Appendixes

Appendix A

Morbidity and Mortality Data

Introduction

The "graying" of the population in the 20th century is a well-documented phenomenon (see ch. 2). Scrutiny of trends in the major causes of death (mortality) and in the pre-valence[1] of certain chronic illnesses (morbidity) that are known to increase with age may help to better prepare our medical, research, and social service resources to meet the health needs of the growing elderly population.

Comparison of trends in morbidity and mortality for specific conditions can often yield valuable clues to their underlying forces. For example, while the death rates from both heart disease and diabetes have gen - erally fallen among the elderly in recent years, their prevalence as chronic conditions has risen. The reason for this divergence is unclear, but probably involves better treatment of ongoing symptoms of the chronic condition along with improved medical treatment for acute episodes. Better acute care keeps the death rate down but also may add to chronic illness through the after-effects of the acute episode. Since chronic disease causes most disability and usurps a large portion of our health care resources (see section on "Morbidity"; also, ch. 8), such trends have important implications for government policy.

This appendix analyzes the age, gender, and race differences in such trends among persons 65 and over. Given the often striking heterogeneity among the elderly in terms of health status and risk, health policy could be more effectively targeted towards certain high-risk subgroups. Correlation of these trends in morbidity and mortality with changes in behavioral and environmental risk factors is attempted where possible. Many risk factors are controllable and have implications for public health promotion and education (see ch. 4).

Appendix B: Cell Biology of Aging presents theories of biological aging as a chronological process distinct from age-related disease, and outlines what is known and not known about the aging process. A better understanding of the mechanisms underlying aging, and their possible involvement in the relatively high prevalence of certain diseases in the elderly, may lead to medical technologies that can delay the onset and progression of both aging and age-related diseases (see ch. 2). These advances could improve the general health and productivity of the growing proportion of' people who reach old age.

First the limitations of the data are discussed, followed by sections on trends in mortality and morbidity and ending with a brief summary of the conclusions that may be drawn from this analysis.

[1] Prevalence is the estimated average frequency of an event or condition occuring within a population during a specified period of time, which in this report is usually 1 year

Limitations of the data

This chapter is based largely on U.S. data collected by the National Center for Health Statistics (NCHS). Because some States did not participate in the death registration program until 1933, most of the mortality data used in this appendix is dated from 1940 onward. Comparison of mortality and morbidity data from different -years is further limited by the numerous revisions of the International Classification of Diseases (ICD) since 1900 (a total of nine, one every 7 to 10 years). Comparability ratios that account for these classification changes are available for the rates of most major causes of death to allow more accurate trend analysis. No such ratios are available for data on prevalence of chronic conditions, however, and comparisons of morbidity data are thus generally limited to the period of the eighth ICD revision (196.8-78).

Analysis of morbidity trends is further complicated by the tendency of the elderly to develop multiple disorders and to manifest symptoms different from those of younger people. Diagnosis can thus be more difficult, with implications for both the accuracy of the data and, most importantly, for health care delivery. Moreover, as diagnostic practices and public alwareness of certain conditions improve, rates of both morbidity and mortality may be raised by increased detection of chronic cases and of principal (v. contributing) causes of death, as is discussed further in the text.

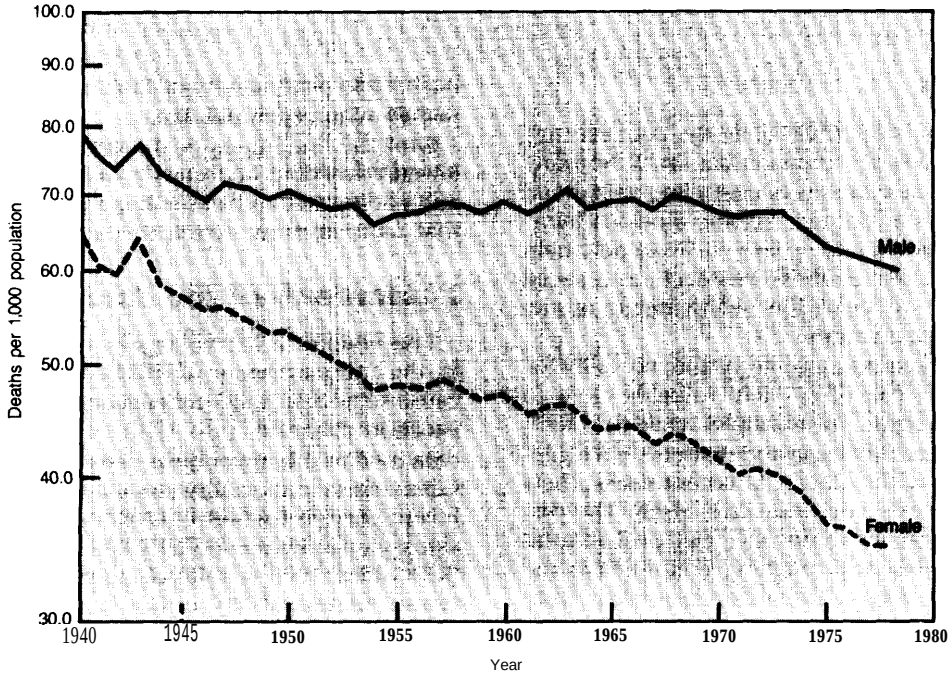
Mortality

TRENDS IN GENERAL DEATH RATES

Death rates among the elderly have declined progressively since 1900; during some periods there have been dramatic changes (figs. A-1 and A-2). From 1940 to 1978, the age-adjusted[2] death rate for the elderly fell by 38 percent (table A-l). Following a sharp drop during the 1940-54 period, when the *annual* decline average 1..5 percent, this rate leveled off between

[2] "Age-adjusted" means that age-specific rates are weighted according to the age distribution of the population in a given reference year (see rh 2)

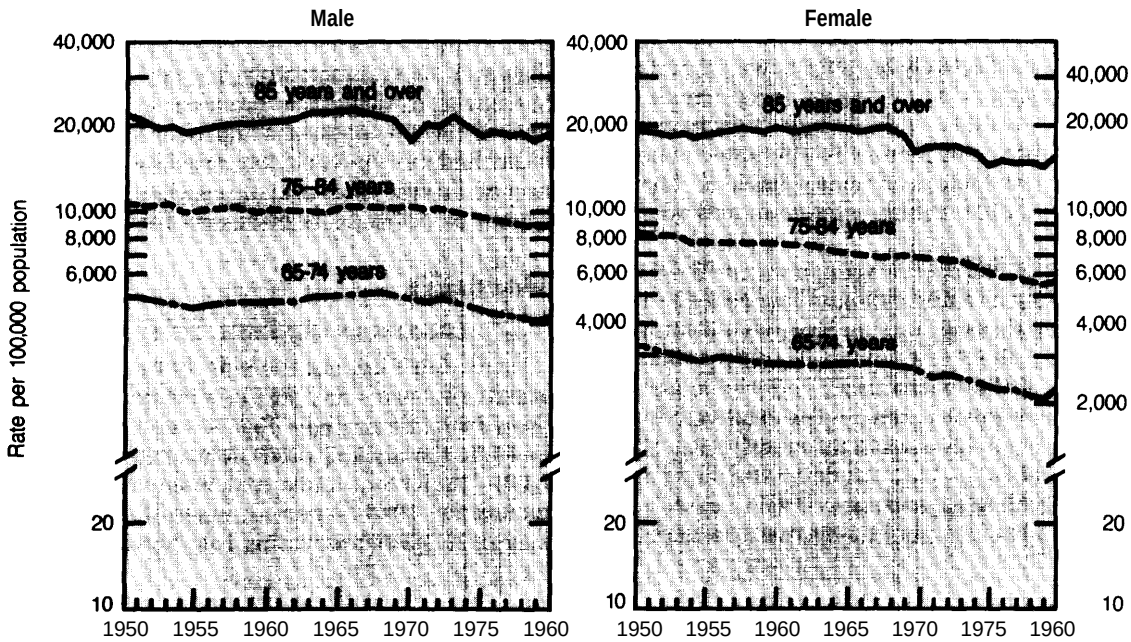
Figure A-l.— Age-Adjusted Death Rates Among Persons Aged 65 and Over, by Sex: United States, 1940.78



