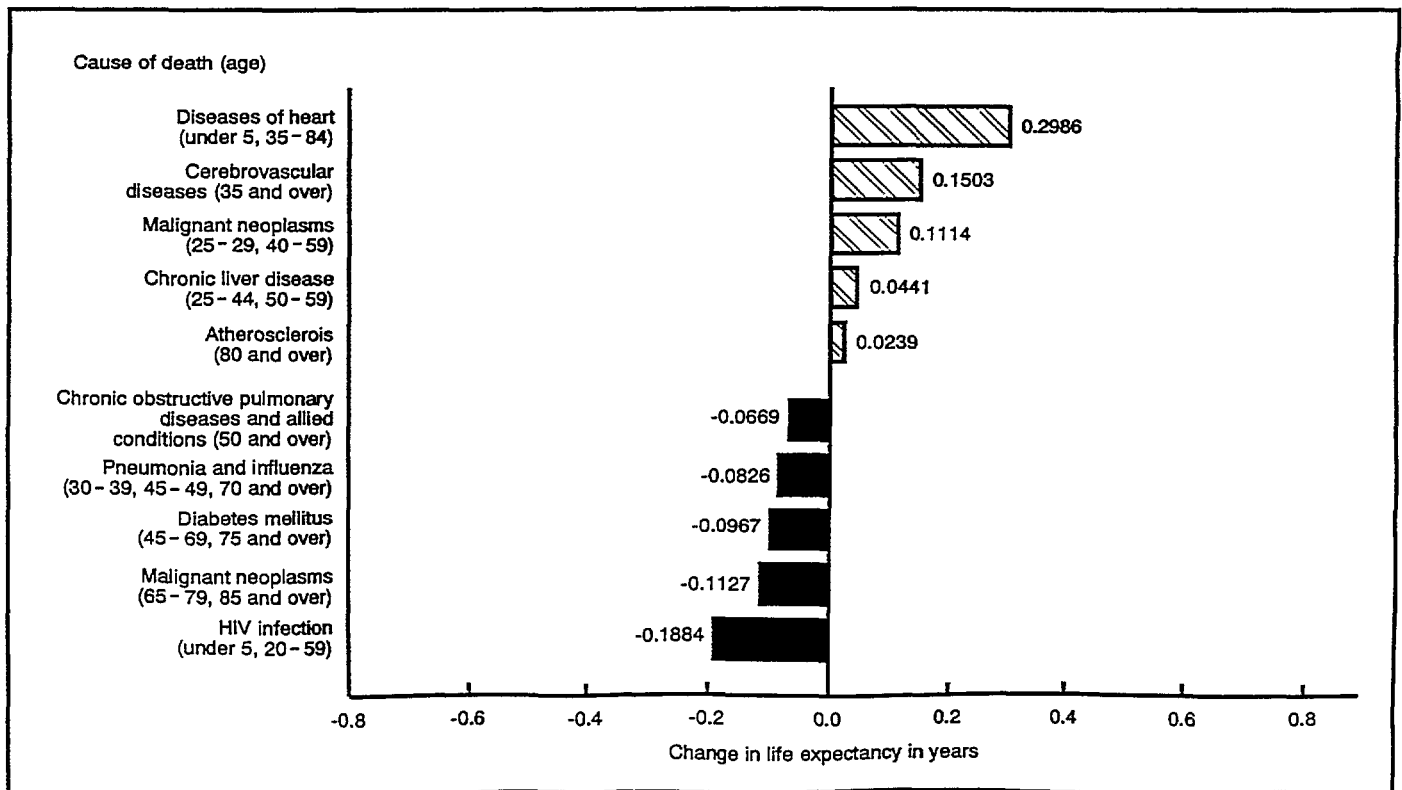


Figure 11. Contribution of leading causes of death and age groups to the change in life expectancy, black females: United States, 1984-89

were Chronic obstructive pulmonary diseases and allied conditions, for ages 55 years and over (20.3 percent) (-0.0979 year); Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, for ages 60 years and over (17.6 percent); and Pneumonia and influenza, for ages 65–69 and 75 years and over (13.9 percent). For white females, HIV infection, which ranked fifth, contributed only 4.8 percent to the negative effect on the change in life expectancy.

For black males, Diseases of heart, for under 1 and 25 years and over (42.4 percent), had a major positive impact (0.3500 year), as did Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, for ages 30–49 and 55–64 years (16.3 percent); and Cerebrovascular diseases, for ages 30–34 and 40 years and over (13.4 percent) (table 9 and figure 10). A striking effect was that of Homicide and legal intervention at ages 45–64 years, which contributed a positive 4.1 percent to the change in life expectancy. Negative effects for black males were dominated by HIV infection, for ages under 5 and 20–69 years (42.7 percent) (-0.6641 year); Homicide and legal intervention, for ages 1–4 and 10–34 years (21.1 percent); and Accidents and adverse effects, with a 5.0 percent contribution for ages under 1, 15–24, 35–54, and 60–64 years.

For black females, three-fourths of the positive contribution to change in life expectancy during 1984–89 was due to the three leading causes of death, Diseases of heart, for under 5 and 35–84 years (39.6 percent) (0.2986 year); Cerebrovascular diseases, for ages 35 years and over (19.9 percent); and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, for ages 25–29 and 40–59 years (14.8 percent) (table 10 and figure 11). Negative effects were led by HIV infection, for ages under 5 and 20–59 years (20.2 percent) (-0.1884 year); Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, for ages 65–79 and 85 years and over (12.1 percent); and Diabetes mellitus for ages 45–69 and 75 years and over (10.4 percent).

Group comparisons

When comparing the cause-of-death–age contributions among the four race-sex groups, there are a number of similarities. Among the positive contributions, Diseases of heart among persons under 1 year and 25 years of age and over made the largest positive contribution. Cerebrovascular diseases among persons 30 years and over made the second or third greatest positive contribution, and Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, among persons 20–59 years of age made the second, third, or fourth largest positive contribution among the four race-sex groups. One major difference among the race-sex groups having positive contributions was that Accidents and adverse effects for most age groups under 55 years had the third greatest positive contribution for white males, while for the other race-sex groups the contribution of this cause of death ranged from sixth to ninth.

Among the negative contributions, HIV infection among persons 20–69 years of age made the largest negative contribution to the change in life expectancy for each of the four

race-sex groups, except for white females for which it was fifth. Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues for persons 60–65 years of age and over made the second or third largest negative contribution for the race-sex groups, except for black males for which it was fifth. Major differences among the race-sex groups having negative contributions included the following: for white females, Chronic obstructive pulmonary diseases and allied conditions for persons 55 years and over was first, while that cause of death was fifth to eighth for the other race-sex groups; for black males, Homicide and legal intervention for persons 1–4 years and 10–34 years was second, while that cause of death was sixth to eighth for the other race-sex groups; and for black males, Accidents and adverse effects for most age groups under 65 years was third, while for other race-sex groups this cause was sixth to tenth.

Change in the gap in life expectancy between white persons and black persons

During 1984–89 the gap or difference in life expectancy between white and black males increased by 1.7 years from 6.2 years to 7.9 years (table A). (Total contribution to the change in life expectancy in table 11 may not add to the calculated difference between life expectancy in table A due to rounding.) Contributing most to the growing gap in life expectancy between males of the two race groups were trends in mortality for Diseases of heart for males 40 years and over (table 11 and figure 12). While the change in life expectancy from this cause increased for white and black males, it increased less rapidly for black males. This resulted in a negative contribution of -0.4358 year, over 23 percent of the widening gap. The next two most important causes contributing to the widening gap were HIV infection (for ages under 5 and 20–64 years) and Homicide and legal intervention (for ages 1–4 and 10–39 years), for which decreases in the change in life expectancy were greater for black males than white males, again resulting in negative contributions of -0.3999 year and -0.3238 year, respectively, to the gap in life expectancy. These three causes in selected age groups contributed 61.6 percent to the widening gap in life expectancy between white and black males.

Selected causes of death and age groups kept the gap between black and white males from widening more than it did. Among these were trends in mortality for Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues for males 35–49 and 55–64 years, which contributed 32.2 percent (0.1029 year) to narrowing. Also contributing to narrowing were Cerebrovascular diseases for ages 55–59 and 65–74 years (11.6 percent) and Homicide and legal intervention for ages 45–64 years (9.5 percent). These were insufficient to offset the effect of other cause-age group combinations to the widening gap.

