

# **Mortality Trends for Leading Causes of Death United States - 1950-69**

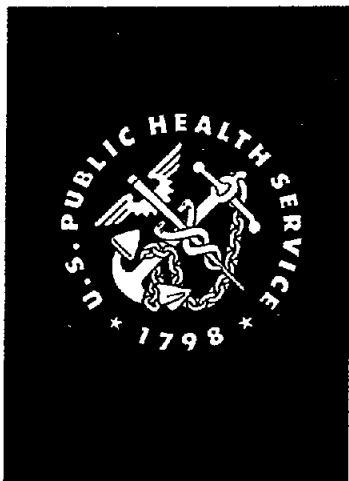
A study of the trends during 1950-69 for the 15 leading causes of death which accounted for 89 percent of the 1,921,990 deaths occurring in the United States in 1969.

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# MORTALITY TRENDS FOR LEADING CAUSES OF DEATH:

UNITED STATES, '1950-69

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## INTRODUCTION

This is the second report in a series on mortality trends in the United States. The first report analyzed trends in death rates for 1950-69

by age, sex, and color.<sup>1</sup> This report examines mortality trends for 1950-69 for the 15 leading causes of death by age, color, and sex. These 15 causes accounted for 89 percent of the 1,921,990 deaths that occurred in the United States in 1969 (table A).

Table A. Deaths and death rates for the 15 leading causes of death: United States, 1969

[Rates per 100,000 estimated population]

Rank	Cause of death (Eighth Revision, International Classification of Diseases, Adapted, 1965)	Number	Rate
...	All causes-----	1,921,990	951.9
1	Diseases of heart-----390-398,402,404,410-429	739,265	366.1
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues-----140-209	323,092	160.0
3	Cerebrovascular diseases-----430-438	207,179	102.6
4	Accidents-----E800-E949	116,385	57.6
	Motor vehicle accidents-----E810-E823	55,791	27.6
	All other accidents-----E800-E807,E825-E949	60,594	30.0
5	Influenza and pneumonia-----470-474,480-486	68,365	33.9
6	Certain causes of mortality in early infancy-----760-769.2,769.4-772,774-778	43,171	21.4
7	Diabetes mellitus-----250	38,541	19.1
8	Arteriosclerosis-----440	33,063	16.4
9	Bronchitis, emphysema, and asthma-----490-493	31,144	15.4
10	Cirrhosis of liver-----571	29,866	14.8
11	Suicide-----E950-E959	22,364	11.1
12	Congenital anomalies-----740-759	17,008	8.4
13	Homicide-----E960-E978	15,477	7.7
14	Nephritis and nephrosis-----580-584	9,417	4.7
15	Peptic ulcer-----531-533	9,312	4.6
...	All other causes-----Residual	218,341	108.1

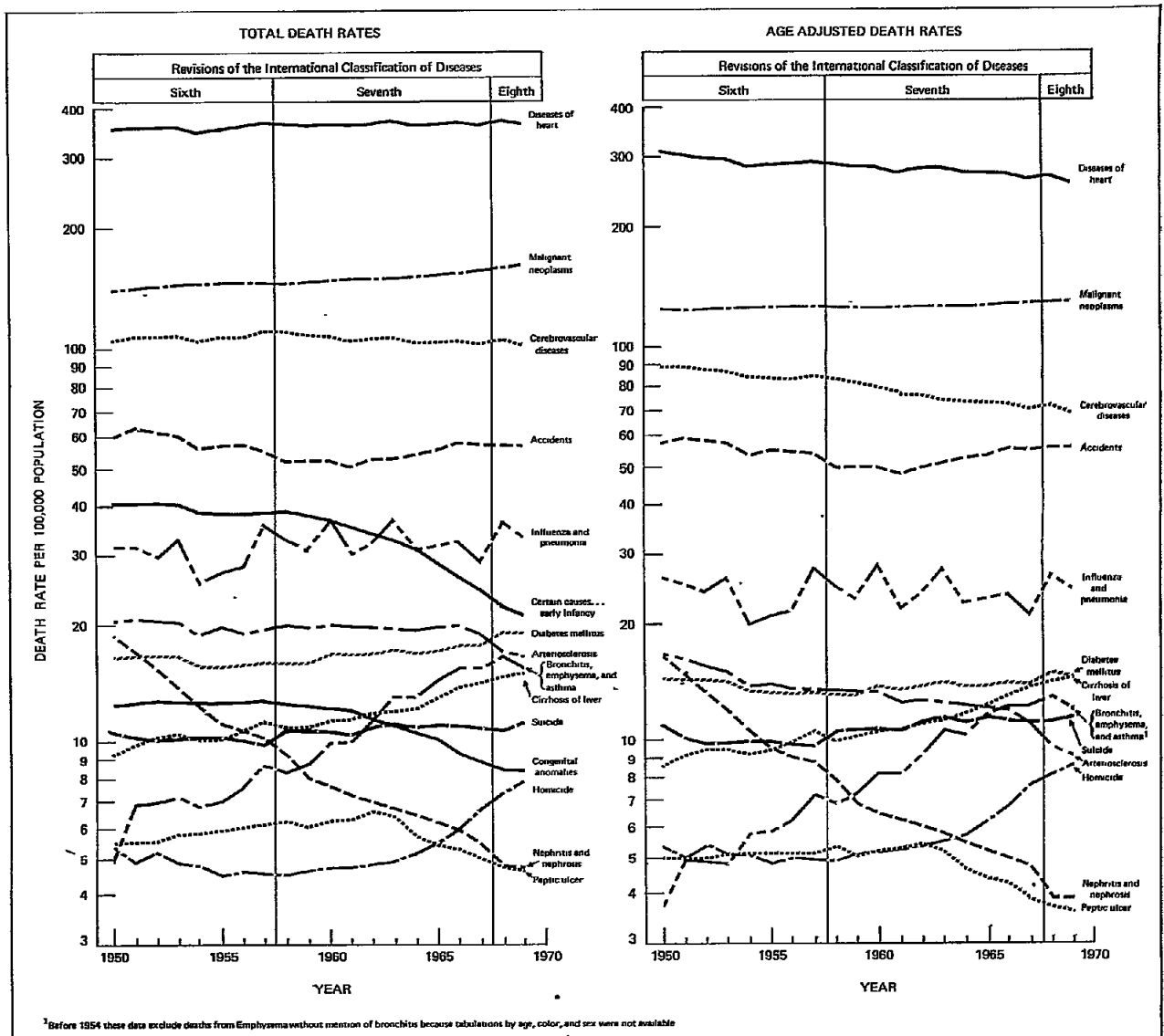


Figure 1. Fifteen leading causes of death: total and age-adjusted death rates for 1950-69.

Deaths and death rates for 1969 for the major components of these 15 leading causes are shown in table 1 (69 cause list); death rates for 1950-69 for a shorter list of these components are shown in table 2 (48 cause list); and the corresponding numbers of deaths for these causes are shown in table 3. (A description of the sources of data, the definitions of rates and other terms, and the method of ranking cause of death are given in appendix I—Technical Notes. A copy of the

standard certificate of death adopted with some modifications by most States is shown in appendix II.)

During 1900-1969 causes of death were classified according to eight revisions of the International Classification of Diseases (ICD). These revisions are made about every 10 years to reflect progress in medical knowledge. The Revision in use in the United States beginning with data year 1968 is the *Eighth Revision of the Inter-*

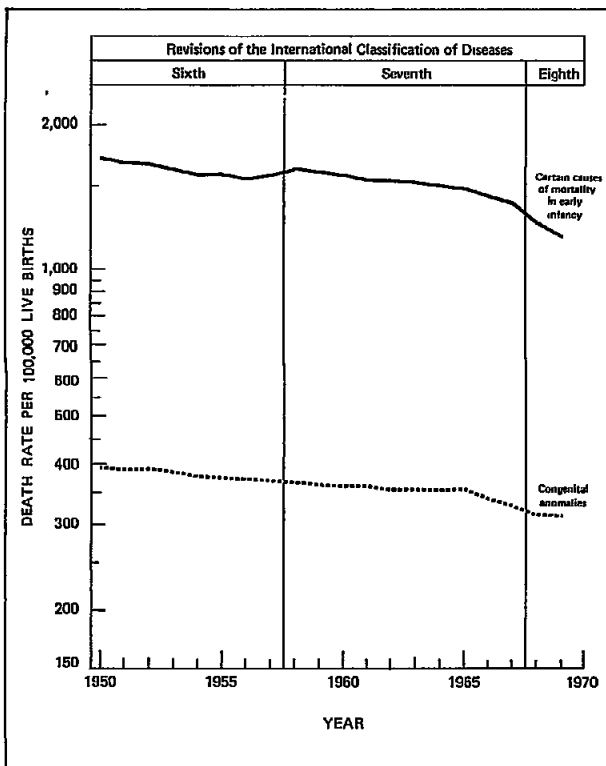


Figure 2. Infant mortality rates for Congenital anomalies (ICDA Nos. 740-759) and for Certain causes of mortality in early infancy (ICDA Nos. 760-769.2, 769.4-772, 774-778): 1950-69.

*national Classification of Diseases, Adapted for Use in the United States, 1965* (hereinafter denoted by ICDA).

Deaths occurring during 1950-69, the period covered by this report, were classified according to three Revisions—the Sixth, Seventh, and Eighth.

The important breaks in continuity of mortality statistics for causes in tables 2 and 3 resulting from the introduction of the Eighth Revision are shown in appendix III. Some of the major changes in classification and coding procedures that brought about these breaks in continuity are presented in another National Center for Health Statistics (NCHS) report.<sup>2</sup>

Introduction of the Seventh Revision for data year 1958 also resulted in some breaks in the continuity of mortality statistics in tables 2 and 3. But for the most part these breaks were not so large as those resulting from the introduction of the Eighth Revision. These breaks between the

Sixth and Seventh Revisions are described in a study published in 1965.<sup>3</sup>

The direction of 13 of 15 of these leading causes—that is, whether mortality from the cause is increasing or decreasing during 1950-69—is measured by age-adjusted death rates (see figure 1 and the age-adjusted death rate tables in the text). The other two leading causes occur almost entirely among infants, and for these two causes the direction is measured by infant mortality rates (figure 2 and tables 4 and 5).

For each of the 13 leading causes for which deaths occur at all ages, age-adjusted death rates are used to compute mortality differentials by color and sex. Trend tables of age-specific rates used in the construction of the age-adjusted rates are available upon request from the National Center for Health Statistics. For each separate year these age-specific rates are shown in the annual report entitled *Vital Statistics of the United States*.

A summary of the principal findings in this study is presented in the following section for the reader's convenience. This is followed by 15 separate sections presenting detailed findings on the leading causes of death.

## SUMMARY

### Leading Causes With Upturn in Mortality: 1950-69

As measured by age-adjusted death rates for the total population, there were increases between 1950 and 1969 for the following six leading causes of death (in order of the magnitude of their total death rates for 1969): (1) Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues; (2) Diabetes mellitus; (3) Bronchitis, emphysema, and asthma; (4) Cirrhosis of liver; (5) Suicide; and (6) Homicide.

*Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues.*—As measured by age-adjusted death rates, the increase between 1950 and 1969 in mortality for malignant neoplasms amounted to only 3.4 per cent.

This moderate increase resulted from the offsetting of substantial increases in the age-



adjusted death rate' for male persons (16.2 and 54.9 percent, respectively, for white and all other male persons) by decreases for female persons (10.3 and 2.5 percent, respectively, for white and all other female persons).

These disparate changes in mortality for malignant neoplasms are reflected in both the higher mortality sex ratio<sup>a</sup> for this cause (from 1.08 for 1950 to 1.43 for 1969) and the higher mortality color ratio<sup>b</sup> (from 1.03 for 1950 to 1.25 for 1969).

*Diabetes mellitus.*—The nominal increase in the age-adjusted death rate for Diabetes mellitus between 1950 and 1969 (an increase of only 1.4 percent) reflects even more disparate changes in mortality from this cause for the four color-sex groups than occurred for malignant neoplasms.

The decrease in the age-adjusted death rate for diabetes for white female persons (18.9 percent) almost offset the substantial increases in mortality from this cause for the other three color-sex groups: increases of 13.3, 80.5, and 46.9 percent, respectively, for white male, other male; and other female persons.

Diabetes mellitus is the only one of the 15 leading causes for which mortality for male persons was lower than that for female persons; but during 1950-69 the steep increase in mortality from this disease for male persons has narrowed the gap between their rate and that for female persons. The mortality sex ratio for diabetes increased from 0.67 for 1950 to 0.90 for 1969.

The mortality color ratio also increased—from 1.24 for 1950 to 2.10 for 1969.

*Bronchitis, emphysema, and asthma.*—The age-adjusted death rate for these three diseases taken together more than doubled between 1954 (the earliest year for which these data are available) and 1969. The increase of 106.9 percent reflects increases in the age-adjusted death rate for these diseases for each of the four color-sex groups. But the rise in mortality was greater

for both white and other male persons (with increases of 145.5 and 121.1 percent, respectively) than for their female counterparts (with increases of 53.3 and 37.8 percent, respectively, for white female and other female persons).

This steep rise for male persons resulted in a large increase for the mortality sex ratio for these diseases—from 2.81 for 1954 to 4.49 for 1969.

This cause of death is one of only four of the 15 leading causes for which mortality for 1969 was higher for white than for other persons. (The other three causes are Suicide, Arteriosclerosis, and Congenital anomalies.)

*Cirrhosis of liver.*—The age-adjusted death rate for this disease increased 67.1 percent between 1950 and 1969. Although there were substantial increases in mortality from this cause for each of the four color-sex groups, the percent increase for persons of races other than white was by far greater than that for white persons. The percentage increases in the age-adjusted death rates for cirrhosis for white male, white female, other male, and other female persons were, respectively, 55.2, 46.6, 248.9, and 198.3.

As a result of these greater increases for persons of races other than white, the mortality color ratio for Cirrhosis of liver increased from 0.86 for 1950 to 1.86 for 1969.

The excess mortality for this disease among males over that among females remained about the same—with a mortality sex ratio of 1.97 for 1950 and 2.04 for 1969.

*Suicide.*—The trend of the age-adjusted death rate for this cause was slowly downward during 1950-57, but for 1958-69 the trend was upward. The 1969 age-adjusted death rate for Suicide was 7.6 percent higher than the corresponding rate for 1958. This increase was recorded despite the fact that for 1968 and 1969, for which years deaths were classified by the Eighth Revision, 5.3 percent fewer deaths were assigned to Suicide than would have been assigned to this cause if the Seventh Revision had been used, as it was for the years 1958-67.

This relative increase in Suicide for the total population reflects very large relative increases in the age-adjusted death rates for Suicide for female persons (38.0 and 52.4 percent, respectively, for white and other female persons);

<sup>a</sup>Age-adjusted death rate for the male population divided by the corresponding rate for the female population.

<sup>b</sup>Age-adjusted death rate for the population of races other than white divided by the corresponding rate for the white population.

a substantially smaller relative increase for other male persons (21.4 percent); and a decrease for white male persons (1.1 percent).

As mentioned earlier Suicide is one of only four of the 15 leading causes of death for which mortality for persons of races other than white is lower than that for white persons. For 1950 the color mortality ratio for Suicide was 0.41; and for 1969, 0.55.

Male persons continue to have by far higher mortality for Suicide than female persons; but the mortality sex ratio for Suicide is decreasing, dropping from a ratio of 3.53 for 1950 to 2.57 for 1969.

*Homicide.*—After turning downward and then leveling off during the 1950's, the death rate for Homicide continued upward throughout the 1960's. The relative increase of 75.5 percent in the total Homicide rate between 1958 and 1969 reflects the following increases for the four color-sex groups: white male, 83.3 percent; other male, 74.0 percent; white female, 50 percent; and other female, 31.4 percent.

Despite the larger relative increases in the age-adjusted death rate for Homicide for white persons, the 1969 rate for other persons was 9.60 times the corresponding rate for white persons. This 1969 mortality color ratio for Homicide, however, was somewhat lower than the corresponding mortality color ratio for 1950 (11.35).

For 1969 the age-adjusted death rate for Homicide for male persons was 3.97 times the corresponding rate for female persons. This 1969 mortality sex ratio for Homicide showed a slight increase over that for 1950 (3.36).

#### Leading Causes With Downturn in Mortality: 1950-69

The following nine causes of death with decreases in mortality during 1950-69 are also presented in order of the magnitude of their total death rates for 1969.

*Diseases of heart.*—The age-adjusted death rate for Diseases of heart decreased between 1950 and 1969 about 15 percent. This reduction reflects lowering of this rate for each of the four color-sex groups—but especially for female persons. For white female persons the reduction amounted to about 22 percent, and for other fe-

male persons, to about 25 percent. The corresponding reduction for white male persons was only about 7 percent and for other male persons, also only about 7 percent. As a result of this unequal reduction for male and female persons, the mortality sex ratio increased; the 1969 age-adjusted death rate for Diseases of heart for male persons was about 1.95 times the corresponding rate for female persons. For 1950 this mortality sex ratio was only 1.64.

The mortality color ratio for Diseases of heart (the age-adjusted death rate for the population of races other than white divided by the corresponding rate for the white population) was lower than the corresponding mortality sex ratio, and remained quite stable during 1950-69, decreasing slightly from 1.25 for 1950 to 1.22 for 1969. (See downturn of Ischemic heart disease, pages 9-10.)

*Cerebrovascular diseases.*—The percentage decrease in the age-adjusted death rate for Cerebrovascular diseases between 1950 and 1969 (about 23 percent) was even greater than that for Diseases of heart. Again, as for Diseases of heart, this reduction reflects decreases in mortality from Cerebrovascular diseases for each of the four color-sex groups—but particularly for white and other female persons.

The long-established mortality differential by color for Cerebrovascular diseases became even greater between 1950 and 1969. For the latter year the age-adjusted death rate for these diseases for persons other than white was 1.84 times the corresponding rate for white persons. For 1950 this ratio was 1.79.

The mortality sex ratio for Cerebrovascular diseases was much lower than the mortality color ratio through the first half of this century, but this mortality sex ratio increased somewhat between 1950 (with a ratio of 1.07) and 1969 (with a ratio of 1.18).

*Accidents.*—A word of caution is in order about including Accidents under the title "Leading Causes With Downturn in Mortality: 1950-69." While it is true that the age-adjusted death rate for Accidents for 1969 (55.3 deaths per 100,000) is 3.8 percent lower than the corresponding rate for 1950, Accidents is one of several of the 15 leading causes for which during 1950-69 there was first a downturn in mortality (during the

1950's) and then an upturn (during the 1960's). But by 1969 the age-adjusted death rate for Accidents had not yet reached the level recorded for 1950. The comparability ratio for Accidents between the Seventh and Eighth Revisions indicates that about 4.3 percent fewer deaths were assigned to accidents for 1968 and 1969. Adjusting the 1967 rate by this ratio reduces it from 54.8 deaths to 52.4 deaths per 100,000 population. This adjusted 1967 figure, together with the rates for 1968 and 1969 (55.1 and 55.3 deaths per 100,000 population), shows that over this 3-year period mortality from Accidents was clearly upward.

For 1969 the age-adjusted death rate for Accidents for male persons was 2.83 times the corresponding rate for female persons. This mortality sex ratio was somewhat greater than that for 1950 (2.64).

The mortality color ratio for 1969 for Accidents (1.44) was also greater than that for 1950 (1.29).

*Influenza and pneumonia.*—For these diseases there appears to be a moderate decrease (about 6 percent) between the age-adjusted death rates for 1950 and 1969—both nonepidemic years for influenza. The level of mortality from these diseases is, of course, greatly affected by the occurrence of epidemics.

Since the year 1968 had a severe epidemic, it may be more useful to compare mortality from Influenza and pneumonia for the two nonepidemic years 1967 and 1969. Increasing the 1967 age-adjusted death rate (20.8 deaths per 100,000) to what it would have been if the Eighth Revision had been in use for that year raises it to 21.7 deaths per 100,000. Comparing this age-adjusted rate with that for 1969 (24.6 deaths per 100,000) shows that mortality from Influenza and pneumonia was appreciably upward during 1967-69.

The mortality color ratio for these diseases remained greater during 1950-69 than the mortality sex ratio; but the former ratio decreased between 1950 and 1969 (from 2.48 to 1.88), while the mortality sex ratio increased (from 1.39 for 1950 to 1.64 for 1969).

*Certain causes of mortality in early infancy.*—The 1969 infant mortality rate for the group of diseases brought together under the Eighth Revision title "Certain causes of mortality in early infancy" was about 30 percent lower than the 1950

infant mortality rate for the nearly comparable group of diseases under the Sixth and Seventh Revision title "Certain diseases of early infancy."

Part of this reduction proceeds from the fact that about 8 percent fewer deaths were assigned to the Eighth Revision title than were assigned to the Seventh Revision title. The 30 percent reduction in mortality from these causes between 1950 and 1969 reflects lowering of the death rate for these diseases for each of the four color-sex groups of infants, the reduction for white infants being somewhat greater than that for other infants.

The 1969 mortality color ratio for these diseases of early infancy (1.66) was somewhat greater than the 1969 mortality sex ratio (1.35). Whereas the mortality sex ratio for infants dying from these diseases remained fairly constant between 1950 and 1969, the corresponding mortality color ratio increased—from 1.46 for 1950 to 1.66 for 1969.

*Arteriosclerosis.*—The reduction of about 43 percent in the age-adjusted death rate for Arteriosclerosis is attributable to a considerable extent to the changes in coding procedures introduced with the Eighth Revision, as indicated by the low comparability ratio between the Seventh and Eighth Revisions (0.8963). But the major part of this reduction may have resulted from the following two developments: (1) an actual decrease in or better control of Arteriosclerosis in the population as a condition contributing to death and (2) more complete reporting by physicians of information about the specific manifestations of this generalized disease of Arteriosclerosis. According to present coding procedures, more specific conditions are usually preferred for tabulation as the underlying cause of death.

Very similar patterns are found when the color ratios for mortality from this cause are examined separately for the male population (with a mortality color ratio of 0.98 for 1950 and 0.99 for 1969) and for the female population (with a mortality color ratio of 0.96 for both 1950 and 1969).

The sex ratio for mortality from Arteriosclerosis was higher than the corresponding color ratio during 1950-69, but the trend for the sex ratio appears to be downward—from 1.29 for 1950 to 1.20 for 1969.

*Congenital anomalies.*—The 1969 infant mortality rate for Congenital anomalies was about 21 percent lower than the 1950 infant mortality rate for this group of causes. The true reduction for these causes may be even greater, because about 3.6 percent more deaths were assigned to these diseases by the Eighth Revision than had been assigned to the comparable causes by the Seventh Revision.

This lowering of the infant mortality rate for Congenital anomalies results primarily from the dropping of the death rate for these conditions for white infants, both male and female. Actually a slight increase in mortality from Congenital anomalies between 1950 and 1969 was recorded for both male and female infants of races other than white. White infants, however, still had a higher infant mortality rate for these conditions for 1969 than did infants of races other than white.

For white infants the excess mortality for these conditions decreased considerably between 1950 and 1969—the mortality color ratio changing from 0.67 for 1950 to 0.93 for 1969.

*Nephritis and nephrosis.*—The greatest relative decrease in mortality for any one of the 15 leading causes of death occurred for Nephritis and nephrosis—for which the age-adjusted death rate was about 77 percent lower for 1969 (3.9 deaths per 100,000) than for 1950 (16.6 deaths per 100,000). Although part of this reduction results from the assignment of about 11 percent fewer deaths to this cause by the Eighth Revision than were assigned by the Seventh Revision, the steady decline in mortality from these diseases, year after year, during 1950-69, is believed to represent for the most part a true decrease in their death rate.

The 1969 mortality color ratio for Nephritis and nephrosis (3.52) was higher than that for any of the 15 leading causes of death except Homicide (9.60) and also was higher than the color ratio for Nephritis and nephrosis for 1950 (2.98). The sex ratio for mortality from this cause was lower for both white and other populations than was the corresponding color ratio; but for both groups the mortality sex ratio was somewhat upward—increasing for the white population from 1.30 for 1950 to 1.52 for 1969 and increasing for the other population from 1.08 for 1950 to 1.30 for 1969.

*Peptic ulcer.*—Mortality from Peptic ulcer as measured by age-adjusted death rates decreased about 28 percent between 1950 and 1969. For the most part this reduction represents an actual lowering of mortality from this cause—and proceeds only in small measure from changes in coding procedures.

The reduction reflects, however, the dropping of this death rate only for male persons (both for white male and for other male persons). For white female persons the 1969 age-adjusted death rate for Peptic ulcer was 17.6 percent higher than the corresponding rate for 1950, and for other female persons, 4.5 percent higher than the rate for 1950.

The 1969 mortality sex ratio for Peptic ulcer (2.70) was more than twice the 1969 mortality color ratio for this cause (1.14). But as a result of the decrease in the death rate for Peptic ulcer for male persons and the concomitant increase for female persons, the 1969 mortality sex ratio dropped far below the corresponding ratio for 1950 (4.61).

## I. DISEASES OF HEART

*Diseases of heart (ICDA Nos. 390-398, 402, 404, 410-429).*—Based on the sample of deaths occurring in 1966, the introduction of the Eighth Revision resulted in an estimated net increase of 3,259 deaths assigned to Diseases of heart, giving a comparability ratio of 1.0045. There were an estimated 10,711 deaths transferred to this title by the Eighth Revision and an estimated 7,452 deaths transferred from this title (appendix III).

The net effect of these changes, based on coding the sample of deaths occurring in 1966 by both the Seventh and the Eighth Revisions, resulted in increasing the number of deaths assigned to Diseases of heart from 727,002 by the Seventh Revision to 730,261 deaths by the Eighth Revision.

During the period 1950-67 the total death rate for Diseases of heart rose from 356.8 deaths per 100,000 population for 1950 to 364.5 deaths per 100,000 for 1967 (table 2 and figure 1). The rise in this total death rate for 1968 to 372.6 deaths per 100,000 is attributable in part to the above-mentioned

changes in classification and coding procedures used with the Eighth Revision. Applying the comparability ratio of 1.0045 to the 1967 death rate for Diseases of heart raises it from 364.5 to 366.1, an adjusted rate that is closer to the 1968 rate, based on coding deaths by the Eighth Revision (372.6 deaths per 100,000). The fact that even after adjustment the 1968 death rate is higher than the 1967 rate reflects the serious influenza epidemic in 1968. For 1969 the total death rate for Diseases of heart fell to 366.1.

As measured by age-adjusted death rates, however, mortality from Diseases of heart was clearly downward during 1950-69 (table B and figure 1). These age-adjusted death rates reflect

marked declines for this cause for younger men and women. The decrease in this age-adjusted death rate (from 307.6 per 100,000 for 1950 to 262.3 per 100,000 for 1969) reflects substantial decreases in the corresponding age-adjusted death rates for each of the four color-sex groups.

For 1969 the sex ratio for this cause of death (the age-adjusted death rate for the male population divided by the corresponding rate for the female population) was 1.95. The trend for this ratio was upward during 1950-69, increasing from 1.64 for 1950.

The mortality color ratio for Diseases of heart (the age-adjusted death rate for the population of races other than white divided by the

Table B. Age-adjusted death rates for Diseases of heart, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category numbers 390-398, 402, 404, 410-429 of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers 400-402, 410-443 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969	262.3	356.8	182.6	257.1	354.8	174.9	312.8	378.1	256.8
1968	270.0	365.6	189.1	264.1	362.9	180.5	326.5	391.4	271.4
1967	267.7	362.6	186.8	263.1	361.6	179.2	310.1	370.7	257.8
1966	275.8	371.6	193.4	270.5	369.8	185.2	324.3	385.5	270.5
1965	275.6	369.7	194.1	270.6	368.6	185.9	319.4	376.1	269.2
1964	276.9	369.0	196.6	271.7	367.7	187.9	323.0	375.2	276.4
1963	285.4	379.2	203.1	277.9	375.7	192.3	333.8	387.0	286.9
1962 <sup>1</sup>	282.7	373.4	202.3	275.5	370.3	191.6	326.8	376.4	283.0
1961 <sup>1</sup>	278.6	367.5	199.2	273.8	367.3	190.5	318.4	362.7	278.0
1960	286.2	375.5	205.7	281.5	375.4	197.1	324.2	368.3	283.3
1959	283.3	369.9	204.8	278.7	369.4	196.6	326.7	365.9	279.2
1958	289.3	374.7	211.6	284.0	373.7	202.4	335.4	377.1	297.5
1957	293.0	377.4	215.5	286.9	375.6	205.8	345.6	387.2	307.6
1956	288.7	371.2	212.6	283.4	370.2	203.5	334.6	372.7	298.7
1955	287.5	368.4	212.5	282.6	367.4	204.0	330.3	369.2	293.0
1954	284.7	363.4	211.3	279.6	362.2	202.6	328.5	367.0	292.1
1953	298.9	379.2	223.6	292.7	376.5	214.1	355.8	398.3	314.6
1952	299.6	377.8	225.6	292.9	374.7	215.7	362.1	402.8	323.0
1951 <sup>2</sup>	302.9	380.6	229.1	296.3	378.0	218.9	364.4	400.5	329.5
1950 <sup>2</sup>	307.6	384.2	234.4	300.5	381.1	223.6	375.1	407.5	342.9

<sup>1</sup> Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup> Based on enumerated population adjusted for age bias in the population of races other than white.

corresponding rate for the white population) was lower than the corresponding mortality sex ratio, and remained quite stable during 1950-69, decreasing slightly from 1.25 for 1950 to 1.22 for 1969.

For 1969 the mortality sex ratio for Diseases of heart for the white population was substantially greater than the corresponding sex ratio for the population of other races (based on age-adjusted death rates in table B). The 1969 age-adjusted death rate for Diseases of heart for the white male population was 2.03 times the corresponding age-adjusted death rate for the white female population. The 1969 mortality sex ratio for Diseases of heart for the population of races other than white was 1.47. The trend for these mortality sex ratios was upward during 1950-69 for both color groups, increasing for the white population from 1.70 for 1950 to 2.03 and increasing for the other population from 1.19 for 1950 to 1.47 for 1969.

For these diseases the 1950 color ratio for the male population was 1.07 and remained quite stable during 1950-69. The corresponding mortality color ratio for the female population was greater—1.53 for 1950 and 1.47 for 1969.

Although the comparability ratio for the entire group of Diseases of heart is close to 1.00, some major components of this group have comparability ratios that differ substantially from 1.00. The breaks in trends measured by these ratios for five components of Diseases of heart shown in tables 2 and 3 are discussed below.

*Active rheumatic fever and chronic rheumatic heart disease (ICDA Nos. 390-398).*—A change in interpretation resulted in the transfer by the Eighth Revision to this group of diseases of almost all deaths that by the Seventh Revision procedures were assigned to Chronic endocarditis of aortic valve, not specified as rheumatic (ICD No. 421.1). With the Seventh Revision, these diseases of the aortic valve were assumed to be nonrheumatic unless specified as rheumatic, whereas in the Eighth Revision such diseases are assumed to be rheumatic unless specified as nonrheumatic.

