

# CHARTBOOK FOR THE CONFERENCE ON THE DECLINE IN CORONARY HEART DISEASE MORTALITY

*COMPARABILITY OF CAUSE-OF-DEATH STATISTICS,  
FIGURES AND TABLES, AND TECHNICAL NOTES  
DESCRIBING TRENDS IN  
ISCHEMIC HEART DISEASE MORTALITY.*

*Prepared by the*

*NATIONAL CENTER FOR  
HEALTH STATISTICS*

*Sponsored by the*

*NATIONAL HEART, LUNG,  
AND BLOOD INSTITUTE*

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
Public Health Service  
National Center for Health Statistics  
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## PREFACE

To assess mortality statistics and information about factors associated with trends in Ischemic heart disease, the National Heart, Lung, and Blood Institute is sponsoring a conference that has been entitled "Conference on the Decline in Coronary Heart Disease Mortality." This Conference will take place on October 24 and 25, 1978. Participants in the Conference, primarily cardiologists and epidemiologists from outside the Federal Government, will focus on possible factors associated with trends in this disease. The Institute is providing the impetus to the Conference and the National Center for Health Statistics has provided this background *Chartbook* in advance of the Conference. A report of the Conference is to be published which will summarize the consensus of the conferees and provide their assessment of the degree to which various factors may have contributed to recent trends in Ischemic heart disease. The report will serve to direct attention to those factors to which further attention should be conducted.

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### SYMBOLS

Data not available-----	---
Category not applicable-----	...
Quantity zero-----	-
Quantity more than 0 but less than 0.05-----	0.0

# CHARTBOOK FOR THE CONFERENCE ON THE DECLINE IN CORONARY HEART DISEASE MORTALITY

## INTRODUCTION

One-third of all deaths in the United States are caused by what is officially designated as "Ischemic heart disease" by the World Health Organization. This cause of death is more commonly referred to as "coronary heart disease."

Until the 1960's the long-term mortality trend for Ischemic heart disease was upward while mortality from other cardiovascular diseases, such as Cerebrovascular and Hypertensive diseases, was downward. In the 1970's mortality from almost all major causes of death, including Ischemic heart disease, declined markedly; the rate for all causes of death combined reached an all-time low of 8.9 deaths per 1,000 population for 1975 and 1976. What preventive, curative, environmental or other factors contributed to this recent decline, especially to the dramatic turnaround for Ischemic heart disease?

This background chartbook of mortality statistics, which was requested by the National Heart, Lung, and Blood Institute was prepared in advance of the Conference by the National Center for Health Statistics. It focuses attention on pertinent mortality trends so that each conferee might assemble and present appropriate information needed to examine why mortality from Ischemic heart disease is now declining. Throughout the chartbook, the official term "Ischemic heart disease," instead of "coronary heart disease," is used. In the Sixth and Seventh Revisions of the International Classification of Diseases (in use during 1949-67) the World Health Organization adopted the rubric Arte-

riosclerotic heart disease, including coronary disease (ICD No. 420). This official rubric was commonly referred to as "coronary heart disease." With the introduction of the Eighth Revision (in use beginning with data year 1968) this rubric was changed to "Ischemic heart disease" (ICD Nos. 410-413). Also in the Ninth Revision, which will be introduced in the United States beginning with data year 1979, this rubric is "Ischemic heart disease" (ICD Nos. 410-414).

The 5 figures and 12 detailed tables contained in this chartbook provide tabular data and graphic presentation of trends in Ischemic heart disease and other principal components of Major cardiovascular diseases. They are followed by *Technical Notes* that provide information on the nature and sources of data, the population bases for the rates, and the definition of items describing race. These notes also contain a discussion of the breaks in continuity of mortality statistics resulting from periodic revisions in the International Classification of Diseases. Finally, there are two appendices describing changes in classification and coding procedures. The material in these appendices is excerpted from an earlier study on comparability of mortality statistics.<sup>1</sup> The first of these appendices presents

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<sup>1</sup>National Center for Health Statistics: Comparability of Mortality Statistics for the Seventh and Eighth Revisions of the International Classification of Diseases, United States, *Vital and Health Statistics*, Series 2, No. 66. DHEW Pub. No. (HRA) 76-1340. Health Resources Administration, Washington, U.S. Government Printing Office. 1975.

data on the comparability of mortality statistics for Major cardiovascular disease; and the second appendix, on the comparability of mortality statistics for Diseases of heart and for the principal components of this group of diseases.

The figures and tables in the chartbook constitute part of a publication in preparation by the National Center for Health Statistics on mortality trends from Ischemic heart disease in the United States during 1950-76.

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Figure 1. Age-adjusted Death Rates for Selected Causes: United States, 1950-76

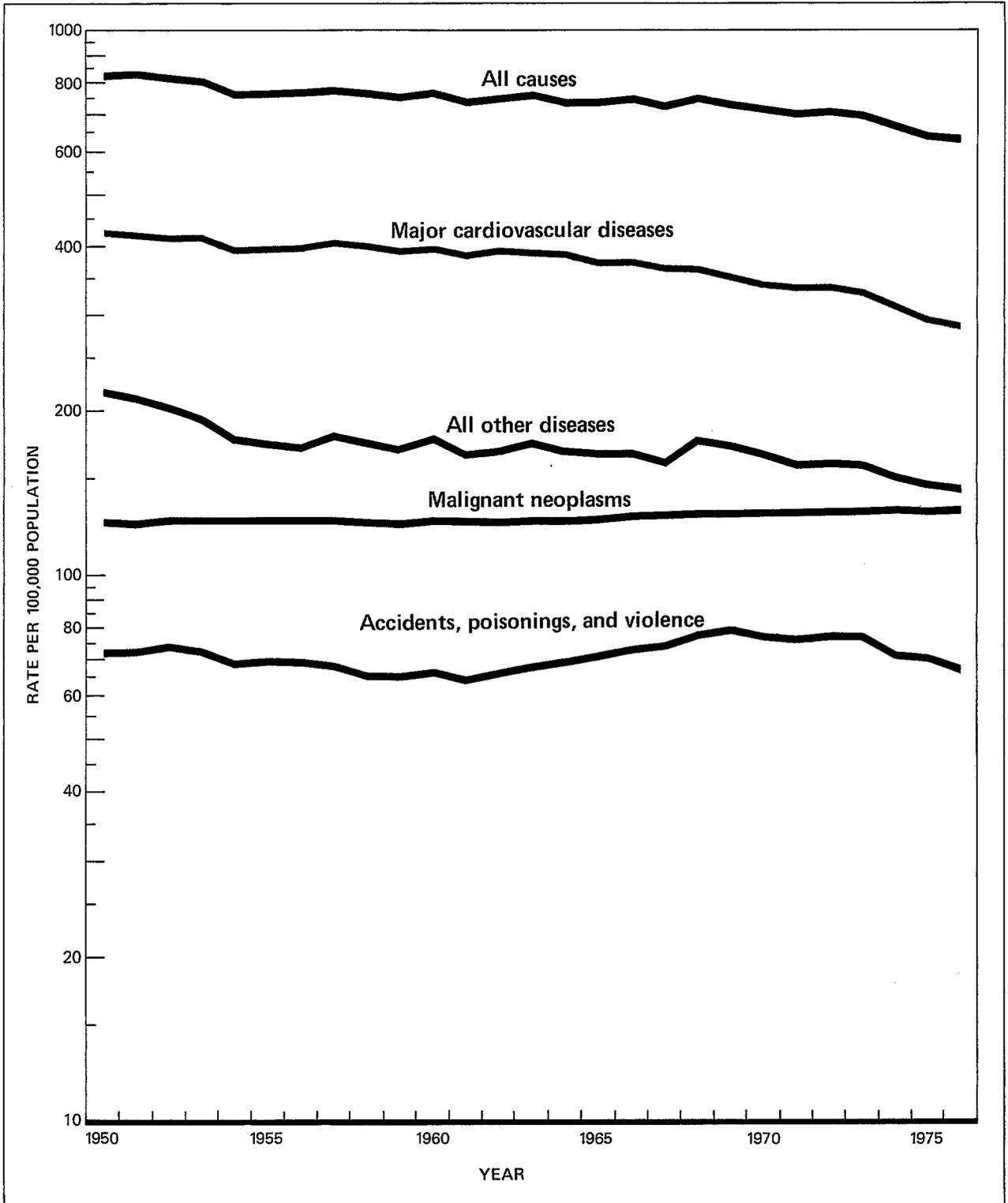


Figure 2. Age-adjusted Death Rates for Ischemic Heart Disease, by Color and Sex:  
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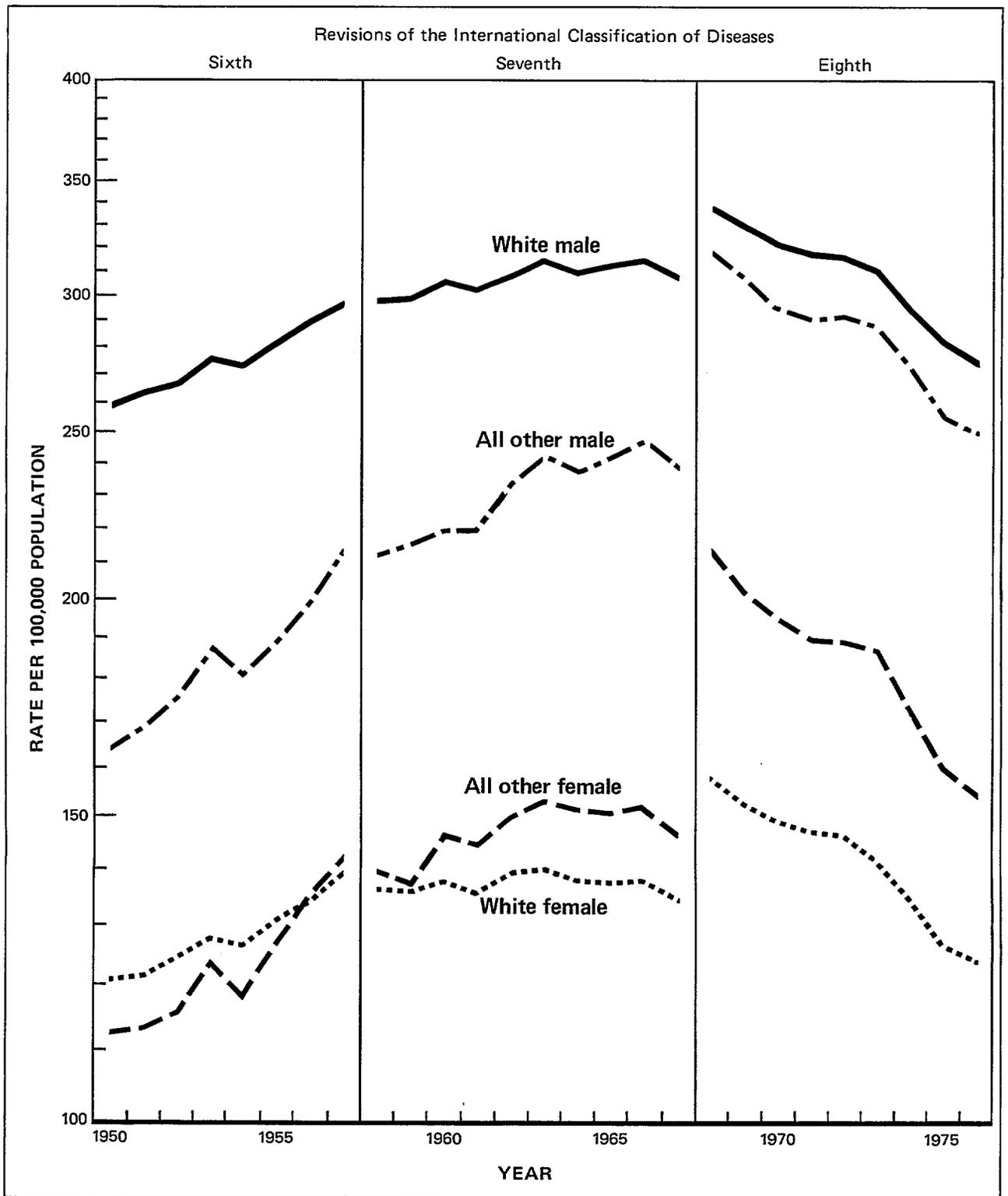


Figure 3A. Death Rates for Ischemic Heart Disease per 100,000 Population, by Age and Color for the Male Population: United States, 1950-76

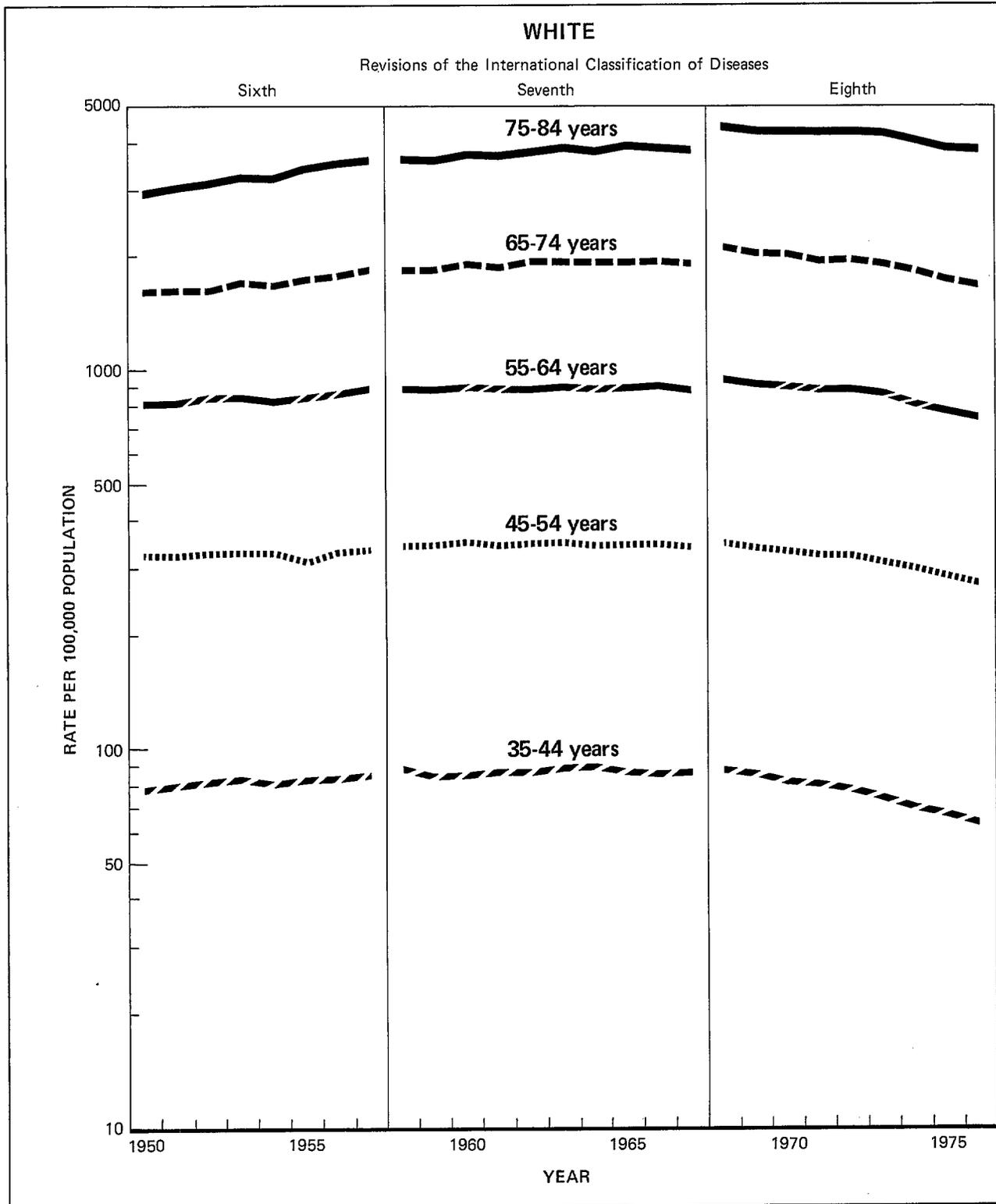


Figure 3A. Death Rates for Ischemic Heart Disease per 100,000 Population, by Age and Color for the Male Population: United States, 1950-76—Con.