NOTES: Age adjusted by the direct method to the population aged 65 and over in the United States as enumerated in 1940, using 5 age groups Death rates for the group aged 85 and over in 1970 used in computation of rates are based on population estimates revised by the US Bureau of the Census to correct for overesti-. mates of the group aged t 00 and over

SOURCE Adapted from US. DHHS, NCHS, 1982 (63).

Figure A.2.—Death Rates Among Persons Aged 65 and Over for All Causes, by Sex and Age: United States, 1950-80



SOURCE: Adapted from U.S. DHHS, NCHS, 1983 (67).

Table A-I.—Age-Adjusted Death Rates for Males and Females Aged 65 and Over: United States, 1940 and 1978

Sex	Age adjusted		
	1940	1978	Percent change
Both sexes	72.2	45.0	- 37.70/0
Male	79.5	60.0	-24.5
Female	65.3	34.8	-46,7

SOURCE U.S DHHS, NCHS, 1982 (63)

1955 and 1967, then decreased sharply once again between 1968 and 1978 at an average rate of 2.0 percent a year (63), The percent change was similar for all age-specific subgroups, ranging from – 35.4 percent for the 85 and over group to – 44.4 percent for those 75 to 79 (table A-2).

GENDER DIFFERENCES IN DEATH RATES

The decline in death rates over the past century is more pronounced for women than for men, as shown

Table A"2.—Death Rates Among All Persons Aged 65 and Over, by Selected Age Groups: United States, 1940.78, 1980

Year	65-69 years	70-74 years	75-79 years	80-84 years	85 years and over
	Deaths per 1,000 population				
1940. ,	39.7	61.1	94.8	145.6	235.7
1941	37.9	58.2	88.4	139.6	218.7
1942	37.0	56.5	84.9	134.3	211.1
1943	37.5	58.8	89.9	142.2	230.3
1944	35.7	55.9	85.9	133.0	215.3
1945	34.8	53.9	84.5	125.7	209.6
1946	33.5	52.2	82.3	120.1	210.6
1947 ... ,	34.2	53.5	84.0	121.8	216.9
1948	33.8	52.3	82.5	118.8	213.2
1949	33.5	51.3	80.6	116.3	203.2
1950	33.8	51.5	78.9	120.9	202.0
1951	33.0	50.3	78.2	119.1	197.6
1952	32.6	49.2	76.4	117.4	190.6
1953	32.7	49.0	75.8	118.9	191.9
1954	31.4	46.9	72.1	112.3	181.6
1955	31.7	47.0	73.7	114.7	189.8
1956	31.7	46.7	73.1	115.2	192.3
1957	32.6	47.7	73.1	115.9	197.9
1958	31.9	47.0	72.9	116.2	198.0
1959	31.1	46.1	71.0	114.1	194.2
1960	31.4	47.2	72.0	117.2	198.6
1961	30.7	45.0	69.5	111.3	196.3
1962	31.1	45.4	70.7	111.7	204.9
1963	31.3	46.1	71.9	112.8	209.9
1964	30.3	44.5	69.4	108.0	199.2
1965	30.5	44.2	69.8	108.1	200.7
1966	30.6	44.9	69.8	107.8	199.8
1967	29.9	44.1	67.8	104.0	192.2
1968	30.8	45.3	69.5	106.4	195.8
1969	30.2	44.1	67.3	104.6	188.2
1970	29.7	43.7	67.2	101.6	175.4
1971 !	28.6	43.0	66.3	99.0	174.3
1972	28.8	44.0	67.5	99.1	173.5
1973	28.0	43.0	67.2	97.8	174.3
1974	27.0	41.9	64.5	94.7	165.3
1975	25.7	40.5	62.1	91.0	151.9
1976	25.4	39.5	61.9	90.3	154.9
1977	24.8	38.5	60.7	88.1	147.3
1978	24.6	37.9	60.2	89.5	147.0
1980	24.6	36.8	55.0	86.4	159.8
Percent change 1940-80	-39.3'%0	-39.8%	-44.4%	-40.7%	–35.4%

SOURCE:U.S. DHHS,NCHS, 1982(63) and 1983(67)

in figure A-1. The age-adjusted decline from 1940 to 1978 for elderly women was 47 percent, almost twice the decline of 24 percent for elderly men in the same period (table A-l). The percent change in the death rate was less for women over 80 in this period (table A-3). The percent decline for every age group of elderly men was smaller than that for women (table A-4). Correspondingly, the increase in life expectancy at age 65 for women (+35 percent) from 1940 to 1978 was more than twice as great as that for men (+16 percent) (63).

Furthermore, the ratio of death rates for elderly men to those of elderly women has increased steadily over the years but more slowly in the older age groups (table A-5). The annual increase in the ratio for the "younger" elderly subgroups dropped between 1968 and 1978 as a result of the accelerating decline in the general death rate of elderly men under age 80 (63).

RACE DIFFERENCES IN DEATH RATES[3]

Death rates for elderly black women and elderly whites of both sexes fell between 1950 and 1980 (table A-6). The decline for whites was greater than that for

[3]This report often distinguishes between white and black or white and 'all other races" depending on the available statistics and the significance of the difference between the subgroups. Since the "all other" population is approximately 95 percent black, these two categories are roughly comparable.

Table A-3.—Death Rates Among Females Aged 65 and Over, by Selected Age Groups: United States, 1940-78,1980

Year	65-69 years	70-74 years	75-79 years	80-84 years	85 years and over
	Deaths per 1,000 population				
1940	33.9	54.3	86.5	136.0	227.6
1941	32.0	51.1	80.3	129.2	208.8
1942	30.9	49.8	77.0	124.3	202.9
1943	31.7	51.8	81.7	131.9	221.2
1944	29.9	49.3	77.8	124.3	207.8
1945	28.9	47.0	76.3	116.7	201.3
1946	27.6	45.8	74.2	112.0	203.0
1947	27.7	46.2	75.2	113.2	207.2
1948	27.0	44.7	73.5	110.0	203.1
1949	26.6	43.6	71.1	106.6	194.4
1950	26.4	43.2	69.6	110.7	191.9
1951	25.4	41.8	68.8	108.6	190.1
1952	25.0	41.0	67.1	105.7	186.1
1953	24.9	40.5	66.0	107.1	186.6
1954	23.7	38.2	62.7	100.6	177.4
1955	23.9	37.7	63.8	102.9	185.5
1956	23.7	37.3	63.0	103.2	186.6
1957	24.1	37.8	62.9	104.4	191.5
1958	23.4	37.3	62.2	104.6	191.0
1959	22.7	36.2	60.5	102.9	186.8
1960	22.6	36.7	60.7	105.3	190.1
1961	21.9	35.0	58.2	99.5	186.9
1962	22.0	35.1	59.0	99.7	194.0
1963	22.0	35.2	59.4	99.8	197.9
1964	21.4	33.7	57.1	95.4	189.1
1965	21.4	33.1	57.0	94.7	189.0
1966	21.5	33.6	56.9	94.3	188.5
1967	21.0	32.7	54.8	90.6	180.4
1968	21.5	33.3	56.1	92.8	184.3
1969	20.9	32.6	54.0	90.6	177.1
1970	20.4	32.4	53.8	87.7	163.5
1971	19.5	31.8	52.8	85.0	162.2
1972	19.8	32.4	53.5	84.7	162.0
1973	19.0	31.6	53.4	83.4	162.3
1974	18.2	30.7	51.1	80.9	153.9
1975	17.3	29.5	48.8	76.9	140,3
1976	17.1	28.6	48.5	76.3	143.1
1977	16.9	27.7	47.4	73.9	135.4
1978	16.9	27.2	47.1	75.1	135.4
1980	17.2	26.7	42.6	72.6	147.5
Percent change 1940-80	–49.3%	-50.8%	-50.7%	–46.6%	-35.2940