Between 1984 and 1989 the gap in life expectancy between white and black females increased 0.7 year, from 5.0 years to 5.7 years. Contributing most to the growing gap in life expectancy between females of the two race groups were trends in mortality for Diseases of heart for females 60 years

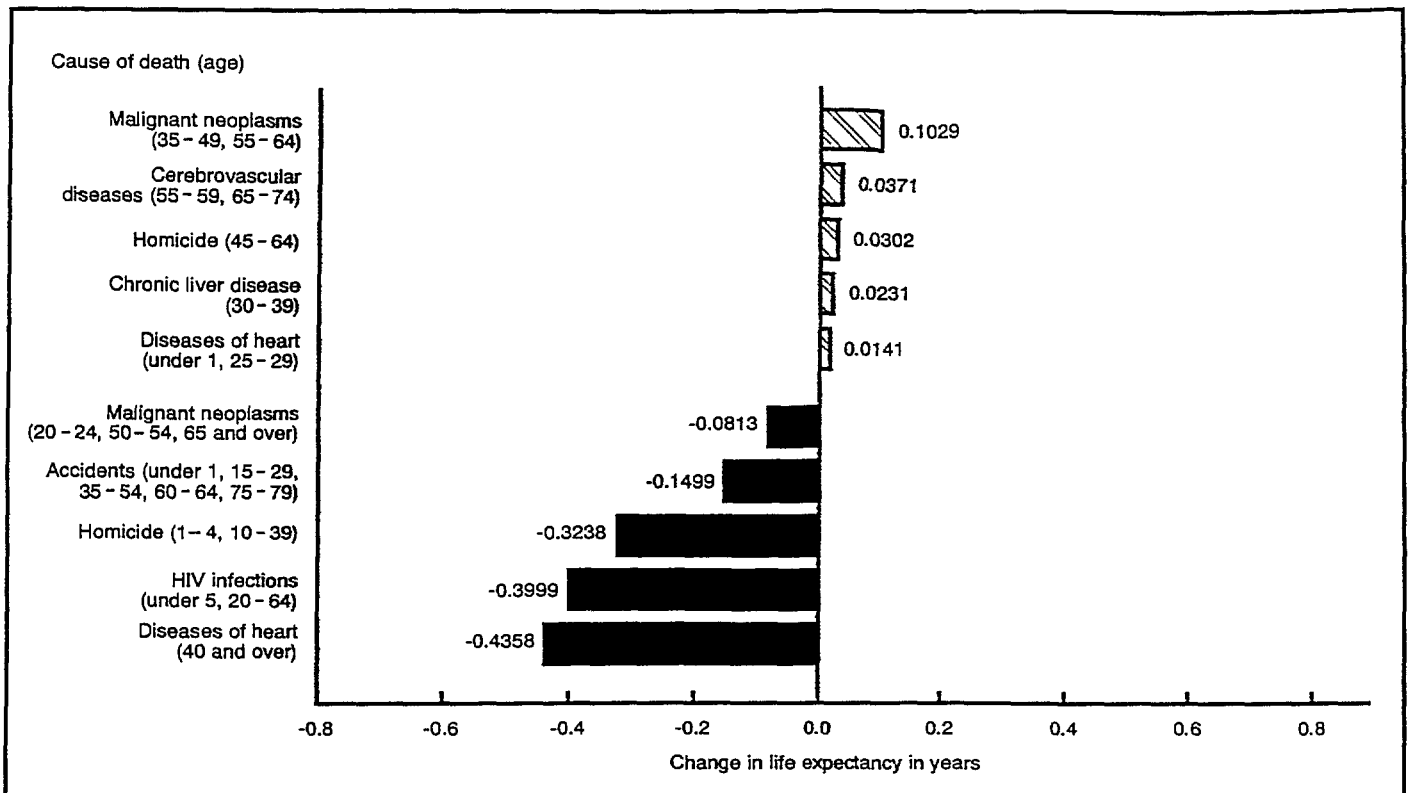


Figure 12. Contribution of leading causes of death and age groups to the change in the gap in life expectancy between white and black males: United States, 1984-89

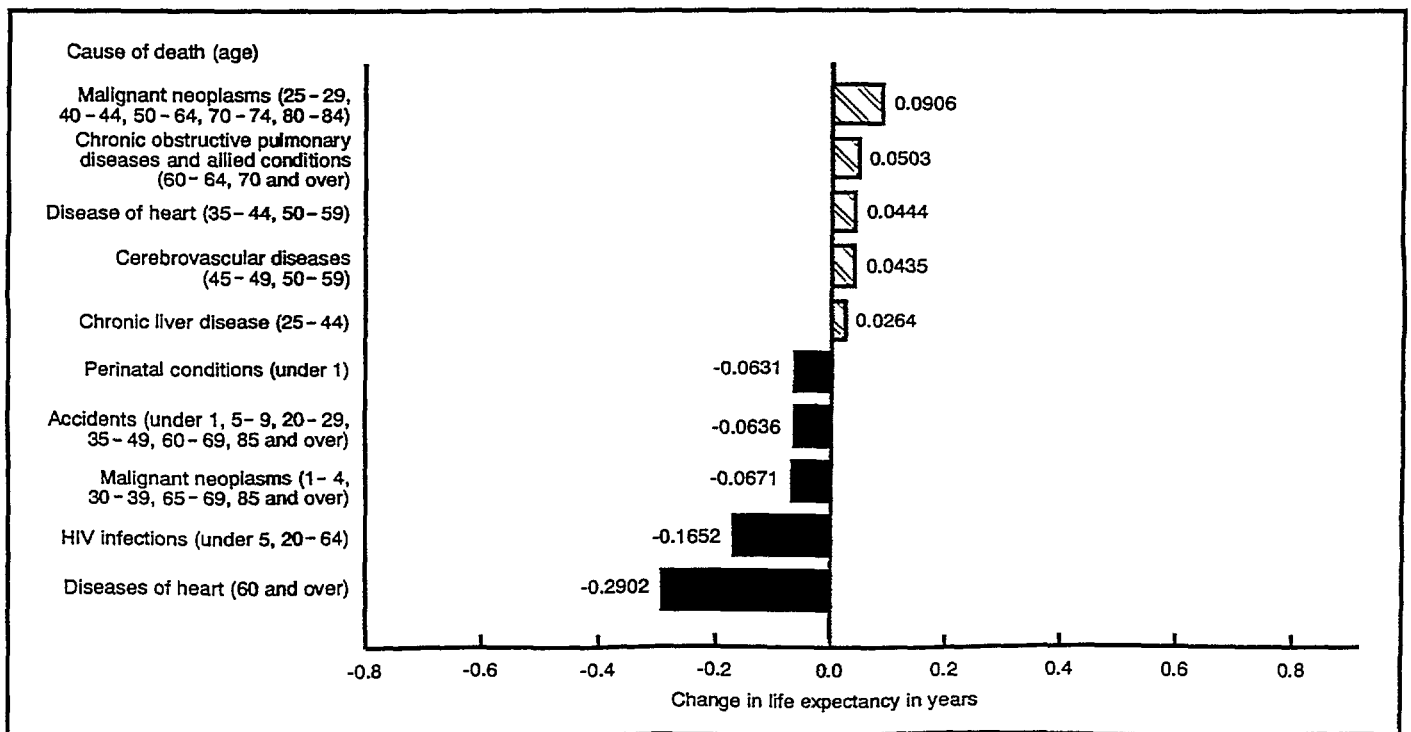


Figure 13. Contribution of leading causes of death and age groups to the change in the gap in life expectancy between white and black females: United States, 1984-89

and over. While the change in life expectancy from this cause increased for females of both races, it increased less rapidly for black females. This resulted in a negative contribution of -0.2902 year, or 27.5 percent of the widening gap (table 12 and figure 13). For HIV infection, the second highest cause contributing to the widening gap (for ages under 5 years and 20–64 years), decreases in the change in life expectancy were greater for black females than white females. This resulted in a negative contribution of -0.1652 year (15.6 percent) to the widening gap in life expectancy. These two causes in selected age groups contributed 43.1 percent to the widening gap in life expectancy between white and black females.

Countervailing effects to the widening were mortality trends for Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues for females 25–29, 40–44, 50–64, 70–74, and 80–84 years of age, which contributed 0.0906 year, or 23.9 percent to narrowing. Also contributing to narrowing were Chronic obstructive pulmonary diseases and allied conditions for ages 60–64 and 70 years and over (13.3 percent) and Diseases of heart for ages 35–44 and 50–59 years (11.7 percent).

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Table 1. Contribution to the change in life expectancy (in years) from birth to 85 years and over for the leading causes of death, by age for the total population: United States, 1984-89

Age group	All causes	Diseases of heart	Malignant neoplasms	Cerebrovascular diseases	Accidents	Chronic obstructive pulmonary disease	Pneumonia and influenza	Diabetes mellitus	Suicide	Chronic liver disease
Under 1 year	0.0713	0.0051	0.0003	-0.0001	-0.0014	0.0003	0.0022	0.0000	...	0.0001
1-4 years	0.0075	0.0015	0.0016	0.0003	0.0030	-0.0001	-0.0002	-0.0002	...	0.0001
5-9 years	0.0056	0.0012	0.0006	0.0004	0.0013	-0.0001	0.0008	0.0000	0.0001	0.0002
10-14 years	0.0033	-0.0001	0.0012	0.0001	0.0034	-0.0003	0.0003	-0.0001	-0.0003	0.0001
15-19 years	-0.0185	0.0001	0.0017	0.0007	0.0020	-0.0004	-0.0001	-0.0001	-0.0065	0.0001
20-24 years	-0.0030	0.0006	0.0005	0.0003	0.0157	-0.0001	-0.0005	-0.0004	0.0009	0.0000
25-29 years	-0.0276	0.0002	0.0018	0.0006	0.0033	-0.0002	-0.0007	-0.0003	0.0012	0.0010
30-34 years	-0.0462	0.0011	0.0030	0.0003	0.0004	-0.0005	-0.0011	-0.0004	0.0012	0.0019
35-39 years	-0.0511	0.0063	0.0047	0.0009	-0.0035	-0.0003	-0.0018	-0.0001	0.0003	-0.0009
40-44 years	-0.0052	0.0188	0.0099	0.0032	-0.0013	0.0000	-0.0013	-0.0013	0.0014	0.0019
45-49 years	0.0328	0.0302	0.0101	0.0042	0.0030	0.0002	-0.0008	-0.0032	0.0026	0.0046
50-54 years	0.0674	0.0479	0.0163	0.0060	0.0026	-0.0002	-0.0001	-0.0033	0.0016	0.0059
55-59 years	0.0757	0.0565	0.0150	0.0045	0.0008	-0.0024	-0.0008	-0.0065	0.0024	0.0041
60-64 years	0.0841	0.0755	-0.0022	0.0079	0.0010	-0.0032	-0.0010	-0.0062	0.0008	0.0027
65-69 years	0.0917	0.0839	-0.0034	0.0115	0.0012	-0.0024	-0.0024	-0.0068	0.0001	0.0029
70-74 years	0.0974	0.0972	-0.0136	0.0188	0.0006	-0.0049	-0.0014	-0.0059	0.0006	0.0007
75-79 years	0.0659	0.0771	-0.0141	0.0203	0.0008	-0.0085	-0.0042	-0.0042	-0.0002	-0.0001
80-84 years	0.0400	0.0582	-0.0103	0.0206	0.0001	-0.0078	-0.0067	-0.0030	-0.0002	-0.0003
85 years and over	0.0225	0.0656	-0.0069	0.0302	0.0002	-0.0086	-0.0239	-0.0034	-0.0005	-0.0005
Total	0.5135	0.6270	0.0162	0.1307	0.0332	-0.0396	-0.0435	-0.0453	0.0054	0.0246