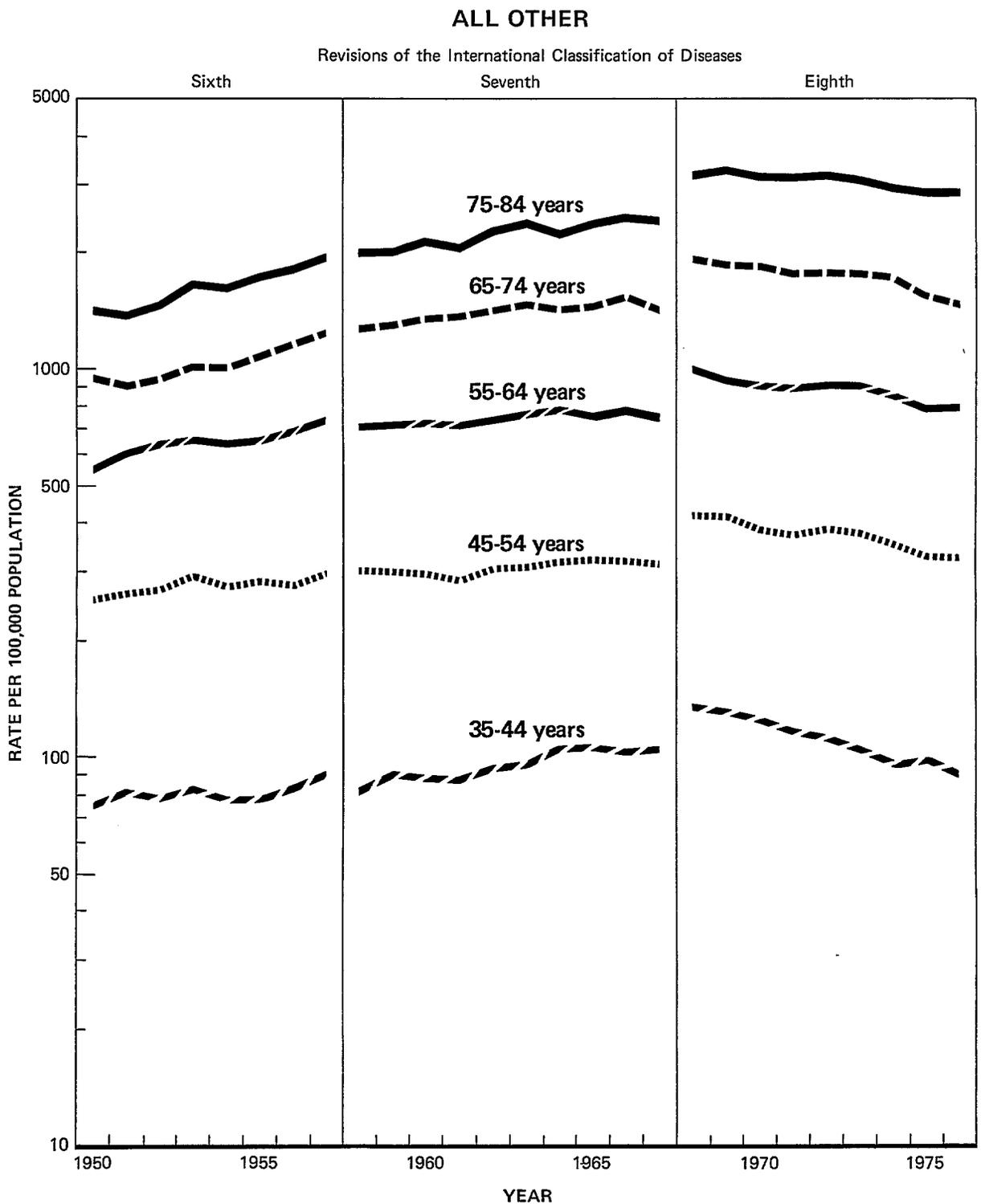


Figure 3B. Death Rates for Ischemic Heart Disease per 100,000 Population, by Age and Color for the Female Population: United States, 1950-76

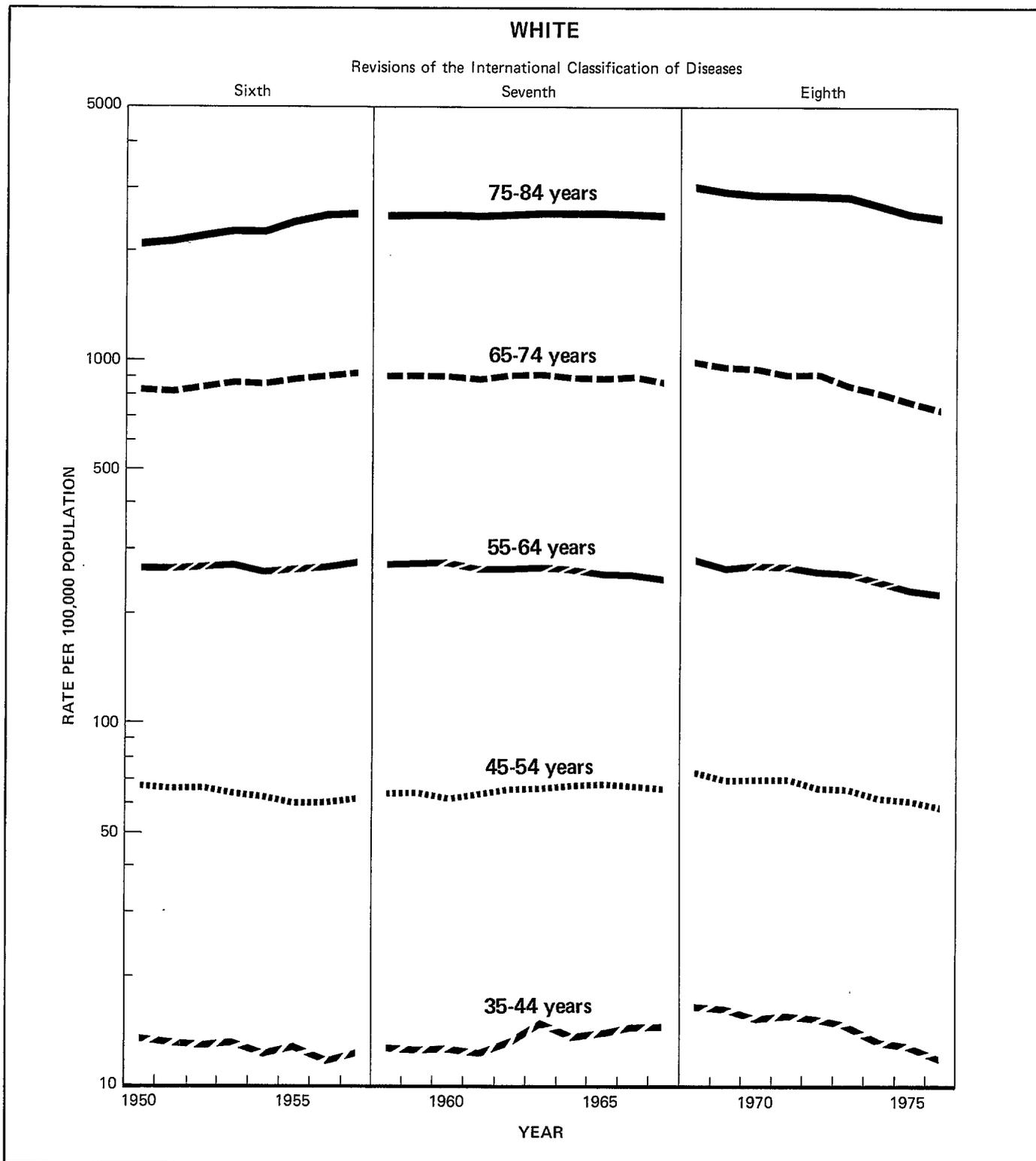


Figure 3B. Death Rates for Ischemic Heart Disease per 100,000 Population, by Age and Color for the Female Population: United States, 1950-76—Con.

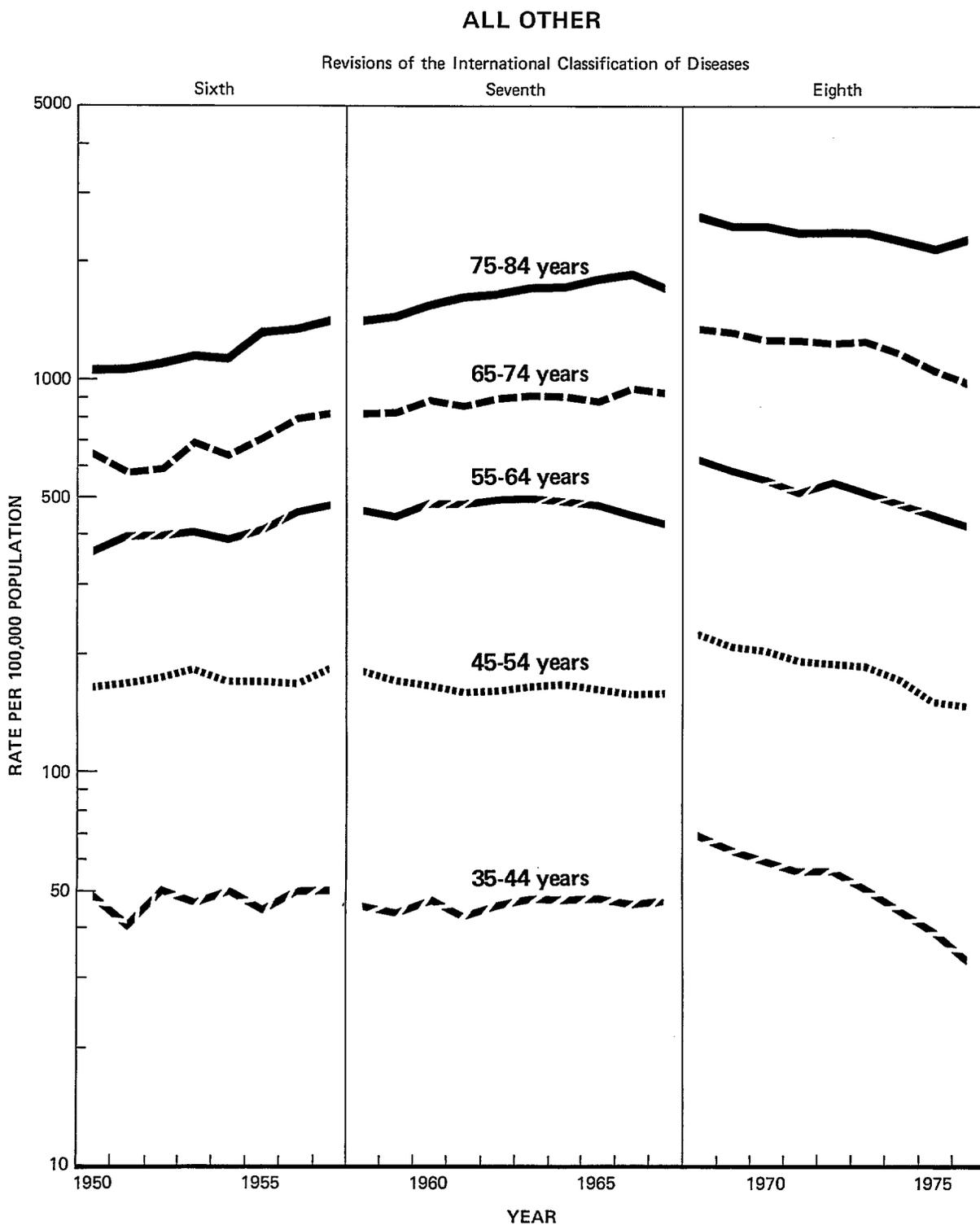




Table 1. Age-adjusted death rates for selected causes: United States, 1950-76

[Rates per 100,000 population. For method of age adjustment, see Technical Notes]

Year	All causes (1)	Malignant neoplasms, including neoplasms of lymphatic and hem- atopoietic tissues <sup>1</sup> (2)	Major cardiovascular diseases <sup>2</sup> (3)	All other diseases <sup>3</sup> (4)	Accidents, poisonings, and violence <sup>4</sup> (5)
1976 <sup>5</sup> -----	627.5	132.3	284.4	143.6	67.2
1975 <sup>5</sup> -----	638.3	130.9	291.4	145.8	70.2
1974 <sup>5</sup> -----	666.2	131.8	310.8	152.1	71.5
1973 <sup>5</sup> -----	692.9	130.7	326.9	158.7	76.6
1972 <sup>5,6</sup> -----	701.8	130.7	333.8	160.4	76.9
1971 <sup>5</sup> -----	699.9	129.7	334.8	159.1	76.3
1970 <sup>5</sup> -----	714.3	129.9	340.1	166.9	77.4
1969-----	728.5	128.9	350.4	171.5	77.7
1968-----	743.8	129.2	361.8	176.3	76.5
1967-----	725.6	128.1	362.6	161.3	73.6
1966-----	742.2	127.5	374.0	167.4	73.3
1965-----	739.0	127.0	374.2	166.9	70.9
1964-----	739.4	125.9	376.6	168.2	68.7
1963-----	756.9	126.1	388.6	174.6	67.6
1962-----	745.5	125.2	386.1	168.1	66.1
1961-----	735.6	125.2	381.6	165.0	63.8
1960-----	760.9	125.8	393.5	175.9	65.7
1959-----	750.9	124.5	391.2	169.8	65.4
1958-----	764.6	124.6	400.2	174.6	65.2
1957-----	776.3	126.4	403.1	178.9	67.9
1956-----	763.3	126.3	396.5	171.4	69.1
1955-----	764.6	125.8	396.1	173.6	69.1
1954-----	763.2	125.8	392.5	176.8	68.1
1953-----	804.7	125.9	412.7	193.9	72.2
1952-----	815.8	125.7	414.5	201.7	73.9
1951-----	829.1	124.3	420.1	210.3	74.4
1950 <sup>7</sup> -----	841.5	125.4	425.6	216.6	73.9

<sup>1</sup>For 1968-76 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.