SOURCE: U.S. DHHS,NCHS, 1962 (63) and 1963(67)

Table A-4.–Death Rates Among Males Aged 65 and Over, by Selected Age Groups: United States, 1940.78,1980

Year	**65-69** years	70-74 years	75-79 years	80-84 years	85 years and over
			Deaths per 1,000 population		
1940	45.5	68.0	103.7	156.6	*246.4*
1941	43.9	65.5	97.2	151.8	*231.9*
1942	43.1	63.3	93.7	146.1	*222.1*
1943	43.5	66.0	99.0	154.6	*242.6*
1944	41.6	62.9	94.8	143.6	*225.5*
1945	41.0	61.0	93.7	136.6	*220.7*
1946	39.7	59.0	91.4	129.9	*221.1*
1947	41.0	61.3	93.9	132.0	*229.3*
1948	40.9	60.4	92.7	129.6	*226.4*
1949	40.8	59.6	91.3	128.1	*215.0*
1950	41.6	60.6	89.6	133.4	*216.4*
1951	41.1	59.7	89.1	132.1	*208.2*
1952	40.7	58.3	87.3	132.5	*196.7*
1953	41.0	58.5	87.1	134.4	*199.2*
1954	39.8	56.7	83.3	127.5	*187.4*
1955	40.2	57.5	85.4	130.3	*195.9*
1956	40.5	57.5	85.3	131.3	*200.5*
1957	42.0	59.0	85.6	131.4	*207.3*
1958	41.4	58.2	85.9	132.0	*208.3*
1959	40.7	57.6	84.0	129.5	*205.4*
1960	41.4	59.5	86.2	133.7	*211.9*
1961	40.8	56.9	83.9	127.9	*210.8*
1962	41.6	57.8	85.6	128.7	*222.5*
1963	42.4	59.6	88.1	131.3	*229.4*
1964	41.0	58.0	85.6	126.4	*216.4*
1965	41.4	58.3	87.0	128.1	*220.8*
1966	41.7	59.4	87.4	128.0	*220.1*
1967	40.7	59.1	85.8	124.6	*213.4*
1968	42.2	61.3	88.4	127.6	*217.3*
1969	41.6	59.6	86.4	126.8	*208.8*
1970	41.2	58.9	86.8	123.9	*197.7*
1971	39.9	58.2	86.2	122.1	*197.5*
1972	40.0	59.8	88.4	123.4	196.0
1973	39.3	58.7	88.1	122.4	198.1
1974	38.0	57.2	85.1	118.6	188.8
1975	36.4	55.6	82.5	115.9	175.7
1976	35.9	54.3	82.6	115.2	179.8
1977	34.7	53.2	81.5	113.6	173.0
1978	34.4	52.4	80.7	116.0	172.6
1980	33.9	50.8	74.8	112.4	188.0
Percent change 1940-80	–25.50/o	-25.3%	-27.90/o	-28.2%	-23.7%

SOURCE:US. DHHS, NCHS,1982(63)and 1963(67).

Table A-5.—Mortality Sex Ratios[a] Among Persons Aged 65 and Over, by Selected Age Groups: United States, 1940-78,1980

Year	65 years and over[b]	65-69 years	70-74 years	75-79 years	80-84 years	85 years and over
			Ratio			
1940	1.22	1.34	1.25	1.20	1.15	1.08
1941	1.24	1.37	1.28	1.21	1.17	1.11
1942	1.24	1.39	1.27	1.22	1.18	1.09
1943	1.24	1.37	1.27	1.21	1.17	1.10
1944	1.24	1.39	1.28	1.22	1.16	1.09
1945	1.26	1.42	1.30	1.23	1.17	1.10
1946	1.25	1.44	1.29	1.23	1.16	1.09
1947	1.28	1.48	1.33	1.25	1.17	1.11
1948	1.30	1.51	1.35	1.26	1.18	1.11
1949	1.32	1.53	1.37	1.28	1.20	1.11
1950	1.34	1.58	1.40	1.29	1.21	1.13
1951	1.35	1.62	1.43	1.30	1.22	1.10
1952	1.35	1.63	1.42	1.30	1.25	1.06
1953	1.37	1.65	1.44	1.32	1.25	1.07
1954	1.39	1.68	1.48	1.33	1.27	1.06
1955	1.39	1.68	1.53	1.34	1.27	1.06
1956	1.41	1.71	1.54	1.35	1.27	1.07
1957	1.42	1.74	1.56	1.36	1.26	1.08
1958	1.43	1.77	1.56	1.38	1.26	1.09
1959	1.44	1.79	1.59	1.39	1.26	1.10
1960	1.47	1.83	1.62	1.42	1.27	1.11
1961	1.49	1.86	1.63	1.44	1.29	1.13
1962	1.50	1.89	1.65	1.45	1.29	1.15
1963	1.53	1.93	1.69	1.48	1.32	1.16
1964	1.54	1.92	1.72	1.50	1.32	1.14
1965	1.57	1.93	1.76	1.53	1.35	1.17
1966	1.57	1.94	1.77	1.54	1.36	1.17
1967	1.59	1.94	1.81	1.57	1.38	1.18
1988	1.61	1.96	1.84	1.58	1.38	1.18
1969	1.62	1.99	1.83	1.60	1.40	1.18
1970	1.64	2.02	1.82	1.61	1.41	1.21
1971	1.66	2.05	1.83	1.63	1.44	1.22
1972	1.66	2.02	1.85	1.65	1.46	1.21
1973	1.68	2.07	1.86	1.65	1.47	1.22
1974	1.69	2.09	1.86	1.67	1.47	1.23
1975	1.72	2.10	1.88	1.69	1.51	1.25
1976	1.72	2.10	1.90	1.70	1.51	1.26
1977	1.73	2.05	1.92	1.72	1.54	1.28
1978	1.73	2.04	1.93	1.71	1.54	1.27
1980	—	1.97	1.90	1.76	1.55	1.28

[a] Ratio of male death rate to female death rate.
[b] Age adjusted by the direct method to the population 65 years of age and over as enumerated in 1940 using 5 age groups

SOURCE: U.S. DHHS, NCHS, 1962(63) and 1963(67)