Age group	Nephritis	Atherosclerosis	Homicide	Septicemia	Perinatal conditions	Congenital anomalies	HIV infection	Hypertension	Residual
Under 1 year	0.0019	0.0000	-0.0014	0.0007	0.0366	0.0237	-0.0015	0.0000	0.0051
1-4 years	0.0002	0.0000	-0.0007	-0.0003	0.0003	0.0011	-0.0017	0.0000	0.0026
5-9 years	0.0002	0.0000	-0.0002	0.0003	0.0001	0.0000	-0.0007	0.0000	0.0013
10-14 years	0.0002	0.0000	-0.0012	0.0000	0.0000	0.0004	-0.0003	0.0000	-0.0001
15-19 years	0.0001	0.0000	-0.0155	-0.0002	0.0000	-0.0002	-0.0006	0.0000	0.0003
20-24 years	-0.0001	0.0000	-0.0127	0.0002	0.0000	0.0001	-0.0068	-0.0001	-0.0008
25-29 years	0.0003	0.0000	-0.0047	-0.0003	0.0000	-0.0004	-0.0259	-0.0001	-0.0034
30-34 years	-0.0002	0.0000	-0.0030	-0.0006	0.0000	0.0002	-0.0408	-0.0001	-0.0077
35-39 years	-0.0001	0.0000	-0.0001	-0.0008	0.0000	-0.0003	-0.0426	-0.0002	-0.0125
40-44 years	0.0001	0.0001	0.0012	-0.0008	0.0000	0.0004	-0.0304	0.0000	-0.0072
45-49 years	0.0007	0.0000	0.0018	-0.0004	0.0000	0.0002	-0.0191	0.0001	-0.0013
50-54 years	-0.0002	0.0000	0.0008	-0.0002	0.0000	-0.0003	-0.0112	-0.0004	0.0020
55-59 years	0.0002	0.0003	0.0009	0.0001	0.0000	0.0001	-0.0059	0.0003	0.0061
60-64 years	0.0009	0.0010	0.0005	0.0003	0.0000	0.0003	-0.0027	0.0001	0.0082
65-69 years	0.0007	0.0015	-0.0001	-0.0002	0.0000	-0.0004	-0.0012	-0.0002	0.0069
70-74 years	0.0016	0.0027	0.0001	-0.0002	0.0000	0.0001	-0.0005	0.0007	0.0007
75-79 years	0.0010	0.0047	0.0000	-0.0020	0.0000	-0.0002	-0.0002	0.0003	-0.0046
80-84 years	0.0002	0.0064	0.0001	-0.0021	0.0000	-0.0001	-0.0001	-0.0005	-0.0146
85 years and over	0.0006	0.0179	0.0000	-0.0052	0.0000	-0.0002	0.0000	-0.0006	-0.0420
Total	0.0085	0.0346	-0.0342	-0.0119	0.0370	0.0247	-0.1922	-0.0008	-0.0611

NOTES: Figures may not add to totals because of rounding. For complete ICD-9 titles and numbers, see Appendix table 1.

Table 2. Contribution to the change in life expectancy (in years) from birth to 85 years and over for the leading causes of death, by age for white males: United States, 1984-89

Age group	All causes	Diseases of heart	Malignant neoplasms	Cerebrovascular diseases	Accidents	Chronic obstructive pulmonary disease	Pneumonia and influenza	Diabetes mellitus	Suicide	Chronic liver disease
Under 1 year	0.1075	0.0049	0.0000	-0.0001	0.0001	-0.0001	0.0013	-0.0002	...	0.0000
1-4 years	0.0115	0.0015	0.0013	0.0002	0.0045	-0.0003	0.0002	-0.0002	...	0.0001
5-9 years	0.0081	0.0013	0.0021	0.0002	0.0023	0.0001	0.0007	0.0001	0.0002	0.0003
10-14 years	0.0056	0.0000	0.0008	-0.0003	0.0061	-0.0002	0.0003	-0.0001	-0.0003	0.0000
15-19 years	0.0006	-0.0002	0.0029	0.0009	0.0130	-0.0005	0.0002	0.0002	-0.0100	0.0002
20-24 years	0.0235	0.0004	0.0025	0.0003	0.0303	0.0003	-0.0002	-0.0001	0.0016	0.0002
25-29 years	-0.0256	-0.0009	0.0016	0.0006	0.0114	0.0000	-0.0006	-0.0001	0.0013	0.0007
30-34 years	-0.0539	0.0026	0.0038	0.0001	0.0043	-0.0004	-0.0007	-0.0010	0.0022	0.0016
35-39 years	-0.0689	0.0112	0.0019	0.0007	-0.0027	-0.0002	-0.0013	-0.0003	-0.0013	-0.0024
40-44 years	-0.0124	0.0284	0.0098	0.0027	-0.0001	0.0004	-0.0012	-0.0025	0.0019	-0.0001
45-49 years	0.0320	0.0464	0.0053	0.0041	0.0052	0.0003	-0.0012	-0.0025	0.0019	0.0050
50-54 years	0.1012	0.0775	0.0193	0.0058	0.0058	0.0023	0.0003	-0.0031	0.0009	0.0045
55-59 years	0.1121	0.0857	0.0171	0.0039	0.0006	0.0004	-0.0002	-0.0050	0.0028	0.0049
60-64 years	0.1149	0.1060	-0.0100	0.0069	0.0019	0.0022	0.0000	-0.0051	0.0009	0.0035
65-69 years	0.1492	0.1104	0.0081	0.0120	0.0027	0.0038	-0.0013	-0.0047	-0.0003	0.0045
70-74 years	0.1448	0.1115	0.0000	0.0170	0.0013	0.0079	0.0001	-0.0051	0.0006	0.0014
75-79 years	0.1056	0.0863	-0.0020	0.0156	0.0020	0.0024	-0.0011	-0.0027	-0.0005	0.0003
80-84 years	0.0417	0.0487	-0.0089	0.0146	0.0000	-0.0017	-0.0035	-0.0014	-0.0003	-0.0003
85 years and over	0.0329	0.0497	-0.0073	0.0159	0.0003	-0.0048	-0.0107	-0.0013	-0.0009	-0.0003
Total	0.8306	0.7712	0.0485	0.1010	0.0891	0.0118	-0.0189	-0.0346	-0.0004	0.0241

Age group	Nephritis	Atherosclerosis	Homicide	Septicemia	Perinatal conditions	Congenital anomalies	HIV infection	Hypertension	Residual
Under 1 year	0.0017	0.0000	-0.0004	0.0007	0.0593	0.0272	-0.0006	-0.0001	0.0140
1-4 years	0.0001	0.0000	0.0002	-0.0006	-0.0001	0.0037	-0.0001	0.0000	0.0012
5-9 years	0.0003	0.0000	-0.0003	0.0003	0.0001	0.0000	-0.0006	0.0000	0.0009
10-14 years	0.0000	0.0000	-0.0006	-0.0001	0.0000	0.0007	-0.0003	0.0000	-0.0005
15-19 years	0.0001	0.0000	-0.0059	-0.0001	-0.0001	0.0001	-0.0007	0.0000	0.0004
20-24 years	0.0003	0.0000	-0.0037	0.0002	0.0000	0.0001	-0.0079	-0.0001	-0.0008
25-29 years	0.0001	0.0000	0.0010	-0.0001	0.0000	-0.0006	-0.0353	-0.0001	-0.0046
30-34 years	0.0002	0.0000	0.0003	-0.0006	0.0000	0.0002	-0.0558	-0.0002	-0.0106
35-39 years	-0.0001	0.0000	0.0022	-0.0007	0.0000	-0.0002	-0.0589	-0.0002	-0.0166
40-44 years	0.0004	-0.0001	0.0021	-0.0010	0.0000	0.0007	-0.0430	0.0002	-0.0104
45-49 years	0.0004	0.0002	0.0021	-0.0010	0.0000	0.0004	-0.0294	0.0001	-0.0046
50-54 years	0.0001	0.0001	0.0012	-0.0001	0.0000	-0.0004	-0.0166	-0.0002	0.0040
55-59 years	0.0000	0.0000	0.0012	-0.0001	0.0000	-0.0001	-0.0088	-0.0003	0.0097
60-64 years	0.0007	0.0001	0.0006	0.0006	0.0000	0.0002	-0.0039	0.0000	0.0095
65-69 years	0.0007	0.0009	0.0004	0.0008	0.0000	0.0002	-0.0014	0.0005	0.0118
70-74 years	0.0017	0.0014	0.0001	0.0004	0.0000	-0.0004	-0.0005	0.0007	0.0054
75-79 years	0.0017	0.0026	0.0002	-0.0003	0.0000	0.0002	-0.0002	0.0002	0.0006
80-84 years	0.0018	0.0044	0.0000	-0.0013	0.0000	-0.0001	-0.0001	-0.0005	-0.0087
85 years and over	0.0008	0.0044	0.0001	-0.0013	0.0000	-0.0001	-0.0001	0.0005	-0.0168
Total	0.0116	0.0230	-0.0015	-0.0053	0.0591	0.0315	-0.2643	0.0005	-0.0162

NOTES: Figures may not add to totals because of rounding. For complete ICD-9 titles and numbers, see Appendix table I.