<sup>2</sup>For 1968-76 rates are based on deaths assigned to category numbers 390-448 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, 400-468 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955.

<sup>3</sup>Residual: Column (1) less columns (2), (3), and (5).

<sup>4</sup>For 1968-76 rates are based on deaths assigned to category numbers E800-E999 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-E964, E970-E985 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955. Data for 1950-67 exclude Injury resulting from operations of war (ICD Nos. E965, E990-E999). This does not appreciably destroy comparability; for the greatest frequency of deaths in the United States from such injuries was 74 for 1966. These deaths for operations of war are included in All other diseases for the years 1950-67.

<sup>5</sup>Excludes deaths of non-residents of the United States.

<sup>6</sup>Based on a 50-percent sample of deaths.

<sup>7</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

Source: Division of Vital Statistics, National Center for Health Statistics

Table 2. Age-adjusted death rates for Ischemic heart disease, by color and sex: United States, 1950-76

[Rates per 100,000 population. For method of age adjustment, see Technical Notes. For 1968-76 rates are based on deaths assigned to category numbers 410-413 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 420 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955]

Year	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
1976 <sup>1</sup>	191.6	271.9	127.0	190.6	274.2	123.6	196.9	249.4	153.8
1975 <sup>1</sup>	196.1	278.2	130.0	195.1	280.6	126.3	201.9	254.0	159.1
1974 <sup>1</sup>	207.7	292.9	138.9	206.1	294.6	134.6	218.0	272.6	172.9
1973 <sup>1</sup>	218.9	308.2	146.5	216.9	310.0	141.6	232.9	287.8	187.0
1972 <sup>1,2</sup>	223.9	313.7	150.5	222.1	315.6	145.9	234.8	291.5	188.0
1971 <sup>1</sup>	225.1	315.0	151.5	223.4	317.2	146.8	235.0	290.0	189.5
1970 <sup>1</sup>	228.1	318.2	153.6	226.1	320.3	148.5	240.4	294.4	194.8
1969	234.7	327.4	157.7	232.4	329.1	152.4	249.7	306.7	201.4
1968	241.6	335.2	163.5	239.0	336.6	157.6	260.6	316.6	213.0
1967	211.8	301.6	136.2	213.5	307.6	134.3	188.3	237.6	145.8
1966	216.6	307.5	139.5	218.0	313.2	137.4	195.7	246.5	152.0
1965	215.8	305.3	139.1	217.3	311.2	137.1	192.6	240.9	150.4
1964	215.4	303.1	139.5	217.0	309.0	137.5	191.5	236.9	151.2
1963 <sup>3</sup>	220.3	309.1	142.9	220.6	313.7	139.7	194.1	240.8	152.9
1962 <sup>3</sup>	216.9	303.0	141.1	217.4	307.8	138.1	188.7	232.5	149.7
1961	211.4	295.3	136.8	213.6	302.1	135.2	180.4	219.6	144.7
1960	214.6	298.3	139.3	216.9	305.3	137.8	181.3	219.5	145.8
1959	210.4	291.8	136.9	213.0	298.4	136.0	174.4	215.0	137.1
1958	210.4	291.0	137.3	213.0	297.8	136.1	174.2	212.0	139.5
1957	211.2	290.0	139.2	213.6	296.4	138.0	176.1	213.2	141.7
1956	205.1	281.6	134.7	207.9	288.6	133.8	165.5	198.2	134.6
1955	200.0	274.5	131.0	203.1	281.6	130.6	157.1	188.8	126.8
1954	193.4	265.7	125.9	196.6	272.7	125.8	148.5	181.0	117.6
1953	196.1	268.5	128.1	198.9	275.1	127.7	154.7	186.6	123.9
1952	190.2	259.7	124.6	193.4	266.7	124.4	145.2	175.2	116.2
1951	187.0	256.0	121.6	190.4	263.1	121.5	140.3	168.3	113.0
1950 <sup>4</sup>	185.2	252.5	120.8	188.4	259.5	120.6	138.2	164.0	112.6

<sup>1</sup>Excludes deaths of non-residents of the United States.

<sup>2</sup>Based on a 50-percent sample of deaths.

<sup>3</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>4</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

Source: Division of Vital Statistics, National Center for Health Statistics

Table 3A. Death rates for males for Ischemic heart disease, for specified age groups, by color: United States, 1950-76

[Rates per 100,000 population. For 1968-76 rates are based on deaths assigned to category numbers 410-413 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 420 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955]

Color and year	All ages	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85 years and over
MALE								
1976 <sup>1</sup> -----	345.1	7.1	67.4	281.3	756.1	1,677.2	3,774.1	7,545.9
1975 <sup>1</sup> -----	348.8	7.1	70.5	292.3	779.1	1,724.1	3,812.9	7,466.4
1974 <sup>1</sup> -----	363.1	7.4	72.5	307.1	817.2	1,823.8	3,970.9	8,162.2
1973 <sup>1</sup> -----	378.5	7.8	78.6	319.3	870.3	1,906.3	4,181.0	8,564.6
1972 <sup>1,2</sup> -----	382.4	8.0	81.4	329.4	884.6	1,956.7	4,208.2	8,481.8
1971 <sup>1</sup> -----	382.9	9.4	85.3	330.7	889.0	1,957.6	4,175.8	8,654.9
1970 <sup>1</sup> -----	387.2	9.4	87.0	338.0	904.6	2,010.0	4,222.7	7,781.5
1969-----	394.7	9.7	90.7	348.1	920.6	2,050.9	4,263.8	9,042.0
1968-----	402.5	9.6	92.7	356.6	950.1	2,100.7	4,330.3	9,259.5
1967-----	358.4	9.4	88.4	339.6	878.4	1,881.7	3,732.1	7,720.2
1966-----	362.7	10.3	87.6	347.1	900.0	1,919.4	3,791.2	7,862.6
1965-----	358.6	11.3	88.8	346.5	888.5	1,887.9	3,794.9	7,828.1
1964-----	354.8	11.0	91.1	344.2	888.5	1,888.4	3,705.0	7,562.5
1963-----	361.9	11.1	89.7	350.9	894.6	1,933.6	3,809.9	7,918.6
1962-----	355.1	11.3	87.3	347.1	883.8	1,890.8	3,707.0	7,693.3
1961-----	345.6	10.6	87.0	341.5	870.4	1,845.5	3,587.0	7,114.2
1960-----	348.0	10.9	86.2	347.1	885.2	1,863.2	3,636.6	6,930.6
1959-----	339.7	11.7	85.6	343.7	875.5	1,820.5	3,499.2	6,606.5
1958-----	337.9	11.6	85.9	339.5	876.0	1,810.1	3,513.7	6,570.6
1957-----	336.4	11.0	86.0	335.0	881.6	1,804.5	3,490.2	6,473.6
1956-----	325.4	11.0	84.2	327.1	856.0	1,745.2	3,414.2	6,118.3
1955-----	316.2	11.1	82.5	324.6	834.3	1,700.6	3,311.6	5,777.0
1954-----	304.5	10.7	80.6	325.6	818.2	1,642.8	3,130.6	5,292.8
1953-----	305.9	11.0	83.3	327.2	835.5	1,650.0	3,155.3	5,296.2
1952-----	293.6	11.0	81.2	324.6	825.1	1,574.0	3,001.4	4,946.9
1951-----	286.7	10.3	80.0	318.6	804.7	1,564.0	2,957.7	4,981.6
1950 <sup>3</sup> -----	277.8	9.7	77.2	316.6	792.9	1,560.7	2,873.5	4,907.8
MALE, WHITE								
1976 <sup>1</sup> -----	362.5	6.3	64.3	275.9	752.2	1,697.8	3,869.3	7,954.4
1975 <sup>1</sup> -----	366.3	6.3	66.9	287.8	778.9	1,743.1	3,904.6	7,841.9
1974 <sup>1</sup> -----	380.3	6.5	69.5	301.8	814.0	1,835.2	4,069.3	8,527.3
1973 <sup>1</sup> -----	396.1	6.9	75.4	312.9	867.0	1,918.9	4,281.8	8,920.7
1972 <sup>1,2</sup> -----	400.1	7.1	77.5	322.8	882.7	1,975.2	4,302.3	8,851.6
1971 <sup>1</sup> -----	400.6	8.2	81.3	326.1	888.4	1,976.3	4,270.9	9,028.4
1970 <sup>1</sup> -----	404.9	8.2	82.3	332.5	904.8	2,028.7	4,315.0	8,164.2
1969-----	411.9	7.9	85.8	341.2	919.7	2,069.9	4,348.8	9,443.1
1968-----	419.3	8.2	87.6	349.9	945.2	2,119.3	4,426.3	9,598.7
1967-----	378.7	8.2	86.6	342.0	892.0	1,928.1	3,841.2	8,075.2
1966-----	382.4	9.3	85.7	350.2	912.4	1,960.3	3,899.4	8,175.6
1965-----	378.4	10.0	86.8	349.1	902.1	1,931.8	3,913.6	8,141.0
1964-----	374.4	10.0	89.5	346.9	899.3	1,934.8	3,827.7	7,845.4
1963 <sup>4</sup> -----	379.9	9.9	88.6	352.8	905.2	1,965.3	3,907.2	8,159.5
1962 <sup>4</sup> -----	372.9	10.4	86.5	349.6	894.2	1,924.6	3,802.7	7,922.5
1961-----	365.4	9.8	87.0	347.4	886.7	1,888.6	3,711.3	7,390.4
1960-----	368.0	10.3	86.0	352.5	901.3	1,909.2	3,758.4	7,248.7
1959-----	358.8	10.9	85.2	348.3	890.8	1,865.7	3,617.2	6,883.1
1958-----	356.8	10.8	86.5	343.6	892.3	1,855.3	3,633.3	6,862.0
1957-----	354.7	10.2	85.6	339.0	894.9	1,853.5	3,610.6	6,712.2
1956-----	344.0	10.5	84.3	332.2	871.1	1,795.5	3,538.4	6,364.9
1955-----	334.5	10.7	83.0	328.9	850.4	1,753.5	3,433.8	6,024.8
1954-----	322.0	10.2	81.1	331.0	833.7	1,696.7	3,244.3	5,495.0
1953-----	322.9	10.2	83.3	330.9	850.7	1,704.1	3,268.6	5,486.6
1952-----	310.4	10.3	81.6	330.2	840.9	1,628.0	3,113.8	5,136.4
1951-----	303.3	9.8	79.8	324.2	821.2	1,619.9	3,074.0	5,189.0
1950 <sup>3</sup> -----	294.0	9.0	77.5	323.1	812.9	1,608.2	2,978.7	5,139.8

See footnotes at end of table.

Table 3A. Death rates for males for Ischemic heart disease, for specified age groups, by color: United States, 1950-76—Con.

[Rates per 100,000 population. For 1968-76 rates are based on deaths assigned to category numbers 410-413 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 420 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955]

Color and year	All ages	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85 years and over
MALE, ALL OTHER								
1976 <sup>1</sup> -----	228.3	12.6	90.3	326.0	794.5	1,487.9	2,823.9	4,176.5
1975 <sup>1</sup> -----	229.9	13.1	97.6	330.3	781.3	1,549.7	2,867.9	4,245.3
1974 <sup>1</sup> -----	244.0	14.6	95.6	353.4	848.1	1,713.6	2,928.2	4,831.6
1973 <sup>1</sup> -----	255.8	14.7	103.6	375.6	902.0	1,784.2	3,095.3	5,090.6
1972 <sup>1,2</sup> -----	257.8	14.8	111.9	388.0	903.0	1,783.9	3,153.1	5,023.5
1971 <sup>1</sup> -----	256.6	18.9	116.9	372.7	893.9	1,782.9	3,120.8	5,110.2
1970 <sup>1</sup> -----	261.1	19.1	124.3	387.7	902.3	1,833.2	3,149.9	4,418.8
1969-----	269.5	23.3	131.1	413.3	929.0	1,864.1	3,245.7	5,259.1
1968-----	278.8	20.7	134.9	419.4	998.1	1,920.2	3,179.6	5,958.5
1967-----	208.3	19.2	103.6	317.4	747.1	1,425.3	2,407.1	4,197.4
1966-----	215.2	18.2	102.9	318.5	778.7	1,516.0	2,464.2	4,619.4
1965-----	209.6	20.9	106.3	322.6	755.9	1,439.3	2,366.5	4,717.6
1964-----	205.6	18.9	105.1	319.3	781.6	1,401.9	2,220.3	4,425.0
1963 <sup>4</sup> -----	209.1	18.8	95.0	316.6	760.6	1,472.7	2,357.6	4,969.0
1962 <sup>4</sup> -----	202.6	17.3	94.1	312.4	738.8	1,406.7	2,275.2	4,596.6
1961-----	191.1	17.1	87.3	285.7	708.6	1,369.8	2,065.4	4,203.3
1960-----	190.7	15.7	87.8	297.0	723.7	1,340.2	2,114.1	3,574.5
1959-----	185.9	17.9	89.1	298.9	715.9	1,290.7	1,991.7	3,496.6
1958-----	183.1	18.2	80.7	300.0	703.5	1,277.8	1,982.7	3,403.7
1957-----	184.6	17.3	89.8	296.6	736.7	1,232.7	1,942.2	3,619.2
1956-----	171.3	15.3	82.9	277.6	687.1	1,152.6	1,808.5	3,140.0
1955-----	162.9	14.9	77.7	283.1	651.8	1,076.0	1,715.2	2,741.7
1954-----	155.7	15.0	76.6	272.9	638.5	1,002.8	1,616.8	2,700.0
1953-----	160.6	18.2	82.5	291.4	652.4	1,006.1	1,628.1	2,866.7
1952-----	149.6	17.5	78.0	270.5	635.0	940.6	1,473.6	2,550.0
1951-----	143.1	15.2	81.7	264.7	602.4	904.0	1,387.7	2,394.7
1950 <sup>3</sup> -----	136.6	15.2	74.3	254.2	554.1	943.1	1,407.3	2,196.3

<sup>1</sup>Excludes deaths of non-residents of the United States.

<sup>2</sup>Based on a 50-percent sample of deaths.