During the period 1950-67 the death rate for Rheumatic fever and chronic rheumatic heart disease (ICD Nos. 400-402, 410-416) declined from 14.8 deaths per 100,000 population to 7.2 deaths per 100,000. The rise in this death rate

for 1968 to 8.2 is attributable in great part to the above-mentioned change in interpretation.

Applying the adjustment factor of 1.1519 to the 1967 death rate of 7.2 raises it to 8.3 deaths per 100,000, an adjusted rate that is very close to the 1968 rate of 8.2. The downward trend continued through 1969, for which year the rate was 7.6 per 100,000.

*Hypertensive heart disease with or without renal disease (ICDA Nos. 402, 404).*—During the period 1950-69 there were two major breaks in the continuity of the death rate for this group of diseases. The first break occurred between 1957 and 1958 with the introduction of the Seventh Revision (in use during 1958-67). There were about 11 percent more deaths assigned to this group of causes by the Seventh Revision than had been assigned to the same causes by the Sixth Revision.<sup>3</sup>

The second break in continuity occurred between 1967 and 1968. The comparability ratio for Hypertensive heart disease with or without renal disease (ICDA Nos. 402, 404) is 0.3941, obtained by dividing the estimated number of deaths in 1966 assigned by the Eighth Revision to this group of causes (21,350 deaths) by the number assigned by the Seventh Revision to the most nearly comparable title Hypertensive heart disease (ICD Nos. 440-443) (54,176 deaths) (appendix III).

During 1958-67 the death rate for Hypertensive heart disease (ICD Nos. 440-443) declined from 42.7 to 25.3 deaths per 100,000. Applying the comparability ratio of 0.3941 to the 1967 death rate of 25.3 lowers it to 10.0, an adjusted rate that is very close to the 1968 rate of 8.8 deaths per 100,000.

The downward trend for this cause continued through 1969, for which year the rate was 8.1 deaths per 100,000.

*Ischemic heart disease (ICDA Nos. 410-413).*—During the period 1950-69 there were two breaks, one major and one minor, in the continuity of the death rate for this group of causes. The most nearly comparable title in the Sixth and Seventh Revisions is Arteriosclerotic heart disease, including coronary disease (ICD No. 420). The first break in continuity occurred between 1957 and 1958 with the introduction of the Seventh Revision. About 2 percent fewer deaths (an

estimated 7,780) were assigned to Arteriosclerotic heart disease, including coronary disease (ICD No. 420), by the Seventh Revision than had been assigned to the same title by the Sixth Revision.<sup>3</sup>

The second break in continuity was in the opposite direction. Based on the 1966 comparability study, an estimated 14.57 percent more deaths (totaling about 83,500) were assigned by the Eighth Revision to the one most nearly comparable title Ischemic heart disease (ICDA Nos. 410-413) than had been assigned by the Seventh Revision to Arteriosclerotic heart disease, including coronary disease (ICD No. 420) (appendix III).

Adjusting the 1967 death rate for Arteriosclerotic heart disease, including coronary disease (ICD No. 420) (289.7 deaths per 100,000 population), to the level it would have been if the 1967 deaths had been coded by the Eighth Revision raises it to 331.9 deaths per 100,000 (289.7 multiplied by 1.1457). This adjusted rate is closer to the 1968 rate of 337.6 deaths per 100,000, based on coding deaths by the Eighth Revision. For 1969 the total death rate for this cause is 331.7 deaths per 100,000.

The trend of the age-adjusted death rate for Arteriosclerotic heart disease, including coronary disease, was in general upward during 1950-63, rising from 185.2 in 1950 to 221.2 deaths per 100,000 in 1963. Since that year the trend has been downward. By 1967 it was down to 213.3 deaths per 100,000. The age-adjusted death rates for 1968 and 1969 for Ischemic heart disease (ICDA Nos. 410-413) are, respectively, 243.0 and 235.9 deaths per 100,000 population. That these rates for 1968 and 1969 are higher than the corresponding age-adjusted rate for 1967 reflects not an actual upturn in mortality from this cause, but the transfer, described above, of about 14.6 percent more deaths to Ischemic heart disease by the Eighth Revision than had been assigned by the Seventh Revision to the nearly comparable title Arteriosclerotic heart disease, including coronary disease (ICD No. 420). Thus the force of mortality for Ischemic heart disease reached a peak in 1963 and then finally started downward.

*Chronic disease of endocardium and other myocardial insufficiency (ICDA Nos. 424, 428).*—The Seventh Revision title Nonrheumatic chronic

endocarditis and other myocardial degeneration (ICD Nos. 421, 422), for which figures are shown in tables 2 and 3 for 1950-67, sounds similar to the above Eighth Revision title. The comparability ratio for these two closely sounding titles, however, is only 0.1823.

Adjusting the 1967 death rate for Nonrheumatic chronic endocarditis and other myocardial degeneration (ICD Nos. 421, 422) (26.6 deaths per 100,000 population) to the level it would have been if the 1967 deaths had been coded by the Eighth Revision reduces it to 4.8 deaths per 100,000 (26.6 multiplied by 0.1823).

This adjusted rate is close to the 1968 rate of 3.9 deaths per 100,000, based on coding deaths by the Eighth Revision. For 1969 the total death rate for this cause dropped to 3.7 deaths per 100,000.

*All other forms of heart disease (ICDA Nos. 420-423, 425-427, 429).*—During the period 1950-69 there were two breaks in the continuity of the death rate for this group of causes. The most nearly comparable title for this group in the Sixth and Seventh Revisions is Other diseases of heart (ICD Nos. 430-434). The first break in continuity occurred between 1957 and 1958. About 10 percent more deaths (an estimated 2,300) were assigned to Other diseases of heart (ICD Nos. 430-434) by the Seventh Revision than had been assigned to the same title by the Sixth Revision.<sup>3</sup>

Most of the 2,300 additional deaths were transferred to Functional disease of heart (ICD No. 433) as a result of the priority given by the Seventh Revision to this cause over Other myocardial degeneration (ICD No. 422) and over General arteriosclerosis (ICD No. 450). (For other transfers, see the study of comparability ratios for the Sixth and Seventh Revisions.)<sup>3</sup>

The comparability ratio between the Seventh and Eighth Revisions for this residual group of heart diseases is only 0.8104 (appendix III). The important transfers involved will be covered in a report in preparation.<sup>2</sup>

## II. MALIGNANT NEOPLASMS

*Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (ICDA Nos. 140-209).*—The introduction of the Eighth Re-

**Table C. Age-adjusted death rates for Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues, by color and sex: United States, 1950-69**

[For 1968 and 1969 rates are based on deaths assigned to category numbers 140-209 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers 140-205 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969	129.7	155.9	109.1	126.8	152.1	107.1	158.6	194.9	127.7
1968	130.2	155.9	109.9	127.4	152.3	107.8	158.3	193.3	128.8
1967	129.1	153.6	109.7	126.6	150.3	107.9	154.3	186.6	126.6
1966	128.4	151.9	109.6	125.9	148.9	107.6	152.7	182.3	127.0
1965	127.9	150.2	109.9	125.8	148.0	108.1	147.7	173.3	125.2
1964	126.7	147.9	109.3	124.6	145.6	107.6	145.7	170.1	124.0
1963 <sup>1</sup>	126.7	147.1	109.9	123.7	143.8	107.3	145.1	168.7	124.4
1962 <sup>1</sup>	125.6	144.6	109.9	123.0	142.0	107.4	140.9	159.1	124.7
1961	125.4	143.5	110.2	123.7	142.0	108.5	140.3	157.9	124.3
1960	125.8	143.0	111.2	124.2	141.6	109.5	139.3	154.8	125.0
1959	124.5	140.7	110.8	123.1	139.4	109.4	136.2	152.5	121.3
1958	124.6	139.1	112.2	123.2	138.2	110.6	135.3	146.4	125.3
1957	126.4	140.9	114.0	125.2	139.9	112.6	136.7	149.2	125.2
1956	126.3	139.7	114.8	125.1	139.1	113.2	136.2	145.0	127.8
1955	125.8	137.7	115.5	124.9	137.4	114.3	131.5	138.7	124.7
1954	125.8	136.6	116.4	124.8	136.0	115.1	133.0	140.6	125.9
1953	125.9	135.6	117.5	125.3	135.5	116.4	129.2	133.2	125.1
1952	125.7	133.7	118.8	125.0	133.7	117.6	128.8	130.7	126.8
1951	124.3	130.9	118.7	123.8	131.1	117.5	125.9	125.3	126.4
1950 <sup>2</sup>	125.4	130.8	120.8	124.7	130.9	119.4	128.6	125.8	131.0

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

vision resulted in an estimated net increase of less than 0.2 of 1 percent in the number of deaths assigned to this group of causes (appendix III). Based on the sample of deaths in 1966 coded by both the Seventh and the Eighth Revisions, there were 2,342 deaths transferred to this title by the Eighth Revision and 1,816 deaths transferred from this title.<sup>2</sup>

During the period 1950-67 the total death rate for malignant neoplasms rose almost uninterruptedly from 139.8 for 1950 to 157.2 deaths per 100,000 population for 1967 (table 2 and figure 1). Less than 0.2 of 1 percent of the rise in the total death rate to 159.4 deaths per 100,000 for 1968 is attributable to the change to the Eighth Revision.

For 1969 this death rate was 160.0 deaths per 100,000 population, representing a total number of 323,092 deaths from this complex of causes (table 3).

The age-adjusted death rate for these diseases grouped under malignant neoplasms showed an increase of from 125.4 deaths per 100,000 for 1950 to 129.7 for 1969 (table C and figure 1). This increase was moderate because the substantial increases in the age-adjusted death rates for these diseases for the male population of both white and all other races were offset by the decreases in the corresponding rates for the female population of both white and all other races (table C).



The sex differential for this cause (based on age-adjusted death rates in table C) increased from 1.08 for 1950 to 1.43 for 1969.

Throughout 1950-69 the age-adjusted death rate for malignant neoplasms was higher for the population of races other than white than for the white population. The mortality color ratio also increased, from 1.03 for 1950 to 1.25 for 1969. An upturn in the mortality color ratio was recorded for both male and female populations.

The rise in the mortality sex differential for the total population reflects marked increases in the sex differential for this cause, for both the white population and the population of races other than white—but especially for this latter population. For them the mortality sex ratio for malignant neoplasms increased from 0.96 for 1950 to 1.53 for 1969.

The trends for the major components of the diseases brought together under the title "Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues" (ICDA Nos. 140-209) are considered in the following sections.

*Malignant neoplasms of buccal cavity and pharynx (ICDA Nos. 140-149).*—Based on the above-mentioned sample of deaths in 1966, there was a net increase of 405 deaths assigned by the Eighth Revision to this group of causes.<sup>2</sup> As a result the comparability ratio is 1.0596 (appendix III).

During the period 1950-67 the total death rate for Malignant neoplasms of buccal cavity and pharynx (ICD Nos. 140-148) remained quite stable. The lowest rates were for 1951-53 (3.2 deaths per 100,000), and the highest rates were for 1961, 1962, and 1966 (3.5 deaths per 100,000). The rise in the total death rate between 1967 (3.4 deaths per 100,000) and 1968 (3.6 deaths per 100,000) is attributable to the above-mentioned break in comparability introduced with the Eighth Revision. Applying the comparability ratio of 1.0596 to the 1967 death rate for this group of causes raises it to 3.6, an adjusted rate that is the same as that for 1968. For 1969 the death rate for Malignant neoplasms of buccal cavity and pharynx (ICDA Nos. 140-149) was 3.7 deaths per 100,000 population.

*Malignant neoplasms of digestive organs and peritoneum (ICDA Nos. 150-159).*—The Eighth Revision assigned to ICDA Nos. 150-159 only an

estimated 96.6 percent of the deaths that had been assigned to the comparable Seventh Revision title "Malignant neoplasm of digestive organs and peritoneum, not specified as secondary" (ICD Nos. 150-156A, 157-159) (appendix III).

The death rate for groups of causes entitled in the Eighth Revision "Malignant neoplasms of digestive organs and peritoneum" (ICDA Nos. 150-159) rose almost steadily from 1900 through 1945, for which year the rate was 60.5 deaths per 100,000 population. Since 1945, however, the trend has been generally downward, falling to 48.2 deaths per 100,000 population in 1967. The death rate for 1968 was 46.8 per 100,000 (table 2). But inasmuch as only an estimated 91,848 deaths<sup>2</sup> in 1966 were assigned to ICDA Nos. 150-159 by the Eighth Revision and 95,079 deaths in 1966 were assigned to ICD Nos. 150-156A and 157-159 by the Seventh Revision, an adjustment factor of 0.9660 (91,848 divided by 95,079 deaths) should be applied to the 1967 death rate (48.2 deaths per 100,000) to lower it to the level it would have been (46.6 deaths per 100,000) if deaths in 1967 had been coded by the Eighth Revision.

It appears that the downward trend may have leveled off in recent years: in 1968 the death rate for this group of causes was 46.8; and in 1969, 46.5 deaths per 100,000. This deceleration reflects the opposite trends of the principal components of this group of causes. Malignant neoplasms of stomach, biliary passages, and liver continued downward through the 1960's, while malignant neoplasms of the intestines continued to rise. The upward trend for malignant neoplasms of the pancreas during 1914-68 may also have begun to level off: for both 1968 and 1969 the death rate for this cause was 8.7 per 100,000 population.

*Malignant neoplasms of respiratory system (ICDA Nos. 160-163).*—During the period 1950-69 there was a break in continuity for this group of causes between 1967 and 1968 resulting from the introduction of the Eighth Revision. The comparability ratio is 1.0316 (appendix III) (56,668 deaths when tabulated by the Eighth Revision divided by 54,934 deaths when tabulated by the Seventh Revision).<sup>2</sup>

During the period 1950-67 the total death rate for Malignant neoplasms of respiratory system (ICD Nos. 160-164) rose from 14.1 deaths

per 100,000 population for 1950 to 29.4 for 1967 (table 2).

Applying the above-mentioned comparability ratio of 1.0316 to the death rate for 1967 (29.4 deaths per 100,000 population) raises this rate to 30.3 deaths per 100,000 population, the level at which the 1967 death rate would have been if deaths for that year had been classified by the Eighth Revision. This adjustment of the 1967 rate reduces the percentage rise between 1967 and 1968 from 8.16 percent to 4.95 percent. For 1969 the death rate for Malignant neoplasms of respiratory system (ICDA Nos. 160-163) was 32.7 deaths per 100,000 population.

*Malignant neoplasm of breast (ICDA No. 174).*—There were no serious breaks during 1950-69 in the comparability of mortality statistics for this cause. The comparability ratio for the Seventh and Eighth Revisions is 0.9913 (appendix III).

The trend figures (table 2) for mortality from Malignant neoplasm of breast (ICDA No. 174) show a slight but quite steady increase during 1950-69. The rate rose over this 20-year period from 12.6 deaths per 100,000 population for 1950 to 14.4 deaths for 1969. These figures are based on the total population—male and female. Inasmuch as this cause of death occurs almost entirely among female persons, a more useful rate is that based only on female persons.

As shown in the table at right, for white female persons the age-adjusted death rate for this cause declined slightly, from 22.5 deaths per 100,000 in 1950 to 22.1 deaths per 100,000 for 1963. But since 1963 the age-adjusted death rate for this cause for white female persons appears to be upward, with a rate of 23.0 for 1969. This higher mortality reflects an upturn in mortality for this cause during the 1960's for the three 10-year age groups in the span 45-54 through 65-74 years. The only age groups of white female persons that experienced appreciable declines in mortality from this cause were 75-84 years and 85 years and over.

The 1969 death rates for Malignant neoplasm of breast for each 10-year age group of white women in the span 15-24 through 45-54 years were somewhat lower than the corresponding rates for all other women. The absolute increase in mortality for this cause during 1950-69 was

Year	Age-adjusted death rate for Malignant neoplasm of breast (ICDA No. 174) <sup>1</sup>	
	White female persons	All other female persons
	Rate per 100,000 population	
1969-----	23.0	22.7
1968-----	23.4	23.0
1967-----	23.2	22.6
1966-----	23.1	21.2
1965-----	23.0	21.3
1964-----	22.8	21.1
1963 <sup>2</sup> -----	22.1	21.2
1962 <sup>2</sup> -----	22.2	20.2
1961-----	22.4	20.4
1960-----	22.4	20.7
1959-----	22.1	19.5
1958-----	22.2	19.2
1957-----	22.6	19.8
1956-----	22.6	20.4
1955-----	22.9	19.6
1954-----	22.2	19.8
1953-----	22.5	18.7
1952-----	22.4	18.9
1951-----	21.9	18.8
1950 <sup>3</sup> -----	22.5	19.0

<sup>1</sup>For 1968 and 1969, rates are based on deaths assigned to category number 174 of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965; for 1950-67, rates are based on deaths assigned to category number 170 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I.

<sup>2</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>3</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

greater at these ages for all other women than for white women. For example, for all other women for the age group 45-54 years the death rate increased from a low of 41.9 deaths per 100,000 population for 1952 to 52.6 deaths for 1969. The corresponding increase for white women

was from a low of 45.6 deaths per 100,000 for 1951 to 51.5 deaths for 1969.

*Malignant neoplasms of genital organs (ICDA Nos. 180-187).*—During the period 1950-69 there were two breaks in the comparability of mortality statistics for this group of causes. The first break occurred between 1957 and 1958 with the introduction of the Seventh Revision. The comparability ratio for this title for the Sixth and Seventh Revisions is 0.98.<sup>3</sup> But there was no serious break in continuity of mortality statistics for Malignant neoplasms of genital organs with the introduction of the Eighth Revision. The comparability ratio is 1.0034 (appendix III).

Inasmuch as the trend figures in table 2 are based on the total population (male and female), they are of limited use. In the table below data are provided for Malignant neoplasms of female genital organs from the comparability study of deaths in 1966. From these data the comparability ratio for this group of neoplasms has been calculated to be 0.9963.

The corresponding comparability ratio for Malignant neoplasms of the male genital organs is 1.0133 (see table at top of page 15 for pertinent data).

As shown in the table at bottom of page 15, the trend of the age-adjusted death rates for female genital organs was generally downward during 1950-69 for both white and all other women.

The age-adjusted death rate for Malignant neoplasms of male genital organs fell slightly during 1950-69 for white male persons, but the corresponding rate for male persons of races other than white rose substantially. As shown in the table on page 16, for this latter group the rate increased from 18.2 deaths per 100,000 for 1950 to 24.7 deaths per 100,000 for 1969. Most of this rise reflects the higher level of mortality from Malignant neoplasm of prostate (ICDA No. 185).

Continued on page 14

Cause of death and category numbers	Seventh Revision	Eighth Revision	
	Deaths in 1966 (1)	Estimated deaths in column (1) that went to Malignant neoplasms of female genital organs (ICDA Nos. 180-184) (2)	Estimated deaths in column (1) that went to other causes (3)
All causes-----001-E999	1,863,149	23,337	1,839,812
Malignant neoplasms of female genital organs-----171-176	23,424	23,169	255
Of cervix uteri-----171	7,665	7,562	103
Of other and unspecified parts of uterus-----172-174	5,731	5,680	51
Of ovary, fallopian tube, and broad ligament-----175	9,163	9,092	71
Of other and unspecified female genital organs-----176	865	835	30
Other causes-----Residual	1,839,725	168	1,839,557

Seventh Revision		Eighth Revision	
Cause of death and category numbers	Deaths in 1966 (1)	Estimated deaths in column (1) that went to Malignant neoplasms of male genital organs (ICDA Nos. 185-187) (2)	Estimated deaths in column (1) that went to other causes (3)
All causes-----001-E999	1,863,149	17,179	1,845,970
Malignant neoplasms of male genital organs-----177-179	16,954	16,800	154
Of prostate-----177	15,941	15,806	135
Of all other and unspecified male genital organs-----178-179	1,013	994	19
Other causes-----Residual	1,846,195	379	1,845,816

Year	Age-adjusted death rate for Malignant neoplasms of female genital organs (ICDA Nos. 180-184) <sup>1</sup>		Year	Age-adjusted death rate for Malignant neoplasms of female genital organs (ICDA Nos. 180-184) <sup>1</sup>	
	White female persons	All other female persons		White female persons	All other female persons
	Rate per 100,000 population			Rate per 100,000 population	
1969-----	17.2	28.1	1959-----	20.9	35.0
1968-----	17.4	29.5	1958-----	21.6	37.4
1967-----	17.8	29.5	1957-----	22.1	38.1
1966-----	18.4	31.4	1956-----	21.9	40.1
1965-----	19.0	31.6	1955-----	22.8	39.5
1964-----	19.2	32.0	1954-----	23.1	39.6
1963 <sup>2</sup> -----	19.6	32.8	1953-----	23.7	41.6
1962 <sup>2</sup> -----	20.0	33.4	1952-----	23.7	41.7
1961-----	20.2	34.6	1951-----	24.1	41.3
1960-----	20.7	34.2	1950 <sup>3</sup> -----	25.3	44.0

<sup>1</sup>For 1968 and 1969, rates are based on deaths assigned to category numbers 180-184 of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965; for 1950-67, rates are based on deaths assigned to category numbers 171-176 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I.

<sup>2</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>3</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

Year	Age-adjusted death rate for Malignant neoplasms of male genital organs (ICDA No. 185-187) <sup>1</sup>		Year	Age-adjusted death rate for Malignant neoplasms of male genital organs (ICDA No. 185-187) <sup>1</sup>	
	White male persons	All other male persons		White male persons	All other male persons
	Rate per 100,000 population			Rate per 100,000 population	
1969-----	13.3	24.7	1959-----	14.4	22.5
1968-----	13.4	25.5	1958-----	14.0	21.1
1967-----	13.2	24.3	1957-----	14.3	22.2
1966-----	13.4	22.4	1956-----	14.5	21.3
1965-----	13.5	22.3	1955-----	14.5	20.6
1964-----	13.5	23.0	1954-----	14.6	20.9
1963 <sup>2</sup> -----	13.6	22.7	1953-----	14.3	19.0
1962 <sup>2</sup> -----	13.4	23.7	1952-----	14.3	18.7
1961-----	13.6	22.3	1951-----	14.1	18.2
1960-----	13.5	21.8	1950 <sup>3</sup> -----	14.4	18.2

<sup>1</sup>For 1968 and 1969, rates are based on deaths assigned to category numbers 185-187 of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965; for 1950-67, rates are based on deaths assigned to category numbers 177-179 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I.

<sup>2</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>3</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

*Malignant neoplasms of urinary organs (ICDA Nos. 188, 189).*—There were two breaks during 1950-69 in the comparability of mortality statistics for this group of causes. The comparability ratio between the Sixth and Seventh Revisions is 0.98.<sup>3</sup> The comparability ratio between the Seventh and Eighth Revisions is 1.0171 (appendix III).

The mortality trend for the total death rate for Malignant neoplasms of urinary organs was upward during 1950-69, rising from 6.7 deaths per 100,000 for 1950 to 7.4 deaths for 1969 (table 2). This upturn reflects primarily increasing death rates for this group of causes for the male population. As shown in the table on page 17, the age-adjusted death rate for this cause for white male persons rose from 8.2 deaths per 100,000 for 1950 to 8.6 deaths per 100,000 for 1969.

The age-adjusted death rate for all other male persons continued lower than the corresponding rate for white male persons during 1950-69. But the increase in mortality from this cause was much greater for male persons of races other than white.

The age-adjusted death rate for white female persons was not only much lower in 1950 (3.8 deaths per 100,000) than the corresponding rate for white male persons (8.2 deaths per 100,000), but, as shown in the table on page 17, during 1950-69 this rate declined for white female persons. The pattern for the age-adjusted death rate for female persons of races other than white fluctuated during 1950-69. This irregular variation may result from the small numbers of deaths for some of the age-specific rates on which the age-adjusted rates are based.

Year	Age-adjusted death rate for Malignant neoplasms of urinary organs (ICDA Nos. 188, 189) <sup>1</sup>			
	White male persons	All other male persons	White female persons	All other female persons
	Rates per 100,000 population			
1969-----	8.6	7.6	3.2	*3.8
1968-----	8.7	7.9	3.3	3.7
1967-----	8.7	7.7	3.2	*4.4
1966-----	8.6	7.1	3.3	3.8
1965-----	8.4	*6.9	3.4	*4.0
1964-----	8.4	*6.8	3.3	3.8
1963 <sup>2</sup> -----	8.5	6.8	3.3	*3.7
1962 <sup>2</sup> -----	8.3	*6.7	3.4	4.4
1961-----	8.4	6.8	3.4	*3.8
1960-----	8.5	*6.4	3.4	*4.2
1959-----	8.4	*6.4	3.5	*3.7
1958-----	8.2	6.5	3.5	*3.8
1957-----	8.4	*6.5	3.7	*3.9
1956-----	8.3	6.1	3.6	3.8
1955-----	8.3	5.3	3.8	3.3
1954-----	8.3	6.1	3.6	3.8
1953-----	8.3	*5.8	3.7	*4.0
1952-----	8.3	*5.9	3.7	*3.6
1951-----	8.0	*5.7	3.7	*3.5
1950 <sup>3</sup> -----	8.2	*5.6	3.8	*4.0

<sup>1</sup>For 1968 and 1969, rates are based on deaths assigned to category numbers 188 and 189 of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965; for 1950-67, rates are based on deaths assigned to category numbers 180 and 181 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I.

<sup>2</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>3</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

NOTE: Asterisk indicates age-adjusted rates based on age-specific rates where more than half of the rates were based on a frequency of less than 20.

*Malignant neoplasms of all other and unspecified sites (ICDA Nos. 170-173, 190-199).*—About 2 percent more deaths were assigned to this title by the Eighth Revision than had been assigned to it by the Seventh Revision (appendix III). This is, of course, a residual category.

*Leukemia (ICDA Nos. 204-207).*—There has been no appreciable break in comparability of mortality statistics from this cause during 1950-69. The comparability ratio between the Seventh

and Eighth Revisions is 0.9974 (appendix III).

The total death rate for this cause continued in general upward during 1950-69 (table 2). As shown in the table on page 18 by age-adjusted death rates, mortality from this disease is higher for white male persons than for all other male persons.

Also the age-adjusted death rate for white female persons for this cause continued higher than the corresponding rate for all other female

Year	Age-adjusted death rate for Leukemia (ICDA Nos. 204-207) <sup>1</sup>			
	White male persons	All other male persons	White female persons	All other female persons
	Rate per 100,000 population			
1969-----	7.5	5.8	4.7	3.9
1968-----	7.5	6.2	4.8	4.1
1967-----	7.7	6.1	4.9	3.7
1966-----	7.7	5.2	4.8	3.9
1965-----	7.5	5.6	4.9	3.5
1964-----	7.5	5.6	5.0	3.6
1963 <sup>2</sup> -----	7.6	6.0	5.0	4.1
1962 <sup>2</sup> -----	7.5	5.2	4.8	3.9
1961-----	7.7	5.2	4.9	3.4
1960-----	7.8	4.8	5.1	3.7
1959-----	7.6	5.0	4.9	3.8
1958-----	7.5	5.1	5.0	3.8
1957-----	7.4	5.4	5.1	3.2
1956-----	7.3	5.2	5.1	3.6
1955-----	7.3	4.7	4.9	3.0
1954-----	7.0	5.1	5.0	3.0
1953-----	7.0	4.4	4.7	3.1
1952-----	7.0	4.2	5.0	3.3
1951-----	6.9	4.4	4.7	2.8
1950 <sup>3</sup> -----	6.5	3.8	4.7	2.8

<sup>1</sup>For 1968 and 1969, rates are based on deaths assigned to category numbers 204-207 of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965; for 1950-67, rates are based on deaths assigned to category number 204 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I.

<sup>2</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>3</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

persons. For both groups of female persons the earlier (1950-60) upward trend in mortality from this cause appears to have leveled off during the 1960's, as shown in the table above.

*Other neoplasms of lymphatic and hematopoietic tissues (ICDA Nos. 200-203, 208, 209).*—About 5 percent more deaths were assigned by the Eighth Revision to this group of causes than were assigned by the Seventh Revision to the comparable title Lymphosarcoma and other neoplasms of lymphatic and hematopoietic tissues (ICD Nos. 200-203, 205) (appendix III).

### III. CEREBROVASCULAR DISEASES

*Cerebrovascular diseases (ICDA Nos. 430-438).*—The comparable Seventh Revision title for Cerebrovascular diseases was Vascular lesions affecting central nervous system (ICD Nos. 330-334). In the Seventh Revision this title was included in Section VI "Diseases of the nervous system and sense organs." But by the Eighth Revision the title Cerebrovascular diseases (ICDA Nos. 430-438) was transferred from Section VI to Section VII "Diseases of the circulatory sys-

tem." The Eighth Revision reserved Section VI "Diseases of the nervous system and sense organs" for hereditary and familial diseases of nervous system, including hereditary neuromuscular disorders.

The comparability ratio between these comparable titles for Cerebrovascular diseases is 0,9905 (appendix III).

The total death rate for Cerebrovascular diseases (ICDA Nos. 430-438) appears to have declined only slightly during 1950-69, from 104.0 deaths per 100,000 to 102.6 (table 2 and figure 1). But the age-adjusted death rate for this group of causes shows that substantial progress in the

control of mortality from these diseases was made during this 20-year period (table D and figure 1).

The age-adjusted death rate for Cerebrovascular diseases decreased quite steadily—from 88.8 deaths per 100,000 for 1950 to 68.5 deaths for 1969. This decrease reflects lowering of the age-adjusted rates for each of the four color-sex groups. But the excessively high mortality color ratio that characterized mortality from this cause throughout the first half of the century increased even further during 1950-69. For 1950 the age-adjusted death rate for Cerebrovascular diseases for the population of races other than

Table D. Age-adjusted death rates for Cerebrovascular diseases, by color and sex; United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category numbers 430-438 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers 330-334 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I.]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969-----	68.5	74.9	63.3	63.8	70.1	58.6	117.1	124.1	111.1
1968-----	71.5	78.1	66.0	66.3	72.9	60.9	124.4	132.2	117.9
1967-----	70.0	76.2	64.9	65.2	71.5	59.9	118.8	124.4	114.1
1966-----	72.6	78.8	67.3	67.3	73.6	62.0	125.5	131.5	120.3
1965-----	73.1	79.1	67.9	67.5	73.8	62.1	129.6	134.2	125.5
1964-----	73.9	79.7	69.1	68.5	74.6	63.3	128.3	131.1	125.8
1963 <sup>1</sup> -----	76.6	82.5	71.6	71.3	77.6	65.9	133.4	135.7	131.7
1962 <sup>1</sup> -----	76.8	82.1	72.2	71.5	77.4	66.5	132.5	133.4	132.2
1961-----	76.7	82.0	72.1	71.4	77.3	66.3	128.8	127.5	130.2
1960-----	79.7	85.4	74.7	74.2	80.3	68.7	134.8	135.2	134.4
1959-----	80.7	85.8	76.2	75.3	80.9	70.2	135.7	134.8	136.5
1958-----	83.0	88.0	78.4	77.4	82.9	72.5	140.0	141.2	139.4
1957-----	84.2	89.3	79.5	78.6	84.4	73.4	141.1	140.2	142.2
1956-----	82.3	86.7	78.2	77.0	82.1	72.3	136.8	134.3	139.1
1955-----	83.0	87.4	79.0	77.7	82.7	73.2	137.8	136.2	139.3
1954-----	83.0	86.7	79.5	77.6	82.0	73.5	139.0	136.0	142.0
1953-----	86.9	90.5	83.6	81.5	85.6	77.7	143.9	141.7	145.7
1952-----	87.8	91.3	84.6	82.3	86.4	78.4	146.9	143.9	149.9
1951-----	89.0	92.0	86.2	83.6	87.3	80.1	147.3	142.6	152.1
1950 <sup>2</sup> -----	88.8	91.9	86.0	83.2	87.0	79.7	148.8	144.0	153.4

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.



white was 1.79 times the corresponding rate for the white population; and by 1969 this ratio had increased to 1.84.