Table A-6.—Death Rates[a] by Sex, Age, and Race: United States, 1950-80

Year	Male						Female					
	White			Black			White			Black		
	65–74	75–84	85 and over	65–74	75–84	85 and over	65–74	75–84	85 and over	65–74	75–84	85 and over
1950	48.6	105.3	221.2		*101.0*[b]		32.4	84.8	196.8	40.6		*83.5*[b]
1960	48.5	103.0	217.5		86.0	148.4	27.8	77.0	194.8	40.6	67.3	130.5
1965	48.3	102.4	227.3		89.8	159.7	25.8	71.3	193.5	37.4	66.2	131.4
1970	48.1	101.0	203.9		94.5	144.1	24.7	67.0	167.3	38.6	66.9	121.3
1975	43.6	96.1	182.6		93.4	124.5	21.5	60.3	144.9	33.1	64.2	95.6
1978	41.3	94.2	181.0		102.6	113.8	20.6	58.1	140.8	29.2	72.4	87.9
1980	40.4	88.3	191.0		92.3	161.0	20.7	54.0	150.0	30.6	62.1	123.7
Percent change 1950–80	−16.9	−16.1	−13.6	−3.4	+7.3[c]	+8.5[c]	−36.1	−36.3	−23.8	−23.5	−7.7[c]	−5.2[c]

[a]Number per 1,000 population.
[b]Italic numbers are for the 75 and over group.
[c]Percent change calculated for 1960–80.

SOURCE: Adapted from U.S. DHHS, NCHS, 1982 (65) and 1983 (67).

blacks in all age groups. While the rate for black men 65 to 74 also fell during this period, the rate for those over 75 actually rose after 1960.

Death rates were consistently lower for whites from 1960 to 1980 in the 65 to 74 age group but lower for blacks in the over-85 group. In the 75 to 84 group, however, the black death rate was lower for women through 1970 and for men through 1975, after which both rates rose to surpass the rates for whites. The reasons for these race differences in death rates among the elderly remain largely unknown. Suggestions include race differences in accuracy of age reporting and the possibility that very old black persons are more likely than whites to be healthy (see ch. 2).

TRENDS IN MAJOR CAUSES OF DEATH

The trends in the major causes of death that underlie the falling death rates since the turn of the century are significant indicators of the efficacy of improvements in public health, health care practices, and medical technology. Such changes are also useful in predicting future trends in order to anticipate how the Nation's medical, social service, and health promotion systems should prepare to meet changing needs.

Since the turn of the century, the major causes of death among the elderly and in the general population have shifted from infectious diseases to cardiovascular diseases and cancer (tables A-7 through A-9). Although mortality data before 1933 are incomplete, the available figures cite tuberculosis and "pneumonia and influenza" as the leading killers of people of all ages until 1920 (NCHS, unpublished data). These three diseases alone are estimated to have caused approximately 23 percent of all deaths in 1900 (table A-7), The decline in infectious disease can be attributed largely to improved public sanitation, the advent of vaccines, greater accessibility to health care for all subgroups of the population, and the development of antibiotic treatments. Pneumonia and influenza, however, are still ranked fourth as cause of death among the elderly and sixth in the general population.

The three current leading causes of death both in the general population and among those over age 65 are diseases of the heart, malignant neoplasms (cancer), and cerebrovascular disease (stroke), in that order (tables A-8 and A-9). These three conditions accounted for three out of every four deaths among the elderly both in 1950 and 1978 (63). Of the top 10 causes of death among the elderly today, only cancer and chronic obstructive lung disease are increasing.

Diseases of the Heart. -Heart disease has been the leading cause of death in the general population as well as among the elderly since the 1920s. The death rates for heart disease increase progressively with age in men and women, peaking in the 85 and over group (fig. A-3, table A-10). Cardiovascular disease in general affects 50 percent of those over 70, but only 11 percent of those under 40 (37).

Death rates for heart disease declined very rapidly among the elderly in the 1968-78 period; annual decreases averaged 2 percent (63). The decline from 1950 to 1978 was consistently greater for elderly women than men and generally less in the older age groups (table A-10). The male-female ratio of death rates for heart disease increased for all age groups over the period and is most pronounced in the 65 to 74 age group (table A-1 1). The differences in both current rate and decline between the sexes were smaller in the older age groups, however.

There are also significant race differences in heart disease mortality: elderly white men exhibit higher rates than black men in most age groups; white wom-

Table A"7.—Major Causes of Death: United States, 1900

Rank order	Number	Rate[a]	Percent of all deaths
All causes	343,217	1,719.1	
1 Pneumonia (all forms) and influenza . . . 107-109,33	40,362	202.2	11 .8%
2 Tuberculosis (all forms) 13-22	38,820	194.4	11 .3%0
3 Diarrhea, enteritis, and ulceration of the intestines. 119,120	28,491	142.7	8.30%
4 Diseases of the heart 90-95	27,427	137.4	8 . 0 %
5 Intracranial lesions of vascular origin 83	21,353	106.9	**6 . 2 %**
6 Nephritis (all forms). 130-132	17,699	88.6	5.2%
7 All accidents 169-195	14,429	72.3	4.2%
8 Cancer and other malignant tumors. 45-55	12,769	64.0	3.70/~
9 Senility 162	10,015	50.2	2.9%
10 Diphtheria 10	8,056	40.3	2.3%

[a]Per 100,000 people.

SOURCE: National Center for Health Statistics, unpublished data.

Table A-8.—Deaths and Death Rates[a] for the 10 Leading Causes of Death: United States, 1980

Rank order	Cause of death[b]	Number	Rate	Percent of all deaths
	All ages			
...	All causes	1,989,841	878.3	1000/0
1	Diseases of heart 390-398, 402, 404-429	761,085	336.0	38.2
2	Malignant neoplasms, including neoplasms of lymphatic and hemato-poietic tissues 140-208	416,509	183.9	20.9
3	Cerebrovascular diseases 430-438	170,225	75.1	8.5
4	Accidents and adverse effects E800–E949	105,718	46.7	5.3
...	Motor vehicle accidents. E810–E825	53,172	23.5	2.7
...	All other accidents and adverse effects E800-E807, E826-E949	52,546	23.2	2.6
5	Chronic obstructive pulmonary diseases and allied conditions 490–496	56,050	24.7	2.8
6	Pneumonia and influenza 480-487	54,619	24.1	2.7
7	Diabetes mellitus 250	34,851	15.4	1.7
8	Chronic liver disease and cirrhosis. 571	30,583	13.5	1.5
9	Atherosclerosis. 440	29,449	13.0	1.5
10	Suicide E950-E959	26,869	11.9	1.5
...	All other causes . . . . . Residual	303,883	134.1	1.3

[a] Rates per 100,000 population in specified group.
[b] Ninth Revision [international Classification of Diseases, 1975