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

<sup>4</sup>Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

Source: Division of Vital Statistics, National Center for Health Statistics

Table 3B. Death rates for females for Ischemic heart disease, for specified age groups, by color: United States, 1950-76

[Rates per 100,000 population. For 1968-76 rates are based on deaths assigned to category numbers 410-413 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 420 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955]

Color and year	All ages	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85 years and over
<b>FEMALE</b>								
1976 <sup>1</sup> -----	259.2	1.9	14.6	68.8	245.9	754.4	2,469.4	6,324.1
1975 <sup>1</sup> -----	257.0	1.9	16.4	70.9	252.9	789.1	2,496.2	6,239.2
1974 <sup>1</sup> -----	268.4	2.3	17.3	74.1	266.1	845.5	2,651.7	6,902.8
1973 <sup>1</sup> -----	276.0	2.5	19.4	78.9	281.4	892.2	2,782.9	7,254.6
1972 <sup>1,2</sup> -----	277.6	2.3	20.5	78.6	287.6	939.7	2,835.7	7,317.7
1971 <sup>1</sup> -----	273.9	2.9	20.7	82.7	292.5	942.5	2,824.0	7,324.1
1970 <sup>1</sup> -----	272.0	3.2	20.6	84.0	299.1	978.0	2,866.3	6,951.5
1969-----	273.8	2.9	21.8	84.1	297.5	994.6	2,910.1	7,874.4
1968-----	277.5	3.3	22.7	88.2	315.6	1,030.6	2,987.6	8,066.5
1967-----	225.4	3.1	18.2	75.4	265.9	879.7	2,458.7	6,380.4
1966-----	226.5	2.9	18.0	76.8	273.7	903.9	2,519.3	6,503.6
1965-----	222.1	2.9	17.8	77.2	278.4	889.0	2,509.0	6,540.2
1964-----	218.6	3.0	17.4	77.6	284.7	897.3	2,492.8	6,448.5
1963-----	220.8	3.4	18.5	77.0	292.7	919.9	2,556.4	6,628.7
1962-----	215.3	3.0	16.9	75.9	290.1	916.9	2,528.5	6,424.3
1961-----	205.7	2.6	15.7	73.9	283.9	895.3	2,457.3	6,033.3
1960-----	205.4	2.8	16.4	72.4	295.6	914.8	2,502.5	6,009.4
1959-----	199.5	2.9	15.9	74.2	286.5	905.4	2,455.1	5,801.3
1958-----	196.5	3.4	16.3	75.5	290.2	906.1	2,453.9	5,700.2
1957-----	196.8	3.2	16.4	73.7	293.9	927.1	2,489.1	5,768.4
1956-----	187.5	3.0	15.8	70.6	284.6	897.4	2,431.5	5,464.7
1955-----	179.6	3.1	16.0	71.7	275.9	873.6	2,351.4	5,248.6
1954-----	168.8	3.0	16.2	73.2	272.2	846.3	2,211.4	4,796.5
1953-----	168.3	3.4	16.7	75.6	283.5	864.9	2,225.6	4,684.8
1952-----	160.5	3.4	16.8	77.1	280.0	836.5	2,143.0	4,435.7
1951-----	153.9	3.3	17.0	75.7	277.3	815.5	2,078.2	4,265.0
1950 <sup>3</sup> -----	149.1	3.4	16.9	76.0	275.0	826.8	2,041.4	4,087.1
<b>FEMALE, WHITE</b>								
1976 <sup>1</sup> -----	272.0	1.4	11.7	58.5	226.7	730.7	2,485.3	6,596.1
1975 <sup>1</sup> -----	269.2	1.4	12.8	60.7	231.1	762.2	2,523.2	6,484.7
1974 <sup>1</sup> -----	280.5	1.7	13.1	61.9	243.3	813.9	2,684.3	7,143.4
1973 <sup>1</sup> -----	287.3	1.9	14.6	65.8	256.4	855.0	2,814.2	7,486.0
1972 <sup>1,2</sup> -----	289.4	1.7	15.2	65.5	260.5	910.5	2,872.9	7,564.6
1971 <sup>1</sup> -----	285.1	2.1	15.5	69.5	269.2	909.5	2,857.1	7,553.2
1970 <sup>1</sup> -----	282.5	2.2	15.1	70.0	271.6	948.9	2,894.7	7,192.3
1969-----	283.7	1.9	16.1	69.8	267.7	963.7	2,942.2	8,118.8
1968-----	286.6	2.2	16.3	72.8	283.7	998.3	3,016.1	8,311.6
1967-----	236.8	2.0	14.3	65.8	249.6	875.4	2,512.5	6,602.7
1966-----	237.3	1.9	14.4	67.4	255.5	899.3	2,566.0	6,719.5
1965-----	232.7	2.1	13.9	67.5	258.2	889.1	2,560.2	6,761.4
1964-----	228.8	2.1	13.7	67.4	264.4	896.9	2,548.1	6,651.6
1963 <sup>4</sup> -----	229.1	2.4	14.8	66.3	269.5	910.5	2,591.2	6,789.9
1962 <sup>4</sup> -----	223.4	2.2	13.1	66.2	266.9	907.6	2,570.1	6,570.8
1961-----	215.3	1.8	12.4	64.3	264.7	898.2	2,515.1	6,218.9
1960-----	215.1	1.9	12.7	61.9	277.6	916.3	2,566.9	6,233.7
1959-----	209.2	2.2	12.6	63.7	271.6	911.2	2,522.2	6,038.9
1958-----	205.6	2.2	12.7	64.2	274.4	912.3	2,523.2	5,935.8
1957-----	205.6	2.1	12.4	61.8	277.3	935.4	2,559.1	6,021.9
1956-----	196.0	2.0	11.8	60.2	269.3	905.2	2,500.8	5,722.6
1955-----	188.1	1.9	12.7	61.1	264.0	886.3	2,417.9	5,495.7
1954-----	177.0	2.1	12.2	62.9	262.2	862.3	2,279.8	5,023.4
1953-----	175.8	2.3	13.1	64.0	273.0	878.5	2,293.9	4,911.1
1952-----	168.0	2.4	12.9	66.7	270.2	856.0	2,208.9	4,641.8
1951-----	161.0	2.4	13.0	65.8	267.7	834.9	2,142.0	4,477.4
1950 <sup>3</sup> -----	156.0	2.6	13.2	66.6	267.5	838.9	2,101.6	4,283.4

See footnotes at end of table.

Table 3B. Death rates for females for Ischemic heart disease, for specified age groups, by color: United States, 1950-76—Con.

[Rates per 100,000 population. For 1968-76 rates are based on deaths assigned to category numbers 410-413 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 420 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955]

Color and year	All ages	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85 years and over
FEMALE, ALL OTHER								
1976 <sup>1</sup> -----	176.9	4.9	33.1	148.2	421.8	983.0	2,277.8	3,590.9
1975 <sup>1</sup> -----	177.7	5.1	39.3	150.5	453.1	1,053.2	2,167.6	3,662.7
1974 <sup>1</sup> -----	188.9	6.5	44.4	171.7	478.6	1,160.5	2,244.8	4,251.5
1973 <sup>1</sup> -----	200.7	6.1	51.3	185.8	516.1	1,267.0	2,379.1	4,633.0
1972 <sup>1,2</sup> -----	197.7	6.9	55.7	187.0	543.6	1,237.0	2,376.6	4,461.0
1971 <sup>1</sup> -----	197.5	8.5	56.3	193.3	512.7	1,277.5	2,398.1	4,582.9
1970 <sup>1</sup> -----	200.4	9.6	58.9	203.0	557.1	1,270.3	2,482.5	4,227.9
1969-----	204.2	9.8	62.5	208.1	582.0	1,310.4	2,459.1	4,930.8
1968-----	213.4	10.5	68.6	222.9	623.6	1,362.1	2,607.9	5,096.7
1967-----	144.3	10.2	46.9	160.1	425.6	925.1	1,727.3	3,522.8
1966-----	148.7	9.0	45.7	160.4	454.1	953.2	1,868.3	3,667.9
1965-----	144.9	8.3	48.0	163.9	480.0	886.9	1,805.2	3,673.5
1964-----	143.4	9.5	46.8	168.9	489.0	902.0	1,719.0	3,704.4
1963 <sup>4</sup> -----	143.6	9.9	47.8	166.6	502.4	916.7	1,710.9	3,759.5
1962 <sup>4</sup> -----	139.1	8.5	45.8	162.3	496.7	901.4	1,658.2	3,727.5
1961-----	133.2	8.1	42.5	160.4	480.1	859.4	1,633.3	3,627.5
1960-----	131.7	9.3	46.7	168.0	482.3	897.0	1,563.4	3,076.3
1959-----	123.8	8.8	43.6	171.6	445.0	833.6	1,464.6	2,730.8
1958-----	125.2	12.2	46.4	181.5	462.0	828.5	1,419.6	2,736.8
1957-----	126.2	11.0	51.0	185.8	479.6	826.7	1,423.4	2,637.8
1956-----	118.8	10.5	49.5	169.2	459.8	798.3	1,365.2	2,355.6
1955-----	110.9	12.6	44.5	173.8	415.1	719.3	1,339.4	2,232.4
1954-----	101.9	9.9	50.1	171.2	391.9	650.4	1,143.7	2,009.4
1953-----	106.1	12.1	47.2	185.9	414.3	700.0	1,158.7	1,977.4
1952-----	98.5	11.8	50.4	175.8	404.3	600.8	1,108.6	1,934.5
1951-----	94.6	10.4	40.2	169.5	401.6	580.9	1,070.3	1,746.4
1950 <sup>3</sup> -----	91.2	10.2	48.1	165.7	366.7	656.8	1,061.1	1,726.8

<sup>1</sup> Excludes deaths of non-residents of the United States.

<sup>2</sup> Based on a 50-percent sample of deaths.

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

<sup>4</sup> Figures by color exclude data for residents of New Jersey because this State did not require reporting of the item for these years.

Source: Division of Vital Statistics, National Center for Health Statistics

Table 4. Percent change between 1968 and 1976 in death rates for All causes and for Ischemic heart disease, for specified age groups, by color and sex: United States

[Rates per 100,000 population. For 1968-76 rates for Ischemic heart disease are based on deaths assigned to category numbers 410-413 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 410 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955]

Age	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All causes									
All ages-----	-8.1	-10.0	-5.6	-6.8	-9.2	-3.7	-16.7	-15.9	-17.6
25-34 years-----	-13.4	-10.6	-19.9	-9.7	-7.8	-15.1	-24.5	-19.9	-33.3
35-44 years-----	-20.5	-18.3	-24.2	-19.2	-18.1	-21.4	-28.6	-23.0	-36.0
45-54 years-----	-15.5	-15.6	-15.2	-15.2	-16.0	-13.7	-21.2	-17.7	-25.8
55-64 years-----	-13.4	-14.7	-10.7	-12.8	-14.8	-8.4	-18.3	-13.9	-23.1
65-74 years-----	-16.0	-14.1	-18.0	-15.7	-13.9	-17.5	-19.6	-16.5	-22.7
75-84 years-----	-11.6	-6.9	-14.0	-11.9	-6.8	-14.5	-7.3	-5.9	-8.0
85 years and over-----	-20.9	-17.2	-22.3	-20.0	-16.1	-21.5	-28.4	-25.7	-29.2
Ischemic heart disease									
All ages-----	-11.1	-14.3	-6.6	-10.0	-13.5	-5.1	-17.7	-18.1	-17.1
25-34 years-----	-31.3	-26.0	-42.4	-25.0	-23.2	-36.4	-44.1	-39.1	-53.3
35-44 years-----	-28.9	-27.3	-35.7	-26.6	-26.6	-28.2	-40.4	-33.1	-51.7
45-54 years-----	-21.3	-21.1	-22.0	-20.8	-21.1	-19.6	-26.7	-22.3	-33.5
55-64 years-----	-21.0	-20.4	-22.1	-20.4	-20.4	-20.1	-25.9	-20.4	-32.4
65-74 years-----	-23.1	-20.2	-26.8	-22.9	-19.9	-26.8	-25.2	-22.5	-27.8
75-84 years-----	-16.1	-12.8	-17.3	-16.2	-12.6	-17.6	-12.1	-11.2	-12.7
85 years and over-----	-20.8	-18.5	-21.6	-19.8	-17.1	-20.6	-30.2	-29.9	-29.5

Source: Division of Vital Statistics, National Center for Health Statistics.

Table 5. Deaths and age-adjusted death rates for selected causes, 1968 and 1976, together with percent change in age-adjusted death rates between 1968 and 1976 and between 1959 and 1967: United States

[Rates per 100,000 population. For method of age adjustment, see Technical Notes. Numbers after cause 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 1976 rates are based on deaths assigned to these Eighth Revision category numbers; for 1959 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 the last column of the table]

Cause of death and category numbers of Eighth Revision	Number		Rate		Percent change in rate		Category numbers according to Seventh Revision
	1976	1968	1976	1968	1968 to 1976	1959 to 1967	
All causes-----	1,909,440	1,930,082	627.5	743.8	-15.6	-3.4	...
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues-----140-209	377,312	318,547	132.3	129.2	2.4	2.9	140-205
Major cardiovascular diseases-----390-448	974,429	1,023,399	284.4	361.8	-21.4	-7.3	330-334,400-468
Diseases of heart-----390-398,402,404,410-429	723,878	744,658	216.7	268.5	-19.3	-6.1	
Active rheumatic fever and chronic rheumatic heart disease-----390-398	13,110	16,358	4.7	7.2	-34.7	-33.0	400-402,410-416
Hypertensive heart disease with or without renal disease-----402,404	10,690	17,698	3.0	6.1	-50.8	-38.5	440,441,442,443
Ischemic heart disease-----410-413	646,073	674,747	191.6	241.6	-20.7	0.7	420
Chronic disease of endocardium and other myocardial insufficiency-----424,428	4,195	7,836	1.3	2.8	-53.6	-22.1	421,422
All other forms of heart disease-----420-423,425-427,429	49,810	28,019	16.1	10.9	47.7	7.3	430-434
Hypertension-----400,401,403	6,130	9,063	1.8	3.3	-45.5	-31.0	444-447
Cerebrovascular diseases-----430-438	188,623	211,390	51.4	71.3	-27.9	-13.6	330-334
Arteriosclerosis-----440	29,366	33,568	6.4	9.6	-33.3	-14.6	450
Other diseases of arteries, arterioles and capillaries-----441-448	26,432	24,720	8.0	9.0	-11.1	38.8	451-468
Certain specified diseases-----250,470-474,480-486,490-493,*519.3,571	173,709	174,105	56.8	68.2	-16.7	11.3	260,480-493,501,502,527.1,241,581
Diabetes mellitus-----250	34,508	38,352	11.1	14.6	-24.0	4.6	260
Influenza and pneumonia--470-474,480-486	61,866	73,492	17.4	26.9	-35.3	-10.7	480-493
Specified respiratory diseases-----490-493,*519.3	45,882	33,078	14.7	12.8	14.8	64.4	501,502,527.1,241
Bronchitis, emphysema and asthma-----490-493	24,410	33,078	7.9	12.8	-38.3	64.4	501,502,527.1,241
Chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema-----*519.3	21,472	...	6.8	...	...	...	... <sup>1</sup>
Cirrhosis of liver-----571	31,453	29,183	13.6	13.9	-2.2	32.7	581
All other diseases-----Residual	232,077	258,794	86.8	108.1	-19.7	-12.6	Residual
Accidents, poisonings, and violence-----E800-E999	151,913	155,237	67.2	76.5	-12.2	12.5	E800-E964,E970-E985
Accidents-----E800-E949	100,761	114,864	43.2	55.0	-21.5	10.0	E800-E962
Suicide-----E950-E959	26,832	21,372	12.3	10.9	12.8	5.7	E963,E970-E979
Homicide-----E960-E978	19,554	14,686	9.5	8.3	14.5	51.0	E964,E980-E985
Other external causes-----E980-E999	4,766	4,315	2.2	2.3	-4.3	...	...