The mortality sex ratio for Cerebrovascular diseases was much lower than the mortality color ratio through the first half of this century, but this mortality sex ratio increased somewhat between 1950 (with a ratio of 1.07) and 1969 (with a ratio of 1.18).

During 1950-69 the age-adjusted death rate for Cerebrovascular diseases for women of races other than white was about 1.9 times the corresponding rate for white women. The corresponding ratio of the age-adjusted death rate for men of races other than white over that for white men was somewhat lower, but the trend for this ratio appears to be slowly upward—1.66 for 1950 and 1.77 for 1969.

For both the white population and the population of races other than white the mortality sex ratio for Cerebrovascular diseases increased during 1950-69—for the white population, from 1.09 for 1950 to 1.20 for 1969; and for the other population, from 0.94 for 1950 to 1.12 for 1969 (based on age-adjusted death rates in table D).

For both male and female persons of races other than white, the death rate for Cerebrovascular diseases continued through 1950-69 to be substantially higher for most age groups than the corresponding rates for white persons.

*Trends for major components of Cerebrovascular diseases.*—Although the introduction of the Eighth Revision for data year 1968 did not produce any appreciable break in the comparability of mortality statistics for the entire group of Cerebrovascular diseases, it did produce a considerable degree of discontinuity for the components of this group of diseases. One of the reasons for the lack of comparability for the components is that while the Sixth and Seventh Revisions were in use (1949-67), Cerebrovascular diseases were distributed among only five components, but according to the Eighth Revision they are distributed among nine components.

To lessen the degree of discontinuity the nine components of Cerebrovascular diseases according to the Eighth Revision have been divided for the purpose of this report into the following four subgroups: Subarachnoid hemorrhage (ICDA No. 430), Cerebral hemorrhage (ICDA

No. 431), Cerebral thrombosis (ICDA No. 433), and a residual group—All other cerebrovascular diseases (ICDA Nos. 432, 434-438). The category numbers of the Sixth and Seventh Revisions that are most nearly comparable to the category numbers of the four subgroups of the Eighth Revision are shown together with the mortality trend during 1950-69 for each of these four major subgroups in figure 3.

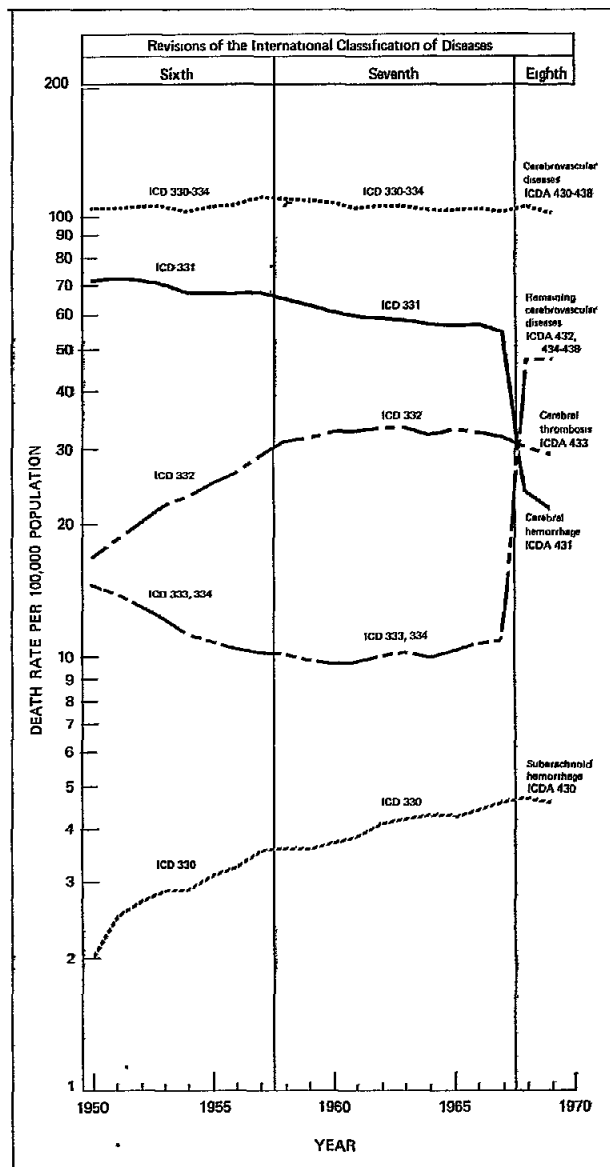


Figure 3. Death rates for major components of Cerebrovascular diseases: United States, 1950-69.

## IV. ACCIDENTS

*Accidents (ICDA Nos. E800-E949).*—There were two breaks in continuity for mortality statistics for this group of causes during 1950-69. The first break occurred as the result of the introduction of the Seventh Revision, in use 1958-67. The comparability ratio for Accidents (ICD Nos. E800-E962) between the Sixth and Seventh Revisions was 0.97.<sup>3</sup> This reduction in the numbers of deaths assigned to accidents by the Seventh Revision over the number assigned by the Sixth Revision resulted primarily from transfers of some deaths attributed to falls and to a number of other categories for accidents, excluding motor vehicle accidents. The corresponding com-

parability ratio for Motor vehicle accidents is 1.00, and that for All other accidents, 0.95.<sup>3</sup>

The comparability ratio for Accidents (with motor vehicle and other accidents taken together) between the Seventh and Eighth Revisions is 0.9570 (appendix III). Again, as was the case between the Sixth and Seventh Revisions, this reduction in the number of deaths assigned to Accidents by the Eighth Revision over the number assigned by the Seventh Revision resulted primarily from transfers from accidents other than motor vehicle accidents. The comparability ratio for Motor vehicle accidents between the Seventh and Eighth Revisions was close to 1.00—actually 0.9921; while the comparability ratio for All other accidents was 0.9250 (appendix III).

Table E. Age-adjusted death rates for Accidents, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category numbers E800-E949 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers E800-E962 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969-----	55.3	82.9	29.3	52.6	78.5	28.1	75.5	118.9	36.9
1968-----	55.1	82.5	29.2	52.2	77.7	28.1	77.0	122.1	36.8
1967-----	54.8	81.8	29.3	52.4	77.8	28.2	73.2	114.7	35.9
1966-----	55.6	82.6	30.0	53.0	78.5	28.7	75.8	116.4	39.1
1965-----	53.4	79.1	28.8	51.0	75.4	27.7	70.8	109.3	35.8
1964-----	52.1	76.8	28.3	49.9	73.4	27.3	68.4	105.2	34.9
1963 <sup>1</sup> -----	50.9	75.0	27.8	49.1	72.4	26.7	68.2	103.4	36.1
1962 <sup>1</sup> -----	49.7	73.2	27.2	48.0	70.7	26.2	66.5	100.5	35.4
1961-----	48.1	71.4	25.8	46.1	68.5	24.5	63.2	95.1	33.9
1960-----	49.9	73.9	26.8	47.6	70.6	25.4	67.3	101.1	36.1
1959-----	49.8	74.3	26.3	47.7	71.2	25.1	66.1	100.2	34.6
1958-----	49.8	74.1	26.5	47.7	71.1	25.1	66.6	100.2	35.8
1957-----	53.4	79.3	28.5	51.2	76.1	27.0	71.0	106.5	38.4
1956-----	54.4	81.2	28.7	52.2	77.8	27.4	72.0	109.7	37.3
1955-----	54.4	80.7	29.0	52.3	77.7	27.6	71.2	106.5	38.5
1954-----	53.1	78.9	28.4	51.1	75.9	27.1	69.7	104.6	37.8
1953-----	57.3	85.3	30.5	54.9	81.8	29.1	76.4	116.2	39.8
1952-----	58.8	86.8	32.0	56.4	83.2	30.6	78.4	118.2	41.6
1951-----	59.4	87.5	32.0	57.3	84.5	30.7	76.4	114.1	41.0
1950 <sup>2</sup> -----	57.5	83.7	31.7	55.6	81.0	30.6	72.0	107.1	38.8

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

Mortality from Accidents (motor vehicle and other accidents taken together), as measured by the total death rate for this group of causes, fell during 1950-60, reaching a low of 50.4 deaths per 100,000 for 1961, and then rose during 1961-69 (table 2 and figure 1). A similar pattern is found for the trend of mortality from Accidents when measured by age-adjusted death rates (table E and figure 1). The total age-adjusted death rate for this group of causes decreased from 57.5 deaths per 100,000 for 1950 to a low of 48.1 deaths for 1961, and then rose during 1962-69 to 55.3 deaths per 100,000.

This trend for the total age-adjusted death rate reflects similar patterns for the four color-sex groups, except that for the male population of races other than white, the increase during 1962-69 was far greater than the increase for the other three groups. For the other-than-white male population the age-adjusted death rate rose to 118.9 deaths per 100,000 for 1969, a level of mortality that was higher than even that for 1950 (107.1 deaths per 100,000) (table E).

For the population as a whole the mortality sex ratio for Accidents is much higher than the corresponding color ratio (based on age-adjusted death rates in table E). The 1950 age-adjusted death rate for Accidents for the male population was 2.64 times the corresponding death rate for the female population—by 1961 this mortality sex ratio had increased to 2.77 and by 1969 to 2.83. The mortality sex ratio for Accidents increased during 1950-69 for both the white population and the population of races other than white—with by far the largest increase for the latter population. For 1950 for the male population of races other than white the age-adjusted death rate for Accidents was 2.76 times the corresponding rate for the female population of races other than white; and by 1969 this sex ratio had risen to 3.22. Deaths and death rates by external cause of injury are shown in table F.

**Motor vehicle accidents (ICDA Nos. E810-E823).**—As stated above there were no substantial breaks in comparability of mortality statistics for Motor vehicle accidents during 1950-69.

The death rate for this cause decreased from 23.1 per 100,000 in 1950 (representing 34,763 deaths) to a low of 20.8 deaths per 100,000 in 1961 and then rose in subsequent years, reaching

27.6 deaths per 100,000 for 1969, representing 55,791 deaths in that year (tables 2 and 3).

The 1969 age-adjusted death rate for the male population was about 2.9 times the corresponding rate for the female population (table G). The highest age-adjusted rate for 1969 by color and sex was for the male population of races other than white (54.4 deaths per 100,000 population).

For 1969, as for most years during 1950-69, the mortality curve by age for this cause is bimodal, reaching the first peak at ages 15-24 years (51.0 deaths per 100,000 population) and the second peak at ages 75-84 years (42.9 deaths per 100,000).

During 1950-69 the death rate for Motor vehicle accidents increased for each of the four color-sex groups (table H). Inasmuch as the death rate changed direction during the period, declining to a low for 1961 and thereafter turning upward, the amount of increase in the rate is, of course, much greater for the period 1961-69. The greatest relative increase during 1961-69 in the death rate for Motor vehicle accidents was for infants in each of the following three color-sex groups: white male, all other male, and all other female. For the white female population the greatest relative increase in the rate was for the age group 15-24 years (table H). The relative increase for these women was 57.1 percent between 1961 and 1969. The corresponding increase for women of races other than white at ages 15-24 years (54.8 percent) was almost as great as that for white women. White men at ages 15-24 years had a higher death rate for Motor vehicle accidents in 1969 than did any other age-color-sex group (82.0 deaths per 100,000 population).

An unexplained phenomenon is that men of races other than white experienced their highest mortality from this cause at older ages (25-34 years) than did white men (15-24 years). The peak death rate from this cause for men of races other than white at these ages (72.2 deaths per 100,000) was lower than the peak death rate for white men (82.0 deaths per 100,000 at ages 15-24 years).

Another outstanding difference among men, in this case a difference that is unfavorable for men of other races, is that throughout the middle years of life (35-44, 45-54, and 55-64 years) the motor vehicle death rates for men of races

Table F. Deaths and death rates for Accidents, by external cause of injury: United States, 1958, 1966, 1967, 1968, and 1969  
 (Rates per 100,000 population. Numbers after causes of death are category numbers of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965. For 1968 and 1969 rates are based on deaths assigned to these Eighth Revision category numbers, for 1958 and 1967 rates are based on deaths assigned to the category numbers of the Seventh Revision, adopted in 1955. These category numbers are shown in next to the last column of this table)

Cause of death	Eighth Revision				Seventh Revision						Provi- sional compar- ability ratio <sup>2</sup>	
	1969		1968		1967		1966		1958			Category numbers <sup>1</sup>
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate		
All accidents-E800-E949	116,385	57.6	114,864	57.5	113,169	57.2	113,563	58.0	90,604	45.3	E800-E962	0.9570
Motor vehicle accidents-----E810-E823	55,791	27.6	54,862	27.5	52,924	26.7	53,041	27.1	36,981	20.8	E810-E835	0.9921
Accidental falls----E880-E887	17,827	8.8	18,651	9.3	20,120	10.2	20,066	10.2	18,248	10.5	E900-E904	0.8544
Accidents caused by fires and flames-----E890-E899	7,163	3.5	7,335	3.7	7,423	3.8	8,084	4.1	7,291	4.2	E916	0.9228
Accidental drowning and submersion-----E910	6,181	3.1	5,950	3.0	5,724	2.9	5,687	2.9	5,065	2.9	E929	0.9755
Accidents assigned to fol- lowing <sup>3</sup> ---E916-E921, E923-E928	6,095	3.0	5,928	3.0	---	---	---	---	---	---	---	---
Accident caused by cutting or piercing instru- ment-----E920	156	0.1	178	0.1	149	0.1	137	0.1	104	0.1	E913	---
Accident caused by explo- sive material-----E923	553	0.3	642	0.3	---	---	---	---	---	---	---	---
Accident caused by hot substance, corrosive liquid, steam, or radiation-----E924, E926	288	0.1	278	0.1	376	0.2	409	0.2	382	0.2	E917, E918	0.7647
Accident caused by electric current-----E925	1,148	0.6	---	0.5	992	0.5	1,025	0.5	951	0.5	E914	1.0240
Other accidents of above group-----E916-E919, E921, E927, E928	3,950	2.0	3,782	1.9	---	---	---	---	---	---	---	---
Accidental poison- ing-----E890-E899	1,956	1.0	1,894	1.0	4,080	2.1	3,931	2.0	2,616	1.5	E870-E888, E890-E895	0.9123
Inhalation and ingestion of food or other object causing obstruction or suf- focation-----E911, E912	4,712	2.4	4,100	2.1	1,980	1.0	1,831	0.9	2,191	1.3	E921, E922	1.4415
Surgical and medical compli- cations and mis- adventures-----E930-E936	5,572	3.0	2,023	1.0	1,530	0.8	1,411	0.7	1,023	0.6	E940-E959	1.1714
Accident caused by firearm missile-----E922	2,309	1.1	2,394	1.2	2,896	1.5	2,558	1.3	2,172	1.3	E919	0.8767
Air and space transport accidents-----E840-E845	1,778	0.9	1,904	1.0	1,799	0.9	1,510	0.8	1,511	0.9	E860-E866	1.0017
Water transport accidents-----E830-E838	1,743	0.9	1,625	0.8	1,545	0.8	1,630	0.8	1,653	1.0	E850-E858	0.9634
Railway accidents---E800-E807	884	0.4	849	0.4	997	0.5	1,027	0.5	1,164	1.1	E800-E802	1.0081
Other road vehicle accidents-----E825-E827	236	0.1	264	0.1	288	0.1	292	0.1	304	0.2	E840-E845	0.8889
All other accidents---E900- E909, E913-E915, E929, E940- E949 <sup>4</sup>	5,578	2.8	5,870	2.9	6,909	3.5	7,001	3.6	5,723	3.3	E911, E913, E915, E920, E923-E928, E930, E932-E936, E960-E962	---

<sup>1</sup>The category numbers for the following titles of the Seventh Revision that appear in the List of 258 Causes of Death are not shown in this column: Blow from falling or projected object or missile, ICD No. E910; Accident caused by machinery, ICD No. E912; and Excessive heat and insolation, ICD No. E931. Most of the deaths assigned by the Seventh Revision to the first two of these three titles were assigned by the Eighth Revision to the category numbers E916-E919, E921, E927, E928. The third title Excessive heat and insolation (ICD No. E931) appeared separately in the List of 258 Causes of Death used with the Seventh Revision. But the comparable title in the Eighth Revision—Excessive heat (ICDA No. E900)—is included in the following residual title in the List of 281 Causes of the Eighth Revision: All other accidents, ICDA Nos. E900-E909, E913-E915, E929, E940-E949.

<sup>2</sup>Ratio of deaths assigned according to the Eighth Revision to deaths assigned according to the Seventh Revision.  
<sup>3</sup>See technical note in appendix IV on assignments to Accidents with following category numbers: E916-E921, E923-E928.  
<sup>4</sup>The increase of about 20 percent in this death rate for 1969 over 1968 results primarily from changes in coding interpretation. <sup>5</sup>Nasologists in the National Center for Health Statistics state that there are indications that the 27 percent increase in mortality from this cause results from the gradual adoption by cause-of-death coders in 1969 of a more limited interpretation of the word "indicated" in the following rule for classifying death certificates on which are entered complications and misadventures in operative therapeutic and other therapeutic procedures: "The above categories are not to be used if the condition for which the treatment was given is indicated." It may be that coders more recently are tending not to select as the underlying cause of the death the stated condition for which the treatment was given unless the medical certifier actually specifies the condition for which the treatment was given.

**Table G. Age-adjusted death rates for Motor vehicle accidents, by color and sex: United States, 1950-69**

[For 1968 and 1969 rates are based on deaths assigned to category numbers E810-E823 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers E810-E835 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Rate per 100,000 population									
1969-----	28.5	42.9	14.9	27.9	41.6	14.8	33.7	54.4	15.3
1968-----	28.4	43.1	14.6	27.8	41.8	14.5	33.3	53.9	14.9
1967-----	27.8	41.9	14.5	27.4	41.1	14.4	31.1	49.4	14.6
1966-----	28.3	42.7	14.7	28.0	41.9	14.7	31.6	50.1	15.0
1965-----	26.6	40.1	13.7	26.2	39.4	13.7	29.2	46.4	13.7
1964-----	25.8	38.6	13.4	25.6	38.1	13.6	27.5	44.2	12.5
1963 <sup>1</sup> -----	24.3	36.9	12.3	24.4	36.7	12.6	26.5	42.7	11.8
1962 <sup>1</sup> -----	23.1	35.1	11.8	23.2	34.9	12.0	25.2	40.3	11.4
1961-----	22.1	33.8	10.9	21.9	33.4	10.8	23.9	38.0	11.0
1960-----	22.5	34.5	11.0	22.3	34.0	11.1	24.4	39.5	10.6
1959-----	22.8	35.1	11.0	22.5	34.5	11.0	25.0	40.5	10.8
1958-----	22.5	34.9	10.7	22.3	34.3	10.8	24.7	40.4	10.2
1957-----	24.1	37.4	11.4	23.8	36.8	11.2	27.3	43.5	12.5
1956-----	25.2	39.4	11.6	24.7	38.5	11.5	29.5	47.9	12.5
1955-----	24.6	38.4	11.6	24.3	37.8	11.4	28.1	45.1	12.6
1954-----	23.0	36.0	10.7	22.6	35.4	10.6	26.5	42.6	11.8
1953-----	24.8	38.9	11.6	24.4	38.0	11.5	29.3	47.8	12.3
1952-----	25.0	39.2	11.7	24.6	38.4	11.6	28.9	46.9	12.4
1951-----	24.6	38.5	11.4	24.2	37.8	11.2	28.3	45.2	12.5
1950 <sup>2</sup> -----	23.3	36.4	10.7	23.1	35.9	10.6	25.7	41.2	11.1

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

**Table H. Percentage change in the death rate for Motor vehicle accidents, by age, sex, and color: United States, 1950-69 and 1961-69**

Age	1961-69				1950-69			
	Male		Female		Male		Female	
	White	All other	White	All other	White	All other	White	All other
Percentage change								
All ages-----	+29.9	+43.3	+37.3	+40.8	+14.0	+23.0	+38.5	+34.3
Under 1 year-----	+48.6	+60.0	+43.0	+62.5	+17.6	+7.9	+44.9	+13.0
1-4 years-----	+13.8	+34.2	+24.7	+51.9	-6.1	+41.0	+0.0	+30.9
5-14 years-----	+20.4	+41.1	+40.8	+42.4	-1.7	+46.3	+23.2	+31.3
15-24 years-----	+35.3	+44.5	+57.1	+54.8	+40.7	+51.7	+83.3	+58.7
25-34 years-----	+29.2	+41.9	+39.8	+33.6	+26.6	+30.3	+44.4	+39.5
35-44 years-----	+24.1	+52.3	+43.5	+35.3	+14.9	+39.0	+63.0	+36.5
45-54 years-----	+15.8	+48.7	+21.1	+45.6	+9.2	+21.0	+27.8	+49.6
55-64 years-----	+13.5	+44.3	+15.5	+21.9	-9.5	+21.8	+14.0	+26.6
65-74 years-----	+7.6	+28.4	+25.4	+50.7	-18.3	+16.2	+13.4	+40.9
75-84 years-----	+4.0	+25.1	+16.0	-21.4	-22.5	-1.8	+8.7	-29.8
85 years and over-----	-3.1	-69.5	+16.6	+108.3	-17.2	-69.4	-8.5	-73.8

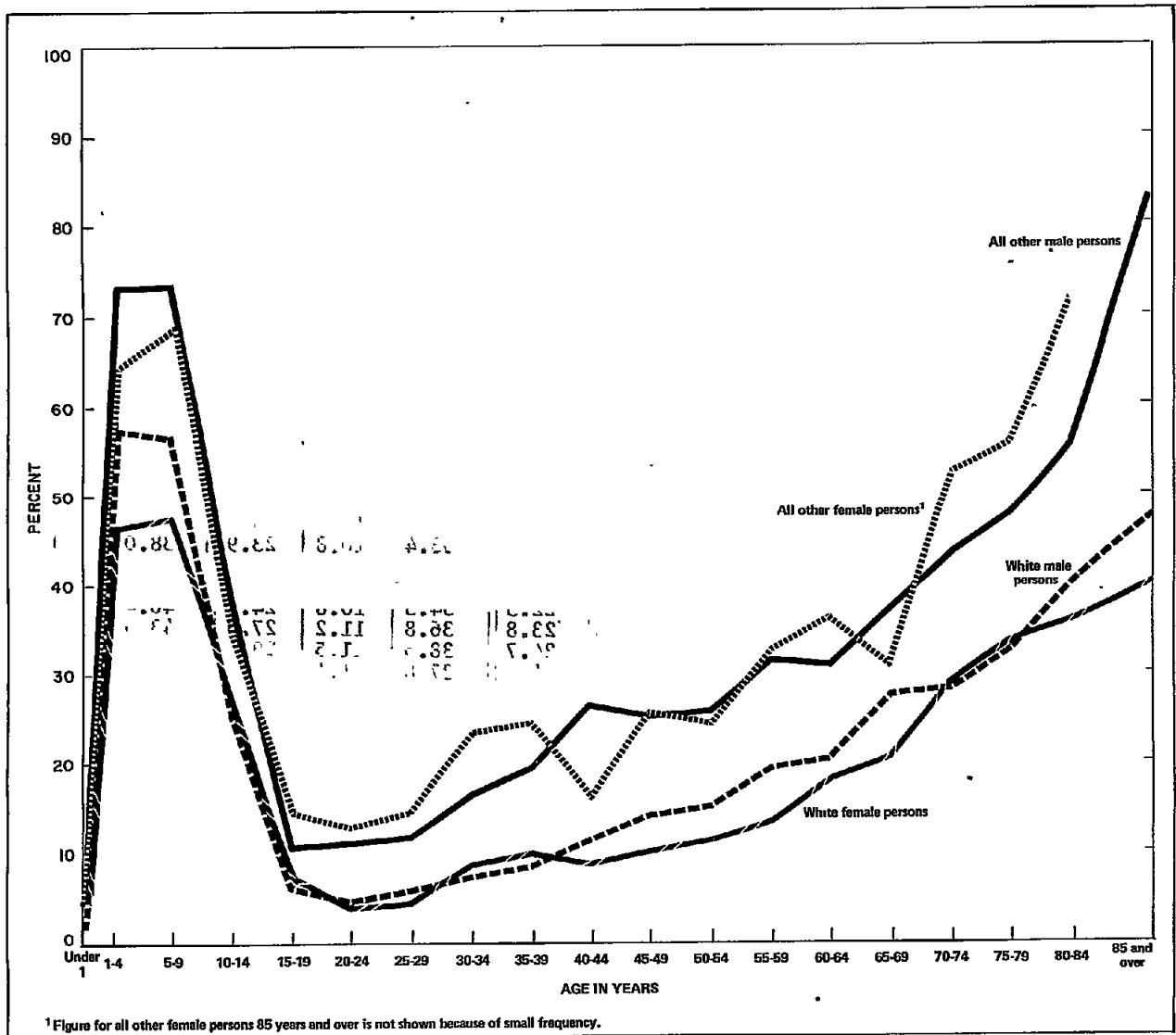


Figure 4. Percent of all persons dying from Motor vehicle accidents reported to be pedestrians, by age, color, and sex: United States, 1969.

other than white are 1.8 times the corresponding rates for white men. For the age groups 35-39 and 40-44 years, the proportion of deaths from Motor vehicle accidents that were reported to be deaths to pedestrians was more than two times the corresponding proportion for white men; and for the age groups 45-49, 50-54, 55-59, and 60-64 years, this proportion for men of races other than white was 1.5 or more times the corresponding proportion for white men (figure 4).

It should be stressed, however, that the decedent injured was not identified for 28.4 per-

cent of the 55,791 deaths from Motor vehicle accidents that occurred in 1969. The Eighth Revision classification provided fourth-digit categories for specifying whether a decedent from a Motor vehicle accident was a driver, passenger, pedestrian, etc. About 70.6 percent of the 48,303 white persons who died in Motor vehicle accidents were thus identified (figure 5). The corresponding percentage identified of the 7,488 persons of races other than white who died in Motor vehicle accidents was 78.6 percent.

Younger persons in the population of races

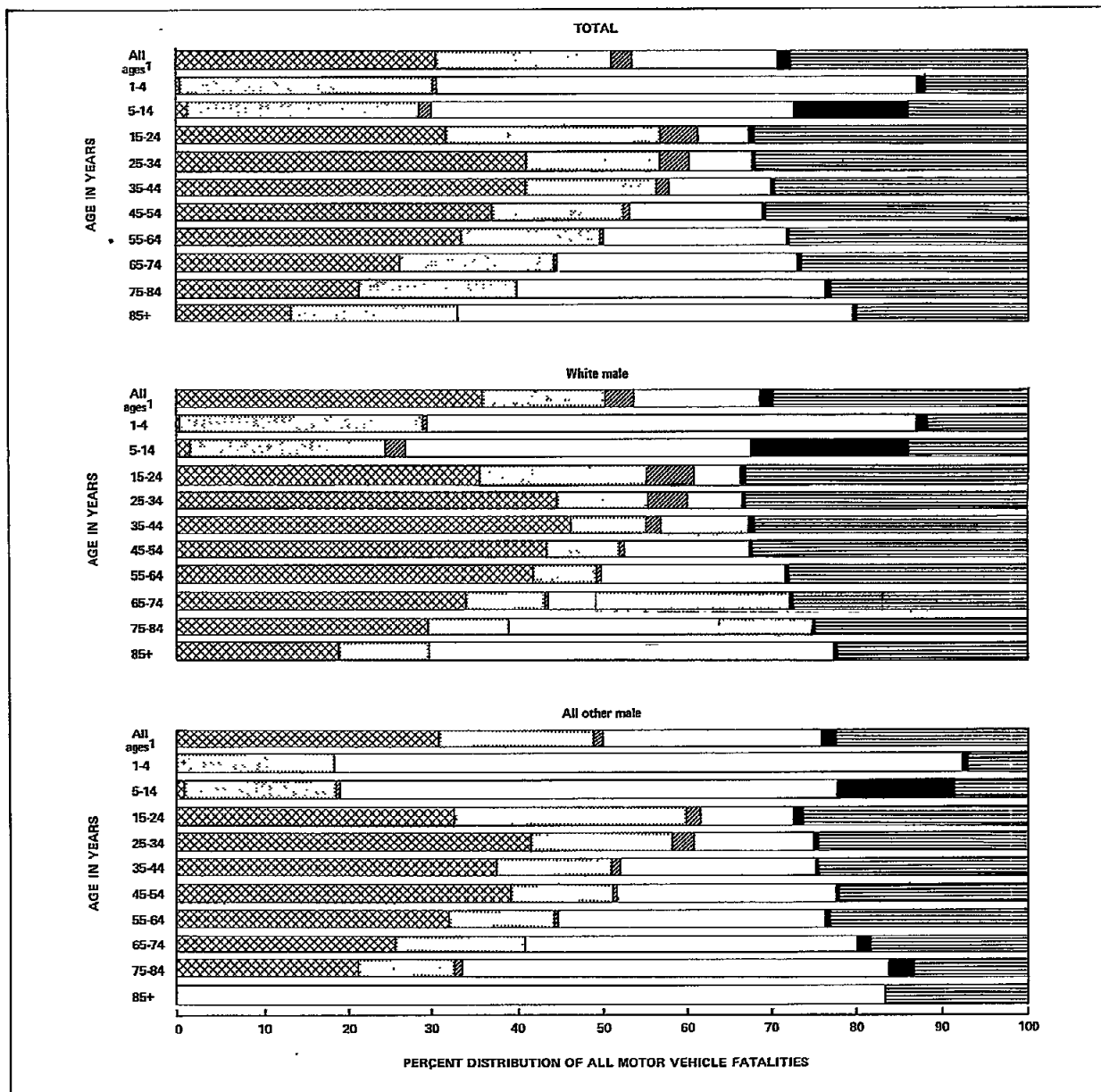


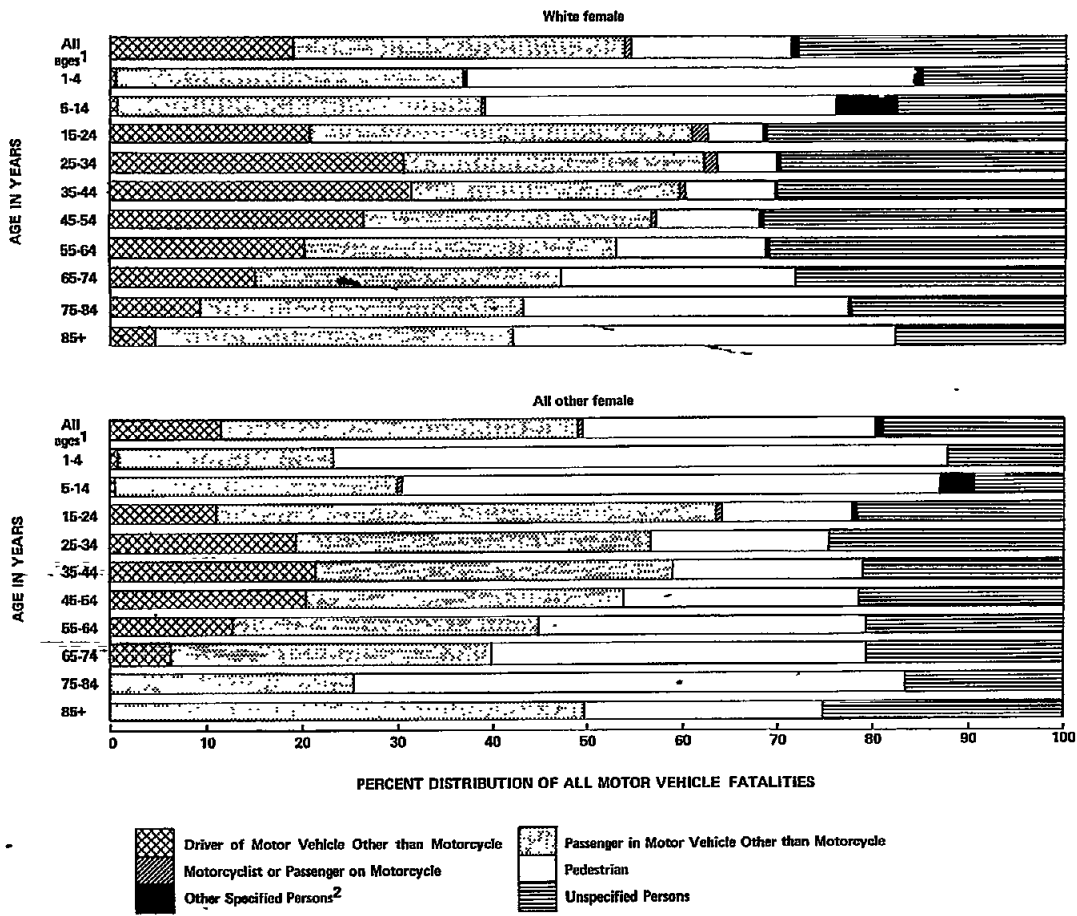
Figure 5. Percent distribution of all Motor vehicle fatalities, by person killed, age, color, and sex: United States, 1969.

other than white who were reported to have died from Motor vehicle accidents were relatively more often reported as pedestrians than were younger persons in the white population (figure 5). At ages 1-4 years about 56.3 percent of all children who died from Motor vehicle accidents were reported to be "pedestrians."