Table 3. Contribution to the change in life expectancy (in years) from birth to 85 years and over for the leading causes of death, by age for white females: United States, 1984–89

Age group	All causes	Diseases of heart	Malignant neoplasms	Cerebrovascular diseases	Accidents	Chronic obstructive pulmonary disease	Pneumonia and influenza	Diabetes mellitus	Suicide	Chronic liver disease
Under 1 year	0.0916	0.0051	-0.0001	0.0001	0.0011	0.0002	0.0027	0.0001	...	0.0002
1-4 years	0.0094	0.0020	0.0026	0.0002	-0.0002	0.0002	-0.0001	-0.0002	...	0.0003
5-9 years	0.0023	0.0014	-0.0012	0.0005	-0.0004	0.0003	0.0008	0.0000	0.0000	0.0001
10-14 years	0.0055	0.0005	0.0014	0.0003	0.0016	-0.0003	0.0007	-0.0003	-0.0001	0.0002
15-19 years	-0.0085	0.0006	0.0009	0.0007	-0.0092	-0.0007	-0.0004	-0.0002	-0.0022	-0.0001
20-24 years	0.0106	0.0008	-0.0007	0.0000	0.0070	-0.0001	-0.0005	-0.0002	0.0036	-0.0002
25-29 years	-0.0035	0.0005	0.0019	0.0003	-0.0024	-0.0001	-0.0007	0.0002	0.0020	0.0003
30-34 years	-0.0070	-0.0005	0.0028	0.0001	-0.0026	-0.0004	-0.0008	-0.0004	0.0016	0.0000
35-39 years	0.0106	0.0018	0.0094	0.0018	-0.0005	-0.0003	-0.0006	0.0004	0.0023	0.0001
40-44 years	0.0204	0.0078	0.0072	0.0038	-0.0007	-0.0001	-0.0005	-0.0013	0.0030	0.0030
45-49 years	0.0407	0.0144	0.0136	0.0037	0.0024	-0.0007	0.0002	-0.0026	0.0035	0.0040
50-54 years	0.0451	0.0190	0.0128	0.0066	0.0011	-0.0023	-0.0008	-0.0028	0.0026	0.0074
55-59 years	0.0418	0.0295	0.0076	0.0040	0.0012	-0.0057	-0.0006	-0.0056	0.0017	0.0037
60-64 years	0.0463	0.0459	-0.0031	0.0092	0.0011	-0.0105	-0.0021	-0.0056	0.0008	0.0021
65-69 years	0.0519	0.0667	-0.0103	0.0091	0.0001	-0.0082	-0.0032	-0.0076	0.0008	0.0018
70-74 years	0.0453	0.0856	-0.0274	0.0173	-0.0009	-0.0193	-0.0020	-0.0065	0.0009	0.0003
75-79 years	0.0470	0.0800	-0.0232	0.0271	0.0000	-0.0196	-0.0064	-0.0039	0.0002	-0.0008
80-84 years	0.0350	0.0691	-0.0121	0.0258	0.0000	-0.0150	-0.0098	-0.0038	0.0001	-0.0003
85 years and over	0.0140	0.0842	-0.0068	0.0483	0.0000	-0.0145	-0.0388	-0.0044	-0.0002	-0.0008
Total	0.4984	0.5142	-0.0248	0.1590	-0.0012	-0.0972	-0.0629	-0.0446	0.0206	0.0212

Age group	Nephritis	Atherosclerosis	Homicide	Septicemia	Perinatal conditions	Congenital anomalies	HIV infection	Hypertension	Residual
Under 1 year	0.0013	-0.0001	-0.0012	0.0005	0.0457	0.0280	-0.0007	0.0000	0.0089
1-4 years	0.0002	0.0001	0.0004	0.0002	0.0008	0.0004	-0.0015	-0.0001	0.0041
5-9 years	0.0002	0.0001	-0.0002	-0.0001	0.0002	-0.0007	-0.0005	-0.0001	0.0018
10-14 years	0.0003	0.0000	0.0005	-0.0001	0.0000	0.0006	-0.0001	-0.0001	0.0003
15-19 years	0.0003	0.0000	-0.0003	-0.0003	0.0001	-0.0002	-0.0001	0.0001	0.0025
20-24 years	-0.0002	0.0000	0.0024	0.0004	0.0000	0.0000	-0.0015	-0.0001	-0.0001
25-29 years	0.0006	0.0000	-0.0006	-0.0003	0.0000	-0.0007	-0.0032	0.0000	-0.0013
30-34 years	0.0000	0.0000	-0.0009	-0.0004	0.0000	0.0002	-0.0056	0.0000	-0.0001
35-39 years	0.0004	0.0000	0.0004	-0.0001	-0.0001	-0.0001	-0.0038	0.0000	-0.0007
40-44 years	0.0004	0.0000	-0.0002	-0.0006	0.0000	0.0003	-0.0021	-0.0001	0.0004
45-49 years	0.0007	-0.0002	0.0005	0.0000	0.0000	-0.0004	-0.0013	0.0001	0.0028
50-54 years	0.0002	-0.0002	-0.0001	0.0001	0.0000	-0.0001	-0.0010	0.0001	0.0024
55-59 years	0.0010	0.0004	0.0007	-0.0007	0.0000	0.0005	-0.0007	0.0010	0.0041
60-64 years	0.0015	0.0013	0.0004	-0.0001	0.0000	0.0004	-0.0003	0.0003	0.0050
65-69 years	0.0002	0.0013	-0.0002	-0.0008	0.0000	-0.0006	-0.0004	-0.0002	0.0033
70-74 years	0.0013	0.0024	-0.0001	-0.0005	0.0000	0.0000	-0.0002	0.0004	-0.0058
75-79 years	0.0010	0.0053	0.0001	-0.0026	0.0000	-0.0003	-0.0001	0.0004	-0.0101
80-84 years	-0.0005	0.0086	0.0001	-0.0030	0.0000	-0.0002	0.0000	-0.0003	-0.0237
85 years and over	-0.0003	0.0284	0.0001	-0.0091	0.0000	-0.0001	0.0000	-0.0017	-0.0703
Total	0.0086	0.0475	0.0016	-0.0172	0.0468	0.0270	-0.0232	-0.0004	-0.0766

NOTES: Figures may not add to totals because of rounding. For complete ICD-9 titles and numbers, see Appendix table I.

Table 4. Contribution to the change in life expectancy (in years) from birth to 85 years and over for the leading causes of death, by age for black males: United States, 1984-89

Age group	All causes	Diseases of heart	Malignant neoplasms	Cerebrovascular diseases	Accidents	Chronic obstructive pulmonary disease	Pneumonia and influenza	Diabetes mellitus	Suicide	Chronic liver disease
Under 1 year	-0.0121	0.0087	0.0010	0.0004	-0.0073	0.0015	0.0054	0.0000	...	0.0010
1-4 years	-0.0078	-0.0006	0.0014	0.0012	0.0062	-0.0001	-0.0014	0.0000	...	-0.0004
5-9 years	0.0084	0.0009	0.0004	0.0010	0.0067	-0.0017	0.0006	-0.0002	-0.0004	0.0000
10-14 years	-0.0044	0.0000	0.0014	0.0006	0.0038	0.0010	-0.0006	0.0006	-0.0017	0.0006
15-19 years	-0.1575	0.0014	0.0009	-0.0004	-0.0117	-0.0002	0.0000	-0.0007	-0.0107	0.0003
20-24 years	-0.1799	0.0001	-0.0033	0.0010	-0.0087	-0.0012	-0.0024	-0.0021	-0.0153	-0.0006
25-29 years	-0.1274	0.0075	0.0008	0.0010	0.0013	-0.0017	-0.0009	-0.0030	0.0004	0.0031
30-34 years	-0.1546	0.0028	0.0036	0.0028	0.0029	-0.0029	-0.0022	0.0015	-0.0048	0.0108
35-39 years	-0.2096	0.0098	0.0080	-0.0016	-0.0131	-0.0010	-0.0059	-0.0019	-0.0013	0.0034
40-44 years	-0.1380	0.0226	0.0148	0.0045	-0.0115	-0.0037	-0.0071	-0.0010	-0.0028	0.0026
45-49 years	-0.0445	0.0117	0.0126	0.0038	-0.0075	0.0050	-0.0026	-0.0078	-0.0002	0.0045
50-54 years	-0.0136	0.0270	-0.0005	0.0062	-0.0120	-0.0001	0.0027	-0.0042	0.0013	0.0055
55-59 years	0.0795	0.0407	0.0311	0.0178	0.0040	0.0004	-0.0013	-0.0134	0.0025	0.0035
60-64 years	0.1607	0.0692	0.0588	0.0092	-0.0042	0.0035	0.0008	-0.0081	0.0009	0.0011
65-69 years	0.0216	0.0306	-0.0074	0.0175	0.0005	-0.0036	-0.0037	-0.0075	-0.0017	0.0010
70-74 years	0.0949	0.0696	-0.0043	0.0219	0.0044	-0.0027	-0.0046	-0.0092	0.0008	-0.0005
75-79 years	-0.0241	0.0155	-0.0206	0.0029	-0.0015	-0.0108	-0.0023	-0.0039	0.0003	0.0005
80-84 years	0.0145	0.0229	-0.0128	0.0158	0.0000	-0.0027	-0.0051	-0.0022	-0.0002	-0.0004
85 years and over	-0.0358	0.0089	-0.0158	0.0031	-0.0005	-0.0063	-0.0091	-0.0039	-0.0006	-0.0003
Total	-0.7298	0.3495	0.0702	0.1087	-0.0482	-0.0273	-0.0396	-0.0671	-0.0336	0.0358