<sup>1</sup>Chronic obstructive lung disease is, by international rules, assigned to the category "Other diseases of lung" (ICDA No. 519.2). Beginning with data year 1969, the United States, however, established a separate category (denoted by \*519.3) to identify deaths assigned to Chronic obstructive lung disease. Effective with data for 1972 the title was changed to Chronic obstructive lung disease without mention of asthma, bronchitis, or emphysema.

Source: Division of Vital Statistics, National Center for Health Statistics

Table 6. Percent change between 1968 and 1976 in age-adjusted death rates, for selected causes, by color and sex: United States

Cause of death and category numbers of Eighth Revision	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All causes-----	-15.6	-14.0	-16.9	-15.1	-13.6	-15.9	-20.2	-17.2	-23.6
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues----140-209	2.4	5.1	0.6	2.0	4.3	1.0	4.1	10.2	-2.5
Ischemic heart disease-----410-413	-20.7	-18.9	-22.3	-20.3	-18.5	-21.6	-24.4	-21.2	-27.8
All other major cardiovascular diseases-----390-398,400-404,420-448	-22.8	-20.4	-24.7	-21.7	-19.3	-23.4	-30.0	-27.3	-32.4
All other diseases-----Residual	-18.5	-16.8	-19.4	-18.0	-16.6	-18.7	-22.8	-20.3	-25.2
Accidents, poisonings, and violence-----E800-E999	-12.2	-12.4	-13.0	-11.2	-11.1	-12.0	-18.9	-19.0	-17.3

Source: Division of Vital Statistics, National Center for Health Statistics

Table 7. Deaths and death rates for All causes and for Ischemic heart disease, together with percent due to Ischemic heart disease: United States, 1968-76

[Rates per 100,000 population. Numbers after Ischemic heart disease are category numbers of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965]

Year	All causes		Ischemic heart disease (410-413)		Percent Ischemic heart disease of All causes
	Number	Rate	Number	Rate	
1976 <sup>1</sup> -----	1,909,440	889.6	646,073	301.0	33.8
1975 <sup>1</sup> -----	1,892,879	888.5	642,719	301.7	34.0
1974 <sup>1</sup> -----	1,934,388	915.1	664,854	314.5	34.4
1973 <sup>1</sup> -----	1,973,003	940.2	684,066	326.0	34.7
1972 <sup>1,2</sup> -----	1,963,944	943.2	684,424	328.7	34.8
1971 <sup>1</sup> -----	1,927,542	934.7	674,292	327.0	35.0
1970 <sup>1</sup> -----	1,921,031	945.3	666,665	328.1	34.7
1969-----	1,921,990	954.4	669,829	332.6	34.9
1968-----	1,930,082	967.9	674,747	338.4	35.0

<sup>1</sup>Excludes deaths of non-residents of the United States.

<sup>2</sup>Based on a 50-percent sample of deaths.

Source: Division of Vital Statistics, National Center for Health Statistics

Table 8. Deaths and age-adjusted death rates for Ischemic heart disease and components, together with percent change: United States 1968 and 1976

[Rates per 100,000 population. For method of age adjustment, see Technical Notes]

Cause of death and category numbers of Eighth Revision	Number		Rate		Percent change in rates 1968 to 1976
	1976	1968	1976	1968	
Ischemic heart disease-----410-413	646,073	674,747	191.6	241.6	-20.7
Acute myocardial infarction-----410	319,477	369,610	102.9	140.0	-26.5
With hypertensive disease-----410.0	30,929	32,788	10.2	12.4	-17.7
Without mention of hypertensive disease-----410.9	288,548	336,822	92.6	127.6	-27.4
Other acute and subacute forms of ischemic heart disease-----411	4,028	4,691	1.3	1.8	-27.8
With hypertensive disease-----411.0	252	333	0.1	0.1	-
Without mention of hypertensive disease-----411.9	3,776	4,358	1.3	1.7	-23.5
Chronic ischemic heart disease-----412	322,382	300,216	87.3	99.7	-12.4
Chronic ischemic heart disease with or without cardiovascular disease with hypertensive disease-----*412.1	20,915	20,334	5.9	6.9	-14.5
Cardiovascular disease without mention of chronic ischemic heart disease with hypertensive disease-----*412.2	21,437	24,703	6.6	9.1	-27.5
Chronic ischemic heart disease with or without cardiovascular disease without mention of hypertensive disease-----*412.3	222,309	212,787	59.4	70.0	-15.1
Cardiovascular disease without mention of chronic ischemic heart disease without mention of hypertensive disease-----*412.4	57,721	42,392	15.4	13.7	12.4
Angina pectoris-----413	186	230	0.1	0.1	-
With hypertensive disease-----413.0	36	46	0.0	0.0	-
Without mention of hypertensive disease-----413.9	150	184	0.1	0.1	-

\*Special four-digit subcategories created by NCHS to be used instead of the fourth digits listed under category 412 of ICDA.

Source: Division of Vital Statistics, National Center for Health Statistics

Table 9. Age-adjusted death rates for Ischemic heart disease and its components for 1976, together with percent change between 1968 and 1976, by color and sex: United States

[For method of age adjustment, see Technical Notes]

Cause of death and category numbers of Eighth Revision	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Rate per 100,000 population									
Ischemic heart disease-----410-413	191.6	271.9	127.0	190.6	274.2	123.6	196.9	249.4	153.8
Acute myocardial infarction-----410	102.9	154.9	60.7	104.6	159.5	60.2	85.2	112.1	63.1
With hypertensive disease-----410.0	10.2	12.8	7.9	9.8	12.5	7.4	14.1	15.7	12.6
Without mention of hypertensive disease-----410.9	92.6	142.1	52.8	94.8	147.0	52.8	71.2	96.4	50.5
Other acute and subacute forms of ischemic heart disease-----411	1.3	2.1	0.7	1.3	2.0	0.6	2.1	2.9	1.4
With hypertensive disease-----411.0	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.2
Without mention of hypertensive disease-----411.9	1.3	2.0	0.7	1.2	1.9	0.6	1.9	2.8	1.2
Chronic ischemic heart disease-----412	87.3	114.8	65.6	84.7	112.6	62.8	109.6	134.4	89.2
Chronic ischemic heart disease with or without cardiovascular disease with hypertensive disease-----*412.1	5.9	6.6	5.2	5.5	6.3	4.8	9.3	9.9	8.7
Cardiovascular disease without mention of chronic ischemic heart disease with hypertensive disease-----*412.2	6.6	7.1	6.1	5.2	5.6	4.7	19.9	21.0	18.9
Chronic ischemic heart disease with or without cardiovascular disease without mention of hypertensive disease-----*412.3	59.4	80.9	42.6	59.7	81.9	42.5	55.7	71.6	42.8
Cardiovascular disease without mention of chronic ischemic heart disease without mention of hypertensive disease-----*412.4	15.4	20.1	11.6	14.4	18.8	10.9	24.7	31.9	18.9
Angina pectoris-----413	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1
With hypertensive disease-----413.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Without mention of hypertensive disease-----413.9	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Percent change, 1968 to 1976									
Ischemic heart disease-----410-413	-20.7	-18.9	-22.3	-20.3	-18.5	-21.6	-24.4	-21.2	-27.8
Acute myocardial infarction-----410	-26.5	-25.7	-26.6	-26.2	-25.4	-26.1	-28.3	-26.8	-29.7
With hypertensive disease-----410.0	-17.7	-11.7	-24.8	-17.6	-11.3	-25.3	-16.6	-13.3	-21.3
Without mention of hypertensive disease-----410.9	-27.4	-26.7	-26.9	-27.0	-26.4	-26.4	-30.1	-28.6	-31.5
Other acute and subacute forms of ischemic heart disease-----411	-27.8	-19.2	-36.4	-18.8	-16.7	-40.0	-38.2	-35.6	-41.7
With hypertensive disease-----411.0	-	-50.0	-	-	-	-100.0	-	-33.3	100.0
Without mention of hypertensive disease-----411.9	-23.5	-20.0	-30.0	-20.0	-17.4	-33.3	-40.6	-33.3	-45.5
Chronic ischemic heart disease-----412	-12.4	-7.5	-17.6	-11.3	-6.4	-16.4	-20.7	-15.3	-26.2
Chronic ischemic heart disease with or without cardiovascular disease with hypertensive disease-----*412.1	-14.5	-9.6	-18.8	-14.1	-8.7	-18.6	-17.7	-13.2	-22.3
Cardiovascular disease without mention of chronic ischemic heart disease with hypertensive disease-----*412.2	-27.5	-23.7	-31.5	-10.3	-17.6	-28.8	-37.8	-35.6	40.0
Chronic ischemic heart disease with or without cardiovascular disease without mention of hypertensive disease-----*412.3	-15.1	-10.8	-19.6	-13.9	-9.5	-18.3	-25.3	-21.6	-29.4
Cardiovascular disease without mention of chronic ischemic heart disease without mention of hypertensive disease-----*412.4	12.4	20.4	3.6	9.9	17.5	2.8	22.3	36.3	8.6
Angina pectoris-----413	-	-	-	-	-	-	-	-100.0	-
With hypertensive disease-----413.0	-	-	-	-	-	-	-	-	-
Without mention of hypertensive disease-----413.9	-	-	-	-	-	-	-100.0	-100.0	-100.0

\*Special four-digit subcategories created by NCHS to be used instead of the fourth digits listed under category 412 of ICDA.

Table 10A. Age-adjusted death rates for Major cardiovascular diseases, by color and sex, and by rank: geographic divisions of the United States, 1969-71

[By place of residence. Rates per 100,000 population. For method of age adjustment, see Technical Notes. Rates are based on deaths assigned to category numbers 390-448 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965]

Rank	Area	Total			White			All other		
		Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
...	United States--	343.3	452.8	253.8	333.4	446.6	240.9	427.6	502.8	364.2
1	East South Central-----	367.3	483.1	272.6	347.5	473.8	244.2	460.1	536.9	398.6
2	East North Central-----	362.2	477.2	267.6	353.4	471.3	256.6	451.5	528.0	385.0
3	Middle Atlantic---	361.7	469.9	275.2	356.8	467.4	268.1	396.4	474.9	334.4
4	South Atlantic----	357.9	474.1	263.1	330.4	451.6	231.4	486.6	580.3	410.5
5	West South Central-----	332.0	440.6	242.3	315.0	431.1	219.5	434.5	505.7	375.6
6	New England-----	327.5	440.9	239.7	326.9	441.2	238.4	336.1	405.8	279.3
7	Pacific-----	310.0	410.0	226.7	310.4	415.5	224.5	289.7	339.2	240.0
8	West North Central-----	309.9	417.3	220.6	306.0	415.1	215.4	397.6	466.4	339.3
9	Mountain-----	290.5	379.7	211.1	290.8	381.9	210.1	272.4	321.5	223.0

Source: Division of Vital Statistics, National Center for Health Statistics

Table 10B. Age-adjusted death rates for Cerebrovascular diseases, by color and sex, and by rank: geographic divisions of the United States, 1969-71

[By place of residence. Rates per 100,000 population. For method of age adjustment, see Technical Notes. 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]

Rank	Area	Total			White			All other		
		Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
...	United States--	67.0	74.4	61.1	62.4	69.9	56.6	108.4	115.6	102.2
1	East South Central-----	86.7	98.4	77.4	75.4	87.9	65.7	138.1	148.8	129.5
2	South Atlantic----	75.8	85.3	68.2	64.2	73.1	57.2	132.0	145.9	120.7
3	West South Central-----	71.9	81.0	64.8	64.8	74.3	57.4	114.9	122.8	108.3
4	East North Central-----	67.8	75.8	61.6	65.2	73.7	58.6	96.4	97.4	95.5
5	West North Central-----	63.5	71.4	57.3	62.0	70.1	55.7	98.2	103.2	94.0
6	Pacific-----	62.6	67.7	58.5	61.8	67.1	57.7	68.2	71.6	64.6
7	Middle Atlantic----	59.6	64.7	55.6	57.1	62.3	53.1	83.5	89.5	78.8
8	New England-----	58.0	64.5	53.0	57.4	64.0	52.4	77.0	80.4	73.8
9	Mountain-----	57.2	61.2	53.8	56.8	60.9	53.2	68.0	69.3	66.5

Source: Division of Vital Statistics, National Center for Health Statistics

Table 10C. Age-adjusted death rates for Ischemic heart disease, by color and sex, and by rank: geographic divisions of the United States, 1969-71

[By place of residence. Rates per 100,000 population. For method of age adjustment, see Technical Notes. Rates are based on deaths assigned to category numbers 410-413 of the *Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States*, adopted in 1965]

Rank	Area	Total			White			All other		
		Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
...	United States--	230.3	321.8	155.0	228.2	323.5	149.9	244.2	300.2	197.2
1	Middle Atlantic---	259.5	354.2	183.6	259.0	356.1	180.8	253.1	315.1	204.2
2	East North Central-----	245.0	341.2	165.1	242.2	340.8	160.5	269.4	332.8	214.4
3	South Atlantic---	231.7	325.6	154.9	224.0	324.0	141.8	266.2	329.8	214.7
4	East South Central-----	229.4	320.1	154.8	227.2	327.7	144.4	241.8	292.2	201.4
5	New England-----	227.6	324.6	152.1	227.9	325.9	151.8	200.8	260.9	152.3
6	West South Central-----	209.0	295.2	137.4	204.0	296.6	127.2	239.7	291.6	196.7
7	Pacific-----	208.4	294.5	136.3	210.1	300.8	135.4	180.8	221.2	140.0
8	West North Central-----	204.0	293.7	129.0	202.8	294.0	126.6	228.7	281.3	184.2
9	Mountain-----	185.8	261.5	118.1	187.2	264.5	118.4	143.3	184.4	102.1

Source: Division of Vital Statistics, National Center for Health Statistics

Table 11. Age-adjusted death rates for Major cardiovascular diseases and components: United States, 1950-76

[Rates per 100,000 population. For method of age adjustment, see Technical Notes]

Year	Total <sup>1</sup>	Active rheumatic fever and chronic rheumatic heart disease <sup>2</sup>	Hypertensive heart disease with or without renal disease; and hypertension <sup>3</sup>	Ischemic heart disease <sup>4</sup>	Cerebrovascular diseases <sup>5</sup>	Other major cardiovascular diseases (residual)
1976 <sup>6</sup>	284.4	4.7	4.8	191.6	51.4	31.9
1975 <sup>6</sup>	291.4	4.8	5.1	196.1	54.5	30.9
1974 <sup>6</sup>	310.8	5.1	5.7	207.7	59.9	32.4
1973 <sup>6</sup>	326.9	5.4	6.3	218.9	63.7	32.6
1972 <sup>6,7</sup>	333.8	5.7	6.9	223.9	65.0	32.3
1971 <sup>6</sup>	334.8	6.0	7.2	225.1	65.2	31.3
1970 <sup>6</sup>	340.1	6.3	7.8	228.1	66.3	31.6
1969	350.4	6.6	8.5	234.7	68.3	32.3
1968	361.8	7.2	9.4	241.6	71.3	32.3
1967	362.6	6.5	22.2	211.8	69.7	52.4
1966	374.0	7.0	24.3	216.6	72.3	53.8
1965	374.2	7.4	25.2	215.8	72.7	53.1
1964	376.6	7.7	26.9	215.4	73.6	53.0
1963	388.6	8.2	29.1	220.3	76.4	54.6
1962	386.1	8.9	30.1	216.9	76.6	53.6
1961	381.6	9.1	31.1	211.4	76.7	53.3
1960	393.5	9.6	33.7	214.6	79.7	55.9
1959	391.1	9.7	35.4	210.4	80.7	54.9
1958	400.2	10.1	39.3	210.4	83.0	57.4
1957	403.1	11.1	38.5	211.2	84.2	58.1
1956	396.5	11.2	39.4	205.1	82.3	58.5
1955	396.1	11.2	41.4	200.0	83.0	60.5
1954	392.5	11.4	43.5	193.4	83.0	61.2
1953	412.7	12.5	48.7	196.1	86.9	68.5
1952	414.6	12.9	51.7	190.2	87.8	72.0
1951	420.2	13.3	54.3	187.0	89.0	76.6
1950 <sup>8</sup>	425.6	14.0	56.0	185.2	88.8	81.6

<sup>1</sup>For 1968-76 rates are based on deaths assigned to category numbers 390-448 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, 440-468 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955.