*All other accidents (ICDA Nos. E800-E807, E825-E949).*—The first break in comparability

for mortality statistics, which occurred between 1957 and 1958, resulted in the assignment of about 3,000 fewer deaths to All other accidents by the Seventh Revision than had been assigned to these causes by the Sixth Revision.<sup>3</sup>

The trend during 1950-57 for the death rate for All other accidents (ICD Nos. E800-E802, E840-E962) was in general slowly downward (table 2). About 74 percent of the drop from



[Percentages are based on deaths assigned to the following fourth digit category numbers for use with categories E810-E823 of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States: Driver of motor vehicle other than motorcycle (.0); Passenger in motor vehicle other than motorcycle (.1); Motorcyclist or passenger on motorcycle (.2, .3); Pedestrian (.7); Other specified persons (.4, .5, .6, .8); Unspecified persons (.9).]

<sup>1</sup>Figures for age not stated included in "Total" but not distributed among age groups  
<sup>2</sup>Other specified person includes "Occupant of streetcar" (.4), "Rider of animal-drawn vehicle" (.5), "Pedal cyclist" (.6), and "Other specified persons" (.8). "Pedal cyclists" makes up over 94% of the total for this title.

Figure 5. Percent distribution of all motor vehicle fatalities, by person killed, age, color, and sex: United States, 1969-Con.

33.2 for 1957 to 30.9 deaths per 100,000 population for 1958, however, was attributable to the changes introduced with the Seventh Revision.

An even greater break than that between the Sixth and Seventh Revisions in the continuity of mortality statistics for these accidents (all accidents excluding motor vehicle accidents) occurred with the introduction of the Eighth Revision for data year 1968. As stated above,

the comparability ratio for this group of accidents was only 0.9250 (representing an estimated 4,539 fewer deaths assigned to this group of accidents by the Eighth Revision).<sup>2</sup>

The age-adjusted death rate for accidents other than motor vehicle accidents declined from 34.2 for 1950 to a low of 26.1 for 1961 and then rose to 27.0 for 1967 (table J). The age-adjusted death rate remained at a high level for



Table J. Age-adjusted death rates for All other accidents, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category numbers E800-E807, E825-E949 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers E800-E802, E840-E962 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969-----	26.8	39.9	14.4	24.8	36.8	13.3	41.8	64.5	21.6
1968-----	26.7	39.4	14.7	24.4	35.8	13.6	43.7	68.2	21.9
1967-----	27.0	39.9	14.8	25.0	36.7	13.8	42.1	65.3	21.3
1966-----	27.3	39.9	15.3	25.1	36.6	14.0	44.1	66.2	24.1
1965-----	26.8	39.0	15.1	24.8	36.0	14.0	41.5	63.0	22.1
1964-----	26.3	38.2	14.9	24.3	35.3	13.7	40.8	61.0	22.5
1963 <sup>1</sup> -----	26.6	38.2	15.5	24.7	35.6	14.1	41.7	60.8	24.3
1962 <sup>1</sup> -----	26.6	38.1	15.4	24.8	35.7	14.2	41.3	60.2	24.0
1961-----	26.1	37.6	14.9	24.2	35.2	13.6	39.3	57.1	23.0
1960-----	27.4	39.3	15.8	25.3	36.5	14.4	42.9	61.6	25.5
1959-----	27.1	39.2	15.4	25.2	36.6	14.1	41.1	59.7	23.8
1958-----	27.3	39.3	15.8	25.4	36.7	14.3	42.0	59.7	25.6
1957-----	29.3	41.8	17.1	27.4	39.2	15.8	43.7	63.0	25.9
1956-----	29.2	41.8	17.0	27.5	39.4	15.8	42.5	61.7	24.8
1955-----	29.7	42.3	17.4	27.9	40.0	16.2	43.0	61.5	25.8
1954-----	30.1	42.9	17.7	28.4	40.6	16.6	43.3	62.0	26.0
1953-----	32.4	46.4	18.8	30.6	43.8	17.6	47.2	68.4	27.5
1952-----	33.8	47.7	20.3	31.8	44.8	19.0	49.5	71.4	29.2
1951-----	34.8	49.1	20.7	33.0	46.7	19.5	48.1	68.8	28.6
1950 <sup>2</sup> -----	34.2	47.3	21.0	32.5	45.0	20.0	46.3	66.0	27.7

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

1968 and 1969 (26.7 and 26.8 deaths per 100,000) despite the fact that about 7.5 percent fewer deaths were assigned to this group of causes by the Eighth Revision, which was used for 1968 and 1969, than had been assigned by the Seventh Revision (in use 1958-67).

The five major causes of these accidental fatalities (other than motor vehicle fatalities) in 1969 were accidental falls, accidents caused by fires and flames, accidental drowning and submersion, accidental poisoning, and inhalation and ingestion of food or other objects causing obstruction or suffocation (table F).

There were 17,827 deaths from falls in 1969, with a rate of 8.8 deaths per 100,000 population. For the same year there were 7,163 deaths from fires and flames, with a rate of 3.5 deaths

per 100,000 population. About 2.5 percent of these fatalities from fires and flames (182 deaths) occurred among infants, and about 11.6 percent (830 deaths) occurred among children 1-4 years of age. The risk of death by fires and flames was about 4.1 times greater among children of races other than white under 5 years of age (15.2 deaths per 100,000 population) than among white children at these ages (3.7). This differential reflects a slight improvement over the situation in 1960, for which year the corresponding differential was 5.7 (with a rate of 4.3 per 100,000 white children at these ages and 24.4 per 100,000 children of races other than white).

The highest risk of death from Inhalation and ingestion of food or other object causing obstruction or suffocation (ICDA Nos. E911, E912) occurs

during infancy (with 768 deaths in 1969, giving a rate of 22.0 deaths per 100,000 at ages under 1 year). The risk of death from this cause is also substantial at ages 1-4 years (with 244 deaths in 1969, giving a rate of 1.7 deaths per 100,000 at these ages). For these accidents the risk of death in 1969 was about 2.0 times greater among infants of races other than white (whose rate was 37.7 deaths per 100,000) than among white infants and about 1.7 times greater among children of races other than white at ages 1-4 years (whose rate was 2.5 deaths per 100,000) than among white children at these ages.

## V. INFLUENZA AND PNEUMONIA

*Influenza and pneumonia (ICDA Nos. 470-474, 480-486).*—During the period 1950-69 there were two breaks in comparability of mortality statistics for this group of diseases. The first break, which occurred between 1957 and 1958, with the introduction of the Seventh Revision, resulted in assigning about 6 percent fewer deaths to these diseases than had been assigned by the Sixth Revision (in use 1949-57).<sup>3</sup> The second break, which occurred between 1967 and 1968, with the introduction of the Eighth Revision, resulted in assigning about 4 percent more deaths to these diseases than had been assigned by the Seventh Revision (appendix III).

Between 1967 and 1968 the death rate for influenza and pneumonia (ICDA Nos. 470-474, 480-486) increased from 28.8 to 36.8 deaths per 100,000 population—an increase of 27.8 percent (table 2 and figure 1). Applying the factor 1.0440 (appendix III) to the 1967 death rate for this group of causes raises it to the level that it would have reached (30.1 deaths per 100,000) if deaths in 1967 had been coded by the Eighth Revision rather than by the Seventh Revision. The remaining increase in this death rate for 1968, 6.7 deaths per 100,000 population, may be attributable to the widespread influenza epidemic in 1968.

Throughout the period 1950-69 the fluctuations in the mortality trend for these diseases reflect the occurrence of influenza epidemics. Age-adjusted death rates, however, indicate some improvement during the 1960's in mortality from these diseases, especially for persons of races

other than white who have by far the highest rates (table K and figure 1).

Mortality from Influenza and pneumonia by age, for each year throughout 1950-69 followed the J-curve: the death rates were very high for infants, dropped to a low for the age group 5-14 years, and then rose with advance in age throughout the remainder of life. This pattern held for each of the four color-sex groups.

The male population of persons other than white had greater mortality from these causes than did any one of the other three color-sex groups.

The very moderate decline in the age-adjusted death rate for the total population between 1950 and 1969 (from 26.2 deaths per 100,000 to 24.6) (figure 1) reflects the offsetting to some extent of the increase in mortality from this cause for the white male population by decreases for the other three color-sex groups (table K).

In 1950 the age-adjusted death rate for this cause for the population of races other than white was 2.48 times the corresponding rate for the white population, but by 1969 this mortality color ratio had dropped to 1.88. On the other hand, although as in the past the mortality sex ratio for this cause still remains lower than the color ratio, the sex ratio has been increasing: for 1950 the age-adjusted death rate for Influenza and pneumonia for male persons was 1.39 times the corresponding rate for female persons, and by 1969 this sex ratio had increased to 1.64.

The above-mentioned improvement in the mortality color ratio for this disease was experienced by both the male and the female populations. For the former group the mortality color ratio decreased between 1950 and 1969 from 2.34 to 1.93; and for the female population the mortality color ratio decreased from 2.68 to 1.79 (with all ratios based on age-adjusted death rates in table K).

For 1969 excess mortality from Influenza and pneumonia for the male population of races other than white over that for their female counterparts was greater than the corresponding differential for the white population. For the population of races other than white the age-adjusted death rate for the male group was 1.25 times the corresponding rate for the female group. By 1969 this mortality sex ratio had increased to 1.77.

Table K. Age-adjusted death rates for Influenza and pneumonia, by color and sex; United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category numbers 470-474, 480-486 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers 480-483, 490-493 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Rate per 100,000 population									
1969	24.6	31.3	19.1	22.3	28.4	17.3	41.9	54.8	30.9
1968	26.8	34.0	21.0	24.1	30.7	18.8	47.3	60.7	35.8
1967	20.8	26.8	15.9	18.8	24.2	14.3	36.4	47.6	26.6
1966	23.8	30.2	18.5	21.2	27.1	16.4	43.3	55.2	32.8
1965	23.4	29.8	18.2	21.0	26.9	16.1	41.7	52.3	32.3
1964	22.8	28.8	17.7	20.3	25.9	15.7	40.8	51.2	31.4
1963 <sup>1</sup>	27.7	34.5	21.8	24.4	30.7	19.0	55.3	66.6	45.1
1962 <sup>1</sup>	23.7	29.4	18.9	21.2	26.5	16.7	43.4	52.1	35.4
1961	22.1	27.6	17.4	19.8	24.8	15.5	39.6	49.6	30.5
1960	28.0	35.0	21.8	24.6	31.0	19.0	55.2	68.0	43.3
1959	23.4	28.9	18.5	20.7	25.8	16.2	44.1	53.6	35.2
1958	25.1	31.2	19.6	22.1	27.7	17.2	49.7	61.4	39.0
1957	27.9	34.1	22.3	24.5	30.5	19.3	55.3	65.0	46.4
1956	21.6	26.2	17.3	19.1	23.5	15.1	41.6	49.1	34.6
1955	21.0	25.3	17.1	18.4	22.3	14.9	42.2	50.8	33.9
1954	19.9	24.1	16.1	17.4	21.2	13.9	41.3	49.1	33.8
1953	26.3	31.6	21.3	22.7	27.5	18.2	58.6	68.6	49.1
1952	24.0	28.5	19.7	20.7	24.8	16.9	52.1	60.6	44.0
1951	25.7	30.2	21.5	22.5	26.6	18.6	54.6	62.3	47.2
1950 <sup>2</sup>	26.2	30.6	22.0	22.9	27.1	18.9	56.9	63.4	50.6

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

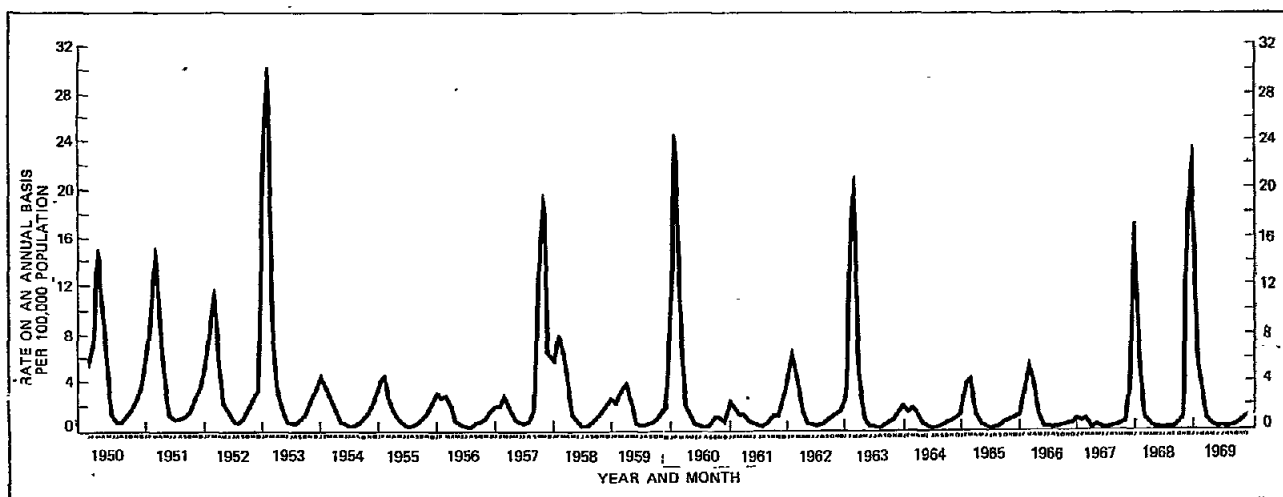


Figure 6. Death rates for Influenza, by month: United States, 1950-69.

*Influenza (ICDA Nos. 470-474).*—There were about 4 percent more deaths assigned to this disease by the Seventh Revision than were assigned to it by the Sixth Revision.<sup>3</sup> The comparability ratio for Influenza between the Seventh and Eighth Revisions is 0.9572 (appendix III).

The mortality curve for Influenza during 1950-69, emphasizing the severe epidemics that occurred during that 20-year period, is shown in figure 6.

*Pneumonia (ICDA Nos. 480-486).*—An estimated 4.8 percent more deaths were assigned by the Eighth Revision to Pneumonia (ICDA Nos. 480-486) than were assigned by the Seventh Revision to the most nearly comparable category Pneumonia, except pneumonia of the newborn (ICD Nos. 490-493) (appendix III).

Most of the deaths assigned to Influenza and pneumonia, for which the trends of age-adjusted death rates are described above, are actually deaths from Pneumonia. For example, for 1969 the death rate for Influenza was only 3.0 deaths per 100,000, while that for Pneumonia was 30.9 deaths per 100,000 (table 1).

## VI. CERTAIN CAUSES OF MORTALITY IN EARLY INFANCY

Despite the fact that during 1950-69 there were two breaks in the continuity of the number of deaths assigned to Certain causes of mortality in early infancy (ICDA Nos. 760-769.2, 769.4-772, 774-778), the trend was clearly downward (table 3 and figure 1).

The introduction of the Seventh Revision (used for data years 1958-67) resulted in an estimated increase of about 2 percent in the number of deaths assigned to these causes over the number assigned to the identical group of causes during 1949-57, for which period the Sixth Revision was in use.<sup>3</sup>

The second break in continuity resulted from the introduction of the Eighth Revision, used beginning with data year 1968. This change in Revisions reduced deaths assigned to this group of causes by 8.17 percent (appendix III) (from 51,644 to 47,425 deaths, based on the coding of the sample of deaths occurring in 1966 by both the Seventh and the Eighth Revisions).<sup>2</sup>

It may be assumed that the 8.17 percent reduction found for the sample of 1966 deaths also is the percent reduction between 1967 and 1968 that is attributable to the change to the Eighth Revision.

The number of deaths in 1968 coded to this cause by the Eighth Revision was only 43,840, and the number for 1967 coded to the comparable group of causes by the Seventh Revision was 48,314 deaths, a reduction of 4,474 deaths (table 3).

Inasmuch as 8.17 percent of the 48,314 deaths in 1967 is 3,947 deaths, the difference between 4,474 and 3,947 deaths (527 deaths) is the estimated maximum number that may be attributed to an actual lowering of the death rate for this group of causes.

A more precise measure of the true decline in mortality among infants from these causes may be obtained by applying the comparability ratio of 0.9183 to the 1967 infant mortality rate from these causes (1,371.0 deaths per 100,000 live births) (table 4). Multiplying the rate of 1,371.0 by 0.9183 gives a death rate of only 1,259.0 per 100,000 live births. The difference between the 1968 rate (1,248.2 deaths per 100,000 live births) and the adjusted 1967 rate (1,259.0) is 10.8, constituting a real decrease in mortality of only 0.86 percent.

The reduction in the assignment of deaths to the Eighth Revision title "Certain causes of mortality in early infancy" reflects primarily the change in classification which provided that only diseases specific for the newborn (e.g., hemolytic disease of the newborn) be included under this title and that conditions not different from those classified outside the perinatal classification, such as pneumonia and diarrhea, be excluded.

About 2,232 of the 2,477 deaths that were assigned by the Seventh Revision to Pneumonia of the newborn (ICD No. 763) were assigned by the Eighth Revision to Pneumonia (ICDA Nos. 480-486).<sup>1</sup> Tabulations of deaths assigned by the Eighth Revision to this latter cause for the age group under 1 year will give the number of infants dying from pneumonia.

About 233 of the 250 deaths that were assigned by the Seventh Revision to Diarrhea of the newborn (ICD No. 764) were assigned by the Eighth Revision to Enteritis and other diarrheal diseases (ICDA Nos. 008, 009). Similarly as for the pneu-

monias, tabulations of deaths for the age group under 1 year assigned to Enteritis and other diarrheal diseases (ICDA Nos. 008, 009) will give the number of infants dying from this cause.

The decrease between 1950 and 1969 in the infant mortality rate for these diseases (from 1,715.4 deaths to 1,196.0 per 100,000 live births) (figure 2) reflects decreases in the corresponding rates for each of the four color-sex groups (table 4).

For 1950 the mortality rate for infants of races other than white was 1.46 times the corresponding rate for white infants, and for 1969 it was 1.66 times the corresponding rate for white infants. This increasing color differential for mortality from these diseases reflects increases in the corresponding differentials for both male and female infants—with an especially large increase for female infants. For female infants of races other than white the 1950 mortality rate for these causes was 1.56 times the corresponding rate for white female infants, and by 1969 this differential had increased to 1.73 times the rate for white female infants (based on rates in table 4).

Male infants continued throughout 1950-69 to have a death rate for these causes that was about 1.35 times the corresponding rate for female infants. The stability of this mortality sex ratio for the total population of infants during 1950-69 was experienced by both the white population and the population of races other than white: but the mortality sex ratio for white infants (about 1.38) continued higher during 1950-69 than the corresponding ratio for infants of races other than white (1.29 for 1969).

## VII. DIABETES MELLITUS

In 1968 Diabetes mellitus (ICDA No. 250) moved up to become the seventh leading cause of death. This disease held this rank through 1969, during which 38,541 persons died from this condition. (Data from a 10-percent sample show that diabetes continued to rank as the seventh leading cause of death for 1970 and 1971.) In 1950 diabetes ranked only as the 10th leading cause and in 1951, as the ninth leading cause. It reached the rank of eighth leading cause in 1952 and maintained that rank for each year during 1953-67. During

the same period, Arteriosclerosis (ICDA No. 440) ranked as the seventh leading cause of death; and in 1968 it exchanged rank with Diabetes mellitus, primarily as a result of the assignment of about 10.4 percent fewer deaths to Arteriosclerosis with the introduction of the Eighth Revision than had been assigned to this cause by the Seventh Revision.

There were no serious breaks in continuity for mortality statistics for Diabetes mellitus (ICDA No. 250) during 1950-69. The comparability ratio between the Sixth and Seventh Revisions is 1.01.<sup>3</sup> The comparability ratio between the Seventh and Eighth Revisions for Diabetes mellitus is 0.9971 (appendix III).

During the period in which the Seventh Revision was in use (1958-67), the death rate for Diabetes mellitus increased from 15.9 to 17.7 deaths per 100,000 population, representing 27,501 deaths for 1958 and 35,049 deaths for 1967 (tables 2 and 3). The rate continued at a high level for 1968 (19.2 deaths per 100,000) and 1969 (19.1 deaths per 100,000).

Age-adjusted death rates also show a rise in mortality from this cause during 1958-69 (table L and figure 1). Although the death rate for the female population continued somewhat higher than that for the male population, the absolute increase in the death rate for the latter group was higher than that for the female population.

A glance backward over the age-adjusted death rates by sex and color for the entire period for which such rates are available (1914-69) shows an unusual sex-differential mortality pattern for this disease. The ratio of the age-adjusted death rate for this cause for the male population divided by the corresponding rate for the female population was 0.80 for 1914.<sup>4</sup> This sex differential decreased to an even more favorable level for the male population between 1914 and the early 1940's. By 1945 the above-described ratio was down from 0.80 to 0.62, but since that time the gap between the age-adjusted death rate for this cause for the male population and that for the female population has been steadily closing. For 1969 the ratio of the age-adjusted death rate for diabetes for the male population divided by the corresponding rate for the female population was 0.90 (with ratios for 1950-69 based on rates in table L). This first widening of the

Table L. Age-adjusted death rates for Diabetes mellitus, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category number 250 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category number 260 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Rate per 100,000 population									
1969-----	14.5	13.6	15.1	13.2	12.8	13.3	27.7	21.3	33.2
1968-----	14.7	14.0	15.3	13.4	13.2	13.5	28.0	21.3	33.7
1967-----	13.7	12.9	14.4	12.7	12.4	12.8	24.5	18.5	29.7
1966-----	13.9	12.8	14.6	12.7	12.3	13.0	24.8	18.3	30.5
1965-----	13.5	12.5	14.4	12.5	11.9	12.9	23.6	18.1	28.6
1964-----	13.5	12.4	14.4	12.5	11.8	12.9	23.6	17.6	29.0
1963 <sup>1</sup> -----	13.8	12.4	14.9	12.7	11.9	13.3	23.1	16.6	29.1
1962 <sup>1</sup> -----	13.5	12.3	14.5	12.5	11.8	13.1	21.8	16.1	27.1
1961-----	13.3	11.7	14.6	12.5	11.4	13.3	21.0	14.9	26.7
1960-----	13.6	12.0	15.0	12.8	11.6	13.7	21.6	16.1	26.8
1959-----	13.0	11.3	14.5	12.4	11.0	13.5	19.4	14.1	24.2
1958-----	13.0	11.3	14.6	12.5	11.1	13.6	18.8	13.0	24.3
1957-----	13.2	11.1	15.2	12.7	10.9	14.3	18.2	12.5	23.6
1956-----	13.0	11.0	14.8	12.6	10.9	14.0	17.1	11.7	22.2
1955-----	13.0	10.9	14.8	12.6	10.9	14.1	16.5	11.2	21.6
1954-----	13.1	10.9	15.2	12.8	10.9	14.5	16.4	11.3	21.2
1953-----	13.9	11.2	16.3	13.5	11.2	15.6	17.2	11.3	22.9
1952-----	14.1	11.5	16.4	13.8	11.5	15.8	16.5	11.5	21.5
1951-----	14.2	11.3	16.9	13.9	11.2	16.4	16.6	11.8	21.3
1950 <sup>2</sup> -----	14.3	11.4	17.1	13.9	11.3	16.4	17.2	11.8	22.6

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

gap between the sexes for mortality from diabetes for the total population (until the early 1940's) and then the subsequent narrowing of the gap are shown also for the white population and for the population of races other than white. But the gap continued through 1969 to be much narrower for the white population (with a mortality sex ratio of 0.96) than for the population of races other than white (with a mortality sex ratio for 1969 of 0.69). For the white population this narrowing of the gap between the sexes for mortality from diabetes occurred as a result of the concomitant decline in the age-adjusted death rate for the white female population and the maintenance of a relatively stable age-adjusted

death rate for the white male population (with a very slow decline for this latter rate until about 1957, followed by a very slow rise from that year to 1969).

This narrowing of the sex differential for mortality from diabetes during 1950-69 reflects on the one hand almost steady increases for the white male population in the death rate for diabetes for the age groups 35-44, 45-54, and 55-64 years and on the other hand almost steady decreases in the corresponding death rate for the age groups 55-64 and 65-74 years of the white female population.

Focusing on the age-adjusted death rates for the population of races other than white for this

period shows a different pattern than that for the white population. Instead of being a relatively stable rate, the age-adjusted death rate for the male population of races other than white rose rapidly during 1950-69, reaching a level for 1969 (21.3 deaths per 100,000) that was 1.8 times the corresponding rate for 1950 (11.8 deaths per 100,000) (table L). These rapidly increasing age-adjusted death rates for these men reflect substantial rises in mortality for this cause for each age group in the span 45-54 years through 85 years and over, with a smaller rise for the age group 25-34 years.

Data from the Health Interview Survey of the National Center for Health Statistics show that the percentage increase between July 1964 and June 1965 and July 1966 and June 1967 in the number of reported diabetics in the population is also greater for these men of races other than white than for the other three color-sex groups.<sup>5,6</sup> (See table at right.) Further studies are needed to determine the cause for the rapidly increasing death rate for diabetes among men of races other than white.

For female persons other than white the curve of the age-adjusted death rate for this cause continued for each year during 1950-69 at a substantially higher level than the corresponding curves for the other three color-sex

Sex and color	Number of diabetics in thousands <sup>1</sup>		
	July 1966-June 1967 (1)	July 1964-June 1965 (2)	Percent increase (1) ÷ (2) x 100 (3)
<b>Male</b>			
White-----	1,145	873	31.2
All other-	128	89	43.8
<b>Female</b>			
White-----	1,558	1,129	38.0
All other-	261	208	25.5

<sup>1</sup>U.S. civilian, noninstitutionalized population reported in health interviews. (See references 5 and 6.)

groups. But the relative increase during 1950-69 in the death rate for these female persons (46.9 percent) was lower than the corresponding increase in the death rate for male persons of races other than white (80.5 percent).

An examination of the age-color-sex specific mortality trends for 1950-69 for diabetes shows

Sex, color, and age at death from Diabetes mellitus	Cohort and period of birth															
	1945-1949	1940-1944	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894	1885-1889	1880-1884	1875-1879	1870-1874
<b>Female persons of races other than white</b>	Death rates per 100,000 population in age group															
20-24 years-----	1.8	1.3	1.2	1.0	2.9											
25-29 years-----		2.9	2.8	3.1	2.5	3.3										
30-34 years-----			3.5	4.2	3.7	3.5	5.3									
35-39 years-----				9.2	6.4	6.7	5.9	8.9								
40-44 years-----					16.8	15.9	16.5	15.2	20.0							
45-49 years-----						28.0	33.3	29.4	28.8	35.3						
50-54 years-----							55.5	53.6	47.8	56.4	56.4					
55-59 years-----								90.3	91.5	96.4	82.1	75.9				
60-64 years-----									163.5	153.7	119.9	93.3	95.8			
65-69 years-----										226.6	174.8	125.6	88.1	113.7		
70-74 years-----											261.7	176.0	129.1	128.3	120.4	
75-79 years-----												214.4	183.0	157.4	111.8	126.2
80-84 years-----													230.6	150.0	139.6	60.0

NOTE: The first figure in each row, moving from right to left, is the death rate for data year 1949; the second figure, for 1954; the third figure, for 1959; the fourth figure, for 1964; and the fifth figure, for 1969.

For data years 1949, 1954, 1959, and 1964 these rates are based on deaths assigned to category number 260 of the Sixth and Seventh Revisions of the International Lists, adopted, respectively, in 1948 and 1955; for data year 1969 rates are based on deaths assigned to category number 250 of the Eighth Revision of the International Lists, adopted in 1965.

that for women of races other than white, the level of mortality for the age groups under 55 years remained quite stable. But for older age groups the death rate for this cause among these women increased markedly. Part of this increase in mortality at older ages may be attributable to the prolongation of the life of diabetics by increased frequency of early diagnosis and successful treatment programs (including the use of insulin therapy beginning in the 1920's, followed by antibiotics, diet, and other therapeutic measures).

Cohort analysis shows that for women of races other than white mortality from diabetes increased rapidly with advance in age during 1949-69. (See table at bottom of page 34.) This method of analysis also shows that the cohort of women of races other than white born in the period 1900-1904 had death rates for diabetes at ages 45-49, 50-54, and 55-59 years that were, respectively, 4.7, 4.2, and 3.3 times the corresponding rates for the cohort of white women born in the same period. (See table below.)