SOURCE" National Center for Health Statistics, unpublished data

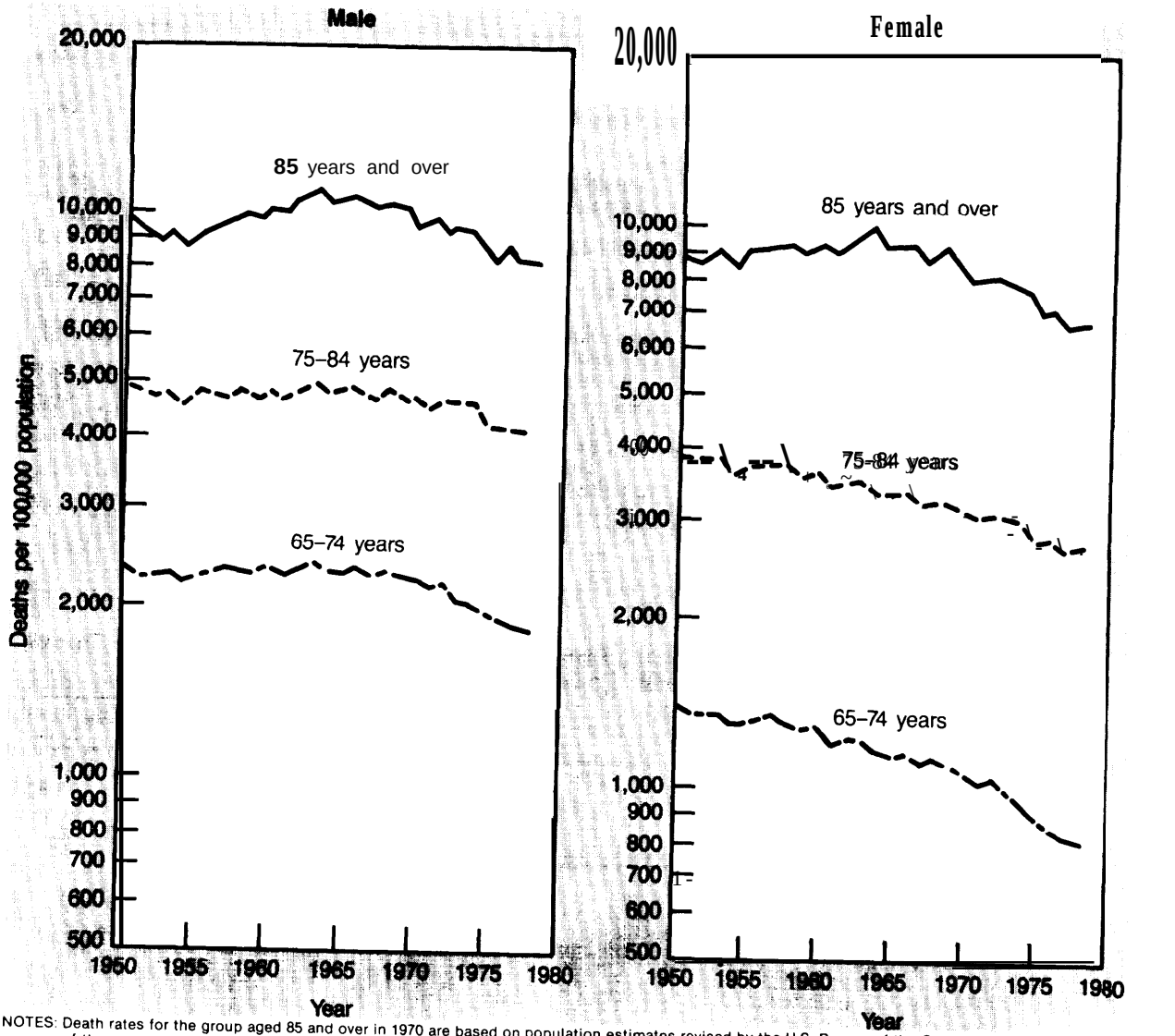
Table A"9.—Deaths and Death Rates[a] Among Persons Aged 65 and Over for the 10 Leading Causes of Death: United States, 1980

Rank order	Cause of death	Number	Rate	Percent of total deaths
	65 years and over			
...	All causes	1,341,848	5,252.0	100 "/0
1	Diseases of heart. 390-398, 402, 404-429	595,406	2,330.4	44.4
2	Malignant neoplasms, including neoplasms of lymphatic and hemato-poietic tissues 140-208	258,389	1,011.3	19.2
3	Cerebrovascular diseases 430-438	146,417	573.1	10.9
4	Pneumonia and influenza 480-487	45,512	178.1	3.4
5	Chronic obstructive pulmonary diseases and allied conditions 490–496	43,587	170.6	3.2
6	Atherosclerosis. 440	28,081	109.9	2.1
7	Diabetes mellitus 250	25,216	98.7	1.9
8	Accidents and adverse effects E800-E949	24,844	97.2	1.8
...	Motor vehicle accidents. E81O–E825	5,778	22.6	0.4
...	All other accidents and adverse effects E800-E807, E826-E949	19,066	*74.6*	1.4
9	Nephritis, nephrotic syndrome, and nephrosis 580–589	12,968	50.8	1.0
10	Chronic liver disease and cirrhosis. 571	9,519	37.3	0.7
...	All other causes . . . . . Residual	151,909	594.6	

[a] Rates per 100,000 population in specified 9rou P
[b] Ninth Revision **International** Classification Of Diseases, 1975

SOURCE: National Center for Health Statistics, Division of Vital Statistics, Vital Statistics of the United Stafes, Vo/urne //, Mortallty (published and unpublished data).

Figure A.3.— Death Rates Among Persons Aged 65 and Over for Diseases of the Heart, by Sex and Age: United States, 1950-78



NOTES: Death rates for the group aged 85 and over in 1970 are based on population estimates revised by the U.S. Bureau of the Census to correct for overestimaites of the group aged 100 and over. ICD codes for 1950-67 are 400-402, and 410-413, and ICDA codes for 1968-78 are 390-398, 402, 404, and 410-429.

SOURCE: U.S. DHHS, NCHS, 1982 (63),

Table A-lO.— Death Rates Among Persons Aged 65 and Over for Diseases of the Heart, by Sex and Age: United States, 1950"78

Year	Male			Female		
	65-74 years	75-84 years	85 years and over	65-74 years	75-84 years	85 years and over
	Deaths per 100,000 population					
1950	2,310.1	*4,825.0*	*9,654.4*	1,435.0	3,873.0	8,800.0
1951	2,256.6	*4,811.1*	*9,375.4*	1,375.4	3,796.1	8,687.8
1952	2,236.2	*4,733.5*	*8,817.9*	1,369.1	2,760.9	8,549.9
1953	2,263.2	*4,760.6*	*9,008.7*	1,366.2	3,762.2	8,631.3
1954	2,189.3	*4,562.6*	*8,637.2*	1,303.5	3,570.8	8,354,8
1955	2,224.8	*4,713.5*	*9,044.7*	1,302.2	3,686.4	8,826.9
1956	2,246.0	*4,745.7*	*9,288.4*	1,306.4	3,688.6	8,934.7
1957	2,295.1	*4,735.6*	*9,596.4*	1,328.3	3,694.3	9,121.9
1958	2,275.9	*4,741.3*	*9,683.4*	1,295.0	3,663.6	9,063.2
1959	2,248.9	*4,633.1*	*9,540.6*	1,259.6	3,561.5	8,922.5
1960	2,291.3	*4,742.4*	*9,788.9*	1,261.3	3,582.7	9,016.8
1961	2,236.9	*4,617.7*	*9,816.4*	1,215.6	3,438.0	8,895.1
1962	2,274.3	*4,701.3*	*10,414.7*	1,228.8	3,489.6	9,288.0
1963	2,316,3	*4,807.5*	*10,686.2*	1,218.6	3,480.4	9,498.1
1964	2,250.3	*4,620.4*	*10,086.8*	1,174.9	3,356.7	9,144.6
1965	2,237.6	*4,695.5*	*10,312.1*	1,157.2	3,347.2	9,088.2
1966	2,270.8	*4,676.8*	*10,244.5*	1,168.8	3,334.1	9,014.6
1967	2,220.7	*4,554.9*	*9,968.3*	1,131.0	3,207.3	8,686.6
1968	2,257.5	*4,652.6*	*10,078.0*	1,140.9	3,259.2	8,850.1
1969	2,208.2	*4,584.0*	*9,829.2*	1,104.0	3,170.4	8,606.4
1970	2,170.3	*4,534.8*	*9,346.0*	1,082.7	3,120.8	8.000.9
1971	2,113.1	*4,490.7*	*9,407.2*	1,043.9	3,070.8	7,979.3
1972	2,116.3	*4,531.8*	*9,203.8*	1,045.4	3,082.1	7,968.6
1973	2,068.2	*4,519.5*	*9,308.6*	994.5	3,036.4	7,916.8
1974	1,988.9	*4,305.2*	*8,897.1*	948.1	2,903.5	7,537.7
1975	1,886.9	*4,156.1*	*8,171.0*	890.8	2,742.4	6,850.9
1976	1,847.6	*4,136.1*	*8,274.9*	856.2	2,731.1	6,965.4
1977	1,795.3	*4,082.4*	*8,053.3*	831.8	2,662.5	6,655.3
1978	1,761.6	*4,064.1*	*7,990.6*	823.1	2,665.6	6,673.5
Percent change, 1950-78	–23.70/o	*-16.O%*	*-17.20/0*	-42.60/o	-31.20/o	-24.20/o