<sup>2</sup>For 1968-76 rates are based on deaths assigned to category numbers 390-398 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, 410-416 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955.

<sup>3</sup>For 1968-76 rates are based on deaths assigned to category numbers 400-404 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 440-447 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955.

<sup>4</sup>For 1968-76 rates are based on deaths assigned to category numbers 410-413 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 420 of the Sixth and Seventh Revisions adopted, respectively, in 1948 and 1955.

<sup>5</sup>For 1968-76 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.

<sup>6</sup>Excludes deaths of non-residents of the United States.

<sup>7</sup>Based on a 50-percent sample of deaths.

<sup>8</sup>Based on enumerated population adjusted for age bias in the population of races other than white.

Source: Division of Vital Statistics, National Center for Health Statistics

Table 12. Estimates of total resident population of the United States, by age, color and sex:  
July 1, 1976

[Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States. Due to rounding to the nearest thousand, detailed figures may not add to totals]

Age	Total			White			All other		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Population in thousands								
All ages-----	214,649	104,472	110,177	186,225	90,909	95,315	28,424	13,563	14,862
Under 1 year-----	3,026	1,550	1,476	2,519	1,293	1,226	507	258	249
1-4 years-----	12,313	6,289	6,024	10,134	5,189	4,945	2,179	1,100	1,079
5-14 years-----	37,168	18,954	18,214	31,072	15,888	15,184	6,096	3,066	3,030
15-24 years-----	40,605	20,427	20,178	34,624	17,497	17,127	5,981	2,930	3,051
25-34 years-----	31,891	15,765	16,126	27,810	13,890	13,920	4,081	1,875	2,206
35-44 years-----	23,012	11,207	11,805	20,101	9,893	10,207	2,912	1,314	1,599
45-54 years-----	23,636	11,430	12,205	21,002	10,207	10,795	2,632	1,223	1,410
55-64 years-----	20,064	9,487	10,578	18,134	8,595	9,538	1,931	891	1,039
65-74 years-----	14,194	6,167	8,027	12,835	5,563	7,272	1,359	604	755
75-84 years-----	6,775	2,568	4,207	6,217	2,334	3,883	558	234	324
85 years and over----	1,966	629	1,337	1,777	561	1,216	189	68	121

Source: U.S. Bureau of the Census, Current Population Reports, Series P-25, No. 643, January 1977.

## 2. TECHNICAL NOTES

### Nature and Sources of Data

Except for 1972, data shown in this chartbook are based on information from all death certificates from the 50 States and the District of Columbia. For 1972 data are from a 50-percent sample of deaths. Mortality statistics are based on information obtained directly from copies of the original certificates received from the registration offices except for data provided to the National Center for Health Statistics through the Cooperative Health Statistics System.

For the latter, mortality data for 1976, except data for cause of death, were coded from the original certificates and provided on computer tape through the Cooperative Health Statistics System by the following 22 States: Alabama, Colorado, Florida, Illinois, Kansas, Kentucky, Maine, Maryland, Minnesota, Missouri, Montana, Nevada, New Hampshire, New York (except New York City), Oklahoma, Oregon, Rhode Island, South Carolina, Tennessee, Texas, Vermont, and West Virginia. The seven States of Iowa, Louisiana, Michigan, Nebraska, North Carolina, Virginia, and Wisconsin also submitted mortality data which included data on cause of death through this System.

Data for the United States as a whole refer to events occurring within the United States. Beginning with 1970, mortality statistics exclude deaths of nonresidents of the United States.

### 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.

### 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" consists of persons reported as Negro, American Indian, Chinese, and Japanese; other numerically small racial groups; and persons of mixed white and other races.

### Age-Adjusted Rates

The age-adjusted rates presented in the chartbook 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.

### Comparability of Cause-of-Death Statistics

It has been the practice to revise the International Classification of Diseases every 10 years since 1900 to keep abreast of medical knowledge. Each decennial revision has produced breaks in the comparability of cause-of-death statistics. As shown in Table A, for some of the components of Major cardiovascular diseases, the degree of discontinuity resulting from the

Table A. Most nearly comparable category numbers and comparability ratios for Major cardiovascular diseases and its principal components

Eighth Revision List Title	Most nearly comparable category numbers by Revisions and years in use				Comparability ratios
	Eighth: 1968 to date	Seventh: 1958 to 1967	Sixth: 1949 to 1957	Fifth: 1939 to 1948	
Major cardiovascular diseases.....	390-448	330-334, 400-468	330-334, 400-468	58, 83, 90-103	8th/7th = 0.9853 7th/6th = 1.01 6th/5th = 1.18
Hypertensive heart disease with or without renal disease.....	402, 404	440-443	440-443	131a	8th/7th = 0.398 7th/6th = 1.11 6th/5th = 1.60
Ischemic heart disease.....	410-413	420	420	93d <sup>1</sup> , 94	8th/7th = 1.1457 7th/6th = 0.98 6th/5th = 0.77
Hypertension.....	400,401,403	444-447	444-447	102	8th/7th = 0.820 7th/6th = 1.33 6th/5th = 6.38
Cerebrovascular disease.....	430-438	330-334	330-334	83	8th/7th = 0.9905 7th/6th = 1.00 6th/5th = 1.16

<sup>1</sup>Compared with more than one Sixth Revision category. Of a total of 242,143 deaths assigned to 93d in the Fifth Revision, 116,888 were assigned by the Sixth Revision to ICD No. 420; and, 50,018 were assigned to ICD Nos. 440-443.

introduction of the Fifth, Sixth, Seventh, and Eighth Revisions has been considerable. An adequate presentation of mortality trends without reference to these discontinuities is impossible.

The comparability ratios presented in Table A are based on coding the same deaths occurring in a given year by both the prior and the new Revision. For each set of ratios, the year selected for the double coding was the most recent year for which final mortality statistics, according to the prior Revision, were available at the time of the computation of the comparability ratios. Between the Fifth and Sixth Revisions,

the data year used was 1950; between the Sixth and Seventh Revisions, it was 1958; and between the Seventh and Eighth Revisions, 1966.

Available comparability ratios between the Seventh and Eighth Revisions are limited to those for the total population. They are not applicable to age-color-sex specific death rates.

The principal changes in classification and coding procedures for Major cardiovascular diseases and for Diseases of heart are described in Appendices I and II.

## APPENDIX I

# COMPARABILITY RATIO FOR MAJOR CARDIOVASCULAR DISEASES

A comparability ratio frequently requested is that for Major cardiovascular diseases (ICDA Nos. 390-448). This group title includes all of the titles in "Section VII. Diseases of the circulatory system" of the Eighth Revision except the following one: Diseases of veins and lymphatics and other diseases of circulatory system (ICDA Nos. 450-458).

The most nearly comparable group title in the Seventh Revision is Diseases of cardiovascular system (ICD Nos. 330-334, 400-468).

Both of these group titles include the first and third leading causes of death—Diseases of heart (ICDA Nos. 390-398, 402, 404, 410-429) and Cerebrovascular diseases (ICDA Nos. 430-438). They also both include Diseases of arteries, arterioles, and capillaries (ICDA Nos. 440-448). The comparable title in the Seventh Revision for these latter diseases is Diseases of arteries (ICD Nos. 450-456). But the group title

Diseases of cardiovascular system (ICD Nos. 330-334, 400-468) in the Seventh Revision includes also the title Diseases of veins and other diseases of circulatory system (ICD Nos. 460-468). These diseases of veins and other diseases of circulatory system (assigned by the Eighth Revision to ICDA Nos. 450-458) are not included, however, under the Eighth Revision group title Major cardiovascular diseases (ICDA Nos. 390-448).

The exclusion of these diseases (ICDA Nos. 450-458) from the Eighth Revision group title Major cardiovascular diseases is the primary reason that the comparability ratio for these two major group titles is less than 1.00.

The comparability ratio of

$$\frac{\text{8th ICDA Nos. 390-448}}{\text{7th ICD Nos. 330-334, 400-468}} = 0.9853.$$

## APPENDIX II

# COMPARABILITY OF MORTALITY STATISTICS FOR DISEASES OF HEART

### All Diseases of Heart (ICDA Nos. 390-398, 402, 404, 410-429)

As shown in the table below, the net effect of changes introduced with the Eighth Revision on the number of deaths classified to Diseases of heart, based on coding the above-described sample of records for deaths occurring in 1966 by both the Seventh and Eighth Revisions, was an increase from 727,002 to 730,261. This gives a comparability ratio of 1.0045 (appendix I).

An estimated 10,711 deaths classified under this title by the Eighth Revision were classified elsewhere by the Seventh Revision, and 7,452 deaths classified under this title by the Seventh Revision were classified elsewhere by the Eighth. In other words, by the Eighth Revision there was a gain to Diseases of heart of 10,711 deaths and a loss of 7,452 deaths, resulting in a net gain of 3,259 deaths.

The changes responsible for the largest losses among the estimated 7,452 deaths no longer assigned to Diseases of heart are presented below under the discussions relating to the major components of the diseases of heart for which the losses occurred. The four major changes responsible for the largest gains among the estimated 10,711 deaths now assigned to Diseases of heart came from a number of Seventh Revision categories and were distributed over the components of heart disease. These four major changes are presented below.

(1) Among the 10,711 deaths assigned to Diseases of heart by the Eighth but not by the Seventh Revision were an estimated 1,773 that had been assigned by the Seventh to accidental causes. Of these 1,773 deaths, an estimated 1,422 were assigned by the Eighth Revision to

Ischemic heart disease (ICDA Nos. 410-413). These assignments occurred because the Seventh Revision rules that under certain circumstances resulted in coding an accidental cause in preference to other reported conditions were changed in the Eighth Revision. These Seventh Revision rules applied when two or more conditions, one of which was an accident, poisoning, or violence (but not a late effect of these), were entered on the death certificate in such a way that none could be regarded as the underlying cause of death.<sup>5</sup> The Eighth Revision rules, however, lead to the selection of the first-mentioned condition when causes of death are entered on the death certificate in this manner.<sup>6</sup> The following example of entries in the medical certification section of a death certificate illustrates the effect of this change in the coding rules. The death described was classified to accidental fall by the Seventh Revision rules and to coronary arteriosclerosis by the Eighth Revision rules.

- I (a) Coronary arteriosclerosis
- (b) Fracture of hip due to
- (c) Accidental fall

(For further discussion on transfers by the Eighth Revision from accidental causes, especially falls, see section 4, "Accidents.")

(2) Also among the 10,711 deaths assigned to Diseases of heart by the Eighth but not by the Seventh Revision were an estimated 2,326 that were assigned by the Seventh Revision to Other hypertensive disease (ICD Nos. 444-447). These transfers resulted from a change in the procedure for coding causes of death involving arteriosclerotic heart disease (without mention of coronary artery disease) jointly reported with

Seventh Revision		Eighth Revision	
Cause of death and category number (1)	Number of deaths in 1966 (2)	Estimated number of deaths in column (2) that went to Diseases of heart (ICDA Nos. 390-398, 402,404,410-429) (3)	Estimated number of deaths in column (2) that went to other causes (4)
All causes ..... 001-E999	1,863,149	730,261	1,132,888
Diseases of heart.....400-402,410-443	727,002	719,550	7,452
Rheumatic fever.....400-402	456	449	7
Chronic rheumatic heart disease.....410-416	14,556	14,436	120
Diseases of mitral valve.....410	5,718	5,666	52
Diseases of aortic valve specified as rheumatic.....411	1,713	1,693	20
Diseases of pulmonary valve and other endocarditis, specified as rheumatic .....413,414	773	773	-
Other rheumatic heart diseases.....412,415,416	6,352	6,304	48
Arteriosclerotic heart disease, including coronary disease.....420	573,191	570,220	2,971
Arteriosclerotic heart disease so described.....420.0	158,802	158,012	790
Heart disease specified as involving coronary arteries .....420.1	414,101	411,920	2,181
Angina pectoris without mention of coronary disease.....420.2	288	<sup>1</sup> 288	<sup>1</sup>
Chronic endocarditis not specified as rheumatic...421	3,785	3,560	225
Of mitral valve, specified as nonrheumatic .....421.0	166	157	9
Of aortic valve, not specified as rheumatic .....421.1	2,311	2,261	50
Of other valves, not specified as rheumatic.....421.2-421.4	1,308	1,142	166
Other myocardial degeneration .....422	49,796	49,175	621
With arteriosclerosis .....422.1	41,935	41,464	471
Without mention of arteriosclerosis.....422.0,422.2	7,861	7,711	150
Other diseases of heart .....430-434	31,042	28,277	2,765
Acute and subacute endocarditis.....430	757	706	51
Acute myocarditis and acute pericarditis, not specified as rheumatic .....431,432	1,065	1,051	14
Functional disease of heart.....433	10,008	7,693	2,315
Other and unspecified diseases of heart.....434	19,212	18,827	385
Hypertensive heart disease.....440-443	54,176	53,433	743
Hypertensive heart disease with arteriolar nephrosclerosis.....442	11,606	11,345	261
Other hypertensive heart disease .....440,441,443	42,570	42,088	482
Other causes..... Residual	1,136,147	10,711	1,125,436

<sup>1</sup>There were no deaths in the sample assigned to the Seventh Revision title Angina pectoris without mention of coronary disease (ICD No. 420.2). NCHS nosologists state, however, that with a possible few exceptions these deaths would be assigned by the Eighth Revision to Angina pectoris (ICDA No. 413). The exceptions, if any, resulted from the dropping of the preference in the Seventh Revision of angina pectoris over cardiovascular diseases.

hypertensive disease. The Seventh Revision had no special provision for classifying this combination of diseases, and under certain circumstances the hypertensive disease was coded as the cause of death. For example, reports of arteriosclerotic heart disease (ICD No. 420.0) due to a condition classifiable to ICD Nos. 444-447 (Other hypertensive disease) were

classified to the appropriate hypertensive disease category. In the Eighth Revision arteriosclerotic heart disease is classified as an ischemic heart disease, and four-digit subdivisions have been provided under the ischemic heart disease categories for jointly reported hypertensive disease.