For women born in 1910-14 the color differential in mortality from diabetes was even greater than that for the above-considered cohort of women (1900-1904): for women of races other than white born in 1910-14 the death rates for diabetes at ages 45-49, 50-54, and 55-59 years were, respectively, 5.3, 4.6, and 4.2 times the

corresponding rates for white women born in 1910-14.

This widening of the female color differential for diabetes may reflect less satisfactory results from diabetes control programs for these women than for white women. The same data referred to above from the Health Interview Survey of the National Center for Health Statistics suggest that this widening of the female color differential is not attributable to a faster rising prevalence rate of the disease among women of races other than white.<sup>5,6</sup>

The estimated number of white female diabetics increased from 1,129,000 for July 1964-June 1965 to 1,558,000 for July 1966-June 1967, representing an increase of about 38.0 percent; whereas the corresponding increase for women of races other than white was from 208,000 to 261,000, representing an increase of only about 25.5 percent.

Part of the increase in the number of diabetics reported in the Health Interview Survey is believed by personnel of the survey to be attributable to increasing awareness of the presence of the disease by those interviewees who have the condition and to better interviewing techniques to obtain the reporting of the disease.

Age-adjusted death rates by geographic divisions for 1950, 1960, and 1969 show that the East North Central and Middle Atlantic Divisions had

Color, sex, and age at death from Diabetes mellitus	Cohort and period of birth															
	1945-1949	1940-1944	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894	1885-1889	1880-1884	1875-1879	1870-1874
<b>White female persons</b>	Death rates per 100,000 population in age group															
20-24 years-----	1.1	0.9	1.0	1.0	1.5											
25-29 years-----		1.7	1.5	1.5	1.5	1.8										
30-34 years-----			2.7	2.3	2.4	2.0	1.5									
35-39 years-----				3.2	2.5	1.9	2.3	2.1								
40-44 years-----					4.1	3.8	3.2	2.9	3.7							
45-49 years-----						6.8	5.4	5.6	5.4	7.5						
50-54 years-----							12.4	11.6	12.2	13.5	18.3					
55-59 years-----								21.5	23.9	26.0	30.8	42.0				
60-64 years-----									40.6	42.7	52.0	57.9	77.5			
65-69 years-----										70.5	75.7	83.4	96.1	114.0		
70-74 years-----											121.1	122.6	130.7	136.3	165.9	
75-79 years-----												174.3	162.8	163.5	169.2	189.3
80-84 years-----													231.1	197.5	188.2	191.7

NOTE: The first figure in each row, moving from right to left, is the death rate for data year 1949; the second figure, for 1954; the third figure, for 1959; the fourth figure, for 1964; and the fifth figure, for 1969.

For data years 1949, 1954, 1959, and 1964 these rates are based on deaths assigned to category number 260 of the Sixth and Seventh Revisions of the International Lists, adopted, respectively, in 1948 and 1955; for data year 1969 rates are based on deaths assigned to category number 250 of the Eighth Revision of the International Lists, adopted in 1965.



**Table M. Death rates for Diabetes mellitus, by broad age groups, and corresponding age-adjusted rates: United States and each geographic division, 1940, 1950, 1960, and 1969**

[Deaths are those attributed to category number 61 of the Fifth Revision of the International Lists, 1938; to category number 260 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955; and to category number 250 of the Eighth Revision, adopted in 1965. For method of age adjustment, see appendix 1]

Geographic division and year	All ages	Under 25 years <sup>1</sup>	25-44 years <sup>1</sup>	45-64 years	65 years and over	Age-adjusted rate <sup>2</sup>
<u>United States</u>						
Rate per 100,000 population						
1969-----	19.1	---	---	23.6	136.2	15.3
1960-----	16.7	0.5	3.5	23.3	118.0	13.9
1950-----	16.2	0.7	3.1	25.4	120.3	14.5
1940-----	26.6	1.7	4.6	50.2	211.8	26.6
<u>New England</u>						
1969-----	20.9	---	---	21.0	141.7	14.9
1960-----	19.7	0.4	3.5	20.8	132.8	14.4
1950-----	21.0	0.5	3.1	27.2	142.3	16.2
1940-----	35.6	1.2	4.5	55.8	254.1	30.3
<u>Middle Atlantic</u>						
1969-----	22.1	---	---	23.5	151.5	16.3
1960-----	21.1	0.4	3.6	26.8	140.8	16.2
1950-----	20.5	0.6	2.9	31.3	146.1	17.3
1940-----	38.4	1.4	4.5	73.7	301.2	37.1
<u>East North Central</u>						
1969-----	21.6	---	---	24.8	162.3	17.4
1960-----	19.9	0.5	3.4	27.0	144.3	16.4
1950-----	20.6	0.8	3.2	31.3	148.2	17.6
1940-----	30.5	1.8	4.8	54.4	225.2	28.4
<u>West North Central</u>						
1969-----	20.5	---	---	20.9	128.6	14.3
1960-----	17.3	0.6	3.4	18.8	110.9	12.6
1950-----	17.9	0.7	3.4	21.7	122.8	14.0
1940-----	26.5	2.1	4.0	37.7	201.8	23.4

<sup>1</sup>Rates are not shown for 1969 for the age groups under 25 and 25-44 years because the population bases for these particular broad age groups are not available.

<sup>2</sup>The 1969 age-adjusted rates are based on age groups under 20 years, 20-44 years, 45-64 years, and 65 years and over.

the highest mortality from this cause and the Mountain and Pacific Divisions had the lowest mortality (table M). A similar geographic pattern was found in an earlier study for the average annual rates for the years 1950-51 and 1959-61.<sup>7</sup>

## VIII. ARTERIOSCLEROSIS

It appears that the trend for Arteriosclerosis (ICDA No. 440) was downward between 1950 and 1969 (tables 2 and 3 and figure 1). But the actual

**Table M. Death rates for Diabetes mellitus, by broad age groups, and corresponding age-adjusted rates: United States and each geographic division, 1940, 1950, 1960, and 1969—Con.**

[Deaths are those attributed to category number 61 of the Fifth Revision of the International Lists, 1938; to category number 260 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955; and to category number 250 of the Eighth Revision, adopted in 1965. For method of age adjustment, see appendix I]

Geographic division and year	All ages	Under 25 years <sup>1</sup>	25-44 years <sup>1</sup>	45-64 years	65 years and over	Age-adjusted rate <sup>2</sup>
Rate per 100,000 population						
<u>South Atlantic</u>						
1969-----	18.1	---	---	30.5	123.8	15.9
1960-----	14.1	0.6	4.2	26.6	98.3	13.3
1950-----	12.6	0.8	4.0	25.6	99.6	13.4
1940-----	18.2	1.7	5.5	44.3	157.0	21.9
<u>East South Central</u>						
1969-----	18.2	---	---	27.0	122.0	15.3
1960-----	13.1	0.6	3.6	21.7	89.6	11.7
1950-----	10.2	0.9	3.3	18.9	79.1	10.5
1940-----	13.9	1.9	5.5	30.3	115.9	16.4
<u>West South Central</u>						
1969-----	17.5	---	---	26.0	126.8	15.1
1960-----	15.1	0.5	3.3	23.9	111.6	13.5
1950-----	11.6	0.8	3.0	20.1	93.8	11.6
1940-----	14.4	1.7	4.6	33.3	119.9	16.9
<u>Mountain</u>						
1969-----	13.5	---	---	16.1	113.6	12.3
1960-----	10.6	0.5	2.9	16.9	86.8	10.3
1950-----	10.3	0.6	3.1	17.0	85.5	10.4
1940-----	16.1	1.9	2.5	28.2	153.7	17.6
<u>Pacific</u>						
1969-----	13.8	---	---	16.4	107.4	11.7
1960-----	10.7	0.5	2.6	14.3	78.9	9.2
1950-----	10.0	0.6	2.1	13.1	73.5	8.5
1940-----	25.1	2.0	3.3	35.7	185.0	21.6

<sup>1</sup>Rates are not shown for 1969 for the age groups under 25 and 25-44 years because the population bases for these particular broad age groups are not available.

<sup>2</sup>The 1969 age-adjusted rates are based on age groups under 20 years, 20-44 years, 45-64 years, and 65 years and over.

amount of decline is not evident from the annual death rates for the period 1950-69 owing to the fact that there were two breaks in the comparability of mortality statistics for this disease. Between the Sixth and Seventh Revisions (with

the latter revision used beginning with data year 1958) the comparability ratio was 1.02.<sup>3</sup> The break in trend between the Seventh and Eighth Revisions, introduced for data year 1968, was much more serious, resulting in a comparability ratio for the

Seventh and Eighth Revisions of only 0.8963 (appendix III).

During 1950-69 the almost halving of the age-adjusted death rate for Arteriosclerosis (ICDA No. 440) (from 16.2 deaths per 100,000 population for 1950 to 9.2 deaths for 1969) (figure 1) reflects sizable reductions in the death rate for this cause for each of the four color-sex groups (table N).

Because this disease is associated with the aging process, it is not surprising that about 95 percent (31,535 deaths) of the total deaths (33,063) from Arteriosclerosis in 1969 occurred at ages 65 years and over.

The age-adjusted death rate for this cause for 1969 was about the same for the white popula-

tion as for the population of other than white races—the color ratio being 0.99. This color ratio had remained quite stable since 1950, when it was 0.98. Very similar patterns are found when the color ratios for mortality from this cause are examined separately for the male population (with a mortality color ratio of 0.98 for 1950 and 0.99 for 1969) and for the female population (with a mortality color ratio of 0.96 for both 1950 and 1969).

The sex ratio for mortality from Arteriosclerosis was higher than the corresponding color ratio during 1950-69, but the trend for the sex ratio appears to be downward—from 1.29 for 1950 to 1.20 for 1969. For 1969 the sex ratio for this disease for the white population (1.20)

Table N. Age-adjusted death rates for Arteriosclerosis, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category number 440 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category number 450 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969	9.2	10.1	8.4	9.2	10.2	8.5	9.1	10.1	8.2
1968	9.6	10.5	8.8	9.6	10.6	8.8	9.9	14.0	9.0
1967	11.1	12.2	10.2	11.2	12.3	10.3	10.7	11.8	9.7
1966	11.9	13.2	10.9	11.9	13.2	10.9	12.2	13.2	11.4
1965	12.0	13.4	11.0	12.0	13.4	10.9	12.3	13.6	11.3
1964	12.1	13.2	11.2	12.0	13.1	11.1	12.6	13.6	11.8
1963 <sup>1</sup>	12.5	13.9	11.5	12.5	13.8	11.4	13.4	14.7	12.4
1962 <sup>1</sup>	12.6	13.8	11.6	12.5	13.7	11.5	13.4	15.0	12.1
1961	12.4	13.8	11.3	12.4	13.7	11.2	12.8	14.2	11.5
1960	13.2	14.8	11.8	13.1	14.7	11.7	13.8	15.5	12.3
1959	13.0	14.5	11.8	12.9	14.4	11.7	13.7	15.2	12.3
1958	13.4	15.0	12.1	13.3	14.9	11.9	14.7	16.0	13.7
1957	13.3	14.8	12.1	13.3	14.8	11.9	14.0	15.2	13.1
1956	13.3	14.8	12.0	13.2	14.7	11.9	13.6	14.8	12.5
1955	13.9	15.7	12.4	13.9	15.6	12.4	14.3	16.2	12.5
1954	13.5	14.9	12.2	13.4	14.8	12.1	13.9	15.5	12.6
1953	15.0	16.8	13.5	14.9	16.7	13.4	15.5	17.7	13.5
1952	15.3	16.9	13.9	15.3	16.8	13.9	15.0	17.1	13.1
1951	16.0	17.9	14.4	16.1	17.9	14.5	15.1	17.1	13.1
1950 <sup>2</sup>	16.2	18.4	14.3	16.2	18.4	14.3	15.8	18.0	13.7

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

was close to the corresponding sex ratio for the population of races other than white (1.23); and the trend for both of these groups was downward during 1950-69, decreasing from 1.29 for the white population and from 1.31 for the population of races other than white.

## IX. BRONCHITIS, EMPHYSEMA, AND ASTHMA

*Bronchitis, emphysema, and asthma (ICDA Nos. 490-493).*—During 1950-69 there were two breaks in the continuity of mortality statistics for this group. The first break occurred between

1957 and 1958. The introduction of the Seventh Revision reduced the number of deaths assigned to these causes by about 6.2 percent over the number assigned to the same titles by the Sixth Revision.<sup>3</sup>

The comparability ratio for this group of causes between the Seventh and Eighth Revisions is 1.0034 (appendix III). Although this ratio is close to 1.00, the corresponding factors for the three components of this group of diseases, as shown below, vary considerably from 1.00.

The trend of the age-adjusted death rate for this entire group of causes was steeply upward during 1954-69 (table 0 and figure 1).

Table 0. Age-adjusted death rates for Bronchitis, emphysema, and asthma, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category numbers 490-493 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers 501, 502, 527.1, and 241 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969	12.0	21.1	4.7	12.0	21.6	4.6	10.0	15.7	5.1
1968	12.9	22.8	5.1	13.0	23.2	4.9	11.3	17.7	5.8
1967	12.1	21.4	4.7	12.2	21.8	4.5	10.3	15.9	5.5
1966	12.2	21.4	4.6	12.3	21.9	4.4	10.0	15.6	5.0
1965	11.6	20.4	4.4	11.7	20.7	4.3	9.8	15.2	5.0
1964	10.5	18.1	4.0	10.5	18.5	3.9	9.0	13.9	4.7
1963 <sup>1</sup>	10.6	18.3	4.1	10.7	18.8	3.9	9.7	14.2	5.6
1962 <sup>1</sup>	9.2	15.6	3.6	9.2	16.0	3.5	8.4	12.1	5.1
1961	8.2	13.7	3.3	8.1	13.9	3.2	7.9	11.5	4.7
1960	8.2	13.7	3.5	8.2	13.8	3.3	8.0	11.2	5.1
1959	7.3	12.1	3.0	7.2	12.2	2.8	7.2	9.9	4.7
1958	6.9	11.4	2.9	6.8	11.5	2.7	6.9	9.3	4.7
1957	7.3	11.7	3.3	7.1	11.7	3.1	7.9	10.9	5.0
1956	6.2	9.9	2.9	6.2	10.0	2.8	5.9	8.0	3.9
1955	5.9	9.1	3.0	5.9	9.2	2.9	5.6	7.5	3.8
1954	5.8	8.7	3.1	6.1	8.8	3.0	5.3	7.1	3.7
1953 <sup>2</sup>	4.8	6.6	3.1	4.7	6.6	2.9	5.0	5.8	4.1
1952 <sup>2</sup>	4.9	6.7	3.2	4.8	6.7	3.1	5.5	6.3	4.6
1951 <sup>2</sup>	5.0	6.8	3.3	4.9	6.8	3.2	5.1	5.7	4.5
1950 <sup>2,3</sup>	3.7	4.7	2.7	3.6	4.7	2.6	4.2	4.7	3.6

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Excludes data for ICD No. 527.1, because for these years data were not available by age, color, and sex.

<sup>3</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

(The base line 1954 instead of 1950 is used because the number of deaths for one component—Emphysema without mention of bronchitis (ICD No. 527.1)—for the years 1950-53 is not available.)

These age-adjusted death rates show that for 1969 mortality for the male population from these causes was 4.49 times the corresponding mortality for the female population. This mortality sex ratio had increased considerably over the ratio of 2.81 for 1954. The mortality sex differential in 1969 was large for both color groups, but higher for the white group (4.70) than for the other group (3.08). For both color groups the mortality sex differentials increased during 1954-69.

On the other hand the mortality color ratio for Bronchitis, emphysema, and asthma appears to have been relatively stable during 1954-69.

The 1969 age-adjusted death rate for these diseases for the population of races other than white was only 83 percent of the corresponding rate for the white population. This obtains because of the relatively low mortality color ratio for these diseases for the male population: for 1969 the age-adjusted death rate for the male population of races other than white was only 73 percent of the corresponding rate for the male population of the white races; while for the female population of races other than white, this rate was 1.11 times that for the white female population.

The death rate for Bronchitis, emphysema, and asthma, taken as a group of diseases, is higher for older than for younger age groups. This is true for each of the four color-sex groups. For both the white male and the other male populations the death rate for the age group 65-74 years is more than double that for the age group 55-64 years.

*Chronic and unqualified bronchitis (ICDA Nos. 490, 491).*—The introduction of the Seventh Revision resulted in the assignment of about 7 percent more deaths to Chronic and unqualified bronchitis than had been assigned by the Sixth Revision to these causes.<sup>3</sup>

On the basis of the sample of deaths in 1966 coded by the Seventh and Eighth Revisions,<sup>2</sup> there were 5,484 deaths assigned to this cause by the Eighth Revision and 5,164 deaths assigned to the comparable title by the Seventh Revision, a ratio of 1.0620 (appendix III).

The death rate for Chronic and unqualified bronchitis (ICDA Nos. 490, 491) rose during 1958-67, when the Seventh Revision was in use, from 1.5 to 2.7 deaths per 100,000 (table 2). Applying the comparability ratio of 1.0620 to this latter rate raised it to 2.9, the magnitude this rate would have had if the 1967 deaths had been coded by the Eighth Revision.

*Emphysema (ICDA No. 492).*—About 2 percent more deaths were assigned by the Seventh Revision to Emphysema, without mention of bronchitis (ICD No. 527.1) than were assigned by the Sixth Revision to this cause.<sup>3</sup>

On the basis of the sample of deaths in 1966 coded by both the Seventh and Eighth Revisions, there were 21,350 deaths assigned by the Seventh Revision to the nearly comparable title Emphysema, without mention of bronchitis (ICD No. 527.1),<sup>2</sup> a ratio of 1.0542 (appendix III).

Applying the factor 1.0542 to the 1967 death rate for Emphysema (10.6) raises it to 11.2; that is, to the level it would have been if the deaths in 1967 had been coded by the Eighth Revision. This is another respiratory disease for which the death rate was clearly upward during 1950-69 (table 2).

*Asthma (ICDA No. 493).*—The introduction of the Seventh Revision for data year 1958 resulted in about 20 percent fewer deaths being assigned to asthma than had been assigned by the Sixth Revision.<sup>3</sup>

On the basis of the sample of deaths in 1966 coded by the Seventh and Eighth Revisions, there were only 3,007 deaths assigned to this cause by the Eighth Revision and 4,324 deaths assigned to it by the Seventh Revision,<sup>2</sup> a ratio of 0.6954 (appendix III).

## X. CIRRHOSIS OF LIVER

For 1969 Cirrhosis of liver (ICDA No. 571) ranked as the 10th leading cause of death—the rate being 14.8 deaths per 100,000 population, representing 29,866 deaths. Its rank for each of the four color-sex groups was even higher. For 1969 this disease ranked ninth for the white female population and eighth for each of the other three color-sex populations.

There were no serious breaks in comparability of mortality statistics for cirrhosis

during 1950-69. The comparability ratio is 0.99 between the Sixth and Seventh Revisions<sup>3</sup> and 1.0055 between the Seventh and Eighth Revisions (appendix III).

Between 1950 and 1969 the death rate for cirrhosis increased, from 9.2 to 14.8 deaths per 100,000 (table 2 and figure 1). This represents an increase from 13,855 deaths for 1950 to 29,866 deaths for 1969 (table 3).

Although an increase in mortality for this cause occurred for each of the four color-sex groups, age-adjusted death rates show that both the absolute and relative increases in mortality were by far greater for the male population of races other than white than for the other three

color-sex groups. The 1969 age-adjusted death rate for the male population of races other than white (31.4 deaths per 100,000 population) was 3.5 times their corresponding rate for 1950 (9.0 deaths per 100,000) (table P). Increases in mortality from this cause were even greater for men of races other than white in the early middle years of life. For example, for men at ages 35-44 years, the death rate for this cause was almost seven times higher for 1969 (66.8 deaths per 100,000) than for 1950 (10.0 deaths per 100,000).

The mortality sex differential for this cause (based on age-adjusted death rates in table P) was somewhat greater for 1969 than the corre-

Table P. Age-adjusted death rates for Cirrhosis of liver, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category number 571 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category number 581 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969	14.2	19.4	9.5	12.9	18.0	8.5	24.0	31.4	17.6
1968	14.0	19.0	9.5	12.9	17.8	8.5	22.9	29.8	17.0
1967	13.5	18.3	9.1	12.5	17.2	8.4	20.7	27.2	15.0
1966	13.0	17.8	8.7	12.1	16.8	7.9	20.4	26.6	15.0
1965	12.1	16.5	8.3	11.4	15.6	7.6	18.0	23.3	13.4
1964	11.5	15.5	7.8	11.0	15.0	7.3	15.2	19.6	11.3
1963 <sup>1</sup>	11.2	15.1	7.7	10.7	14.7	7.2	13.9	17.1	*11.0
1962 <sup>1</sup>	11.0	15.1	7.4	10.5	14.6	6.8	13.8	16.8	11.0
1961	10.6	14.5	7.1	10.3	14.2	6.7	12.8	15.9	9.9
1960	10.5	14.5	6.9	10.3	14.4	6.6	11.9	14.9	9.1
1959	10.1	13.8	6.7	10.0	13.7	6.4	11.3	13.7	9.1
1958	9.9	13.6	6.5	9.9	13.7	6.3	9.9	12.5	7.4
1957	10.5	14.4	6.8	10.4	14.4	6.6	10.8	13.4	*8.4
1956	9.9	13.3	6.6	9.8	13.4	6.5	9.7	11.8	7.8
1955	9.4	12.7	6.2	9.4	12.9	6.1	8.5	10.3	6.8
1954	9.2	12.6	6.1	9.3	12.8	6.0	8.1	9.8	6.5
1953	9.5	12.8	6.4	9.6	13.0	6.4	8.1	10.0	*6.3
1952	9.5	12.8	6.2	9.5	13.0	6.2	8.1	10.6	*5.7
1951	9.1	12.1	6.2	9.2	12.3	6.2	8.1	9.9	6.3
1950 <sup>2</sup>	8.5	11.4	5.8	8.6	11.6	5.8	7.4	9.0	*5.9

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

NOTE: Asterisk indicates age-adjusted rates where more than half of the age-specific rates are based on fewer than 20 deaths.

sponding mortality color differential. For 1969 the age-adjusted death rate for cirrhosis for the male population was 2.04 times the corresponding rate for the female population. This mortality sex ratio was quite stable during 1950-69; for 1950 this ratio was 1.97.

The mortality color ratio for cirrhosis shows increasing excess mortality for the population of races other than white. Actually for 1950 their age-adjusted death rate for this cause was only 86 percent of that for the white population. But by 1958 both groups had the same age-adjusted death rate for this cause (9.9 deaths per 100,000), and by 1969 the age-adjusted death rate for cirrhosis for the population of races other than white (24.0 deaths per 100,000) was 1.86 times the corresponding rate for the white population (12.9 deaths per 100,000).

For this disease the mortality color ratio is greater for the female population than for the male population; but for each of the sexes the excess mortality from cirrhosis for persons of races other than white (as measured by age-adjusted death rates) more than doubled between 1950 and 1969 (table P).

The age-adjusted death rate for the white male population continued during 1950-69 to be about twice the corresponding rate for the white female population. This mortality sex differential was lower during 1950-69 for the population of races other than white than for the white population, but increased between 1950 and 1969, rising from a ratio of 1.53 for 1950 to 1.78 for 1969.

For 1969 the death rate for cirrhosis for the total population increased for each succeeding age group up through ages 55-64 years and then declined for the age groups in the remainder of the life span. A nearly similar pattern held for 1969 for each of the four color-sex groups. Whether the death rate for cirrhosis actually does peak before the end of the life span may be determined by cohort analysis. An examination of the death rate for persons born 1895-99 shows that for three of the four color-sex groups (white male, white female, and other female) the death rate for cirrhosis does peak at ages 65-69 years (see table at right). For the fourth group (the all other male group), however, the death rate for cirrhosis continues to rise for the age group 70-74 years. This pattern for these men also

Color, sex, and year of death from Cirrhosis of liver	Age at death (in years) for cohort born 1895-1899	Death rate per 100,000 population
<u>White, male</u>		
1969-----	70-74	57.2
1964-----	65-69	62.0
1959-----	60-64	46.4
1954-----	55-59	40.2
1949-----	50-54	29.3
<u>All other, male</u>		
1969-----	70-74	49.0
1964-----	65-69	42.4
1959-----	60-64	35.4
1954-----	55-59	35.9
1949-----	50-54	22.3
<u>White, female</u>		
1969-----	70-74	21.4
1964-----	65-69	22.7
1959-----	60-64	18.4
1954-----	55-59	16.0
1949-----	50-54	13.6
<u>All other, female</u>		
1969-----	70-74	11.4
1964-----	65-69	20.1
1959-----	60-64	17.1
1954-----	55-59	16.0
1949-----	50-54	11.7

differs from that for cohorts of men of races other than white born prior to 1895-99. For these earlier born cohorts the death rate does appear to peak at this latter age and then turns downward during the last part of the life span. This apparent break in pattern for men of races other than white should be examined again when data for more recent years become available. It is possible that this broken pattern reflects the extraordinarily great increases during the 1960's in the death rate for cirrhosis for men of races other than white at ages 70-74 years (from 25.2 for 1960 to 49.0 deaths per 100,000 for 1969).

The percentage of deaths from Cirrhosis of liver in 1969 for male persons of races other than white for which alcoholism was mentioned

on the death certificate (44.4 percent) was higher than the corresponding percentages for the other three color-sex groups (table Q). Inasmuch as men of races other than white also have the lowest percent of deaths from "unspecified" Cirrhosis of liver (35.7 percent) their high percentage as "alcoholic" may reflect in part

more complete reporting of "alcoholic" cirrhosis for these persons than for the other three color-sex groups.

Completeness of reporting on the certificate of death as to the etiology of cirrhosis varies from State to State. California, which had a lower percentage for 1969 of "unspecified" cir-

Table Q., Number and percent distribution of deaths from Cirrhosis of liver by subcategories alcoholic, other specified, and unspecified, according to color and sex; United States, 1969

[Deaths are those assigned to category number 571 of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965]

Color and sex	Cirrhosis of liver (ICDA No. 571)	Alcoholic (ICDA No. 571.0)	Other specified (ICDA No. 571.8) <sup>1</sup>	Unspecified (ICDA No. 571.9) <sup>1</sup>	Total	Alcoholic (ICDA No. 571.0)	Other specified (ICDA No. 571.8) <sup>1</sup>	Unspecified (ICDA No. 571.9) <sup>1</sup>
	Number				Percent distribution			
Total-----	29,866	10,520	5,404	13,942	100.0	35.2	18.1	46.7
White, male-----	16,517	5,988	2,633	7,896	100.0	36.3	15.9	47.8
White, female----	8,634	2,533	1,786	4,315	100.0	29.3	20.7	50.0
All other, male---	2,863	1,270	571	1,022	100.0	44.4	19.9	35.7
All other, female--	1,852	729	414	709	100.0	39.4	22.4	38.3

<sup>1</sup>The Eighth Revision adapted for use in the United States has the three subcategories shown in the report, whereas the Revision adopted by the World Health Organization has only two subcategories: Alcoholic (ICDA No. 571.0) and Other (ICDA No. 571.9). The inclusion terms under the three subcategories in use in the United States are as follows:

571.0 Alcoholic

Alcoholic:  
 Cirrhosis  
 Hepatitis  
 Laennec's cirrhosis  
 Any condition in 571.8 or 571.9 with mention of alcohol or alcoholism

571.8 Other specified

Cirrhosis (hepatic) (liver):  
 Biliary  
 Cardiac  
 Congenital  
 Due to passive congestion  
 Portal  
 Postnecrotic  
 Fatty degeneration of liver

} Without mention of alcohol or alcoholism

571.9 Unspecified

Banti's disease  
 Chronic hepatitis  
 Cirrhosis (hepatic) (liver):  
 NOS  
 Hepatolienal  
 Splenomegalic  
 Hepatolienal fibrosis

} Without mention of alcohol or alcoholism



rhosis on death certificates (30.5 percent) than the percentage for the nation as a whole (46.7 percent), also reports for 1969 that men of races other than white have the highest percentage of reported deaths from "alcoholic" cirrhosis (52.2 percent) and the lowest percent of deaths from "unspecified" cirrhosis (21.6 percent).

## XI. SUICIDE

During 1950-69 there were two appreciable breaks in continuity in the assignment of deaths to Suicide (ICDA Nos. E950-E959). The first break occurred between 1957 and 1958 with the introduction of the Seventh Revision. The comparability ratio between the Sixth and Seventh Revisions is 1.03.<sup>2</sup> The second break occurred

between 1967 and 1968, with the introduction of the Eighth Revision. The comparability ratio between these Revisions is 0.9472 (appendix III).

After adjusting for these two breaks in comparability of mortality statistics, it is found that the total death rate for Suicide turned downward during 1950-57 and then increased slightly during 1958-69 (tables 2 and 3 and figure 1).

Age-adjusted death rates for Suicide show that this upturn resulted from appreciable increases in the death rate for this cause for three of the four color-sex groups. For the fourth group—the white male population—the age-adjusted rate remained relatively stable during the 1960's, but at a very much higher level than the levels for the other three color-sex groups (table R).

Table R. Age-adjusted death rates for Suicide, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category numbers E950-E959 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers E963, E970-E979 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969-----	11.3	16.7	6.5	11.9	17.4	6.9	6.5	10.2	3.2
1968-----	11.0	16.4	6.1	11.5	17.1	6.5	5.8	9.3	2.8
1967-----	11.1	16.4	6.3	11.7	17.1	6.7	6.3	9.7	3.2
1966-----	11.1	16.7	6.1	11.7	17.4	6.5	6.2	9.9	2.9
1965-----	11.4	16.9	6.3	11.9	17.7	6.7	6.2	9.7	3.0
1964-----	11.0	16.6	5.8	11.6	17.4	6.2	5.7	9.1	2.6
1963 <sup>1</sup> -----	11.3	17.0	6.0	11.9	17.9	6.4	6.1	9.9	2.7
1962 <sup>1</sup> -----	11.0	16.8	5.6	11.7	17.9	6.0	5.7	9.0	2.7
1961-----	10.5	16.4	5.0	10.9	17.1	5.3	5.7	9.5	2.2
1960-----	10.6	16.6	5.0	11.1	17.5	5.3	5.4	8.7	2.3
1959-----	10.5	16.6	4.7	11.0	17.4	4.9	5.5	9.1	2.3
1958-----	10.5	16.8	4.7	11.1	17.6	5.0	5.1	8.4	*2.1
1957-----	9.6	15.3	4.2	10.0	16.0	4.5	4.7	8.1	*1.6
1956-----	9.7	15.5	4.4	10.3	16.3	4.6	4.4	7.1	1.8
1955-----	9.9	15.7	4.5	10.4	16.5	4.8	4.3	7.1	1.7
1954-----	9.9	16.0	4.1	10.4	16.8	4.3	4.6	7.8	1.7
1953-----	9.8	15.7	4.2	10.3	16.5	4.5	4.3	7.3	*1.4
1952-----	9.7	15.3	4.3	10.2	16.1	4.6	4.1	6.9	*1.4
1951-----	10.0	15.8	4.6	10.5	16.5	4.8	4.5	7.3	1.9
1950 <sup>2</sup> -----	11.0	17.3	4.9	11.6	18.1	5.3	4.8	7.8	1.8

<sup>1</sup> Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup> Based on enumerated population adjusted for age bias in the population of races other than white.