SOURCE:U.S. DHHS, NCHS,1982(63)

Table A-11 .—Mortality Sex Ratios[a] Among Persons Aged 65 and Over for Diseases of the Heart, by Age: United States, 1950-78

Year	65-74 years	75-84 years	85 years and over
		Ratio	
1950	1.61	1.25	1.10
1951	1.64	1.27	1.08
1952	1.63	1.26	1.03
1953	1.66	1.27	1.04
1954	1.68	1.28	1.03
1955	1.71	1.28	1.02
1956	1.72	1.29	1.04
1957	1.73	1.28	1.05
1958	1.76	1.29	1.07
1959	1.79	1.30	1.07
1960	1.82	1.32	1.09
1961	1.84	1.34	1.10
1962	1.85	1.35	1.12
1963	1.90	1.38	1.13
1964	1,92	1.38	1.10
1965	1.93	1.40	1.13
1966	1.94	1.40	1.14
1967	1.96	1.42	1.15
1968	1.98	1.43	1.14
1969	2.00	1.45	1.14
1970	2.00	1.45	1.17
1971	2.02	1.46	1.18
1972	2.02	1.47	1.16
1973	2.08	1.49	1.18
1974	2.10	1.48	1.18
1975	2.12	1.52	1.19
1976	2.16	1,51	1.19
1977	2.16	1.53	1.21
1978	2.14	1.52	1.20

aRatio of male death rate to female death rate; data derived from table 10

SOURCE:U.S. DHHS, NCHS,1962(63)

en,by contrast, exhibit consistently lower rates in the 65 to 74 age group and consistently higher rates in the 85 and over group than black women. Thedecline in death rates was generally similar in all sex-race groups except for blacks 75 to 84, of both sexes, among whom the death rate actually rose (table A-12).

Ischemic coronary heart disease is the major subcategory of heart disease mortality among the elderly; it followed the same patterns of decline, with similar sex and race differences, as heart disease in general from 1968 to 1978 (68) Coronary heart disease mortality may be further subdivided into deaths from chronic coronary disease and a cute myocardial infarction (occlusion of a coronary artery resulting in heart attack). Chronic coronary heart disease exhibited a higher death rate than myocardial infarction in all but the 65 to 74 age group (68)

This general decrease in mortality from heart disease is due at least partially to improvements in preventive health practices of the general population that, in combination with medical treatment, can significantly decrease risk factors for heart disease. The major risk factors forheart disease include hypertension, cigarette smoking (24,43), high blood cholesterol, obesity (defined as 20 percent or more above the desirable body weight for a given height, age, and sex), glucose intolerance, lack of exercise (9) and stress (46). Hypertension is the most powerful predictor of heart disease (30) and the accompanying risk actually increases with age. Many of the other risk factors—including blood cholesterol, smoking, and body weight—become less significant in the elderly (8,39) but are known to exacerbate hypertension (seech. 4).

The prevalence of chronic hypertension rose in the 1970s (see section on ''Morbidity") as the death rate for cardiovascular diseases continued to fall. If these prevalence figures are in fact accurate and not artifacts of improved diagnosis and/or statistical reporting, they probably indicate better medical treatment and prevention of hypertension that reduces the associate drisk,The same may be true for diabetes, a condition whose prevalence amongthe elderly also seems

Table A-12.—Death Rates for Diseases of the Heart, by Race, Sex, and Age: United States, Selected Years 1950-80
(data are based on the national vital registration system)

Race, sex, and age	Year								Percent change
	1950[a]	1960[a]	1965[a]	970	1975	1978	1979	1980[b]	1960–79
Total[c]	Number of deaths per 100,000 resident population								
All ages, age adjusted[d]	307.6	286.2	73.9	253.6	220.5	207.7	203.5	205.3	-28.9%
All ages, crude	355.5	369.0	368.0	362.0	336.2	334.2	333.1	343.0	
65–74 years	[illegible],839.8	1,740.5	1,640.7	1,558.2	1,323.7	1,230.7	1,204.9	1,210.8	-30.8%
75–84 years	[illegible],310.1	4,089.4	3,911.5	3,683.8	3,280.8	3,191.6	3,151.2	3,229.7	-22.9%
85 years and over	[illegible],150.6	9,317.8	9,538.4	8,468.0	7,282.0	7,084.2	6,887.7	7,134.7	-26.1%
White male:									
All ages, age adjusted[d]	381.1	375.4	369.2	347.6	308.0	288.7	281.2	[illegible]	-26.2%
All ages, crude	433.0	454.6	450.8	438.3	401.1	390.8	385.7	[illegible]	
65–74 years	2,308.3	2,297.9	2,249.0	2,177.2	1,894.6	1,772.7	1,724.9	[illegible]	-24.9%
75–84 years	4,907.3	4,839.9	4,792.6	4,617.6	4,237.2	4,122.4	4,040.7	[illegible]	-16.5%
85 years and over	9,950.5	10,135.8	0,657.3	9,693.0	8,550.3	8,444.7	8,192.9	[illegible]	-19.2%
White female:									
All ages, age adjusted[d]	223.6	197.1	189.9	167.8	144.2	136.4	134.8	[illegible]	-31.6%
All ages, crude	289.4	306.5	310.7	313.8	301.3	308.5	311.2	[illegible]	
65–74 years	1,400.9	1,229.8	1,128.5	1,044.0	854.9	794.9	781.2	[illegible]	-36.5%
75–84 years	3,925.2	3,629.7	3,381.1	3,143.5	2,763.0	2,658.2	2,627.3	[illegible]	-27.6%
85 years and over	9.084.7	9,280.8	9,333.2	8,207.5	7,105.3	6,971.6	6,821.0	[illegible]	-26.5%
Black male:									
All ages, age adjusted[d]	415.5	381.2	384.1	375.9	328.9	321.0	319.0	[illegible]	-16.3%
All ages, crude	348.4	330.6	331.7	330.3	296.1	294.1	293.8	[illegible]	
65–74 years	2,140.1	2,281.4	[illegible],185.0	2,237.8	1,918.2	1,744.8	1,723.2	[illegible]	-24.5%
75–84 years	4,107.9	3,533.6	[illegible],656.7	3,783.4	3,617.8	3,958.5	4,064.7	[illegible]	+ 15.0%
85 years and over		6,037.9	[illegible],113.3	6,330.8	5,296.2	4,726.2	4,527.1	[illegible]	-25.0%
B a k female:									
All ages, age adjusted[d]	349.5	292.6	271.1	251.7	209.4	201.1	202.2	[illegible]	-30.9%
All ages, crude	289.9	268.5	263.8	261.0	235.7	237.5	239.2	[illegible]	
65–74 years	1,659.4	1,680.5	1,513.7	1,553.2	1,309.3	1,136.5	1,136.6	[illegible]	-32.4%
75–84 years	3,499.3	2,926.9	2,968.0	2,964.1	2,703.6	3,094.9	3,245.8	[illegible]	+ 10.9%
85 years and [illegible]		5,650.0	6,030.4	5,669.8	4,398.0	4,044.6	3,759.3	[illegible]	-33.5%