(3) A third group among these 10,711 deaths assigned by the Eighth Revision to

Diseases of heart included an estimated 1,743 that were classified by the Seventh Revision to Vascular lesions affecting central nervous system (ICD Nos. 330-334). The largest number of these 1,743 causes, an estimated 1,249, were assigned to Chronic ischemic heart disease (ICDA No. 412). In addition, an estimated 166 were assigned to Hypertensive heart disease (ICDA No. 402), 164 to Acute myocardial infarction (ICDA No. 410), and 82 to Symptomatic heart disease (ICDA No. 427).

The assignments to ICDA No. 412, Chronic ischemic heart disease, resulted primarily from a change in the procedure for coding arteriosclerotic heart disease, hypertension, and an intracranial vascular lesion when jointly reported as causes of death. As mentioned above, no special provision was made in the Seventh Revision for coding Arteriosclerotic heart disease (ICD No. 420.0) jointly reported with hypertension, but provision was made for coding hypertension jointly reported with an intracranial vascular lesion to the intracranial vascular lesion. In the Eighth Revision provision is made for coding hypertension jointly reported with arteriosclerotic heart disease as well as with intracranial vascular lesions. The result of this change in coding procedure is that some deaths that were attributed to intracranial vascular lesions by the Seventh Revision are classified to chronic ischemic heart disease with hypertension by the Eighth Revision.

Two examples of entries in the medical certification part of the death certificates that illustrate this change in assignment are given below:

- I (a) Arteriosclerotic heart disease and cerebral hemorrhage
- (b) Hypertension
- (c)
  
- I (a) Cerebral embolism
- (b) Arteriosclerotic heart disease
- (c) Hypertension

By the Seventh Revision both of the deaths reported above would have been assigned to intracranial vascular lesions, but by the Eighth Revision, they are assigned to Chronic ischemic heart disease.

(4) Another substantial group among the 10,711 deaths assigned by the Eighth Revision to Diseases of heart is an estimated 1,242 causes that were coded by the Seventh Revision to General arteriosclerosis (ICD No. 450). Almost all of these (1,209) were transferred to Chronic ischemic heart disease (ICDA No. 412). In the Eighth Revision provision is made for coding arteriosclerotic heart disease (which is classified to ICDA No. 412) in preference to arteriosclerosis when the two conditions are jointly reported on the death certificate. According to the provisions of the Seventh Revision preference was given to arteriosclerotic heart disease only when this condition was specified as due to arteriosclerosis. Therefore causes of death certified in the following manner are classified to Chronic ischemic heart disease (412) by the Eighth Revision and to General arteriosclerosis (450) by the Seventh Revision.

- I (a) Hypostatic pneumonia
- (b) General arteriosclerosis with arteriosclerotic heart disease
- (c)

Although the comparability ratio for the entire group of Diseases of heart is close to 1.000, some major components of this group have comparability ratios that differ substantially from 1.000. Factors pertinent to the ratios shown in the table in appendix I for the five major components of diseases of heart are presented in the following paragraphs.

#### Major Components of Diseases of Heart

*Active rheumatic fever and chronic rheumatic heart disease (ICDA Nos. 390-398).*—In the Seventh Revision diseases of the aortic valve not qualified as rheumatic were included in ICD No. 421.1, Chronic endocarditis of aortic valve, not specified as rheumatic. This category was not included under the heading Chronic rheumatic heart disease (ICD Nos. 410-416). In the Eighth Revision, however, aortic valve diseases, unless specified as nonrheumatic, are included under Chronic rheumatic heart disease (ICDA Nos. 393-398). As a result of this change in classification almost all of the deaths that were

Seventh Revision		Eighth Revision	
Cause of death and category number (1)	Number of deaths in 1966 (2)	Estimated number of deaths in column (2) that went to Active rheumatic fever and chronic rheumatic heart disease (ICDA Nos. 390-398) (3)	Estimated number of deaths in column (2) that went to other causes (4)
All causes ..... 001-E999	1,863,149	17,293	1,845,856
Comparable causes ..... 400-402,410-416,421.1	17,323	16,652	671
Rheumatic fever and chronic rheumatic heart disease <sup>1</sup> ..... 400-402,410-416	15,012	14,724	288
Rheumatic fever ..... 400-402	456	443	13
Chronic rheumatic heart disease ..... 410-416	14,556	14,256	275
Diseases of mitral valve ..... 410	5,718	5,600	118
Diseases of aortic valve specified as rheumatic..411	1,713	1,686	27
Diseases of pulmonary valve and other endocarditis, specified as rheumatic ..... 413,414	773	759	14
Other rheumatic heart diseases ..... 412,415,416	6,352	6,236	116
Chronic endocarditis of aortic valve, not specified as rheumatic ..... 421.1	2,311	1,928	383
Other causes ..... Residual	1,845,826	641	1,845,185

<sup>1</sup>This is the title to which deaths in tables 1 and 2 were assigned during 1950-67, when the Sixth and Seventh Revisions were in use.

assigned to category 421.1 by the Seventh Revision were classified under chronic rheumatic heart disease by the Eighth. This change accounts in great part for the fact that a larger number of deaths (an estimated 17,293) were classified by the Eighth Revision to Active rheumatic fever and chronic rheumatic heart disease (ICDA Nos. 390-398) than were classified by the Seventh Revision (only 15,012 deaths) to the similar title Rheumatic fever and chronic rheumatic heart disease (ICD Nos. 400-402, 410-416). This gives an adjustment factor of 1.1519 for these two titles. (See appendix I.)

As shown above, 1,928 of the 2,311 deaths assigned by the Seventh Revision to ICD No. 421.1 were classified by the Eighth Revision to ICDA Nos. 390-398.

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 to 7.2 deaths per 100,000 population. The apparent rise in the death rate for these causes in 1968 to 8.2 per 100,000 population is attributable in great part to the above-

mentioned classification change. Applying the comparability ratio 1.1519 to the 1967 death rate of 7.2 raises it to 8.3 deaths per 100,000 population, which is very close to the 1968 rate of 8.2. The downward trend continued through 1971, when the rate was 7.1 per 100,000 population.

*Hypertensive heart disease with or without renal disease (ICDA Nos. 402, 404).*—The comparability ratio for Hypertensive heart disease with or without renal disease (ICDA Nos. 402, 404) is only 0.3941. This ratio is obtained by dividing 21,350, the estimated number of 1966 deaths classified by the Eighth Revision to this group of causes, by 54,176, the number classified to the most nearly comparable Seventh Revision title, Hypertensive heart disease (ICD Nos. 440-443). (See appendix I.) The following table shows the results of coding a random sample of 2,389 of these 54,176 deaths.

As shown in the table below, an estimated 33,741 of the 1966 deaths that were classified by the Seventh Revision to Hypertensive heart disease (ICD Nos. 440-443) were not classified

Eighth Revision		Seventh Revision	
Cause of death and category number	Estimated number of deaths	Category number	Number of deaths
Total .....	54,176	440-443	54,176
Hypertensive heart disease with or without renal disease:			
402 .....	10,717		
404 .....	9,718		
412.0 .....	32,636		
Other .....	1,105		
Hypertensive disease:	Total .....	440,441,443	42,570
402 .....	10,717		
404 .....	46		
412.0 .....	31,050		
Other .....	757		
Hypertensive heart and renal disease:	Total .....	442	11,606
402 .....	-		
404 .....	9,672		
Chronic ischemic heart disease with hypertensive disease .....	412.0 .....		1,587
Other Eighth Revision titles .....	Other .....		347

to the most nearly comparable Eighth Revision title, Hypertensive heart disease with or without renal disease (ICDA Nos. 402, 404). Of these, about 97 percent (32,636 of the 33,741) were classified to Chronic ischemic heart disease with hypertensive disease (ICDA No. 412.0) by the Eighth Revision.

As shown in the next table, there were a total of 42,570 deaths assigned to Other hypertensive heart disease (ICD Nos. 440, 441, 443) in 1966 when the Seventh Revision was in use. In the dual-coding study, it was found that about 75 percent of these deaths (31,807) were not assigned to Hypertensive heart disease with or without renal disease (ICDA Nos. 402, 404) by the Eighth Revision. Of the 31,807 deaths, an estimated 31,050 were classified to Chronic ischemic heart disease with hypertensive disease (ICDA No. 412.0).

The table below also shows that a total of 11,606 deaths in 1966 were assigned to Hypertensive heart disease with arteriolar nephrosclerosis (ICD No. 442) by the Seventh Revision. In the dual-coding study it was found that about 17 percent of these deaths (1,934) were not

assigned to the Eighth Revision title Hypertensive heart disease with or without renal disease (ICDA Nos. 402, 404). Again, an estimated 1,587 of these 1,934 deaths were classified to Chronic ischemic heart disease with hypertensive disease (ICDA No. 412.0).

These differences in code assignments between the Seventh and Eighth Revisions resulted primarily from the two changes in classification that are described below.

One of the two changes is for *Arteriosclerotic heart disease jointly reported with hypertensive disease*. The Seventh Revision had no special provision for classifying Arteriosclerotic heart disease so described (ICD No. 420.0) jointly reported with hypertensive disease. Consequently, some deaths attributable to this combination of diseases were classified by the Seventh Revision to Hypertensive heart disease (ICD Nos. 440-443). In the Eighth Revision arteriosclerotic heart disease is classified as an ischemic heart disease, and four-digit subdivisions are provided under the ischemic heart disease categories for jointly reported hypertensive disease. As a result of this change in classifi-

Seventh Revision		Eighth Revision	
Cause of death and category number  (1)	Number of deaths in 1966  (2)	Estimated number of deaths in column (2) that went to Hypertensive heart disease with or without renal disease (ICDA Nos. 402,404)  (3)	Estimated number of deaths in column (2) that went to other causes  (4)
All causes ..... 001-E999	1,863,149	21,350	1,841,799
Hypertensive heart disease.....440-443	54,176	20,435	33,741
Hypertensive heart disease with arteriolar nephrosclerosis.....442	11,606	9,672	1,934
Other hypertensive heart disease .....440,441,443	42,570	10,763	31,807
Other causes..... Residual	1,808,973	915	1,808,058

cation, the following examples of cause-of-death certifications were classified to a hypertensive heart disease (specifically to ICD No. 443) by the Seventh Revision and to Chronic ischemic heart disease with hypertensive disease (ICDA No. 412.0) by the Eighth Revision:

- I (a) Arteriosclerotic heart disease
- (b) Hypertensive heart disease
  
- I (a) Hypertensive and arterio-
- (b) sclerotic heart disease

The second change is for *Other myocardial degeneration with arteriosclerosis, jointly reported with hypertensive disease*. In the Seventh Revision category 422.1, Other myocardial degeneration with arteriosclerosis, included the conditions listed below, and provision was made for coding any condition in this category jointly reported with a hypertensive disease (ICD Nos. 440-447) to Hypertensive heart disease (440-443).

Cardiosclerosis  
Cardiovascular:  
arteriosclerosis  
degeneration  
disease

Cardiovascular sclerosis  
Myocardial degeneration with  
arteriosclerosis or  
synonym in ICD category 450

In the Eighth Revision the above-listed conditions are included in ICDA category 412, Chronic ischemic heart disease, and provision is made for classifying a jointly reported hypertensive disease in a four-digit subdivision of this category, 412.0. Specific examples illustrating the effect of this change in classification are given below.

- I (a) Cardiovascular disease [7th, ICD No. 422.1;  
8th, ICDA No. 412.9]
  
- (b) Hypertension [7th, ICD No. 444;  
8th, ICDA No. 401]

As stated above, the Seventh Revision provided for the classification of cases such as this to hypertensive heart disease (ICD No. 443), which includes cardiovascular disease (ICD No. 422.1) jointly reported with hypertension (ICD No. 444). In the Eighth Revision this example is classified to category 412.0, Chronic ischemic heart disease with hypertensive disease, which includes cardiovascular disease unqualified (ICDA No. 412.9) jointly reported with hypertension (ICDA No. 401).

- I (a) Myocardial degeneration [7th, ICD No. 422.2;  
8th, ICDA No. 428]
- (b) Arteriosclerosis [7th, ICD No. 450;  
8th, ICDA No. 440.9]
- II Nephrosclerosis [7th, ICD No. 446;  
8th, ICDA No. 403]

In the Seventh Revision arteriosclerosis (ICD No. 450) with myocardial degeneration (ICD No. 422.2) was classified to 422.1, Other myocardial degeneration with arteriosclerosis. The above example was assigned by the Seventh Revision, however, to category 442, Hypertensive heart disease with arteriolar nephrosclerosis, which includes conditions classifiable to category 422.1 jointly reported with nephrosclerosis. In the Eighth Revision, arteriosclerosis (ICDA No. 440) with myocardial degeneration (ICDA No. 428) is classified to 412.9, Chronic ischemic heart disease without mention of hypertensive disease. This example, however, is assigned to category 412.0, which includes conditions classifiable to 412.9 jointly reported with nephrosclerosis.

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 population. Applying the comparability ratio of 0.3941 to the 1967 death rate of 25.3 lowers it to 10.0. This adjusted rate is close to the 1968 rate of 8.8 deaths per 100,000 population. The downward trend for this cause continued through 1971, for which year the rate was 6.8 deaths per 100,000 population.