Age group	Nephritis	Atherosclerosis	Homicide	Septicemia	Perinatal conditions	Congenital anomalies	HIV infection	Hypertension	Residual
Under 1 year	0.0043	0.0000	-0.0010	0.0027	-0.0130	0.0025	-0.0034	0.0002	-0.0153
1-4 years	-0.0002	0.0002	-0.0070	0.0002	-0.0005	-0.0017	-0.0077	0.0000	0.0025
5-9 years	0.0003	-0.0002	-0.0003	0.0012	0.0000	-0.0010	-0.0014	0.0000	0.0024
10-14 years	0.0004	0.0000	-0.0088	0.0000	-0.0004	-0.0011	-0.0004	0.0002	0.0001
15-19 years	0.0000	0.0000	-0.1290	-0.0004	0.0002	-0.0008	-0.0017	-0.0002	-0.0047
20-24 years	-0.0008	0.0002	-0.1191	-0.0001	0.0000	0.0017	-0.0247	-0.0005	-0.0043
25-29 years	0.0007	0.0000	-0.0455	-0.0015	0.0000	0.0006	-0.0880	-0.0007	-0.0017
30-34 years	-0.0029	0.0000	-0.0164	-0.0007	-0.0001	0.0005	-0.1344	0.0004	-0.0158
35-39 years	-0.0042	-0.0001	-0.0011	-0.0045	0.0000	-0.0007	-0.1565	-0.0002	-0.0389
40-44 years	-0.0031	-0.0002	-0.0003	-0.0023	0.0000	0.0002	-0.1220	-0.0015	-0.0275
45-49 years	-0.0003	0.0001	0.0131	-0.0002	0.0000	-0.0003	-0.0602	0.0000	-0.0162
50-54 years	-0.0046	0.0003	0.0072	-0.0028	0.0000	0.0001	-0.0350	-0.0040	-0.0009
55-59 years	-0.0030	0.0008	0.0079	0.0000	0.0000	-0.0007	-0.0155	0.0013	0.0035
60-64 years	0.0039	0.0003	0.0035	-0.0004	0.0000	0.0004	-0.0082	0.0014	0.0289
65-69 years	-0.0027	0.0033	0.0013	-0.0015	0.0000	0.0000	-0.0037	-0.0031	0.0024
70-74 years	0.0011	0.0038	0.0007	0.0016	0.0000	0.0003	-0.0010	0.0029	0.0102
75-79 years	-0.0020	0.0040	0.0000	0.0005	-0.0001	-0.0003	-0.0002	-0.0015	-0.0045
80-84 years	-0.0010	0.0029	0.0000	-0.0020	0.0000	0.0001	0.0000	-0.0014	0.0005
85 years and over	0.0001	0.0028	-0.0003	-0.0013	0.0000	0.0000	-0.0001	0.0000	-0.0127
Total	-0.0139	0.0183	-0.2951	-0.0114	-0.0139	-0.0003	-0.6641	-0.0067	-0.0919

NOTES: Figures may not add to totals because of rounding. For complete ICD-9 titles and numbers, see Appendix table I.

Table 5. Contribution to the change in life expectancy (in years) from birth to 85 years and over for the leading causes of death, by age for black females: United States, 1984–89

<i>Age group</i>	<i>All causes</i>	<i>Diseases of heart</i>	<i>Malignant neoplasms</i>	<i>Cerebrovascular diseases</i>	<i>Accidents</i>	<i>Chronic obstructive pulmonary disease</i>	<i>Pneumonia and influenza</i>	<i>Diabetes mellitus</i>	<i>Suicide</i>	<i>Chronic liver disease</i>
Under 1 year	-0.0209	0.0044	-0.0005	-0.0008	-0.0100	0.0014	0.0027	0.0003	...	0.0001
1–4 years	-0.0008	0.0028	-0.0015	0.0001	0.0062	-0.0012	0.0010	-0.0002	...	0.0000
5–9 years	0.0041	0.0009	0.0012	-0.0002	-0.0065	0.0001	0.0014	-0.0002	0.0000	-0.0002
10–14 years	-0.0057	-0.0021	0.0022	0.0005	0.0017	-0.0016	-0.0014	-0.0002	-0.0009	0.0002
15–19 years	-0.0110	-0.0008	-0.0011	0.0009	-0.0004	0.0014	-0.0005	-0.0008	-0.0011	-0.0010
20–24 years	-0.0234	0.0010	-0.0020	0.0011	-0.0021	-0.0005	-0.0008	-0.0011	-0.0010	0.0004
25–29 years	-0.0462	-0.0012	0.0050	0.0020	-0.0102	-0.0005	-0.0005	-0.0008	-0.0006	0.0057
30–34 years	-0.0705	-0.0006	-0.0002	0.0003	-0.0041	0.0009	-0.0045	0.0022	-0.0005	0.0073
35–39 years	-0.0562	0.0080	0.0020	0.0030	-0.0036	-0.0008	-0.0053	0.0006	-0.0010	0.0040
40–44 years	-0.0010	0.0110	0.0219	0.0048	-0.0060	0.0015	-0.0015	0.0026	-0.0013	0.0072
45–49 years	0.0257	0.0123	0.0145	0.0074	-0.0012	-0.0012	-0.0030	-0.0075	0.0023	0.0024
50–54 years	0.0594	0.0351	0.0255	0.0078	0.0038	-0.0053	0.0000	-0.0043	-0.0010	0.0074
55–59 years	0.0931	0.0474	0.0365	0.0085	0.0015	-0.0076	-0.0019	-0.0095	0.0010	0.0058
60–64 years	0.0326	0.0359	0.0026	0.0140	-0.0017	-0.0067	-0.0023	-0.0122	0.0001	0.0023
65–69 years	-0.0388	0.0240	-0.0440	0.0167	-0.0028	-0.0134	-0.0017	-0.0162	-0.0003	-0.0001
70–74 years	0.0695	0.0643	-0.0173	0.0337	-0.0007	-0.0088	-0.0030	-0.0022	0.0007	-0.0003
75–79 years	-0.0464	0.0125	-0.0243	0.0195	-0.0008	-0.0089	-0.0118	-0.0171	-0.0002	0.0003
80–84 years	0.0380	0.0390	-0.0011	0.0217	0.0020	-0.0060	-0.0076	-0.0082	-0.0003	0.0008
85 years and over	-0.1799	-0.0255	-0.0210	0.0085	-0.0045	-0.0045	-0.0367	-0.0166	0.0000	-0.0005
Total	-0.1784	0.2684	-0.0013	0.1493	-0.0443	-0.0617	-0.0774	-0.0911	-0.0045	0.0429

<i>Age group</i>	<i>Nephritis</i>	<i>Atherosclerosis</i>	<i>Homicide</i>	<i>Septicemia</i>	<i>Perinatal conditions</i>	<i>Congenital anomalies</i>	<i>HIV infection</i>	<i>Hypertension</i>	<i>Residual</i>
Under 1 year	0.0036	0.0000	-0.0049	-0.0024	-0.0168	0.0149	-0.0081	0.0000	-0.0053
1–4 years	0.0003	0.0000	-0.0014	-0.0008	0.0005	-0.0082	-0.0052	0.0000	0.0066
5–9 years	0.0003	0.0000	0.0029	0.0009	0.0003	0.0031	-0.0017	0.0000	0.0018
10–14 years	0.0002	0.0000	-0.0015	0.0002	0.0002	0.0007	-0.0007	0.0000	-0.0032
15–19 years	0.0004	0.0000	-0.0043	-0.0010	0.0000	-0.0007	-0.0010	-0.0002	-0.0019
20–24 years	-0.0005	0.0000	-0.0093	-0.0003	-0.0002	-0.0007	-0.0081	-0.0004	0.0008
25–29 years	-0.0001	0.0000	-0.0079	-0.0010	0.0000	0.0009	-0.0261	-0.0001	-0.0108
30–34 years	-0.0013	0.0000	-0.0097	-0.0022	0.0000	0.0001	-0.0451	0.0001	-0.0133
35–39 years	0.0014	0.0002	-0.0051	-0.0026	0.0000	-0.0013	-0.0419	-0.0009	-0.0080
40–44 years	-0.0001	0.0007	0.0046	-0.0008	0.0000	-0.0008	-0.0262	0.0002	-0.0187
45–49 years	0.0017	-0.0002	-0.0009	-0.0005	0.0000	0.0019	-0.0113	-0.0007	0.0097
50–54 years	0.0007	-0.0002	-0.0012	0.0001	0.0000	-0.0009	-0.0063	0.0009	-0.0026
55–59 years	0.0031	0.0007	-0.0021	0.0035	0.0000	0.0000	-0.0036	0.0014	0.0084
60–64 years	-0.0030	0.0011	-0.0003	0.0021	0.0000	0.0007	-0.0012	-0.0002	0.0016
65–69 years	0.0007	0.0026	-0.0012	-0.0004	0.0000	-0.0005	-0.0006	0.0000	-0.0015
70–74 years	0.0036	0.0026	-0.0002	0.0009	0.0000	-0.0003	-0.0007	0.0005	-0.0034
75–79 years	-0.0026	0.0011	0.0000	-0.0057	0.0000	-0.0001	-0.0004	0.0016	-0.0096
80–84 years	0.0025	0.0048	-0.0001	-0.0014	0.0000	-0.0001	-0.0001	-0.0012	-0.0068
85 years and over	-0.0012	0.0101	-0.0013	-0.0101	0.0000	0.0002	0.0000	-0.0043	-0.0728
Total	0.0097	0.0236	-0.0437	-0.0216	-0.0159	0.0089	-0.1884	-0.0032	-0.1288

NOTES: Figures may not add to totals because of rounding. For complete ICD-9 titles and numbers, see Appendix table I.