[a]Includes deaths of nonresidents of the United States.
[b]Provisional data.
[c]Includes all races and both sexes.
[d]Age adjusted by the direct method to the total population of the United States as enumerated in 1940, using 11 age groups.

NOTE: For the data years shown, the code numbers for diseases of heart are based on the then current International Classification of Diseases: for 1950, the Sixth Revision, Nos. 400–402, 410–443; for 1960 and 1965, the Seventh Revision, Nos. 400–402, 410–443; for 1970–78, the Eighth Revision, Adapted for Use in the United States, Nos. 390–398, 402, 404, 410–414, 420–429; for 1979 and 1980, the Ninth Revision, Nos. 390–398, 402, 404–429.

SOURCES: National Center for Health Statistics: *Vital Statistics of the United States,* Vol. II, 1950-79. Public Health Service. Washington, DC, U.S. Government Printing Office; Annual summary of births, deaths, marriages, and divorces, United States, 1980. *Monthly Vital Statistics Report.* Vol. 29—No. 13. DHHS Pub. No. (PHS) 81-1120. Public Health Service. Hyattsville, MD, Sept. 17, 1981; Data computed by the Division of Analysis from data compiled by the Division of Vital Statistics; U.S. Bureau of the Census; Population estimates and projections. *Current Population Reports.* Series P-25, Nos. 310, 519, 721, and 870. Washington, DC, U.S. Government Printing Office, June 1965, April 1974, April 1978, and January 1980; *1950 Nonwhite Population by Race,* Special report, P-E No. 3B. Washington, DC, U.S. Government Printing Office, 1951; General population characteristics, United States summary, 1960 and 1970. *U.S. Census of Population.* Final reports PC(1)-1B and PC(1)-B1. Washington, DC, U.S. Government Printing Office, 1961 and 1972.

to be rising; it is not clear, however, that treatment of diabetes reduces the associated risk of cardiovascular mortality.

A higher percentage of elderly men smoke cigarettes than women, which may contribute to the gender difference in heart disease mortality. The percentage of elderly women who smoke, however, has risen dramatically in recent years—a phenomenon that has not yet been reflected in their cardiovascular death rates, probably because the deleterious effects of smoking on the cardiovascular system are only manifested over a period of decades.

Downward trends have also been found in the consumption of cholesterol and saturated fats, high intakes of which have been associated with increased risk of heart disease (15,19,47; see ch. 4). Per capita consumption of foods high in these substances has decreased since the early 1960s, while the consumption of foods high in unsaturated fats and fiber, like fish and vegetables, has increased (70; table A-13). This change in dietary habits may have contributed to the decline in serum cholesterol levels in recent years (1). Diets high in vegetables and low in saturated fats have been shown to reduce blood pressure in normal subjects (41,42).

Cancer (Malignant Neoplasms).—Cancer is the second most common cause of death for the general population as well as for elderly people. The incidence[4] and mortality from cancer generally rise with age (fig. A-4)—51 percent of all malignant cancers are diagnosed at ages 65 and over (50,57). In 1980 cancer was the second leading cause of death for persons 65 to 85 and the third (after stroke) for those 85 and over (67). In 1978, cancer accounted for 26 percent of all deaths among those 65 to 74, 18 percent among those 75 to 84, and 10 percent among those 85 and over (63).

Of the top three causes of death, cancer is the only one for which death rates have continued to rise since 1950 (fig. A-5). This trend is due mostly to the dramatic rise in death rates from cancers of the respiratory tract (trachea, bronchus, and lung), among both the elderly and the general population (fig. A-6). All three of these cancers have been linked to cigarette smoking. The death rate due to respiratory cancer among the elderly skyrocketed from 1950 to 1978—a jump

[4] An incidence rate is the estimated number of new cases appearing within a specified time period (which m this report is always 1 year), divided by the total number of individula within a defined population group

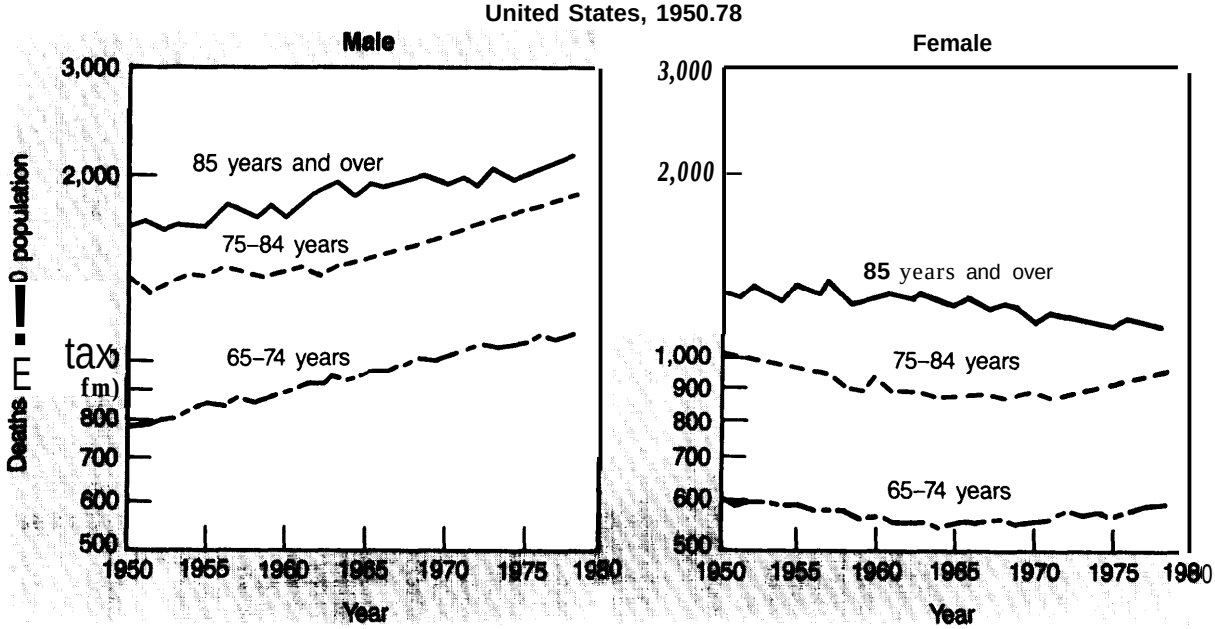
Table A-13.–Change in Per Capita Consumption of Various Products, 1963o80[a]

Product	Percent Change
Cigarette tobacco	-27.1%0
Fluid milk and cream	-24.1
Butter	-33.3
Eggs	-12.3
Animal fats and oils	– 38.8
Vegetable fats and oils	+ 57.6
Fish	+22.6

a Figures for calculating percentage changes obtained from us. Department Agriculture,

SOURCE: Walker, 1963 (70).