NOTE: Asterisk indicates age-adjusted rates where more than half of the age-specific rates are based on fewer than 20 deaths.

Table S. Death rates for Suicide, by color, sex, birth of cohort, and age at death: United States, 5-year intervals during 1949-69

[Rates per 100,000 population in specified age-color-sex group. For 1969 rates are based on deaths assigned to category numbers E950-E959 of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965; for 1949, 1954, 1959, and 1964 rates are based on deaths assigned to category numbers E963, E970-E979 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955]

Color, sex, and age at death	Period of birth of cohort																	
	1950-1954	1945-1949	1940-1944	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894	1885-1889	1880-1884	1875-1879	1870-1874	1865-1869
<b>White, male</b>																		
15-19 years-----	9.0	6.6	5.4	3.8	3.8													
20-24 years-----		17.0		11.0	10.3	9.9												
25-29 years-----			18.4	15.2	12.8	13.0	12.0											
30-34 years-----				18.2	18.9	15.9	14.1	14.7										
35-39 years-----					20.4	20.0	19.3	17.2	20.9									
40-44 years-----						24.2	24.5	24.0	22.7	27.3								
45-49 years-----							27.8	30.0	29.8	30.5	30.1							
50-54 years-----								28.6	33.8	36.2	35.9	37.5						
55-59 years-----									33.4	39.3	40.7	44.1						
60-64 years-----										37.3	37.5	43.1	49.6					
65-69 years-----											36.5	37.8	44.7	51.5				
70-74 years-----												37.7	47.4	48.3	50.7			
75-79 years-----													47.7	53.5	52.6	57.8		
80-84 years-----													44.5	50.6	55.9	52.7	57.8	63.0
<b>All other, male</b>																		
15-19 years-----	5.8	4.0	3.4	1.7	2.4													
20-24 years-----		15.4	13.5	10.6	10.1	7.0												
25-29 years-----			17.0	16.7	15.7	13.9	9.8											
30-34 years-----				18.6	15.6	13.1	11.7	10.1										
35-39 years-----					16.7	12.4	11.0	11.4	12.0									
40-44 years-----						14.9	13.1	11.0	9.7	10.6								
45-49 years-----							11.5	11.1	13.3	10.9	12.5							
50-54 years-----								12.8	12.5	14.6	11.4	11.9						
55-59 years-----									10.3	10.7	15.7	13.9	9.6					
60-64 years-----										11.0	14.2	13.5	15.7	19.6				
65-69 years-----											14.0	13.5	17.3	15.8	15.8			
70-74 years-----												15.3	13.5	11.3	15.4	15.8		
75-79 years-----													17.2	11.2	23.2	12.8	15.9	
80-84 years-----														14.5	14.7	22.2	14.6	14.3
<b>White, female</b>																		
15-19 years-----	2.6	1.7	1.6	1.2	1.5													
20-24 years-----		5.0	4.5	2.8	2.4	3.7												
25-29 years-----			7.0	6.2	5.4	4.2	4.2											
30-34 years-----				8.9	8.3	5.9	4.7	6.0										
35-39 years-----					11.9	10.9	6.8	5.6	7.7									
40-44 years-----						13.4	10.9	8.2	8.2	8.9								
45-49 years-----							13.1	12.2	8.7	7.8	9.9							
50-54 years-----								13.4	12.9	10.4	8.8	10.8						
55-59 years-----									12.2	11.7	10.7	8.3	12.1					
60-64 years-----										9.9	10.5	9.7	9.7	10.9				
65-69 years-----										11.4	10.6	10.9	10.4	8.7	10.8			
70-74 years-----												8.8	9.7	8.0	8.7	8.9		
75-79 years-----													7.7	7.0	8.0	6.2	8.6	
80-84 years-----														7.1	6.2	6.6	6.3	6.0
<b>All other, female</b>																		
15-19 years-----	3.2	1.8	1.7	1.8	0.9													
20-24 years-----		5.2	2.3	2.9	1.3	2.4												
25-29 years-----			6.4	5.2	4.0	3.5	2.0											
30-34 years-----				5.8	4.1	3.5	2.0	3.0										
35-39 years-----					5.0	4.5	2.9	1.6	2.9									
40-44 years-----						4.6	3.7	2.5	2.4	2.2								
45-49 years-----							4.6	3.2	3.0	1.9	2.2							
50-54 years-----								2.6	3.6	2.0	3.9	2.0						
55-59 years-----									2.4	4.5	3.3	2.5	2.5					
60-64 years-----										2.1	3.4	3.3	1.9					
65-69 years-----											2.7	4.7	3.8	1.3	2.4			
70-74 years-----												3.0	1.4	1.7	4.8	0.9		
75-79 years-----													3.4	2.2	1.9	1.3	3.3	
80-84 years-----														1.0	3.8	1.9	-	-

NOTE: The first figure in each row, moving from right to left, is the death rate for 1949; the second figure, for 1954; the third figure, for 1959; the fourth figure, for 1964; and the fifth figure, for 1969.

These summary figures (both the total and the age-adjusted death rates for Suicide) result from the offsetting of decreases in Suicide for persons 45 years and over by increases for the age groups under 45 years. Increases at these younger ages occurred for each of the four color-sex groups.

The data in table S (excluding the age group 85 years and over) show that the death rate for Suicide for 1969 reached peaks for each of the four color-sex groups as follows:

Color and sex	Age in years	Peak death rate per 100,000
White male-----	80-84	50.6
White female-----	40-44, 50-54	13.4
All other male----	30-34	18.6
All other female--	25-29	6.4

It should be emphasized that these peaks are for data year 1969 only and therefore are not related to the peak for cohorts of persons born in given periods. That the suicide rates increase with advance in age (at least up to about ages 50-54 years) is indicated for almost all cohorts (for each of the four color-sex groups) born since about 1915 (table S).

Age-specific death rates for Suicide for the three cohorts of white men born during 1900-1904, 1895-99, and 1890-94 suggest that these older cohorts may have experienced their highest rates for Suicide (at about 55-59 and 60-64 years) considerably before the end of the usual life span. (The reader should be reminded that the comparability ratio for the Seventh and Eighth Revisions of 0.9472 for Suicide may be applicable to the age-specific rates for 1964 and 1959 in table S). Similarly for about three cohorts of men of races other than white (those born in 1910-14, 1905-09, and 1900-1904) the age-specific death rates in table S appear to indicate that they also experienced their highest rate for Suicide before the usual end of the life span.

Based on data collected by the United Nations, one country (Hungary) has a total Suicide rate that is about three times the rate for the United States; and five countries (Czechoslovakia; Austria; Finland; Sweden; Federal Republic of Ger-

many, excluding West Berlin; and Denmark) have rates that are about two times the rate for the United States (table T).

The moderate upturn in the age-adjusted Suicide rate between 1957 and 1969 reflects much greater increases in mortality for this cause for the other three color-sex groups than for the white male group (table R). But for none of the other three groups did the level of mortality from Suicide reach anywhere near the high level as that for the white male group.

The excess mortality from Suicide for the total male population over that for the total female population decreased between 1950 and 1969. For 1950 the male Suicide rate was 3.53 times the corresponding female Suicide rate, but by 1969 the male Suicide rate was down to 2.57 times the female Suicide rate. This decrease in the sex differential for Suicide between 1950 and 1969 reflects substantial decreases in this differential for both white and races other than white.

The white population continues to have by far higher Suicide rates than the population of races other than white. But this color differential is also decreasing: for 1950 the Suicide rate for races other than white was only 41 percent of the corresponding rate for the white population, but by 1966 this percentage had reached 55. This decrease in the color differential for Suicide reflects decreases in this differential for each of the sex groups.

## XII. CONGENITAL ANOMALIES

During the period 1950-69 there were two breaks in the continuity of the death rate for Congenital anomalies (ICDA Nos. 740-759). The first break resulted in the assignment of about 2 percent fewer deaths to this group of causes by the Seventh Revision than had been assigned to it by the Sixth Revision.<sup>3</sup> The comparability ratio between the Seventh and Eighth Revisions is 1.0204 (appendix III).

A more precise measure of the true decline in mortality may be obtainable by limiting consideration to only those deaths occurring at ages under 1 year from Congenital anomalies. (Deaths at ages under 1 year assigned to Congenital

Table T. Deaths rates for Suicide, by rank, selected countries, revision of International Classification of Diseases, and data year

[Deaths are those attributed to category numbers E963, E970-E979 of the Seventh Revision of the International Classification of Diseases, 1955, and to category numbers E950-E959 of the Eighth Revision of the International Classification of Diseases, 1965. Rates are deaths per 100,000 population]

Rank	Country	Revision	Data year	Rate
1	Ireland	Eighth	1969	1.8
2	Chile	Eighth	1968	3.1
3	Costa Rica	Seventh	1967	3.1
4	Greece	Eighth	1969	3.5
5	Guatemala	Seventh	1968	<sup>1</sup> 4.2
6	Italy	Seventh	1967	5.4
7	Israel	Seventh	1969	6.4
8	Trinidad and Tobago	Seventh	1968	7.3
9	Netherlands	Eighth	1969	7.4
10	Norway	Seventh	1968	8.1
11	Portugal	Seventh	1969	8.2
12	United Kingdom	Eighth	1969	8.6
13	Singapore	Eighth	1969	9.3
14	New Zealand	Eighth	1969	10.0
15	United States	Eighth	1968	10.7
16	Canada	Eighth	1969	10.9
17	Poland	Seventh	1969	11.2
18	Bulgaria	Eighth	1969	11.3
19	Australia	Eighth	1969	12.2
20	Japan	Eighth	1968	14.4
21	Belgium	Seventh	1968	15.5
22	France	Eighth	1969	<sup>1</sup> 15.6
23	Switzerland	Seventh	1968	17.0
24	Denmark	Seventh	1968	20.5
25	Federal Republic of Germany (excluding West Berlin)	Seventh	1967	<sup>1</sup> 21.3
26	Sweden	Seventh	1968	<sup>1</sup> 21.5
27	Finland	Seventh	1968	21.6
28	Austria	Eighth	1969	22.3
29	Czechoslovakia	Seventh	1967	23.9
30	Hungary	Eighth	1969	33.1

<sup>1</sup>Provisional.

NOTE: This table is limited to sovereign countries with "reliable" estimated populations of 1 million or more and with "complete" counts of deaths by cause lists that include Suicide, as shown in table 19 in the 1970 Demographic Yearbook of the United Nations.

anomalies constitute about 66 percent of total number assigned to this cause.)

On the basis of the dual coding study, using deaths occurring in 1966, it was found that an estimated 12,644 infant deaths were assigned by the Eighth Revision to Congenital anomalies (ICDA Nos. 740-759) and 12,200 infant deaths were assigned by the Seventh Revision to Congenital malformations (ICD Nos. 750-759).<sup>2</sup> Use of the comparability ratio 1.0364 (obtained by dividing the 12,644 deaths for 1968 by the 12,200 for 1967)

to adjust the 1967 infant mortality rate for Congenital malformations (330.4 per 100,000 live births) to the level the rate would have reached if the Eighth Revision had been used for 1967, results in an adjusted rate of 342.3. The difference between the 1968 rate (315.6 per 100,000 live births) and the adjusted rate for 1967 is 26.7 deaths per 100,000 live births, constituting a real decrease of 7.8 percent between 1967 and 1968 in the infant mortality rate for this group of causes.

Measured over the entire period 1950-69 infant mortality from Congenital anomalies was downward—from 396.0 deaths per 100,000 live births for 1950 to 314.1 deaths per 100,000 live births for 1969 (figure 2). This decline reflects substantial lowering of this mortality rate for white infants (both male and female). For white male infants the rate dropped from 438.5 deaths per 100,000 live births for 1950 to 338.6 for 1969, and for white female infants it dropped from 390.2 deaths per 100,000 live births for 1950 to 296.3 for 1969. For other infants, however, there was little change in the death rate for Congenital anomalies between 1950 and 1969: for male infants in this group the rate for this cause increased from 298.5 deaths per 100,000 live births for 1950 to 313.5 deaths for 1969, and for their female counterparts this rate increased from 255.5 deaths per 100,000 live births to 275.2 (table 5).

For 1950 the death rate for Congenital malformations for other infants was only 67 percent of the corresponding rate for white infants. But by 1969 this percentage had increased to 93.

The mortality sex ratio for this cause remained stable between 1950 and 1968, with both years having a ratio of 1.13. For 1969 total infants and both white and other infants had a mortality sex ratio for this cause of 1.14.

### XIII. HOMICIDE

There was no sizable disruption in the comparability of statistics for Homicide (ICDA Nos. E960-E978) either with the introduction of the Seventh Revision (with a comparability ratio of 1.00)<sup>3</sup> or with the introduction of the Eighth Revision (with a comparability ratio of 0.9969) (appendix III).

An examination of the death rates for Homicide during this century shows that both the total rate and the age-adjusted rate increased from 1900 to about 1933. (For 1933 the total rate was 9.8 deaths per 100,000 and the age-adjusted rate was 10.0 deaths per 100,000.) Then both rates declined slowly through the 1940's and 1950's.<sup>4</sup> But the trend in the 1960's was again clearly upward—4.7 deaths per 100,000 for 1960 to 7.7 deaths for 1969 (tables 2 and 3 and figure 1).

Age-adjusted death rates for Homicide show that a rise in these violent deaths occurred during

the 1960's for each of the four color-sex groups (table U). For men of races other than white both the absolute and relative increases in the Homicide rate between 1960 (41.9 deaths per 100,000 population) and 1969 (72.4 deaths per 100,000 population) were higher than for each of the other three color-sex groups. But since 1962 this color differential for Homicide has again been upward. The color mortality ratio for this cause for 1969 (9.60) was, however, still not so great as it was for 1950 (11.35).

The color differential by sex continued through 1950-69 to be much higher for male persons than for female persons. For both groups the color differential for Homicide was smaller for 1969 than for 1950 (based on age-adjusted death rates in table U).

For 1969 the sex differential for Homicide was less than half the color differential for this cause of death. The mortality sex ratio (based on age-adjusted death rates for Homicide in table U) decreased from 3.36 for 1950 to 3.00 for 1958; but between 1958 and 1969 this ratio again increased, reaching 3.97 for 1969. For 1969 white male persons had a Homicide rate (age-adjusted) that was 3.14 times the corresponding rate for white female persons, and other male persons had a Homicide rate that was 5.25 times the corresponding rate for their female counterparts.

The 1969 death rate for Homicide was high for infants (4.3 deaths per 100,000 population), then dropped to 1.6 deaths for children 1-4 years, and to 0.7 deaths for children 5-14 years. Then the rate rose from 11.0 deaths for the age group 15-24 years to a peak of 15.9 deaths for the age group 25-34 years. For succeeding age groups the 1969 Homicide rate was downward.

The 1969 death rate for Homicide reached the following peaks for each of the four color-sex groups:

Color and sex	Age in years	Peak death rate per 100,000
White male-----	25-34	11.6
White female-----	25-34	3.2
All other male----	25-34	138.4
All other female--	25-34	27.4

Table U. Age-adjusted death rates for Homicide, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category numbers E960-E978 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers E964, E980-E985 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969-----	8.6	13.9	3.5	4.3	6.6	2.1	41.3	72.4	13.8
1968-----	8.2	13.4	3.4	4.2	6.5	2.0	39.6	68.9	13.6
1967-----	7.7	12.1	3.5	3.9	5.9	2.0	36.9	62.7	14.0
1966-----	6.7	10.4	3.2	3.4	4.9	1.9	32.4	54.8	12.4
1965-----	6.2	9.8	2.9	3.2	4.8	1.7	30.1	50.7	11.7
1964-----	5.7	8.9	2.7	3.0	4.3	1.7	27.9	47.1	10.6
1963 <sup>1</sup> -----	5.5	8.5	2.6	2.9	4.2	1.6	26.7	44.8	10.5
1962 <sup>1</sup> -----	5.4	8.3	2.6	2.9	4.1	1.7	26.5	44.4	10.3
1961-----	5.2	8.0	2.6	2.7	3.9	1.6	25.0	41.5	10.1
1960-----	5.2	7.9	2.6	2.7	3.9	1.5	25.7	41.9	11.2
1959-----	5.1	7.7	2.5	2.6	3.8	1.5	25.8	42.3	*10.7
1958-----	4.9	7.5	2.5	2.5	3.6	1.4	25.3	41.6	10.5
1957-----	4.9	7.6	2.4	2.4	3.5	1.4	25.9	43.1	10.3
1956-----	5.0	7.6	2.4	2.4	3.5	1.3	26.5	43.2	11.3
1955-----	4.8	7.5	2.3	2.4	3.5	1.3	25.7	42.6	*10.3
1954-----	5.1	8.0	2.4	2.5	3.6	1.4	27.4	46.2	*10.3
1953-----	5.1	8.0	2.3	2.5	3.6	1.3	27.4	46.5	*10.2
1952-----	5.4	8.5	2.4	2.6	3.8	1.3	29.9	50.4	11.3
1951-----	5.0	7.8	2.4	2.5	3.6	1.4	27.5	45.3	11.1
1950 <sup>2</sup> -----	5.4	8.4	2.5	2.6	3.9	1.4	29.5	49.1	*11.5

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

NOTE: Asterisk indicates age-adjusted rates where more than half of the age-specific rates are based on fewer than 20 deaths.

It should be stressed, however, that this 1969 mortality pattern, with the peaking of the death rate at ages 25-34 years, results from the admixture of differing mortality experiences for cohorts of persons born in successive years.

When the mortality experience for Homicide for separate cohorts (with cohort defined again as a group of persons born during the same 5-year period) was examined over successive 5-year intervals, beginning with the earliest year for which data by age, color, and sex are available (1914), it was found that the death rate for Homicide for 5-year age groups did not always peak

either at ages 25-29 or 30-34 years (table W). The pattern of peaking at various ages was, in fact, very different from that for a number of diseases, including tuberculosis, which peaks most frequently at ages 20-24 years of age and at other times at ages 25-29 years (table 12 in Series 20, No. 8a<sup>9</sup>).

Consider, for example, the pattern of available death rates for Homicide for cohorts of white men born in successive 5-year intervals from 1865-69 through 1950-54 (table W). For the four cohorts born from 1895-99 through 1910-14, it appears that the peaking of the death rate for

Table W. Death rates for Homicide, by color, sex, birth cohort, and age at death: United States, 5-year intervals during 1914-69

[Rates per 100,000 population in specified age-color-sex group. For 1969 rates are based on deaths assigned to category numbers E960-E978 of the Eighth Revision of the International Classification of Diseases, Adopted for Use in the United States, adopted in 1965; for 1949, 1954, and 1959, category numbers E964, E980-E985 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955; for 1939 and 1944, category numbers 165-168 of the Fifth Revision, adopted in 1938; for 1934, category numbers 172-175 of the Fourth Revision, adopted in 1929; for 1924 and 1929, category numbers 197-200 of the Third Revision, adopted in 1920; and for 1914 and 1919, category numbers 182-184 of the Second Revision, adopted in 1909. Prior to 1930 figures do not include legal executions. For 1930 such deaths accounted for 2 percent of homicides for white men, with a high of 4 percent at ages 20-24 years, and for 2 percent for all other men, with a high of 3 percent at ages 20-24 years]

Color, sex, and age at death	Period of birth of cohort																	
	1950-1954	1945-1949	1940-1944	1935-1939	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894	1885-1889	1880-1884	1875-1879	1870-1874	1865-1869
<b>White, male</b>																		
15-19 years-----	4.9	2.9	2.7	2.5	2.6	2.5	2.4	4.5	4.4	4.6	5.2	3.6						
20-24 years-----		10.9	6.4	6.0	5.8	5.3	5.6	6.7	12.8	11.1	11.5	10.8	13.6					
25-29 years-----			12.0	7.2	5.3	5.6	6.2	5.8	8.4	14.6	14.7	14.3	14.7	15.4				
30-34 years-----				11.0	6.7	5.6	5.1	6.0	7.1	8.4	15.2	13.5	14.5	15.7	15.6			
35-39 years-----					10.8	6.4	5.7	5.7	6.4	6.4	8.2	15.8	14.6	14.3	16.1	13.8		
40-44 years-----						9.5	5.9	5.1	5.8	6.3	6.3	8.3	14.1	13.0	13.0	11.9	11.6	
45-49 years-----							7.7	5.8	5.3	5.7	6.1	5.9	7.6	13.3	10.8	11.1	12.2	10.8
50-54 years-----								6.3	5.7	4.8	4.4	4.8	5.1	7.0	12.2	10.9	10.2	9.1
55-59 years-----									7.5	4.9	4.1	3.8	4.8	5.2	6.3	11.2	9.8	8.7
60-64 years-----										4.5	4.5	3.3	4.6	4.1	5.5	9.7	9.7	7.4
65-69 years-----											5.7	3.0	3.8	3.1	4.0	3.5	7.1	8.8
70-74 years-----												4.5	2.7	3.0	3.1	4.2	3.6	5.7
75-79 years-----													3.9	2.6	3.5	2.9	4.6	2.8
80-84 years-----														4.3	3.9	2.1	4.0	4.3
<b>All other, male</b>																		
15-19 years-----	59.7	30.8	23.3	28.2	30.3	33.8	39.3	45.4	37.7	38.7	44.9	39.2						
20-24 years-----		126.1	75.1	73.1	75.6	87.1	84.8	109.5	150.5	114.6	129.6	81.1	98.0					
25-29 years-----			138.1	90.2	83.3	97.1	102.4	95.5	125.4	177.6	143.6	132.5	98.7	114.1				
30-34 years-----				158.7	69.0	85.2	92.6	92.9	106.0	120.7	175.1	135.0	137.5	86.9	92.1			
35-39 years-----					129.0	98.1	76.1	78.4	89.5	90.7	101.0	134.5	130.1	150.7	91.5	79.0		
40-44 years-----						116.7	75.5	70.3	75.6	85.2	78.7	91.9	116.2	82.8	77.6	66.1	58.6	
45-49 years-----							90.2	62.5	57.6	66.7	62.3	53.3	70.8	88.8	66.6	59.8	55.3	35.4
50-54 years-----								75.7	55.3	43.9	47.7	52.0	42.0	47.5	66.2	44.9	51.0	35.1
55-59 years-----									55.9	34.2	35.2	36.8	41.8	34.4	34.2	53.9	36.1	32.3
60-64 years-----										42.7	35.2	27.4	28.1	18.7	15.9	30.3	37.5	35.3
65-69 years-----											42.5	25.0	22.4	22.9	18.7	17.4	29.3	43.6
70-74 years-----												35.7	17.5	12.6	14.9	17.5	12.0	19.9
75-79 years-----													10.2	19.0	16.2	19.2	19.0	25.1
80-84 years-----														7.9	7.4	13.3	7.3	8.6
<b>White, female</b>																		
15-19 years-----	1.9	1.4	1.0	1.3	1.1	0.8	1.0	1.8	2.4	2.3	2.1	2.2						
20-24 years-----		3.0	1.7	1.8	1.6	1.7	1.3	1.4	3.9	4.0	4.0	3.3	3.3					
25-29 years-----			3.0	2.5	2.5	1.9	1.9	1.6	1.9	3.7	3.9	3.9	4.4	4.2				
30-34 years-----				3.5	2.9	2.3	1.8	1.7	1.6	2.1	3.3	2.9	3.7	3.4	3.9			
35-39 years-----					2.5	2.5	2.4	2.2	2.4	2.0	2.2	3.5	3.8	3.9	3.1	3.0		
40-44 years-----						2.8	2.2	2.0	1.9	1.6	1.5	1.8	2.6	2.3	2.8	2.4		
45-49 years-----							2.5	1.9	1.7	2.0	2.4	1.6	1.9	2.1	2.2	2.3	1.6	2.5
50-54 years-----								1.9	1.9	1.9	1.9	1.4	0.9	1.2	1.9	1.8	1.4	1.7
55-59 years-----									1.9	1.4	1.2	1.0	1.1	1.1	1.6	1.7	1.6	1.2
60-64 years-----										1.8	1.7	1.1	0.8	1.3	1.1	1.3	1.4	0.9
65-69 years-----											1.8	1.6	1.1	1.1	0.8	0.9	1.0	1.4
70-74 years-----												1.7	1.4	1.2	0.9	0.6	0.6	1.1
75-79 years-----													1.4	1.2	1.0	1.2	1.3	1.2
80-84 years-----														2.1	1.7	1.7	0.9	2.5
<b>All other, female</b>																		
15-19 years-----	11.0	7.7	8.5	7.2	9.7	7.8	14.8	16.1	13.7	15.8	11.2	15.8						
20-24 years-----		21.7	15.5	16.8	18.0	24.5	22.1	31.3	31.4	30.8	35.7	25.3	21.9					
25-29 years-----			26.8	21.8	21.6	22.0	22.5	21.7	34.1	35.7	37.7	26.6	25.3	18.1				
30-34 years-----				28.0	19.2	24.2	19.5	22.8	21.4	27.8	32.9	30.3	28.8	18.4	22.0			
35-39 years-----					25.0	20.6	18.7	17.6	20.5	16.1	19.4	20.3	23.2	24.6	15.7	19.6		
40-44 years-----						22.6	18.1	16.3	15.1	15.1	11.7	13.4	14.2	14.9	10.5	9.2	14.6	4.9
45-49 years-----							17.1	11.3	10.8	14.5	12.3	5.8	8.5	11.6	8.2	7.8	4.4	5.1
50-54 years-----								10.2	9.7	7.1	10.1	8.7	4.2	7.1	9.2	9.1	4.8	5.1
55-59 years-----									12.1	8.5	7.7	3.3	6.1	2.9	6.9	9.4	6.0	0.9
60-64 years-----										6.8	4.8	3.9	1.3	6.5	3.2	3.5	6.4	4.9
65-69 years-----											7.0	4.7	3.4	3.8	3.0	1.4	3.6	9.1
70-74 years-----												4.5	3.6	3.6	3.2	3.5	1.1	1.3
75-79 years-----													4.0	0.7	2.8	6.3	8.2	-
80-84 years-----														2.0	1.3	1.9	12.0	2.6

NOTE: The first figure in each row, moving from left to right, is the death rate for 1869; the second figure, for 1964; the third figure, for 1959, etc.

Homicide occurred, in general, at successively younger age groups: for example, the highest death rate for Homicide for white men born in 1895-99 shown in table W occurred for the age group 35-39 years; the highest death rate for this cause for white men born in the next 5-year interval (1900-1904) occurred for the next youngest age group (30-34 years); and the pattern of highest rates at successively younger age groups continued up to the cohort born in 1910-14. For this latter cohort the death rate for Homicide is shown for the age group 20-24 years (with a rate of 12.8 deaths per 100,000) (table W). The pattern that may be emerging from the recorded data for the four cohorts of white men born between 1895-99 and 1910-14 is that for each cohort the death rate for Homicide tends to peak at the oldest age reached by the cohort in the period of upturn in mortality (the period of upturn it will be remembered ended about 1933-34).

For the cohort born in 1880-84 and for those born prior to those years, this pattern of peaking at the oldest age reached by the cohort as of 1934 is less regular. This may be due in part to the fact that mortality data for these earlier years are less reliable than for later years. But in any event, even for each of these cohorts the death rate reached at the end of the period of upturn in mortality from Homicide (1934) was about twice the death rate for the succeeding age group; and, moreover, the death rate continued to decline throughout the remaining years lived by these cohorts. These remaining years, it will be recalled, were lived in a period of downturn in mortality from Homicide.

As indicated earlier the cohort of white men born in 1895-99 lived about their first 40 years in a period of rising mortality from Homicide. Their peak mortality occurred for the age group 35-39 years. On the other hand the cohort born in 1910-14 lived only about their first 20 years in a period of rising mortality from Homicide, and their peak mortality occurred for a much younger age group—at ages 20-24 years (with a rate of 12.8 deaths per 100,000).

Available data show that, in general, a rise in the death rate for Homicide for any given color-sex group reflects rises in mortality from this cause for almost every age group for that color-sex group; and conversely a drop in

mortality for any given color-sex group reflects decreases for almost every age group for that color-sex group.

The following table shows the changes in the specified death rates for Homicide for the white male population between the years 1933 and 1959 (when the trend was downward):

Age	1959	1933
All ages -----	3.5	9.7
15-19 years -----	2.7	4.9
20-24 years -----	6.0	12.4
25-29 years -----	5.3	16.7
30-34 years -----	5.6	15.9
35-39 years -----	5.7	16.3
40-44 years -----	5.1	15.6
45-49 years -----	5.3	14.4
50-54 years -----	4.8	12.7
55-59 years -----	4.1	11.1
60-64 years -----	4.5	9.8
65-69 years -----	3.8	7.7
70-74 years -----	3.0	7.4
75-79 years -----	3.5	9.2
80-84 years -----	2.1	7.4

The corresponding levels of mortality from Homicide for the male population of races other than white are higher at every age than the corresponding rates shown above for the white male population.<sup>4</sup>

The rise in the Homicide rate for the elderly in the population during the 1960's, together with the rise for all other age groups, shows as commented upon by many persons studying the problem, including Coombs,<sup>10</sup> that no age group is spared in the on-going upturn in mortality from Homicide.

The period of the first upturn covered by available data lasted only from 1914 through 1933. If the pattern of peaking that occurred around 1933-34 occurs again and if the present period of upturn in the death rate for Homicide continues through 1974, one may expect that the peak ages for Homicide mortality in 1974 for all birth cohorts will occur in the next higher age group than in 1969. For example, the cohort of men of races other than white who were born in 1935-39 may be expected to have a death rate for Homicide in 1974 (when they are at ages 35-39 years)



that will be higher than their death rate of 138.7 per 100,000, in 1969, when they were in the age group 30-34 years.

#### XIV. NEPHRITIS AND NEPHROSIS

Between 1950 and 1967 the number of deaths attributed to Nephritis and nephrosis (ICD Nos. 590-594 of the Sixth and Seventh Revisions) dropped from 28,147 to 10,941 (table 3). Mortality from this cause continued to fall between 1967 and 1968, from 10,941 to 9,311 deaths. Part of this reduction of 14.9 percent between these 2 years, however, is attributable to the introduction of the Eighth Revision.

The dual coding study of deaths occurring in 1966 showed that an estimated 10,227 deaths were assigned to Nephritis and nephrosis (ICDA Nos. 580-584), whereas the number assigned by the Seventh Revision to this group of causes was 11,540 deaths,<sup>2</sup> giving a comparability ratio of only 0.8860 (appendix III). If the 10,941 deaths in 1967 were decreased by applying this factor, the adjusted figures for 1967 would be 9,696, a reduction between 1967 and 1968 of only 4.0 percent.