Table 6. Rank ordering of the contribution of leading causes of death to the change in life expectancy (in years) from birth to 85 years and over and major contributing age groups for the total population: United States, 1984-89

Cause of death	Major contributing age groups ¹	Change in life expectancy ²	Cumulative change	Percent	Cumulative percent
Total contribution	All	0.5135	0.5135	...	...
Positive contribution					
Diseases of heart	Under 1 year, 35 and over	0.6271	0.6271	59.4	59.4
Cerebrovascular diseases	40 and over	0.1308	0.7579	12.4	71.7
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	30-59	0.0667	0.8246	6.3	78.0
Accidents and adverse effects	1-4, 10-14, 20-29, 45-49	0.0394	0.8640	3.7	81.8
Certain conditions originating in the perinatal period	Under 1 year	0.0371	0.9010	3.5	85.3
Atherosclerosis	75 and over	0.0347	0.9357	3.3	88.6
Congenital anomalies	Under 1 year	0.0268	0.9625	2.5	91.1
Chronic liver disease and cirrhosis	45-59, 65-69	0.0265	0.9890	2.5	93.6
Suicide	None	0.0132	1.0022	1.3	94.9
Nephritis, nephrotic syndrome, and nephrosis	None	0.0091	1.0113	0.9	95.7
Homicide and legal intervention	None	0.0054	1.0167	0.5	96.2
Pneumonia and influenza	None	0.0032	1.0199	0.3	96.5
Hypertension with or without renal disease	None	0.0015	1.0214	0.1	96.7
Septicemia	None	0.0015	1.0230	0.1	96.8
Chronic obstructive pulmonary diseases and allied conditions	None	0.0004	1.0234	0.0	96.9
Diabetes mellitus	None	0.0000	1.0234	0.0	96.9
Human immunodeficiency virus infection ³	None	0.0000	1.0234	0.0	96.9
Residual	Under 1 year, 55-69	0.0332	1.0566	3.1	100.0
Negative contribution					
Human immunodeficiency virus infection ³	20-59	-0.1922	-0.1922	35.4	35.4
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	65 and over	-0.0505	-0.2427	9.3	44.7
Pneumonia and influenza	75 and over	-0.0468	-0.2895	8.6	53.3
Diabetes mellitus	45 and over	-0.0453	-0.3348	8.3	61.6
Chronic obstructive pulmonary diseases and allied conditions	60-64, 70 and over	-0.0400	-0.3748	7.4	69.0
Homicide and legal intervention	15-34	-0.0396	-0.4144	7.3	76.3
Septicemia	85 and over	-0.0134	-0.4278	2.5	78.7
Suicide	15-19	-0.0078	-0.4356	1.4	80.2
Accidents and adverse effects	35-39	-0.0062	-0.4418	1.1	81.3
Hypertension with or without renal disease	None	-0.0023	-0.4442	0.4	81.7
Congenital anomalies	None	-0.0021	-0.4463	0.4	82.1
Chronic liver disease and cirrhosis	None	-0.0019	-0.4481	0.3	82.5
Nephritis, nephrotic syndrome, and nephrosis	None	-0.0006	-0.4487	0.1	82.6
Certain conditions originating in the perinatal period	None	-0.0001	-0.4488	0.0	82.6
Cerebrovascular diseases	None	-0.0001	-0.4489	0.0	82.6
Atherosclerosis	None	-0.0001	-0.4490	0.0	82.6
Diseases of heart	None	-0.0001	-0.4491	0.0	82.6
Residual	25-44, 75 and over	-0.0943	-0.5433	17.4	100.0

¹Includes age groups that contributed at least 1 day to the change in life expectancy.

²May include positive (or negative) changes for age groups not shown.

³Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.

NOTE: Figures may not add to totals because of rounding.

Table 7. Rank ordering of the contribution of leading causes of death to the change in life expectancy (in years) from birth to 85 years and over and major contributing age groups for white males: United States, 1984-89

<i>Cause of death</i>	<i>Major contributing age groups¹</i>	<i>Change in life expectancy²</i>	<i>Cumulative change</i>	<i>Percent</i>	<i>Cumulative percent</i>
Total contribution	All	0.8306	0.8306	...	...
Positive contribution					
Diseases of heart	Under 1, 35 and over	0.7723	0.7723	59.1	59.1
Cerebrovascular diseases	45 and over	0.1014	0.8737	7.8	66.9
Accidents and adverse effects	1-4, 10-34, 45-54	0.0919	0.9656	7.0	73.9
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	15-19, 30-34, 40-59, 65-69	0.0767	1.0423	5.9	79.8
Certain conditions originating in the perinatal period	Under 1	0.0595	1.1018	4.6	84.3
Congenital anomalies	0-4	0.0337	1.1354	2.6	86.9
Chronic liver disease and cirrhosis	45-69	0.0273	1.1627	2.1	89.0
Atherosclerosis	75 and over	0.0231	1.1858	1.8	90.8
Chronic obstructive pulmonary diseases and allied conditions	65-74	0.0201	1.2059	1.5	92.3
Suicide	55-59	0.0132	1.2191	1.0	93.3
Nephritis, nephrotic syndrome, and nephrosis	None	0.0117	1.2307	0.9	94.2
Homicide and legal intervention	None	0.0094	1.2402	0.7	94.9
Pneumonia and influenza	None	0.0031	1.2433	0.2	95.2
Septicemia	None	0.0029	1.2462	0.2	95.4
Hypertension with or without renal disease	None	0.0022	1.2484	0.2	95.6
Diabetes mellitus	None	0.0003	1.2487	0.0	95.6
Human immunodeficiency virus infection ³	None	0.0000	1.2487	0.0	95.6
Residual	Under 1, 50-74	0.0575	1.3062	4.4	100.0
Negative contribution					
Human immunodeficiency virus infection ³	20-64	-0.2643	-0.2643	55.5	55.5
Diabetes mellitus	50-74	-0.0348	-0.2992	7.3	62.9
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	60-64, 80 and over	-0.0282	-0.3273	5.9	68.8
Pneumonia and influenza	80 and over	-0.0220	-0.3494	4.6	73.4
Suicide	15-19	-0.0136	-0.3629	2.9	76.3
Homicide and legal intervention	15-24	-0.0110	-0.3739	2.3	78.6
Chronic obstructive pulmonary diseases and allied conditions	85 and over	-0.0083	-0.3821	1.7	80.3
Septicemia	None	-0.0082	-0.3903	1.7	82.0
Chronic liver disease and cirrhosis	None	-0.0031	-0.3935	0.7	82.7
Accidents and adverse effects	None	-0.0028	-0.3963	0.6	83.3
Congenital anomalies	None	-0.0022	-0.3985	0.5	83.7
Hypertension with or without renal disease	None	-0.0017	-0.4001	0.4	84.1
Diseases of heart	None	-0.0011	-0.4012	0.2	84.3
Cerebrovascular diseases	None	-0.0004	-0.4016	0.1	84.4
Certain conditions originating in the perinatal period	None	-0.0004	-0.4020	0.1	84.5
Atherosclerosis	None	-0.0001	-0.4021	0.0	84.5
Nephritis, nephrotic syndrome, and nephrosis	None	-0.0001	-0.4022	0.0	84.5
Residual	25-49, 80 and over	-0.0737	-0.4759	15.5	100.0

¹Includes age groups that contributed at least 1 day to the change in life expectancy.

²May include positive (or negative) changes for age groups not shown.

³Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.

NOTE: Figures may not add to totals because of rounding.

Table 8. Rank ordering of the contribution of leading causes of death to the change in life expectancy (in years) from birth to 85 years and over and major contributing age groups for white females: United States, 1984-89

<i>Cause of death</i>	<i>Major contributing age groups¹</i>	<i>Change in life expectancy²</i>	<i>Cumulative change</i>	<i>Percent</i>	<i>Cumulative percent</i>
Total contribution	All	0.4984	0.4984	...	...
Positive contribution					
Diseases of heart	Under 1, 40 and over	0.5148	0.5148	52.5	52.5
Cerebrovascular diseases	40 and over	0.1590	0.6738	16.2	68.7
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	30-59	0.0601	0.7339	6.1	74.8
Atherosclerosis	75 and over	0.0479	0.7818	4.9	79.7
Certain conditions originating in the perinatal period	Under 1	0.0469	0.8287	4.8	84.5
Congenital anomalies	Under 1	0.0303	0.8590	3.1	87.6
Chronic liver disease and cirrhosis	40-59	0.0234	0.8824	2.4	89.9
Suicide	20-24, 40-49	0.0231	0.9055	2.4	92.3
Accidents and adverse effects	20-24	0.0157	0.9213	1.6	93.9
Nephritis, nephrotic syndrome, and nephrosis	None	0.0096	0.9309	1.0	94.9
Homicide and legal intervention	None	0.0054	0.9363	0.6	95.4
Pneumonia and influenza	None	0.0044	0.9407	0.4	95.9
Hypertension with or without renal disease	None	0.0023	0.9429	0.2	96.1
Septicemia	None	0.0013	0.9442	0.1	96.2
Chronic obstructive pulmonary diseases and allied conditions	None	0.0007	0.9449	0.1	96.3
Diabetes mellitus	None	0.0007	0.9456	0.1	96.4
Human immunodeficiency virus infection ³	None	0.0000	0.9456	0.0	96.4
Residual	0-4, 45-49, 55-69	0.0356	0.9812	3.6	100.0
Negative contribution					
Chronic obstructive pulmonary diseases and allied conditions	55 and over	-0.0979	-0.0979	20.3	20.3
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	60 and over	-0.0849	-0.1828	17.6	37.9
Pneumonia and influenza	65-69, 75 and over	-0.0673	-0.2501	13.9	51.8
Diabetes mellitus	50 and over	-0.0453	-0.2954	9.4	61.2
Human immunodeficiency virus infection ³	25-39	-0.0232	-0.3187	4.8	66.0
Septicemia	80 and over	-0.0184	-0.3371	3.8	69.8
Accidents and adverse effects	15-19	-0.0169	-0.3540	3.5	73.3
Homicide and legal intervention	None	-0.0038	-0.3579	0.8	74.1
Congenital anomalies	None	-0.0033	-0.3612	0.7	74.8
Hypertension with or without renal disease	None	-0.0027	-0.3639	0.6	75.4
Suicide	None	-0.0025	-0.3664	0.5	75.9
Chronic liver disease and cirrhosis	None	-0.0021	-0.3685	0.4	76.3
Nephritis, nephrotic syndrome, and nephrosis	None	-0.0010	-0.3695	0.2	76.5
Diseases of heart	None	-0.0005	-0.3701	0.1	76.7
Atherosclerosis	None	-0.0004	-0.3705	0.1	76.7
Certain conditions originating in the perinatal period	None	-0.0001	-0.3706	0.0	76.8
Cerebrovascular diseases	None	0.0000	-0.3706	0.0	76.8
Residual	70 and over	-0.1122	-0.4828	23.2	100.0

¹Includes age groups that contributed at least 1 day to the change in life expectancy.