*Ischemic heart disease (ICDA Nos. 410-413).*—The most nearly comparable title for this group of diseases in the Seventh Revision is Arteriosclerotic heart disease, including coronary disease (ICD No. 420) (table B). Based on the 1966 comparability study, an estimated 14.57 percent more deaths (totaling 83,500) were assigned by the Eighth Revision to this title than were assigned to Arteriosclerotic heart disease, including coronary disease (ICD No. 420) by the Seventh Revision (appendix I). As shown in the table, page 12, the largest single group of these 83,500 deaths (an estimated 41,228) were assigned by the Seventh Revision to Other myocardial degeneration with arterio-

Table B. Estimated number of deaths in 1966 assigned to specified category numbers (ICDA) according to the Eighth Revision: based on a stratified random sample drawn from specified Seventh Revision category numbers for provisional set of comparability ratios

[Some figures in this table differ slightly from those in other tables because they are based on a preliminary sample that was smaller in size]

Seventh Revision ICD numbers	Total	Eighth Revision ICDA numbers					
		400,401	402-404	410	411	412	413
Total-----	687,083	3,238	27,443	366,951	6,888	282,309	254
420.0-----	157,748	-	-	3,160	-	154,588	-
420.1-----	411,678	-	-	360,794	6,785	43,857	242
420.2-----	-	-	-	-	-	-	-
422.1-----	41,229	-	-	236	-	40,993	-
430-434-----	4,095	-	27	1,090	53	2,925	-
440-443-----	53,657	184	20,543	69	-	32,861	-
442-----	11,454	-	9,780	-	-	1,674	-
440, 441, 443-----	42,203	184	10,763	69	-	31,187	-
444-447-----	10,959	2,857	6,189	46	-	1,867	-
446-----	6,620	5	5,705	11	-	899	-
444, 445, 447-----	4,338	2,851	484	35	-	968	-
All other-----	7,717	197	684	1,556	50	5,218	12

Seventh Revision		Eighth Revision	
Cause of death and category number (1)	Number of deaths in 1966 (2)	Estimated number of deaths in column (2) that went to Ischemic heart disease (ICDA Nos. 410-413) (3)	Estimated number of deaths in column (2) that went to other causes (4)
All causes ..... 001-E999	1,863,149	656,691	1,206,458
Comparable causes ..... 420,422.1,440,441,443	657,696	642,199	15,497
Arteriosclerotic heart disease, including coronary disease <sup>1</sup> ..... 420	573,191	569,715	3,476
Arteriosclerotic heart disease so described ..... 420.0	158,802	157,749	1,053
Heart disease specified as involving coronary arteries ..... 420.1	414,101	411,678	2,423
Angina pectoris without mention of coronary disease ..... 420.2	288	<sup>2</sup> 288	2
Other myocardial degeneration with arteriosclerosis ..... 422.1	41,935	41,228	707
Other hypertensive heart disease ..... 440,441,443	42,570	31,256	11,314
Other causes ..... Residual	1,205,453	14,492	1,190,961

<sup>1</sup>This is the title to which deaths in tables 1 and 2 were assigned during 1950-67, when the Sixth and Seventh Revisions were in use.

<sup>2</sup>There were no deaths in the sample assigned to the Seventh Revision title Angina pectoris without mention of coronary disease (ICD No. 420.2). NCHS nosologists state, however, that with a possible few exceptions these deaths would be assigned by the Eighth Revision to Angina pectoris (ICDA No. 413). The exceptions, if any, resulted from the dropping of the preference in the Seventh Revision of angina pectoris over cardiovascular diseases.

sclerosis (ICD No. 422.1), and of these 41,228 deaths an estimated 40,993 were classified by the Eighth Revision to Chronic ischemic heart disease (ICDA No. 412). Among the terms classified by the Eighth Revision to Chronic ischemic heart disease (ICDA No. 412) that were included under Other myocardial degeneration with arteriosclerosis (ICD No. 422.1) in the Seventh Revision are the following:

- Cardiovascular:
  - arteriosclerosis
  - degeneration
  - disease
  - sclerosis

Questions have been raised about the appropriateness of including cardiovascular diseases in category 412, Chronic ischemic heart disease, since this classification implies that cardiovascular disease means disease of the coronary arteries. A study conducted several years

ago of death certificates reporting "cardiovascular disease" indicated that this frequently is not the case. In anticipation of a possible change in the classification of these terms and for the benefit of those interested in doing further study, NCHS has created special four-digit subcategories under category 412 that are used instead of those listed under category 412 in the Eighth Revision, ICDA (table 3). These special four-digit subcategories permit the separation of deaths due to cardiovascular disease without evidence of a disease of the coronary arteries from those due to other conditions classifiable to chronic ischemic heart disease with or without mention of cardiovascular disease. They are shown in the table below.

As shown below, of the 303,362 deaths in 1969 assigned to Chronic ischemic heart disease, a total of 235,807 were described in terms that led to their assignment to numbers 412.1 and 412.3. The remaining 67,555 deaths were described in terms that led to their assignment to cardiovascular disease without mention of

Cause of death and Eighth Revision category number	1969		1971	
	Number of deaths	Percent	Number of deaths	Percent
Chronic ischemic heart disease .....412	303,362	100.0	312,351	100.0
Chronic ischemic heart disease with or without cardiovascular disease with hypertensive disease .....412.1	19,884	6.6	19,832	6.3
Cardiovascular disease without mention of chronic ischemic heart disease with hypertensive disease .....412.2	23,486	7.7	22,610	7.2
Chronic ischemic heart disease with or without cardiovascular disease without mention of hypertensive disease .....412.3	215,923	71.2	221,404	70.9
Cardiovascular disease without mention of chronic ischemic heart disease without mention of hypertensive disease .....412.4	44,069	14.5	48,505	15.5

chronic ischemic heart disease, that is, to numbers 412.2 and 412.4. (It should be noted that subcategories 412.1 and 412.2 together are equivalent to ICDA category 412.0, and subcategories 412.3 and 412.4 together are equivalent to ICDA category 412.9.)

For 1969 the death certificates for only 44,069 of these 67,555 deaths, however, did not mention hypertension. Because the Seventh Revision title Other myocardial degeneration (ICD No. 422) excluded conditions with mention of hypertensive disease, no more than these 44,069 deaths may be assumed to have been transferred from Other myocardial degeneration with arteriosclerosis (ICD No. 422.1).

Also, as shown in the above table, the percentage of deaths from Chronic ischemic heart disease assigned to category number 412.4 increased from 14.5 for 1969 to 15.5 for 1971. Of deaths assigned to causes included in 412, the percentage assigned to category number 412.4 is greater for persons of races other than white than for white persons (table 3).

The 1966 comparability study also showed an estimated 31,256 deaths classified to Ischemic heart disease (ICDA Nos. 410-413) by the Eighth Revision that had been assigned to Other hypertensive heart disease (ICD Nos. 440, 441, 443) by the Seventh Revision. The vast majority of these (an estimated 31,050) were classified to Chronic ischemic heart disease with

hypertensive disease (ICDA No. 412.0). As previously stated, these differences in code assignments between the two revisions resulted primarily from changes in the classification of deaths involving arteriosclerotic heart disease jointly reported with hypertensive heart disease and of those involving other myocardial degeneration with arteriosclerosis jointly reported with hypertensive disease.

It was also found that out of a total of 10,008 deaths classified to Functional disease of heart (ICD No. 433) by the Seventh Revision, an estimated 2,805 were assigned to Chronic ischemic heart disease without mention of hypertensive disease (ICDA No. 412.9) by the Eighth Revision. These differences in code assignments resulted primarily from a change in the Seventh Revision procedure which gave priority to Functional disease of heart (ICD No. 433) over Other myocardial degeneration with arteriosclerosis (ICD No. 422.1). In the Eighth Revision functional heart diseases are included in category 427, Symptomatic heart disease; and category 412, Chronic ischemic heart disease, includes conditions classifiable to category 422.1 in the Seventh Revision. Also, a condition classifiable to category 412 is given priority over one classifiable to 427.

The distribution by the Eighth Revision of the 414,101 deaths assigned by the Seventh Revision to Heart disease specified as involving

Cause of death and Eighth Revision category number	Estimated deaths in 1966 assigned to ICD No. 420.1
Ischemic heart disease .....410-413	411,678
With hypertensive disease (.0) .....	37,073
Without mention of hypertensive disease (.9) .....	374,605
Acute myocardial infarction.....410	360,794
With hypertensive disease (.0) .....	31,985
Without mention of hypertensive disease (.9) .....	328,809
Other acute or subacute forms of ischemic heart disease.....411	6,785
With hypertensive disease (.0) .....	485
Without mention of hypertensive disease (.9) .....	6,300
Chronic ischemic heart disease .....412	43,857
With hypertensive disease (.0) .....	4,361
Without mention of hypertensive disease (.9) .....	39,496
Angina pectoris .....413	1,242
With hypertensive disease (.0) .....	1,242
Without mention of hypertensive disease (.9) .....	-
Other causes..... Residual	2,423

<sup>1</sup>This figure may be unreliable because there was only one sample death assigned to this cause.

coronary arteries (ICD No. 420.1), as found by the 1966 comparability study, is shown above. About 88 percent of the 360,794 deaths assigned to Heart disease specified as involving coronary arteries (ICD No. 420.1) by the Seventh Revision were assigned to Acute myocardial infarction (ICDA No. 410) by the Eighth. Since category 410 includes, however, deaths involving acute myocardial infarction jointly reported with chronic ischemic heart disease, the number of these deaths associated with chronic ischemic heart disease cannot be ascertained.

Adjusting the 1967 death rate of 289.7 deaths per 100,000 population for Arteriosclerotic heart disease, including coronary disease (ICD No. 420), to the level it would have been if the 1967 deaths had been coded by the Eighth Revision raises it to 331.9 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 population for Ischemic heart disease, which is based on coding deaths by the Eighth Revision. The 1971 death rate for this cause is 327.0 per 100,000 population.

*Chronic disease of endocardium and other myocardial insufficiency (ICDA Nos. 424, 428).*—Figures for 1966 and 1967 are shown in tables 1 and 2 for Seventh Revision categories 421, Chronic endocarditis not specified as rheumatic, and 422, Other myocardial degeneration, which appear to be comparable to the above ICDA categories. As shown in appendix I and in the table below, however, only about 16 percent of the deaths assigned to ICD categories 421 and 422 by the Seventh Revision were assigned to ICDA categories 424 and 428 by the Eighth. This occurred primarily because terms included under Other myocardial degeneration with arteriosclerosis (ICD No. 422.1) were transferred by the Eighth Revision to Chronic ischemic heart disease (ICDA No. 412). The result was that an estimated 41,228 of the 41,935 deaths that were assigned to ICD No. 422.1 by the Seventh Revision were assigned to Ischemic heart disease (ICDA Nos. 410-413) by the Eighth Revision.

Another important factor was the change between the Seventh and Eighth Revisions in the classification of diseases of the aortic valve. As stated under the discussion of Active rheumatic fever and chronic rheumatic heart disease (ICDA Nos. 390-398), diseases of the aortic valve not specified as rheumatic were included in category 421.1 in the Seventh Revision. In the Eighth Revision aortic valve diseases, unless they are qualified as nonrheumatic, are included under Chronic rheumatic heart disease. As a result of this change an estimated 1,922 deaths that were assigned to ICD No. 421.1 by the Seventh Revision were assigned to ICDA No. 395.9 by the Eighth Revision.

The 1967 death rate for Chronic endocarditis not specified as rheumatic together with Other myocardial degeneration (ICD Nos. 421 and 422) was 26.6 per 100,000 population. Adjusting this rate to the level it would have been if 1967 deaths had been coded by the Eighth Revision reduces it to 4.8 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 population, based on coding deaths by the Eighth Revision. For 1971 the death rate for this cause dropped to 3.0 per 100,000 population.

Seventh Revision		Eighth Revision	
Cause of death and category number (1)	Number of deaths in 1966 (2)	Estimated number of deaths in column (2) that went to Chronic disease of endocardium and other myocardial insufficiency (ICDA Nos. 424, 428) (3)	Estimated number of deaths in column (2) that went to other causes (4)
All causes ..... 001-E999	1,863,149	9,768	1,853,381
Nonrheumatic chronic endocarditis and other myocardial degeneration <sup>1</sup> .....421,422	53,581	8,688	44,893
Comparable causes .....421,422.0,422.2	11,646	8,452	3,194
Chronic endocarditis not specified as			
rheumatic.....421	3,785	1,469	2,316
Of mitral valve, specified as nonrheumatic ....421.0	166	129	37
Of aortic valve, not specified as rheumatic ....421.1	2,311	283	2,028
Of other valves, not specified as			
rheumatic.....421.2-421.4	1,308	1,057	251
Other myocardial degeneration without mention of arteriosclerosis .....422.0,422.2	7,861	6,983	878
Other causes..... Residual	1,851,503	1,316	1,850,187
Other myocardial degeneration with arteriosclerosis.....422.1	41,935	236	41,699

<sup>1</sup>This is the title to which deaths in tables 1 and 2 were assigned during 1950-67, when the Sixth and Seventh Revisions were in use.

All other forms of heart disease (ICDA Nos. 420-423, 425-427, 429).—Introduction of the Eighth Revision resulted in assigning about 19 percent fewer deaths to this group title than were assigned to the most nearly comparable title, Other diseases of heart (ICD Nos. 430-434), by the Seventh Revision. This gives a comparability ratio of 0.8104 (appendix I).

As shown in the table below, an estimated 5,664 of the 10,008 deaths that had been assigned to Functional disease of heart (ICD No. 433) by the Seventh Revision were not assigned to All other forms of heart disease (ICDA Nos. 420-423, 425-427, 429) by the Eighth Revision. An estimated 2,805 of these 5,664 deaths were classified to Chronic ischemic heart disease without mention of hypertensive disease (ICDA No. 412.9), an estimated 1,498 to Arteriosclerosis (ICDA No. 440), and an estimated 272 to Cerebrovascular diseases (ICDA Nos. 430-438) by the Eighth Revision. These differences in assignments resulted from the following changes in coding procedures:

- 1) *Functional heart disease jointly reported with Other myocardial degeneration with arteriosclerosis.*—In the Seventh Revision provision is made for coding Functional disease of heart (ICD No. 433) in preference to Other myocardial degeneration with arteriosclerosis (ICD No. 422.1). In the Eighth Revision this combination of diseases is classified to Chronic ischemic heart disease without mention of hypertensive disease.
- 2) *Functional heart disease jointly reported with arteriosclerosis.*—The Seventh Revision provides for the classification of this combination of diseases to functional heart disease. In the Eighth Revision no special preference is given to functional heart disease. Therefore, under certain circumstances assignment is to Arteriosclerosis, e.g., when functional heart disease is reported as due to arteriosclerosis.

Seventh Revision		Eighth Revision	
Cause of death and category number  (1)	Number of deaths in 1966  (2)	Estimated number of deaths in column (2) that went to All other forms of heart disease (ICDA Nos. 420-423,425-427,429)  (3)	Estimated number of deaths in column (2) that went to other causes  (4)
All causes ..... 001-E999	1,863,149	25,156	1,837,993
Other diseases of heart .....430-434	31,042	23,375	7,667
Acute and subacute endocarditis.....430	757	654	103
Acute myocarditis and acute pericarditis, not specified as rheumatic.....431,432	1,065	892	173
Functional disease of heart.....433	10,008	4,344	5,664
Other and unspecified diseases of heart.....434	19,212	17,485	1,727
Other causes ..... Residual	1,832,107	1,781	1,830,326

3) *Functional heart disease jointly reported with arteriosclerosis and cerebrovascular disease.*—In both the Seventh and Eighth Revisions provision is made for coding cerebrovascular diseases in preference to arteriosclerosis. As noted above, however, the provision for coding functional heart disease in preference to arteriosclerosis was dropped in the Eighth Revision. As a result of this change the following examples are classified to cardiac arrhythmia by the Seventh Revision and cerebrovascular disease by the Eighth Revision:

- I (a) Cardiac arrhythmia
- (b) Arteriosclerosis
- (c)

## II Cerebrovascular disease

- I (a) Arrhythmia and cerebrovascular disease
- (b) General arteriosclerosis
- (c)

The adjusted 1967 death rate for Other diseases of heart (ICD Nos. 430-434) is 12.8 deaths per 100,000 population. This is obtained by multiplying the recorded death rate of 15.8 by the comparability ratio of 0.8104. The death rates for 1968-71 are 14.0, 15.0, 15.9, and 16.6, respectively, per 100,000 population.