Because of the increase in the population, a more precise measure of the amount of reduction in mortality may be obtained by applying the comparability ratio to the death rate rather than

Table Y. Age-adjusted death rates for Nephritis and nephrosis, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category numbers 580-584 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers 590-594 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969-----	3.9	4.6	3.2	3.1	3.8	2.5	10.9	12.5	9.6
1968-----	3.9	4.7	3.2	3.1	3.9	2.4	11.1	12.5	10.1
1967-----	4.7	5.7	3.8	3.8	4.8	2.9	12.8	14.3	11.7
1966-----	5.0	6.0	4.0	4.1	5.1	3.3	13.3	15.5	11.4
1965-----	5.2	6.3	4.3	4.4	5.4	3.4	13.7	15.7	12.0
1964-----	5.5	6.5	4.6	4.6	5.7	3.7	14.3	15.9	12.9
1963 <sup>1</sup> -----	5.8	6.9	4.8	4.9	5.9	3.9	14.9	17.2	13.0
1962 <sup>1</sup> -----	6.0	7.2	4.9	5.0	6.3	4.0	14.9	16.6	13.4
1961-----	6.3	7.4	5.1	5.2	6.5	4.2	15.1	16.9	13.3
1960-----	6.5	7.8	5.5	5.6	6.7	4.5	16.5	18.4	14.8
1959-----	6.9	8.1	5.8	5.8	6.9	4.7	17.7	19.3	16.3
1958-----	7.9	9.2	6.8	6.7	8.0	5.6	20.1	21.6	18.8
1957-----	8.8	10.1	7.6	7.5	8.8	6.3	22.1	23.2	21.2
1956-----	9.1	10.3	7.9	7.8	9.0	6.6	23.2	24.5	22.0
1955-----	9.6	10.9	8.3	8.3	9.7	6.9	23.6	24.2	22.9
1954-----	10.6	12.0	9.2	9.1	10.4	7.9	25.7	28.3	23.4
1953-----	11.9	13.4	10.6	10.2	11.8	8.8	29.9	31.1	28.8
1952-----	13.4	15.3	11.8	11.4	13.3	9.7	35.7	37.7	33.8
1951-----	14.7	16.4	13.3	12.7	14.4	11.1	38.3	39.4	37.2
1950 <sup>2</sup> -----	16.6	18.6	14.9	14.4	16.3	12.5	42.9	44.5	41.3

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

to the number of deaths. Using the adjusted death rate for 1967 (4.9 deaths per 100,000) gives a reduction between 1967 and 1968 of 4.1 percent.

The total death rate for Nephritis and nephrosis remained the same for 1969 as for 1968 (4.7 deaths per 100,000).

The age-adjusted death rate for Nephritis and nephrosis also shows a steep decline—from 16.6 deaths per 100,000 for 1950 to 3.9 for 1969 (table Y and figure 1). This downturn for the age-adjusted death rate for the total population reflects reductions in mortality from this cause for each of the four color-sex groups. Moreover, each of the color-sex groups experienced reductions in mortality from this cause for every age group.

For 1969 the mortality color ratio for Nephritis and nephrosis (the age-adjusted death rate for 1969 for the population of races other than white over the corresponding rate for the white population) was 3.52. The trend of this color ratio was upward during 1950-69, increasing from 2.98 for 1950.

The mortality sex ratio for Nephritis and nephrosis for 1969 (the age-adjusted death rate for 1969 for the male population over the corresponding rate for the female population) was much lower than the color ratio. The sex ratio also increased between 1950 and 1969, from 1.25 to 1.44.

The color ratio for mortality from Nephritis and nephrosis for the male population increased from 2.73 for 1950 to 3.29 for 1969; and the corresponding color ratio for the female population also increased—from 3.30 for 1950 to 3.84 for 1969. The sex ratio for mortality from this cause was lower for both white and other populations than was the corresponding color ratio; but for both groups the mortality sex ratio was somewhat upward—increasing for the white population from 1.30 for 1950 to 1.52 for 1969 and increasing for the other population from 1.08 for 1950 to 1.30 for 1969.

## XV. PEPTIC ULCER

Despite the fact that the mortality trend for Peptic ulcer (ICDA Nos. 531-533) moved slowly downward during the 1960's, this disease moved up from the 17th leading cause of death for 1967 to the 14th for 1968 (with 9,460 deaths, a rate

of 4.7 deaths per 100,000 population). Then this disease moved down again to the 15th leading cause for 1969 (with 9,312 deaths, giving a rate of 4.6 deaths per 100,000).

One reason for the move from 17th to 14th place for Peptic ulcer between 1967 and 1968 was (as described in appendix I) that the rules for ranking causes of death were changed between 1967 and 1968.

Another reason that Peptic ulcer moved up to the 14th place for 1968 (despite the fact that the rate was declining) is that the following two causes, whose nearly comparable causes according to the Seventh Revision ranked higher in 1967 than did Peptic ulcer, had substantial reductions in the number of deaths assigned to them by the Eighth Revision from the number that had been assigned for 1967 to their nearly comparable Seventh Revision titles "Nephritis and nephrosis" (ICD Nos. 580-584) and "Hypertensive disease" (ICD Nos. 400, 401, 403). The ranks for 1968 for these two causes were, respectively, only 16 and 17.

Part of the reported higher level of the death rate for Peptic ulcer for 1958-63 and part of the downturn for this rate during the latter half of the 1960's (table 2 and figure 1) are attributable to changes in coding procedures for selecting the underlying cause of death from the medical entities on the death certificate.

The comparability ratio for Ulcer of stomach and duodenum (ICD Nos. 540, 541) for the Sixth and Seventh Revisions was 1.01.<sup>3</sup>

A reduction in the assignments of death to the Eighth Revision title "Peptic ulcer" (ICDA Nos. 531-533) from the number that had been assigned to the comparable cause, Ulcer of stomach and duodenum (ICD Nos. 540, 541), resulted in a comparability ratio of 0.9856 (appendix III).

Both multiple cause and prevalence data indicate that this disease is wider spread in the population than mortality statistics alone may lead one to believe. On the basis of the study of multiple causes of death for 1955, while the group title "Ulcer of stomach and duodenum" (ICD Nos. 540, 541) was selected as the underlying cause of 9,784 deaths, this disease was entered 16,413 times on the death certificates for that year.<sup>11</sup>

Surveys of the prevalence of Peptic ulcer in the United States conducted by the National Center for Health Statistics show that this disease is quite common as reported in health interviews. Following are unpublished data from the Health Interview Survey, NCHS, showing for four periods the prevalence of Peptic ulcer, by age, for the civilian noninstitutionalized population.

Year	All ages	Under 45 years	45-64 years	65 years and over
Prevalence of Peptic ulcers in thousands				
July-December 1968--	3,360	1,481	1,344	535
July 1965--				
June 1967--	3,752	1,672	1,516	564
July 1963--				
June 1965--	3,499	1,524	1,471	505
July 1961--				
June 1963--	3,079	1,382	1,284	413
Prevalence of Peptic ulcers per 100 persons				
July-December 1968--	1.7	1.1	3.3	2.9
July-1965--				
June 1967--	2.0	1.2	3.9	3.2
July 1963--				
June 1965--	1.9	1.2	3.9	2.9
July 1961--				
June 1963--	1.7	1.1	3.5	2.5

It should be mentioned that chronic conditions reported in household interviews may be described as those of which the respondent is aware and is willing to report to the interviewer. Thus these estimates may differ from estimates based on medical records or clinical examinations.

The above figures indicate that the prevalence of this disease rose from July 1961 through June 1967. But for July-December 1968 the prevalence of Peptic ulcer was lower (3,360,000 cases) than it had been for the previous 4 years. Estimates for July-December 1968, however, may not be so reliable as for the prior periods because of the smaller size of the sample.

The age-adjusted death rate for Peptic ulcer (ICDA Nos. 531-533) declined, as did the total death rate for this cause, during most of the 1960's (table Z and figure 1). This downturn for the total population reflects declines in the age-adjusted death rates for both the white male and the white female populations and for the male population of races other than white. The frequencies of deaths from this cause for the female population of races other than white are too small for some years to give a reliable indication of the mortality trend for this group.

Each of the color-sex groups experienced reductions in mortality from this cause for most age groups during the 1960's. Deaths from Peptic ulcer occur much more frequently at ages 45 years and over (with 8,661 deaths for 1969) than at ages under 45 years (with 651 deaths for 1969).

For 1969 the mortality sex ratio for Peptic ulcer (the age-adjusted death rate for 1969 for the male population over the corresponding rate for the female population) was 2.70. The trend of this sex ratio was downward during 1950-69, decreasing from 4.61 for 1950 (based on age-adjusted death rates shown in table Z). The color ratio for Peptic ulcer (the age-adjusted death rate for 1969 for the population of races other than white over the corresponding rate for the white population) was 1.14. The trend for this color ratio was slightly upward during 1950-69, increasing from 1.04 for 1950.

The color differential for the male population was also upward (from 0.98 for 1950 to 1.11) for 1969, while the color differential for the female population was downward (from 1.29 for 1950 to 1.15) for 1969.

The gap between the excess death rate for Peptic ulcer for the white male population and the corresponding rate for the white female population narrowed substantially between 1950 and 1969; the sex ratio for this cause of death for the white population decreased from 4.82 for 1950 to 2.70 for 1969.

There was also a sizable reduction in the sex ratio for this death rate for the population of races other than white—from 3.64 for 1950 to 2.61 for 1969.

Table Z. Age-adjusted death rates for Peptic ulcer, by color and sex: United States, 1950-69

[For 1968 and 1969 rates are based on deaths assigned to category numbers 531-533 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers 540-541 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. For method of age adjustment, see appendix I]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Rate per 100,000 population								
1969-----	3.6	5.4	2.0	3.5	5.4	2.0	4.0	6.0	2.3
1968-----	3.7	5.7	2.1	3.6	5.6	2.0	4.4	6.8	2.3
1967-----	3.9	6.1	2.1	3.8	6.0	2.1	4.3	6.5	2.3
1966-----	4.2	6.5	2.2	4.1	6.4	2.2	4.7	7.3	2.5
1965-----	4.3	6.8	2.2	4.3	6.8	2.2	4.4	6.7	2.4
1964-----	4.6	7.3	2.4	4.6	7.3	2.3	5.0	7.4	2.8
1963 <sup>1</sup> -----	5.2	8.3	2.6	5.2	8.3	2.5	5.3	8.0	*2.8
1962 <sup>1</sup> -----	5.4	8.5	2.6	5.3	8.4	2.6	5.3	8.3	2.6
1961-----	5.2	8.3	2.5	5.2	8.3	2.4	5.2	7.8	2.8
1960-----	5.2	8.5	2.4	5.2	8.5	2.4	5.0	7.8	*2.4
1959-----	5.0	8.1	2.3	5.0	8.1	2.3	4.7	7.4	2.2
1958-----	5.3	8.4	2.4	5.2	8.5	2.3	5.1	7.4	2.9
1957-----	5.1	8.3	2.3	5.1	8.4	2.3	4.8	7.5	2.2
1956-----	5.1	8.4	2.1	5.1	8.5	2.1	4.6	6.8	2.5
1955-----	5.1	8.4	2.1	5.1	8.4	2.0	4.8	7.2	2.5
1954-----	5.1	8.4	2.0	5.1	8.5	1.9	4.9	7.4	*2.5
1953-----	5.1	8.6	1.9	5.1	8.6	1.8	5.0	7.9	*2.3
1952-----	5.0	8.3	1.8	5.0	8.4	1.8	4.5	7.2	*1.9
1951-----	5.0	8.3	1.8	5.0	8.3	1.8	4.8	7.3	*2.5
1950 <sup>2</sup> -----	5.0	8.3	1.8	4.9	8.2	1.7	5.1	8.0	*2.2

<sup>1</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

<sup>2</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

NOTE: Asterisk indicates age-adjusted rates where more than half of the age-specific rates are based on fewer than 20 deaths.

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Table 1. Deaths and death rates for 69 selected causes: United States, 1969

- 100,000 population Numbers after causes of death are category numbers of the Eighth Revision of the International Classification of Diseases, Adapted, 1965]

Cause of death	Number	Rate
All causes-----	1,921,990	951.9
Bacillary dysentery and amebiasis-----004-006	94	0.0
Enteritis and other diarrheal diseases-----008-009	2,612	1.3
Tuberculosis, all forms-----010-019	5,567	2.8
Tuberculosis of respiratory system-----010-012	4,492	2.2
Tuberculosis, other forms-----013-019	1,075	0.5
Whooping cough-----033	13	0.0
Streptococcal sore throat and scarlet fever-----034	41	0.0
Meningococcal infections-----036	744	0.4
Septicemia-----038	3,009	1.5
Acute poliomyelitis-----040-043	13	0.0
Measles-----055	41	0.0
Syphilis and its sequelae-----090-097	543	0.3
Other infective and parasitic diseases-----Remainder of 000-136	4,114	2.0
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues-----140-209	323,092	160.0
Malignant neoplasms of buccal cavity and pharynx-----140-149	7,553	3.7
Malignant neoplasms of digestive organs and peritoneum-----150-159	93,986	46.5
Malignant neoplasms of respiratory system-----160-163	66,038	32.7
Malignant neoplasm of breast-----174	29,083	14.4
Malignant neoplasms of genital organs-----180-187	41,008	20.3
Malignant neoplasms of urinary organs-----188-189	14,897	7.4
Malignant neoplasms of all other and unspecified sites-----170-173, 190-199	37,825	18.7
Leukemia-----204-207	14,450	7.2
Other neoplasms of lymphatic and hematopoietic tissues-----200-203, 208, 209	18,252	9.0
Benign neoplasms and neoplasms of unspecified nature-----210-239	4,677	2.3
Diabetes mellitus-----250	38,541	19.1
Avitaminoses and other nutritional deficiencies-----260-269	2,534	1.3
Anemias-----280-285	3,318	1.6
Meningitis-----320	1,719	0.9
Major cardiovascular diseases-----390-448	1,013,015	501.7
Diseases of heart-----390-398, 402, 404, 410-429	739,265	366.1
Active rheumatic fever and chronic rheumatic heart disease-----390-398	15,432	7.6
Hypertensive heart disease-----402	8,976	4.4
Hypertensive heart and renal disease-----404	7,310	3.6
Ischemic heart disease-----410-413	669,829	331.7
Acute myocardial infarction-----410	361,583	179.1
Other acute and subacute forms of ischemic heart disease-----411	4,677	2.3
Chronic ischemic heart disease-----412	303,362	150.2
Angina pectoris-----413	207	0.1
Chronic disease of endocardium and other myocardial insufficiency-----424, 428	7,475	3.7
All other forms of heart disease-----420-423, 425-427, 429	30,243	15.0
Hypertension-----400, 401, 403	8,426	4.2
Cerebrovascular diseases-----430-438	207,179	102.6
Cerebral hemorrhage-----431	43,303	21.4
Cerebral thrombosis-----433	58,748	29.1
Cerebral embolism-----434	1,005	0.5
All other cerebrovascular diseases-----430, 432, 435-438	104,123	51.6
Arteriosclerosis-----440	33,063	16.4
Other diseases of arteries, arterioles, and capillaries-----441-448	25,082	12.4
Acute bronchitis and bronchiolitis-----466	1,286	0.6
Influenza and pneumonia-----470-474, 480-486	68,365	33.9
Influenza-----470-474	5,971	3.0
Pneumonia-----480-486	62,394	30.9
Bronchitis, emphysema, and asthma-----490-493	31,144	15.4
Chronic and unqualified bronchitis-----490, 491	5,843	2.9
Emphysema-----492	22,939	11.4
Asthma-----493	2,362	1.2
Peptic ulcer-----531-533	9,312	4.6
Appendicitis-----540-543	1,407	0.7
Hernia and intestinal obstruction-----550-553, 560	7,500	3.7
Cirrhosis of liver-----571	29,866	14.8
Cholelithiasis, cholecystitis and cholangitis-----574, 575	4,262	2.1
Nephritis and nephrosis-----580-584	9,417	4.7
Acute nephritis and nephrotic syndrome-----580, 581	1,392	0.7
Chronic and unqualified nephritis and renal sclerosis-----582-584	8,025	4.0
Infections of kidney-----590	8,750	4.3
Hyperplasia of prostate-----600	2,499	1.2
Complications of pregnancy, childbirth, and the puerperium-----630-678	801	0.4
Abortions-----640-645	132	0.1
Other complications of pregnancy, childbirth, and the puerperium-----630-639, 650-678	669	0.3
Congenital anomalies-----740-759	17,008	8.4
Certain causes of mortality in early infancy-----760-769, 2,769, 4-772, 774-778	43,171	21.4
Birth injury, difficult labor, and other anoxic and hypoxic conditions-----764-768, 772, 776	21,939	10.9
Other causes of mortality in early infancy-----Remainder of 760-778	21,232	10.5
Symptoms and ill-defined conditions-----780-796	26,160	13.0
All other diseases-----Residual	97,982	48.5
Accidents-----E800-E949	116,385	57.6
Motor vehicle accidents-----E810-E823	55,791	27.6
All other accidents-----E800-E807, E825-E849	60,594	30.0
Suicide-----E950-E959	22,364	11.1
Homicide-----E960-E978	15,477	7.7
Other external causes-----E980-E999	5,147	2.5

Table 2. Death rates for 48 selected causes: United States, 1950-69

[Rates per 100,000 population. Numbers after causes of death are category numbers of the Eighth Revision of the International Classification of Diseases, Adopted for Use in the United States, adopted in 1955. For 1968 and 1969 rates are based on deaths assigned to these Eighth Revision category numbers; for 1950-67 rates are based on deaths assigned to the category numbers of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955. These category numbers are shown in the last column of this table.]

Cause of death and category numbers of Eighth Revision	1969	1968	1967	1966	1965	1964	1963	1962	1961	1950
1 All causes-----	951.9	935.7	935.7	951.3	945.2	933.6	961.3	945.0	929.5	954.7
2 Enteritis and other diarrheal diseases-----008,009	1.3	1.5	3.8	3.9	4.1	4.3	4.4	4.4	4.3	4.4
3 Tuberculosis, all forms-----010-019	2.8	3.1	3.5	3.9	4.1	4.3	4.9	5.1	5.4	6.1
4 Syphilis and its sequelae-----080-097	0.3	0.3	1.2	1.1	1.3	1.4	1.4	1.5	1.6	1.6
5 Other infective and parasitic diseases---Remainder of 000-136	4.0	4.0	3.5	3.8	3.9	4.0	4.1	4.0	4.0	4.2
6 Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues-----140-209	160.0	159.4	157.2	155.1	153.5	151.3	151.3	149.9	149.4	149.2
7 Malignant neoplasms of buccal cavity and pharynx-----140-149	3.7	3.6	3.4	3.5	3.4	3.4	3.4	3.5	3.5	3.4
8 Malignant neoplasms of digestive organs and peritoneum-----150-159	46.5	46.8	48.2	49.5	49.7	48.7	49.2	49.5	50.1	50.9
9 Malignant neoplasms of respiratory system-----160-163	32.7	31.8	29.4	28.0	28.8	25.7	24.9	24.0	23.1	22.2
10 Malignant neoplasms of breast-----174	14.4	14.6	14.3	14.1	14.0	13.7	13.5	13.4	13.4	13.4
11 Malignant neoplasms of genital organs-----180-187	20.3	20.5	20.4	20.6	20.9	20.9	21.2	21.3	21.4	21.6
12 Malignant neoplasms of urinary organs-----188,189	7.4	7.4	7.4	7.2	7.2	7.1	7.2	7.2	7.1	7.1
13 Malignant neoplasms of all other and unspecified sites-----170-173,190-199	18.7	18.6	18.6	17.9	17.9	17.2	17.0	16.6	16.4	16.5
14 Leukemia-----204-207	7.2	7.2	7.2	7.2	7.0	7.0	7.2	7.0	7.0	7.1
15 Other neoplasms of lymphatic and hematopoietic tissues-----200-203,208,209	9.0	8.9	8.3	8.1	7.8	7.7	7.6	7.4	7.4	7.2
16 Benign neoplasms and neoplasms of unspecified nature---210-239	2.3	2.5	2.5	2.5	2.6	2.6	2.6	2.5	2.6	2.7
17 Diabetes mellitus-----250	13.1	12.2	17.7	17.7	17.1	16.9	17.2	16.8	16.4	16.7
18 Anemias-----280-285	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.9
19 Meningitis-----320	0.9	0.9	1.0	1.2	1.2	1.3	1.2	1.2	1.2	1.3
20 Major cardiovascular diseases-----390-448	501.7	512.1	506.5	516.1	510.9	508.5	521.3	515.1	505.1	515.1
21 Diseases of heart-----390-398,402,404,410-429	366.1	372.6	364.5	371.2	367.4	365.7	375.2	370.1	362.4	363.0
22 Active rheumatic fever and chronic rheumatic heart disease-----390-398	7.6	8.2	7.2	7.7	8.0	8.3	8.8	9.5	9.8	10.3
23 Hypertensive heart disease with or without renal disease-----402,404	8.1	8.9	25.3	27.7	28.4	30.0	32.4	33.4	34.6	37.0
24 Ischemic heart disease-----410-413	331.7	337.6	289.7	292.7	288.6	285.0	289.8	283.8	274.4	275.6
25 Chronic disease of endocardium and other myocardial insufficiency-----424,428	3.7	3.9	26.6	27.4	27.4	27.8	29.7	29.4	29.8	31.8
26 All other forms of heart disease-----420-423,425-427,429	15.0	14.0	15.8	15.8	15.1	14.5	14.5	13.9	13.8	14.3
27 Hypertension-----400,401,403	4.2	4.5	5.6	5.8	6.0	6.4	6.7	6.7	6.7	7.1
28 Cerebrovascular diseases-----430-438	102.6	105.8	102.2	104.6	103.7	103.6	106.6	106.2	105.4	109.0
29 Arteriosclerosis-----440	16.4	16.8	19.0	19.9	19.7	19.4	19.8	19.8	19.3	20.0
30 Other diseases of arteries, arterioles, and capillaries-----441-448	12.4	12.4	15.1	14.6	14.1	13.5	12.9	12.2	11.3	11.0
31 Acute bronchitis and bronchiolitis-----466	0.6	0.7	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7
32 Influenza and pneumonia-----470-474,480-486	33.9	36.8	28.8	32.5	31.9	31.1	37.5	32.3	30.1	37.3
33 Influenza-----470-474	3.0	3.5	0.7	1.4	1.2	0.9	3.8	1.8	1.2	4.4
34 Pneumonia-----480-486	30.9	33.2	28.0	31.0	30.8	30.2	33.8	30.4	29.0	32.9
35 Bronchitis, emphysema, and asthma-----490-493	15.4	16.6	15.3	15.2	14.4	12.9	13.0	11.2	9.9	9.9
36 Chronic and unqualified bronchitis-----490,491	2.9	3.1	2.7	2.6	2.5	2.3	2.3	1.9	1.7	1.8
37 Emphysema-----492	11.4	12.1	10.6	10.3	9.6	8.3	8.0	6.7	5.6	5.2
38 Asthma-----493	1.2	1.3	2.1	2.2	2.3	2.3	2.7	2.6	2.7	3.0
39 Peptic ulcer-----531-533	4.6	4.7	5.0	5.3	5.4	5.7	6.4	6.6	6.3	6.3
40 Hernia and intestinal obstruction-----550-553,560	3.7	3.9	5.0	5.1	5.2	5.2	5.3	5.2	5.0	5.1
41 Cirrhosis of liver-----571	14.8	14.6	14.1	13.6	12.8	12.1	11.9	11.7	11.3	11.3
42 Cholelithiasis, cholecystitis and cholangitis-----574,575	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.6	2.6	2.6
43 Nephritis and nephrosis-----580-584	4.7	4.7	5.5	5.9	6.2	6.5	6.7	7.0	7.2	7.6
44 Infections of kidney-----590	4.3	4.7	4.6	4.8	5.1	5.2	4.7	4.7	4.4	4.3
45 Hyperplasia of prostate-----600	1.2	1.3	1.6	1.6	1.8	2.0	2.3	2.3	2.3	2.5
46 Congenital anomalies-----740-759	8.4	8.4	8.8	9.3	10.1	10.6	11.0	11.4	12.0	12.2
47 Certain causes of mortality in early infancy-----760-769,772,774-778	21.4	21.9	24.4	26.4	28.6	31.5	33.2	34.5	35.9	37.4
48 Symptoms and ill-defined conditions-----780-796	13.0	11.8	12.2	12.2	12.1	13.2	11.9	10.0	10.4	11.4
49 All other diseases-----Residual	50.9	51.1	34.4	34.7	34.1	34.1	34.7	34.0	34.2	35.2
50 Accidents-----E800-E849	57.6	57.5	57.2	58.0	55.7	54.3	53.4	52.3	50.4	52.3
51 Motor vehicle accidents-----E810-E823	27.6	27.5	26.7	27.1	25.4	24.5	23.1	22.0	20.8	21.3
52 All other accidents-----E800-E807,E825-E849	30.0	30.0	30.4	30.9	30.4	29.7	30.3	30.3	29.6	31.0
53 Suicide-----E950-E959	11.1	10.7	10.8	10.9	11.1	10.8	11.0	10.9	10.4	10.6
54 Homicide-----E960-E978	7.7	7.3	6.8	5.9	5.5	5.1	4.9	4.8	4.7	4.7
55 All other external causes-----E980-E999	2.5	2.2	---	---	---	---	---	---	---	---



Table 2. Death rates for 48 selected causes: United States, 1950-69--Con.

[Rates per 100,000 population. Numbers after causes of death are category numbers of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965. For 1968 and 1969 rates are based on deaths assigned to these Eighth Revision category numbers; for 1950-67 rates are based on deaths assigned to the category numbers of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955. These category numbers are shown in the last column of this table.]

1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	Category numbers according to the Sixth and Seventh Revisions	
938.6	950.8	958.6	935.1	930.4	919.0	959.0	961.4	966.7	963.8	...	1
4.4	4.5	4.7	4.5	4.7	4.9	5.4	5.6	5.2	5.1	543,571,572	2
6.5	7.1	7.8	8.4	9.1	10.2	12.4	15.8	20.1	22.5	001-019	3
1.7	2.0	2.2	2.3	2.3	3.0	3.3	3.7	4.1	5.0	020-029	4
4.5	4.4	4.2	4.5	4.8	5.3	5.8	7.4	6.7	6.7	001-158, Remainder of	5
147.3	146.8	148.6	147.8	146.5	145.6	144.8	143.4	140.6	139.8	140-205	6
3.4	3.5	3.4	3.5	3.4	3.3	3.2	3.2	3.2	3.4	140-149	7
50.7	50.9	51.7	52.4	52.5	53.0	53.4	53.5	53.4	54.2	150-156A,157-159	8
21.2	20.4	19.9	19.2	18.2	17.1	16.7	15.6	14.7	14.1	160-164	9
13.1	13.1	13.3	13.3	13.4	13.0	13.0	12.8	12.5	12.6	170	10
21.6	22.1	22.8	22.6	22.8	22.9	22.9	22.7	22.5	23.1	171-179	11
7.1	7.0	7.1	7.0	7.0	6.9	6.9	6.9	6.6	6.7	180,181	12
16.2	16.1	16.7	16.3	16.4	16.5	16.3	16.6	16.1	14.7	156B,165,190-199	13
7.0	6.9	6.9	6.8	6.6	6.5	6.3	6.3	6.1	5.9	204	14
7.1	6.9	7.0	6.8	6.5	6.3	6.1	5.8	5.5	5.2	200-203,205	15
2.8	2.9	3.0	2.9	3.1	3.2	3.3	3.3	3.4	3.8	210-239	16
15.9	15.9	16.0	15.7	15.5	15.6	16.4	16.4	16.3	16.2	280	17
1.8	1.8	1.8	1.8	1.9	2.0	2.3	2.6	2.6	2.7	290-295	18
1.3	1.3	1.2	1.2	1.1	1.1	1.3	1.2	1.2	1.2	340	19
508.9	515.5	514.6	501.4	496.3	484.6	503.0	498.5	498.5	494.4	330-334,400-468	20
363.2	367.7	369.4	361.0	356.5	348.3	361.3	357.6	357.0	356.8	400-402,410-443	21
10.4	10.8	11.8	12.0	12.0	12.1	13.3	13.7	14.1	14.8	400-402,410-416	22
36.6	42.7	42.5	43.3	45.0	46.6	51.3	53.9	55.6	56.5	440,441,442,445	23
268.6	266.2	285.6	255.5	247.0	235.7	236.1	226.2	219.6	213.0	420	24
31.8	33.8	36.8	37.7	39.9	41.0	46.3	49.3	52.6	56.5	421,422	25
13.8	14.2	12.8	12.6	12.6	13.0	14.3	14.6	15.1	15.9	430-434	26
7.4	8.0	6.5	6.5	6.8	7.1	7.8	8.0	8.6	8.3	444-447	27
108.4	110.1	110.2	106.3	106.0	104.1	107.3	106.8	106.7	104.0	330-334	28
19.6	19.9	19.5	19.1	19.8	18.8	20.4	20.4	20.8	20.4	450	29
10.3	9.9	9.0	8.4	7.5	6.4	6.0	5.7	5.4	4.9	451-468	30
0.6	0.8	0.7	0.7	0.7	0.6	0.6	0.7	0.6	0.7	500	31
31.2	35.1	35.8	28.2	27.1	25.4	33.0	29.7	31.4	31.3	480-493	32
1.6	2.6	4.4	1.4	1.7	1.7	6.0	3.6	4.5	4.4	480-483	33
29.6	30.6	31.4	26.8	25.4	23.8	27.0	26.1	26.9	26.9	490-493	34
8.7	8.3	8.7	7.5	7.0	6.8	7.2	6.9	6.9	5.0	501,502,527.1,241	35
1.5	1.5	1.4	1.2	1.2	1.2	1.3	1.2	1.3	1.3	501,502	36
4.4	3.9	3.4	2.7	2.2	1.9	1.6	1.2	1.1	0.8	527.1	37
2.8	2.9	3.9	3.6	3.6	3.8	4.3	4.5	4.5	2.9	241	38
6.0	6.2	6.1	6.0	5.9	5.8	5.8	5.6	5.5	5.5	540,541	39
5.2	5.1	5.0	5.1	5.3	5.3	5.5	5.4	5.6	5.8	560,561,570	40
10.9	10.8	11.3	10.7	10.2	10.1	10.4	10.2	9.8	9.2	581	41
2.5	2.7	2.9	3.1	3.6	3.5	3.5	3.8	3.7	3.9	584,585	42
8.0	9.2	10.2	10.6	11.1	12.2	13.6	15.3	16.8	16.7	590-594	43
3.9	4.0	3.7	3.4	3.0	2.7	2.6	2.4	2.1	2.1	600	44
2.6	2.7	3.0	3.2	3.7	3.8	3.9	4.0	4.2	4.2	610	45
12.3	12.4	12.8	12.6	12.5	12.5	12.6	12.7	12.3	12.2	750-759	46
38.5	39.8	39.1	38.8	39.0	39.4	40.1	40.9	41.2	40.5	760-776	47
10.8	11.4	11.2	11.3	12.1	12.5	13.7	14.1	14.8	14.9	780-795	48
34.8	34.7	33.8	32.5	32.2	32.0	33.6	34.8	35.1	35.4	Residual	49
52.2	52.3	55.9	56.7	56.9	55.9	60.1	61.8	62.5	60.6	E900-E962	50
21.5	21.3	22.7	23.7	23.4	22.1	24.0	24.3	24.1	23.1	E910-E935	51
30.7	30.9	33.2	33.0	33.5	33.8	36.1	37.5	38.4	37.5	E900-E902, E940-E962	52
10.6	10.7	9.8	10.0	10.2	10.1	10.1	10.0	10.4	11.4	E963, E970-E979	53
4.6	4.5	4.5	4.6	4.5	4.8	4.8	5.2	4.9	5.3	E964, E980-E985	54
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Table 4. Deaths and death rates for Certain causes of mortality in early infancy, and estimated number of live births, by color and sex: United States, 1950-69

[Rates are deaths under 1 year per 100,000 live births. Beginning with 1968 deaths and death rates are based on deaths assigned to category numbers 760-769.2, 769.4-772, 774-778 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers 760-776 of the Sixth and Seventh Revisions, adopted, respectively in 1948 and 1955]

Year	Deaths									
	Total					Under 1 year				
	Both sexes	Male		Female		Both sexes	Male		Female	
		White	All other	White	All other		White	All other	White	All other
1969-----	43,171	19,201	6,168	13,132	4,670	43,060	19,148	6,163	13,091	4,658
1968-----	43,840	19,814	6,065	13,206	4,755	43,707	19,761	6,047	13,160	4,739
1967-----	48,314	21,231	7,030	14,472	5,581	48,271	21,206	7,027	14,462	5,576
1966-----	51,644	22,637	7,589	15,462	5,956	51,608	22,624	7,585	15,445	5,954
1965-----	55,398	24,279	8,225	16,587	6,307	55,375	24,268	8,223	16,578	6,306
1964-----	60,322	26,470	8,852	18,148	6,852	60,298	26,459	8,851	18,140	6,848
1963 <sup>1</sup> -----	62,688	27,112	8,535	18,494	6,434	62,664	27,102	8,531	18,486	6,433
1962 <sup>1</sup> -----	64,205	28,058	8,478	19,059	6,573	64,185	28,050	8,477	19,050	6,571
1961-----	65,679	29,579	8,809	20,409	6,882	65,662	29,573	8,807	20,401	6,881
1960-----	67,094	30,211	8,892	21,065	6,926	67,074	30,201	8,890	21,059	6,924
1959-----	67,934	30,640	9,061	21,157	7,076	67,916	30,627	9,061	21,153	7,075
1958-----	68,960	30,928	9,114	21,686	7,232	68,939	30,915	9,114	21,679	7,231
1957-----	66,569	30,145	8,632	20,995	6,797	66,552	30,141	8,630	20,984	6,797
1956-----	64,546	29,546	8,334	20,429	6,237	64,515	29,530	8,333	20,417	6,235
1955-----	64,043	29,558	7,845	20,516	6,124	64,016	29,546	7,843	20,505	6,122
1954-----	63,486	29,557	7,579	20,435	5,915	63,450	29,537	7,578	20,422	5,913
1953-----	63,444	30,024	7,188	20,424	5,808	63,423	30,013	7,188	20,414	5,808
1952-----	63,659	30,102	7,145	20,854	5,558	63,632	30,088	7,145	20,844	5,555
1951-----	63,096	30,266	6,917	20,711	5,202	63,044	30,245	6,912	20,689	5,198
1950-----	60,989	29,326	6,481	20,086	5,096	60,967	29,311	6,480	20,080	5,096

<sup>1</sup>Figures by color exclude data for New Jersey.