²May include positive (or negative) changes for age groups not shown.

³Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.

NOTE: Figures may not add to totals because of rounding.

Table 9. Rank ordering of the contribution of leading causes of death to the change in life expectancy (in years) from birth to 85 years and over and major contributing age groups for black males: United States, 1984-89

<i>Cause of death</i>	<i>Major contributing age groups¹</i>	<i>Change in life expectancy²</i>	<i>Cumulative change</i>	<i>Percent</i>	<i>Cumulative percent</i>
Total contribution	All	-0.7298	-0.7298	...	...
Positive contribution					
Diseases of heart	Under 1, 25 and over	0.3500	0.3500	42.4	42.4
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	30-49, 55-64	0.1348	0.4849	16.3	58.7
Cerebrovascular diseases	30-34, 40 and over	0.1107	0.5955	13.4	72.2
Chronic liver disease and cirrhosis	25-39, 45-59	0.0379	0.6334	4.6	76.7
Homicide and legal intervention	45-64	0.0338	0.6672	4.1	80.8
Accidents and adverse effects	1-14, 30-34, 55-59, 70-74	0.0298	0.6970	3.6	84.4
Atherosclerosis	65 and over	0.0189	0.7158	2.3	86.7
Chronic obstructive pulmonary diseases and allied conditions	45-49, 60-64	0.0114	0.7272	1.4	88.1
Nephritis, nephrotic syndrome, and nephrosis	Under 1, 60-64	0.0108	0.7380	1.3	89.4
Pneumonia and influenza	Under 1	0.0095	0.7476	1.2	90.6
Hypertension with or without renal disease	70-74	0.0064	0.7540	0.8	91.3
Congenital anomalies	None	0.0064	0.7604	0.8	92.1
Septicemia	None	0.0061	0.7665	0.7	92.9
Suicide	None	0.0061	0.7726	0.7	93.6
Diabetes mellitus	None	0.0021	0.7747	0.3	93.9
Certain conditions originating in the perinatal period	None	0.0002	0.7750	0.0	93.9
Human immunodeficiency virus infection ³	None	0.0000	0.7750	0.0	93.9
Residual	55-64, 70-74	0.0504	0.8254	6.1	100.0
Negative contribution					
Human immunodeficiency virus infection ³	0-4, 20-69	-0.6641	-0.6641	42.7	42.7
Homicide and legal intervention	1-4, 10-34	-0.3288	-0.9930	21.1	63.8
Accidents and adverse effects	Under 1, 15-24, 35-54, 60-64	-0.0780	-1.0710	5.0	68.8
Diabetes mellitus	25-29, 45-79, 85 and over	-0.0692	-1.1402	4.4	73.3
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	20-24, 65 and over	-0.0647	-1.2048	4.2	77.4
Pneumonia and influenza	35-44, 65-74, 80 and over	-0.0492	-1.2540	3.2	80.6
Suicide	15-24, 30-34, 40-44	-0.0397	-1.2937	2.6	83.1
Chronic obstructive pulmonary diseases and allied conditions	30-34, 40-44, 65-69, 75-79, 85 and over	-0.0388	-1.3325	2.5	85.6
Nephritis, nephrotic syndrome, nephrosis	30-44, 50-59	-0.0246	-1.3571	1.6	87.2
Septicemia	35-39	-0.0176	-1.3747	1.1	88.3
Certain conditions originating in the perinatal period	Under 1	-0.0141	-1.3888	0.9	89.2
Hypertension with or without renal disease	50-54, 65-69	-0.0131	-1.4019	0.8	90.1
Congenital anomalies	None	-0.0066	-1.4086	0.4	90.5
Chronic liver disease and cirrhosis	None	-0.0021	-1.4107	0.1	90.7
Cerebrovascular diseases	None	-0.0019	-1.4126	0.1	90.8
Diseases of heart	None	-0.0006	-1.4132	0.0	90.8
Atherosclerosis	None	-0.0006	-1.4137	0.0	90.9
Residual	Under 1, 15-24, 30-49, 75-79, 85 and over	-0.1423	-1.5561	9.1	100.0

¹Includes age groups that contributed at least 1 day to the change in life expectancy.

²May include positive (or negative) changes for age groups not shown.

³Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.

NOTE: Figures may not add to totals because of rounding.

Table 10. Rank ordering of the contribution of leading causes of death to the change in life expectancy (in years) from birth to 85 years and over and major contributing age groups for black females: United States, 1984-89

Cause of death	Major contributing age groups ¹	Change in life expectancy ²	Cumulative change	Percent	Cumulative percent
Total contribution	All	-0.1784	-0.1784	...	...
Positive contribution					
Diseases of heart	0-4, 35-84	0.2986	0.2986	39.6	39.6
Cerebrovascular diseases	35 and over	0.1503	0.4490	19.9	59.5
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	25-29, 40-59	0.1114	0.5604	14.8	74.3
Chronic liver disease and cirrhosis	25-44, 50-59	0.0441	0.6045	5.8	80.1
Atherosclerosis	80 and over	0.0239	0.6284	3.2	83.3
Congenital anomalies	Under 1, 5-9	0.0224	0.6508	3.0	86.2
Nephritis, nephrotic syndrome, and nephrosis	Under 1, 55-59, 70-74	0.0185	0.6693	2.4	88.7
Accidents and adverse effects	1-4, 50-54	0.0153	0.6846	2.0	90.7
Septicemia	55-59	0.0076	0.6922	1.0	91.7
Homicide and legal intervention	5-9	0.0075	0.6998	1.0	92.7
Diabetes mellitus	None	0.0056	0.7054	0.7	93.5
Chronic obstructive pulmonary diseases and allied conditions	None	0.0053	0.7106	0.7	94.2
Pneumonia and influenza	None	0.0052	0.7158	0.7	94.9
Hypertension with or without renal disease	None	0.0048	0.7206	0.6	95.5
Suicide	None	0.0041	0.7248	0.5	96.0
Certain conditions originating in the perinatal period	None	0.0011	0.7258	0.1	96.2
Human immunodeficiency virus infection ³	None	0.0000	0.7258	0.0	96.2
Residual	1-4, 45-49, 55-59	0.0289	0.7547	3.8	100.0
Negative contribution					
Human immunodeficiency virus infection ³	0-4, 20-59	-0.1884	-0.1884	20.2	20.2
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	65-79, 85 and over	-0.1127	-0.3011	12.1	32.3
Diabetes mellitus	45-69, 75 and over	-0.0967	-0.3978	10.4	42.6
Pneumonia and influenza	30-39, 45-49, 70 and over	-0.0826	-0.4804	8.8	51.5
Chronic obstructive pulmonary diseases and allied conditions	50 and over	-0.0669	-0.5473	7.2	58.6
Accidents and adverse effects	Under 1, 5-9, 25-44, 65-69, 85 and over	-0.0595	-0.6068	6.4	65.0
Homicide and legal intervention	Under 1, 15-39	-0.0512	-0.6580	5.5	70.5
Diseases of heart	85 and over	-0.0302	-0.6883	3.2	73.7
Septicemia	75-79, 85 and over	-0.0293	-0.7175	3.1	76.9
Certain conditions originating in the perinatal period	Under 1	-0.0170	-0.7345	1.8	78.7
Congenital anomalies	1-4	-0.0135	-0.7480	1.4	80.1
Nephritis, nephrotic syndrome, and nephrosis	60-64	-0.0088	-0.7568	0.9	81.1
Suicide	None	-0.0087	-0.7654	0.9	82.0
Hypertension with or without renal disease	85 and over	-0.0080	-0.7734	0.9	82.8
Chronic liver disease and cirrhosis	None	-0.0011	-0.7745	0.1	83.0
Cerebrovascular diseases	None	-0.0010	-0.7756	0.1	83.1
Atherosclerosis	None	-0.0004	-0.7759	0.0	83.1
Residual	Under 1, 10-14, 25-44, 70 and over	-0.1577	-0.9336	16.9	100.0

¹Includes age groups that contributed at least 1 day to the change in life expectancy.

²May include positive (or negative) changes for age groups not shown.

³Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.

NOTE: Figures may not add to totals because of rounding.