Table 4. Deaths and death rates for Certain causes of mortality in early infancy, and estimated number of live births, by color and sex: United States, 1950-69—Con.

[Rates are deaths under 1 year per 100,000 live births. Beginning with 1968 deaths and death rates are based on deaths assigned to category numbers 760-769.2, 769.4-772, 774-778 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67 rates are based on deaths assigned to category numbers 760-776 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955]

Live births					Rate				
Both sexes	Male		Female		Both sexes	Male		Female	
	White	All other	White	All other		White	All other	White	All other
3,600,206	1,539,420	307,152	1,454,194	299,440	1,196.0	1,243.8	2,006.5	900.2	1,555.6
3,501,564	1,497,612	298,714	1,414,612	290,626	1,248.2	1,319.5	2,024.3	930.3	1,630.6
3,520,959	1,501,228	302,160	1,421,274	296,297	1,371.0	1,412.6	2,325.6	1,017.5	1,881.9
3,606,274	1,535,486	310,376	1,457,744	302,668	1,431.1	1,473.4	2,443.8	1,059.5	1,967.2
3,760,358	1,604,422	322,632	1,519,438	313,866	1,472.6	1,512.6	2,548.7	1,091.1	2,009.1
4,027,490	1,727,416	332,746	1,641,744	325,584	1,497.2	1,531.7	2,660.0	1,104.9	2,103.3
4,098,020	1,709,174	324,206	1,617,170	314,722	1,529.1	1,585.7	2,631.4	1,143.1	2,044.0
4,167,362	1,740,358	324,572	1,653,710	317,008	1,540.2	1,611.7	2,611.7	1,152.0	2,072.8
4,268,326	1,848,794	337,480	1,752,070	329,982	1,538.4	1,599.6	2,609.6	1,164.4	2,085.3
4,257,850	1,848,192	331,516	1,752,552	325,590	1,575.3	1,634.1	2,681.6	1,201.6	2,126.6
4,244,796	1,846,240	327,398	1,751,190	319,968	1,600.0	1,658.9	2,767.6	1,207.9	2,211.2
4,203,812	1,833,238	319,308	1,739,068	312,198	1,639.9	1,686.4	2,854.3	1,246.6	2,316.2
4,254,784	1,859,148	320,812	1,762,308	312,516	1,564.2	1,621.2	2,690.0	1,190.7	2,174.9
4,163,090	1,820,740	312,848	1,724,610	304,892	1,549.7	1,621.9	2,663.6	1,183.9	2,045.0
4,047,295	1,776,355	297,364	1,682,093	291,483	1,581.7	1,663.3	2,637.5	1,219.0	2,100.3
4,017,362	1,769,246	289,822	1,674,384	283,910	1,579.4	1,669.5	2,614.7	1,219.7	2,082.7
3,902,120	1,725,958	275,840	1,630,814	269,508	1,625.3	1,738.9	2,605.9	1,251.8	2,155.0
3,846,986	1,707,656	263,606	1,615,002	260,722	1,654.1	1,761.9	2,710.5	1,290.6	2,130.6
3,750,850	1,663,782	259,238	1,573,290	254,540	1,680.8	1,817.8	2,666.3	1,315.0	2,042.1
3,554,149	1,575,309	248,246	1,488,318	242,276	1,715.4	1,860.7	2,610.3	1,349.2	2,103.4

Table 5. Deaths and death rates for Congenital anomalies, and estimated number of live births, by color and sex: United States, 1950-69

[Rates are deaths under 1 year per 100,000 live births. Beginning with 1968 deaths and death rates are based on deaths assigned to category numbers 740-759 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965; for 1950-67, rates are based on deaths assigned to category numbers 750-759 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955]

Year	Deaths									
	Total					Under 1 year				
	Both sexes	Male		Female		Both sexes	Male		Female	
		White	All other	White	All other		White	All other	White	All other
1969-----	17,008	7,763	1,384	6,627	1,234	11,309	5,213	963	4,309	824
1968-----	16,793	7,740	1,335	6,590	1,128	11,052	5,122	885	4,283	762
1967-----	17,328	7,959	1,387	6,783	1,199	11,632	5,345	962	4,507	818
1966-----	18,158	8,265	1,456	7,199	1,238	12,200	5,636	989	4,762	813
1965-----	19,512	8,825	1,550	7,822	1,315	13,443	6,062	1,116	5,358	907
1964-----	20,288	9,308	1,532	8,175	1,273	14,197	6,537	1,079	5,692	889
1963 <sup>1</sup> -----	20,817	9,344	1,490	8,008	1,302	14,581	6,603	1,067	5,570	866
1962 <sup>1</sup> -----	21,192	9,671	1,519	8,141	1,192	14,832	6,835	1,096	5,618	829
1961-----	21,922	10,389	1,530	8,691	1,312	15,515	7,439	1,103	6,034	939
1960-----	21,860	10,392	1,573	8,664	1,231	15,389	7,383	1,122	6,043	841
1959-----	21,780	10,428	1,468	8,632	1,252	15,579	7,497	1,072	6,097	913
1958-----	21,411	10,070	1,514	8,583	1,244	15,555	7,327	1,131	6,185	912
1957-----	21,818	10,347	1,464	8,794	1,213	15,801	7,588	1,063	6,267	883
1956-----	21,065	10,105	1,358	8,505	1,097	15,676	7,558	1,018	6,271	829
1955-----	20,502	9,839	1,291	8,283	1,089	15,356	7,409	983	6,131	833
1954-----	20,081	9,762	1,207	8,167	945	15,116	7,433	894	6,074	715
1953-----	20,012	9,780	1,172	8,175	885	15,166	7,484	870	6,154	658
1952-----	19,768	9,667	1,108	8,152	841	15,185	7,449	854	6,260	622
1951-----	18,865	9,138	1,042	7,901	784	14,721	7,170	805	6,125	621
1950-----	18,425	9,042	984	7,579	820	14,074	6,907	741	5,807	619

<sup>1</sup>Figures by color exclude data for New Jersey.

Table 5. Deaths and death rates for Congenital anomalies, and estimated number of live births, by color and sex: United States, 1950-69--Con.

[Rates are deaths under 1 year per 100,000 live births. Beginning with 1968 deaths and death rates are based on deaths assigned to category numbers 740-759 of the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States, adopted in 1965; for 1950-67, rates are based on deaths assigned to category numbers 750-759 of the Sixth and Seventh Revisions, adopted, respectively, in 1948 and 1955]

Live births					Rate				
Both sexes	Male		Female		Both sexes	Male		Female	
	White	All other	White	All other		White	All other	White	All other
3,600,206	1,539,420	307,152	1,454,194	299,440	314.1	338.6	313.5	296.3	275.2
3,501,564	1,497,612	298,714	1,414,612	290,626	315.6	342.0	296.3	302.8	262.2
3,520,959	1,501,228	302,160	1,421,274	296,297	330.4	356.0	318.4	317.1	276.1
3,606,274	1,535,486	310,376	1,457,744	302,668	338.3	367.0	318.6	326.7	268.6
3,760,358	1,604,422	322,632	1,519,438	313,866	357.5	377.8	345.9	352.6	289.0
4,027,490	1,727,416	332,746	1,641,744	325,584	352.5	378.4	324.3	346.7	273.0
4,098,020	1,709,174	324,206	1,617,170	314,722	355.8	386.3	329.1	344.4	275.2
4,167,362	1,740,358	324,572	1,653,710	317,008	355.9	392.7	337.7	339.7	261.5
4,268,326	1,848,794	337,480	1,752,070	329,982	363.5	402.4	326.8	344.4	284.6
4,257,850	1,848,192	331,516	1,752,552	325,590	361.4	399.5	338.4	344.8	258.3
4,244,796	1,846,240	327,398	1,751,190	319,968	367.0	406.1	327.4	348.2	285.3
4,203,812	1,833,238	319,308	1,739,068	312,198	370.0	399.7	354.2	355.7	292.1
4,254,784	1,859,148	320,812	1,762,308	312,516	371.4	408.1	331.3	355.6	282.5
4,163,090	1,820,740	312,848	1,724,610	304,892	376.5	415.1	325.4	363.6	271.9
4,047,295	1,776,355	297,364	1,682,093	291,483	379.4	417.1	330.6	364.5	285.8
4,017,362	1,769,246	289,822	1,674,384	283,910	376.3	420.1	308.5	362.8	251.8
3,902,120	1,725,958	275,840	1,630,814	269,508	388.7	433.6	315.4	377.4	244.1
3,846,986	1,707,656	263,606	1,615,002	260,722	394.7	436.2	324.0	387.6	238.6
3,750,850	1,663,782	259,238	1,573,290	254,540	392.5	430.9	310.5	389.3	244.0
3,554,149	1,575,309	248,246	1,488,318	242,276	396.0	438.5	298.5	390.2	255.5

## APPENDIX I

### TECHNICAL NOTES

#### Death Statistics

Tabulations of deaths used in this report are based on information obtained from microfilm copies of the original certificates. These copies were received from the registration offices of all States, certain cities, and the District of Columbia. The statistical information on these records was edited, classified, transferred to a tape for computer processing, and tabulated in the National Center for Health Statistics (NCHS).

The rates shown in this report are based on deaths tabulated by place of occurrence, that is, all deaths occurring in the death-registration States from 1900 to 1932 and all deaths occurring in the continental United States thereafter, with Alaska added beginning 1959 and Hawaii, 1960. Deaths among armed forces overseas and among U.S. nationals living abroad are excluded for all years.

#### Ranking Causes of Death

The ranking of diseases and accidents among the leading causes of death is based on the number of deaths assigned to causes included in specified lists of causes of death (for example, on the *List of 60 Selected Causes of Death* for the years 1949-67 and on the *List of 69 Selected Causes of Death* for 1968 and 1969). Two group titles, "Major cardiovascular-renal diseases" and "Symptoms and ill-defined conditions," are not ranked. In addition, beginning with data year 1968, category titles that begin with the words "Other" or "All other" are not ranked.

The only cause dropped as a result of this procedure that otherwise would have appeared as one of the 15 leading causes was the Eighth Revision cause, Other diseases of arteries, arterioles, and capillaries (ICDA Nos. 441-448). Its level of mortality in 1968 (12.4 deaths per 100,000) would have placed it as the 11th leading cause of death for that year. The dropping of this cause resulted, of course, in the moving up into the next places the succeeding six causes that had fewer deaths attributed to them than did the dropped cause.

For 1967 there were, in all, three causes in the Seventh Revision list of 15 leading causes whose titles began with the word "other," as follows:

1. Other diseases of circulatory system (ICDNos. 451-468),
2. Other bronchopulmonic diseases (ICD Nos. 525-527), and
3. Other hypertensive diseases (ICD Nos. 444-447).

The most nearly comparable titles in the Eighth Revision list of 69 causes for these three causes were, respectively, as follows:

1. Other diseases of arteries, arterioles, and capillaries (ICDA Nos. 441-448),
2. Bronchitis, emphysema, and asthma (ICDA Nos. 490-493), and
3. Hypertension (ICDA Nos. 400, 401, 403).

Consequently, as indicated above, the first of these most nearly comparable titles was dropped because the comparable Eighth Revision title also began with "other." But inasmuch as the remaining two comparable Eighth Revision titles no longer begin with the word "other," they are included in the list of 15 leading causes.

#### Race

The category "white" includes in addition to persons reported as "white," persons reported to be Mexican or Puerto Rican. The categories "races other than white" or "all other" consist of persons reported as Negro, American Indian, Chinese, and Japanese; other numerically small racial groups; and persons of mixed white and other races.

#### Population Bases

Rates were computed on the bases of population statistics made available by the U.S. Bureau of the Census. Rates for decennial years are based on the populations enumerated in censuses of those years, which are taken as of April 1. Rates for all other years



are based on midyear (July 1) estimates. Sources of the populations used, published by the Bureau of the Census, are given below.

*Vital Statistics Rates in the United States, 1900-1940*, Washington, U.S. Government Printing Office, 1943. *Current Population Reports*, Series P-25:

- No. 98. "Estimates of the Population of the United States and of the Components of Change, by Age, Color, and Sex: 1940 to 1950," 1954.
- No. 265. "Estimates of the Population of the United States, by Age, Color, and Sex: July 1, 1950 to 1962," 1963. (Used only for data years 1961 and 1962.)
- No. 276. "Estimates of the Population of the United States, by Age, Color, and Sex: July 1, 1963," 1963.
- No. 310. "Estimates of the Population of the United States and Components of Change, by Age, Color, and Sex: 1950 to 1960," 1965.
- No. 321. "Estimates of the Population of the United States, by Age, Color, and Sex: July 1, 1960 to 1965," 1965. (Used only for data years 1964 and 1965.)
- No. 352. "Estimates of the Population of the United States, by Age, Color, and Sex: July 1, 1966," 1966.
- No. 385. "Estimates of the Population of the United States, by Age, Color, and Sex: July 1, 1964 to 1967," 1968. (Used only for data year 1967.)
- No. 416. "Estimates of the Population of the United States, by Age, Color, and Sex: July 1, 1968," 1969.
- No. 441. "Estimates of the Population of the United States, by Age, Color, and Sex: July 1, 1969," 1970.

The population estimates by color used for 1962 and 1963 exclude New Jersey. The birth, death, and fetal death records of the State of New Jersey did not contain the race item in the beginning of 1962. The certificate revision without this item was used for most of 1962 as well as for 1963. Therefore the National Center for Health Statistics estimated a population base by color for these years which excluded New Jersey. The estimates for 1963 are shown in table 6-5, Part A, Volume II, of *Vital Statistics of the United States, 1963*. Those for 1962 are shown in the comparable report for that year.

#### Age-Adjusted Rates

The age-adjusted rates presented in this report were computed by the direct method, that is, by applying the age-specific death rates for a given cause of death to the standard population distributed by age. The total population as enumerated in 1940 was selected as the standard. The rates for the total population and for each color-sex group were adjusted separately, using the same standard population.

Age-adjusted rates are shown with an asterisk where more than half of the age-specific death rates are based on fewer than 20 deaths.

## APPENDIX II

# THE UNITED STATES STANDARD CERTIFICATE OF DEATH, AS REVISED 1968

### Standard Certificates

Standard certificates of death issued by the National Center for Health Statistics and its predecessor offices have served for many years as the principal means of attaining uniformity in the content of the documents used to collect information on these events. They have been modified in each State to the extent necessitated by the particular needs of the State or by special provisions of the State vital statistics law. The

certificates of most States, however, conform closely in content and arrangement to the standard certificates.

The most recent revision of the standard certificate of death is shown below. It was made in close collaboration with State health officers and registrars; federal agencies concerned with vital statistics; national, State, and county medical societies; and others working in the fields of public health, social welfare, demography, and insurance. It was recommended to the States for adoption as of January 1, 1968.

IDBM APPROVED  
BUREAU BUREAU NO. 83-81701
(PHYSICIAN)  
U.S. STANDARD
U.S. GOVERNMENT PRINTING OFFICE 1967 OF-241-661

**CERTIFICATE OF DEATH**

TYPE, OR PRINT IN PERMANENT INK SEE HANDBOOK FOR INSTRUCTIONS	LOCAL FILE NUMBER		STATE FILE NUMBER
<b>DECEASED</b>			
1 DECEASED—NAME FIRST MIDDLE LAST		2 SEX	3 DATE OF DEATH (MONTH, DAY, YEAR)
4 RACE WHITE, NEGRO, AMERICAN INDIAN, ETC. (SPECIFY)		5a AGE—LAST BIRTHDAY (YEARS) MONTHS DAYS	5b UNDER 1 YEAR UNDER 1 DAY HOURS MIN
6 CITY, TOWN, OR LOCATION OF DEATH		7a INSIDE CITY LIMITS (SPECIFY YES OR NO)	7b HOSPITAL OR OTHER INSTITUTION—NAME (IF NOT IN EITHER, GIVE STREET AND NUMBER)
8 STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY)		9 CITIZEN OF WHAT COUNTRY	10 MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (SPECIFY)
11 SOCIAL SECURITY NUMBER		12 SURVIVING SPOUSE (IF WIFE, GIVE MAIDEN NAME)	
13a USUAL OCCUPATION (GIVE KIND OF WORK DONE DURING MOST OF WORKING LIFE, EVEN IF RETIRED)		13b KIND OF BUSINESS OR INDUSTRY	
14a RESIDENCE—STATE COUNTY		14b CITY, TOWN, OR LOCATION	14c INSIDE CITY LIMITS (SPECIFY YES OR NO)
14d STREET AND NUMBER			
<b>PARENTS</b>			
15 FATHER—NAME FIRST MIDDLE LAST		16 MOTHER—MAIDEN NAME FIRST MIDDLE LAST	
17a INFORMANT—NAME		17b MAILING ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP)	
<b>CAUSE</b>			
18 PART I DEATH WAS CAUSED BY— (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c))		APPROXIMATE INTERVAL BETWEEN ONSET AND DEATH	
(a) IMMEDIATE CAUSE			
(b) DUE TO, OR AS A CONSEQUENCE OF			
(c) CONDITIONS, IF ANY, WHICH GAVE RISE TO IMMEDIATE CAUSE (a), (b), DUE TO, OR AS A CONSEQUENCE OF: STATE THE UNDERLYING CAUSE LAST			
19 PART II OTHER SIGNIFICANT CONDITIONS		CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I (a)	
20a ACCIDENT (SPECIFY YES OR NO)		20b DATE OF INJURY (MONTH, DAY, YEAR)	20c HOUR
20d INJURY AT WORK (SPECIFY YES OR NO)		20e HOW INJURY OCCURRED (ENTER NATURE OF INJURY IN PART I OR PART II, ITEM 18)	
20f PLACE OF INJURY AT HOME, FARM, STREET, FACTORY, OFFICE BLDG., ETC. (SPECIFY)		20g LOCATION (STREET OR R.F.D. NO., CITY OR TOWN, STATE)	
21a CERTIFICATION—PHYSICIAN		21b AND LAST SAW HIM/HER ALIVE ON MONTH DAY YEAR	21c I DID/DID NOT VIEW THE BODY AFTER DEATH (HOUR)
21d AT THE PLACE, ON THE DATE, AND, TO THE BEST OF MY KNOWLEDGE, DUE TO THE CAUSE(S) STATED		21e DEATH OCCURRED AT THE PLACE, ON THE DATE, AND, TO THE BEST OF MY KNOWLEDGE, DUE TO THE CAUSE(S) STATED	21f DATE SIGNED (MONTH, DAY, YEAR)
<b>CERTIFIER</b>			
22a PHYSICIAN—NAME (TYPE OR PRINT)		22b SIGNATURE	22c DEGREE OR TITLE
22d MAILING ADDRESS—PHYSICIAN		22e STREET OR R.F.D. NO.	22f CITY OR TOWN STATE ZIP
<b>BURIAL</b>			
23a BURIAL, CREMATION, REMOVAL (SPECIFY)		23b CEMETERY OR CREMATORY—NAME	23c LOCATION CITY OR TOWN STATE
23d DATE (MONTH, DAY, YEAR)		23e FUNERAL HOME—NAME AND ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP)	
23f FUNERAL DIRECTOR—SIGNATURE		23g REGISTRAR—SIGNATURE	23h DATE RECEIVED BY LOCAL REGISTRAR

PH-777-3 REV. 1-68 DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—PUBLIC HEALTH SERVICE—NATIONAL CENTER FOR HEALTH STATISTICS 1968 REVISION

### APPENDIX III

## COMPONENTS OF COMPARABILITY RATIOS FOR 15 LEADING CAUSES OF DEATH AND THEIR MAJOR SUBCATEGORIES FOR COMPARING ASSIGNMENTS BY EIGHTH REVISION WITH THOSE BY SEVENTH REVISION, BASED ON DEATHS OCCURRING IN 1966

Data shown in the following table are from a study of the comparability between the Seventh and Eighth Revisions of the International Classification of Diseases. Provisional estimates of selected comparability ratios and a brief summary of the statistical design of the comparability study have been published in *Monthly Vital Statistics Report*, Vol. 17, No. 8, Supplement, October 25, 1968.

The set of comparability ratios shown here was computed to assess the degree of discontinuity between 1967 and 1968 for the 15 leading causes of death and their subcategories as shown in detailed tables 2 and 3. For each of these 15 causes and their subcategories, a comparability ratio was especially computed for this present report by dividing the estimated number of deaths in 1966 assigned to the Eighth Revision category numbers corresponding to the title shown in the stubs of tables 2 and 3 by the number of deaths in 1966 assigned to the nearly comparable category numbers of the Sixth and Seventh Revisions shown in the last column of tables 2 and 3.

This particular set of category numbers according to the Sixth and Seventh Revisions was used in the construction of these comparability ratios because trend data for 1950-67 were available for the titles corresponding to these category numbers. It turns out that, with few exceptions (which are footnoted in the table below), this set of category numbers for the Sixth and Seventh Revisions is the same as the set used to compare for these same Eighth Revision titles for the above-mentioned published provisional comparability ratios.

It will be observed that even for those Eighth Revision titles for which the set of Sixth and Seventh Revision categories used for the present report are identical with the set used for the published provisional ratios, the provisional ratios are sometimes slightly lower than the ratios shown in this report. This difference results from a better computational procedure used to compute the ratios for the present report.

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List title according to the Eighth Revision of the International Classification of Diseases, Adapted, 1965	Category numbers according to the Eighth Revision	Category numbers according to the Seventh Revision, adopted in 1955	Provisional comparability ratio
I. Diseases of heart-----	390-398,402,404,410-429	400-402,410-443	1.0045
Active rheumatic fever and chronic rheumatic heart disease-----	390-398	400-402,410-416	<sup>1</sup> 1.1519
Hypertensive heart disease with or without renal disease-----	402,404	440-443	0.3941
Ischemic heart disease-----	410-413	420	<sup>1</sup> 1.1457
Chronic disease of endocardium and other myocardial insufficiency-----	424,428	421,422	<sup>1</sup> 0.1823
All other forms of heart disease-----	420-423,425-427,429	430-434	0.8104
II. Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues---	140-209	140-205	<sup>1</sup> 1.0017
Malignant neoplasms of buccal cavity and pharynx-----	140-149	140-148	1.0596
Malignant neoplasms of digestive organs and peritoneum-----	150-159	150-156A, 157-159	<sup>1</sup> 0.9660
Malignant neoplasms of respiratory system-----	160-163	160-164	1.0316
Malignant neoplasm of breast-----	174	170	0.9913
Malignant neoplasms of genital organs-----	180-187	171-179	1.0034
Malignant neoplasms of urinary organs-----	188,189	180,181	1.0171
Malignant neoplasms of all other and unspecified sites-----	170-173,190-199	156B,165,190-199	<sup>1</sup> 1.0212
Leukemia-----	204-207	204	0.9974
Other neoplasms of lymphatic and hematopoietic tissues-----	200-203,208,209	200-203,205	<sup>1</sup> 1.0506
III. Cerebrovascular diseases-----	430-438	330-334	0.9905
IV. Accidents-----	E800-E949	E800-E962	0.9570
Motor vehicle accidents-----	E810-E823	E810-E835	0.9921
All other accidents-----	E800-E807,E825-E949	E800-E802,E840-E962	0.9250
V. Influenza and pneumonia-----	470-474,480-486	480-493	1.0440
Influenza-----	470-474	480-483	0.9572
Pneumonia-----	480-486	490-493	<sup>1</sup> 1.0480
VI. Certain causes of mortality in early infancy-----	760-769.2,769.4-772,774-778	760-776	<sup>1</sup> 0.9183
VII. Diabetes mellitus-----	250	260	0.9971
VIII. Arteriosclerosis-----	440	450	0.8963
IX. Bronchitis, emphysema, and asthma-----	490-493	241,501,502,527.1	1.0034
Chronic and unqualified bronchitis-----	490,491	501,502	1.0620
Emphysema-----	492	527.1	1.0542
Asthma-----	493	241	0.6954
X. Cirrhosis of liver-----	571	581	1.0055
XI. Suicide-----	E950-E959	E963,E970-E979	0.9472
XII. Congenital anomalies-----	740-759	750-759	1.0204
XIII. Homicide-----	E960-E978	E964,E980-E985	0.9969
XIV. Nephritis and nephrosis-----	580-584	590-594	0.8860
XV. Peptic ulcer-----	531-533	540,541	0.9856

<sup>1</sup>For reasons described in the foreword to this table, the set of Seventh Revision category numbers used to construct this ratio is different from the set used to construct the published provisional comparability ratio for this same Eighth Revision title.

## APPENDIX IV

### TECHNICAL NOTE ON ASSIGNMENTS TO ACCIDENTS WITH CATEGORY NUMBERS E916-E921, E923-E928

The World Health Organization (WHO) in its List A (*List of 150 Causes for Tabulation of Morbidity and Mortality*) introduced with the *Eighth Revision of the International Classification of Diseases*, 1965, included as the 145th title, AE145 Accidents mainly of industrial type, E916-E921, E923-E928.

There are no figures available to substantiate that the deaths assigned to the category numbers under this title are actually "mainly of industrial type." To avoid possibly misleading the reader, therefore, although 1968 and 1969 figures (both deaths and death rates) are shown for these category numbers (E916-E921, E923-E928), the WHO group title "Accidents mainly of industrial type" is not shown.

Both for accidents assigned to E916-E921 and E923-E928 and for a number of other nontransport accidents, fourth-digit subdivisions have been provided by the Eighth Revision. In addition, beginning with data year 1969, the United States has made special tabulations showing "place of accident" by introduction of fifth digits using the special fourth-digit codes introduced with the Seventh Revision. For example, the cross-tabulation of Accident caused by electric current (ICDA No. E925) by fourth and fifth subdivisions is as follows for data year 1969:

Cause of death (with fourth digits)	All deaths	Place of accident (with fifth digits)									
		Home	Farm	Mine and quarry	Industrial place and premises	Place for recreation and sport	Street and highway	Public building	Resident institution	Other specified places	Place not specified
		(.0)	(.1)	(.2)	(.3)	(.4)	(.5)	(.6)	(.7)	(.8)	(.9)
E925 Accident caused by electric current----	1,148	318	71	6	146	13	134	49	3	137	271
Includes: burn by electric current exposed wire faulty appliance electric shock from high-voltage cable electrocution live rail open socket											
Excludes: burn by heat from electrical appliance (E924), lightning (E907)											
E925.0 Home wiring or appliances-----	222	222	-	-	-	-	-	-	-	-	-
E925.1 Industrial wiring or appliances-	152	-	-	6	146	-	-	-	-	-	-
E925.8 Other-----	653	96	71	-	-	13	134	49	3	137	150
Includes: Wiring and appliances in or on: farm (not farmhouse) outdoors public buildings resident institutions schools											
E925.9 Unspecified-----	121	-	-	-	-	-	-	-	-	-	121
Includes: burn by electric current NOS electric shock NOS electrocution NOS											

A word might be said about 96 of the 318 accidental deaths caused by electric current that are shown above as occurring at home, but are not classified as Home wiring and appliances (ICDA Nos. E925.0). This results from the fact that the inclusion term "outdoors" under Accident caused by electric current—other (ICDA No. E925.8) is interpreted as covering home premises and

facilities such as "private garden to home," "home swimming pool," etc. These same terms are, however, inclusion terms under the fifth subdivision "home."

The special tabulation made by the United States by fifth-digit subdivisions shows the following distribution of deaths in 1969 assigned to the so-called "Accidents mainly of industrial type," by place of accident:

All deaths	Place of accident									
	Home	Farm	Mine and quarry	Industrial place and premises	Place for recreation and sport	Street and highway	Public building	Resident institution	Other specified places	Place not specified
	(.0)	(.1)	(.2)	(.3)	(.4)	(.5)	(.6)	(.7)	(.8)	(.9)
6,095	1,376	1,036	180	1,252	69	417	191	75	718	781

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