Table 11. Rank ordering of the contribution of leading causes of death by age to the change in the gap in life expectancy (in years) between white males and black males: United States, 1984-89

<i>Cause of death</i>	<i>Major contributing age groups¹</i>	<i>Change in life expectancy²</i>	<i>Cumulative change</i>	<i>Percent</i>	<i>Cumulative percent</i>
Total contribution	All	-1.5610	-1.5610	...	...
Positive contribution					
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	35-49, 55-64	0.1029	0.1029	32.2	32.2
Cerebrovascular diseases	55-59, 65-74	0.0371	0.1401	11.6	43.8
Homicide and legal intervention	45-64	0.0302	0.1703	9.5	53.3
Chronic liver disease and cirrhosis	30-39	0.0231	0.1934	7.2	60.5
Diseases of heart	Under 1, 25-29	0.0141	0.2075	4.4	64.9
Accidents and adverse effects	5-9, 55-59, 70-74	0.0126	0.2201	3.9	68.8
Chronic obstructive pulmonary diseases and allied conditions	45-49	0.0094	0.2295	3.0	71.8
Pneumonia and influenza	Under 1	0.0089	0.2384	2.8	74.6
Septicemia	None	0.0082	0.2466	2.6	77.1
Nephritis, nephrotic syndrome, and nephrosis	60-64	0.0068	0.2534	2.1	79.2
Hypertension with or without renal disease	None	0.0063	0.2597	2.0	81.2
Congenital anomalies	None	0.0047	0.2644	1.5	82.7
Atherosclerosis	None	0.0046	0.2690	1.4	84.1
Diabetes mellitus	None	0.0046	0.2736	1.4	85.6
Suicide	None	0.0019	0.2756	0.6	86.2
Certain conditions originating in the perinatal period	None	0.0004	0.2759	0.1	86.3
Human immunodeficiency virus infection ³	None	0.0001	0.2760	0.0	86.3
Residual	25-29, 60-64, 70-74, 80 and over	0.0437	0.3198	13.7	100.0
Negative contribution					
Diseases of heart	40 and over	-0.4358	-0.4358	23.2	23.2
Human immunodeficiency virus infection ³	0-4, 20-64	-0.3999	-0.8357	21.3	44.4
Homicide and legal intervention	1-4, 10-39	-0.3238	-1.1595	17.2	61.7
Accidents and adverse effects	Under 1, 15-29, 35-54, 60-64, 75-79	-0.1499	-1.3095	8.0	69.6
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	20-24, 50-54, 65 and over	-0.0813	-1.3908	4.3	73.9
Certain conditions originating in the perinatal period	Under 1	-0.0734	-1.4641	3.9	77.8
Chronic obstructive pulmonary diseases and allied conditions	40-44, 65-79	-0.0486	-1.5127	2.6	80.4
Diabetes mellitus	25-29, 45-49, 55-74	-0.0371	-1.5498	2.0	82.4
Congenital anomalies	0-4	-0.0364	-1.5863	1.9	84.3
Suicide	20-24, 30-34, 40-44	-0.0351	-1.6214	1.9	86.2
Nephritis, nephrotic syndrome, and nephrosis	30-44, 50-59, 65-69, 75-79	-0.0322	-1.6536	1.7	87.9
Pneumonia and influenza	35-44, 70-74	-0.0297	-1.6833	1.6	89.5
Cerebrovascular diseases	75-79, 85 and over	-0.0294	-1.7127	1.6	91.1
Septicemia	35-39	-0.0143	-1.7270	0.8	91.8
Hypertension with or without renal disease	50-54, 65-69	-0.0136	-1.7406	0.7	92.5
Chronic liver disease and cirrhosis	65-69	-0.0114	-1.7520	0.6	93.2
Atherosclerosis	85 and over	-0.0094	-1.7613	0.5	93.6
Residual	Under 1, 15-24, 30-59, 65-69, 75-79	-0.1194	-1.8808	6.4	100.0

¹Includes age groups that contributed at least 1 day to the gap in life expectancy.

²May include positive (or negative) changes for age groups not shown.

³Number of resident deaths due to Human immunodeficiency virus infection in 1984 was estimated using the number of death certificates with mention of ICD-9 No. 279.1.

NOTE: Figures may not add to totals because of rounding.

Appendix

Technical notes on methods

Nature and sources of data

Data in this report are based on information from all death certificates filed in the 50 States and the District of Columbia. Mortality statistics are based on information coded by the National Center for Health Statistics (NCHS) from copies of the original certificates received from the State registration offices and on State-coded data provided to NCHS through the Vital Statistics Cooperative Program. Data for the United States as a whole refer to events occurring within the United States.

Cause-of-death classification

The mortality statistics in this report were compiled in accordance with the World Health Organization (WHO) regulations, which specify that member nations classify causes of death by the current *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD)(5)*. For 1984–89, causes of death were classified according to the Ninth Revision of the ICD (ICD–9), with the exception of HIV infection.

Besides specifying the classification, WHO regulations outline the form of medical certification and the procedures to be used in coding cause of death. Cause-of-death data presented in this publication were coded by procedures outlined in annual issues of the *NCHS Instruction Manual (6)*.

Tabulations of cause-of-death statistics are based solely on the underlying cause of death. The underlying cause is defined by WHO as the disease or injury that initiated the train of events leading directly to death or as the circumstances of the accident or violence that produced the fatal injury. It is selected from the conditions entered by the physician in the cause-of-death section of the death certificate. When more than one cause or condition is entered by the physician, the underlying cause is determined by the sequence of conditions on the certificate, provisions of the International Classification of Diseases, and associated selection rules. In general, more medical information is reported on death certificates than is directly reflected in the underlying cause of death.

The ICD–9 codes and complete titles of the causes of death used in this report are shown in appendix table I.

Codes for HIV infection

Beginning with data for 1987, NCHS introduced category numbers *042–*044 for classifying and coding Human

immunodeficiency virus (HIV) infection (3,7). The asterisk before the category numbers indicates that these codes are not part of the ICD–9 codes. Prior to 1987, deaths involving HIV infection were classified to Deficiency of cell-mediated immunity (ICD 279.1), contained in the category All other diseases; to Pneumocystosis (ICD–9 No. 136.3), contained in the category All other infectious and parasitic diseases; to Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues; and to a number of other causes. As a consequence, cause-of-death data beginning with 1987 are not strictly comparable with data for previous years.

For data years 1983–86, acquired immunodeficiency syndrome and HIV infection, when reported on the death certificate, were assigned to the category Deficiency of cell-mediated immunity (ICD–9 No. 279.1). Because the selection rules for underlying cause of death were developed prior to the identification of acquired immunodeficiency syndrome, other conditions mentioned on the death certificate and not category ICD–9 No. 279.1 were often selected as the underlying cause of death during this period. Also, the category ICD–9 No. 279.1 was not uniquely specific for HIV conditions. The number of death certificates that had mention of conditions coded to ICD–9 No. 279.1 in 1984 was 2,943; for 1985, 6,040; and for 1986, 10,900. It is believed that HIV infection was involved in most of these deaths. In this report, the number of deaths from HIV infection for 1984 were estimated using the number of death certificates (2,943) with mention of ICD–9 No. 279.1, while for 1989 data, the number of deaths were based on the number of death certificates (22,082) with category numbers *042–*044 determined as the underlying cause of death.

Cause-of-death rankings

The cause-of-death rankings are based on the List of 72 Selected Causes of Death and the category Human immunodeficiency virus infection (HIV infection) (*042–*044). HIV infection was added to the lists of rankable causes effective with data year 1987.

The group titles Major cardiovascular diseases and Symptoms, signs, and ill-defined conditions are not ranked from the List of 72 Selected Causes. In addition, category titles that begin with the words “Other” and “All other” are not ranked to determine the leading causes of death.

Methodology and life tables

The procedure used in this report was developed by Arriaga (1). Arriaga developed the technique to decompose changes in life expectancy over time or between subgroups of the population. Changes in life expectancy by race, sex, and age can be partitioned into component additive parts. The effect on life expectancy at birth from changes in mortality differ by the ages involved. Generally, a change in mortality for ages under 1 year has a greater influence on life expectancy than the same change at 85 years and over. For example, if mortality decreases for the population under 1 year, there is a direct effect on life expectancy due to this decrease in mortality; however, there is also an indirect effect, because those who survived to the next age group, 1–4 years, indirectly increase life expectancy for that age group. Since this process is cumulative across all age groups, the change in life expectancy of any one age group interacts with all subsequent changes, changing the population of the life table and thereby affecting the life expectancy. The sum of the three effects—direct, indirect, and interaction—is the estimated change in life expectancy for that specified age group. This procedure produces the changes in life expectancy (in years) for each age group, which can be further cross-classified by race, sex, and other variables. Arriaga subsequently elaborated the procedure to include the contribution of cause of death to the change in life expectancy at birth by age (2).

Data needed to implement Arriaga's method include deaths by 5-year age groups, race, sex, and cause of death, as well as the L_x values (the number of persons who reach the

beginning of the age interval each year within the hypothetical life table population of 100,000) and L_x values (the number of persons in the life table population who at any moment are living within the indicated age interval) for specific race-sex groups from corresponding life tables. Deaths with age not stated are proportionally distributed. The l_x and L_x values of the life table and number of deaths are used to calculate central mortality rates, which are the basis of Arriaga's method of partitioning life expectancy. The revised life table values for 1984 and 1989 were not available for this report.

U.S. abridged life tables are constructed by reference to a standard life table (8).

Table 1. Leading causes of death with corresponding ICD-9 numbers

Diseases of heart	(390–398,402,404–429)
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	(140–208)
Cerebrovascular diseases	(430–438)
Accidents and adverse effects	(E800–E949)
Chronic obstructive pulmonary diseases and allied conditions (COPD)	(490–496)
Pneumonia and influenza	(480–487)
Diabetes mellitus	(250)
Suicide	(E950–E959)
Chronic liver disease and cirrhosis	(571)
Homicide and legal intervention	(E960–E978)
Human immunodeficiency virus infection	(*042–*044)
Nephritis, nephrotic syndrome, and nephrosis	(580–589)
Atherosclerosis	(440)
Septicemia	(038)
Certain conditions originating in the perinatal period	(760–779)
Hypertension with or without renal disease	(401,403)
Congenital anomalies	(740–759)

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