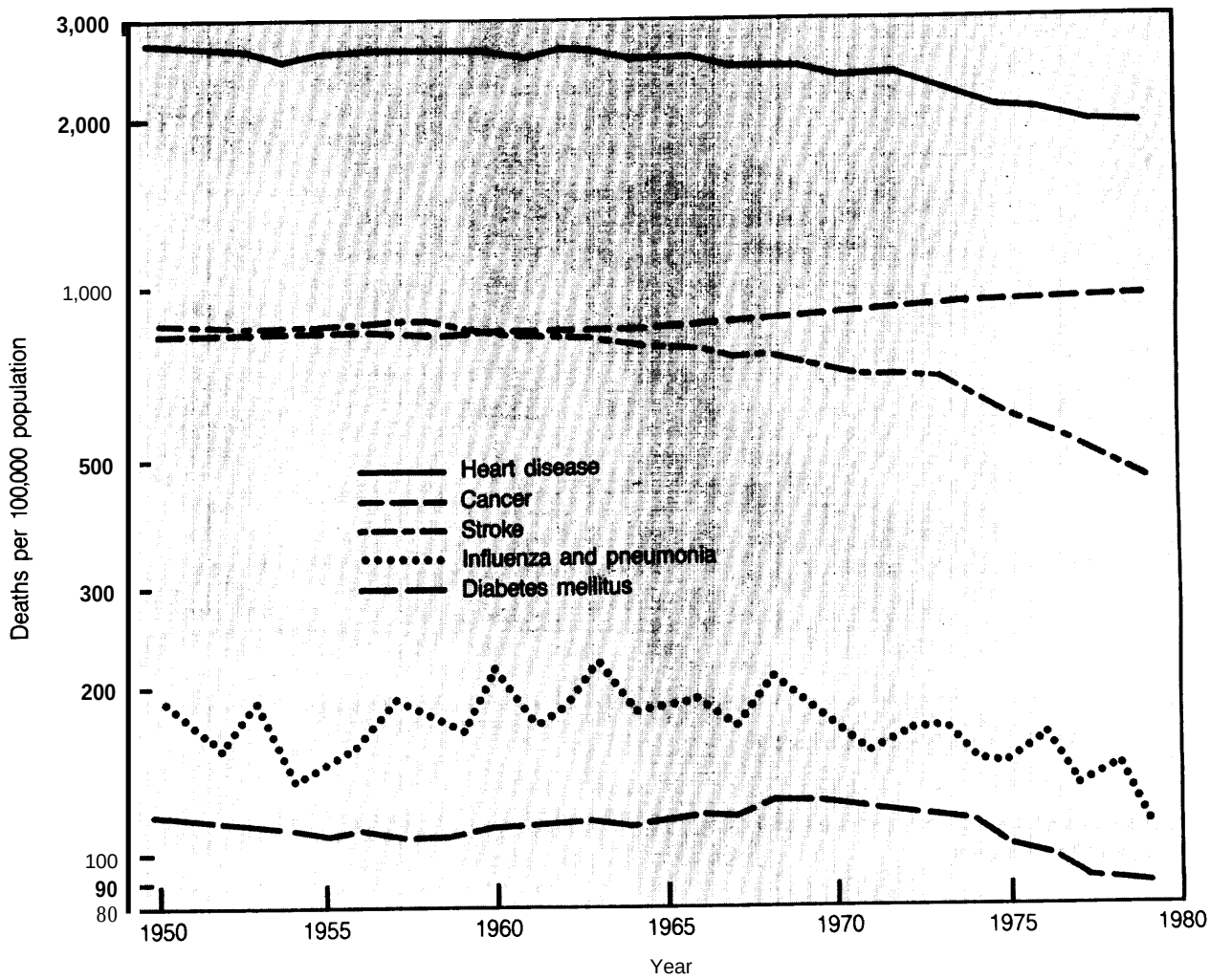
Figure A-4.— Death Rates Among Persons Aged 65 and Over for Malignant Neoplasms, by Sex and Age: United States, 1950.78



NOTES Death rates for the group aged 85 and over in 1970 are based on Population estimates revised by the U.S. Bureau of the Census to correct for overestimates of the group aged 100 and over ICD codes for 1950-67 are 140-205 and ICDA codes for 1968-78 are 140-209,

SOURCE: U.S. DHHS, NCHS, 1982 (83).

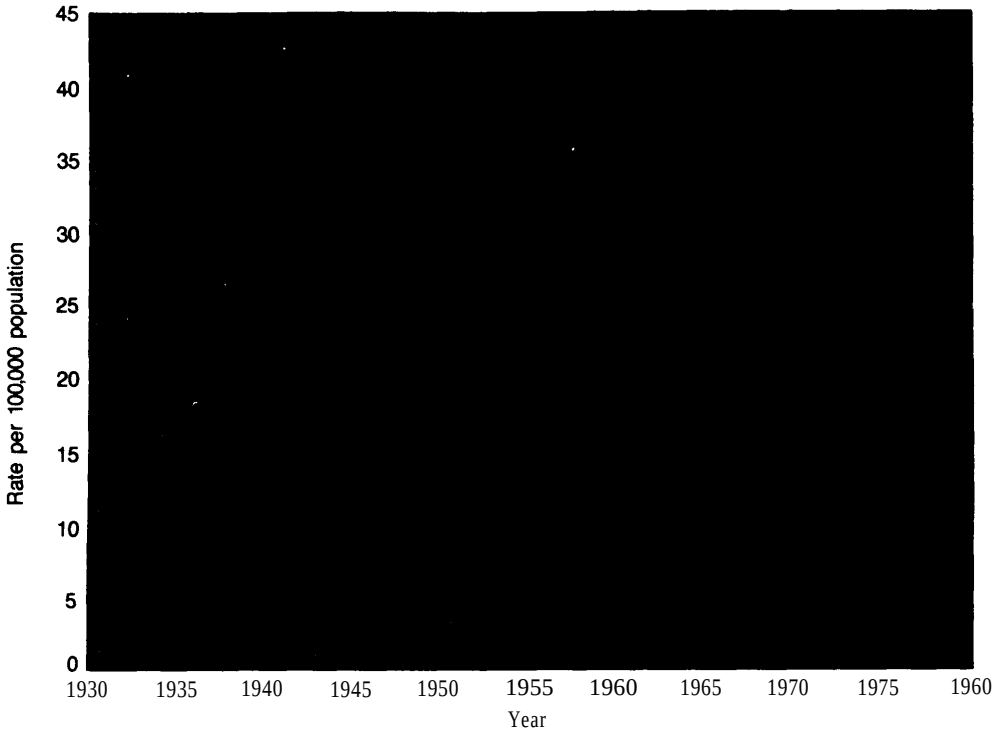
Figure A-5.—Age.Adjusted Death **Rates for Persons Aged 65 and over, by Leading Causes of Death: United States, 1950.79**



NOTES" Causes of death are assigned according to the International List of Causes of Death. Because of the decennial revisions and changes in rules for cause-of-death selection, there may be some lack of comparability from one revision to the next The beginning dates of the revisions are 1949, 1958, 1968, and 1979

SOURCE U S DHHS. NCHS, 1982 (65)

Figure A-6.—Age.Adjusted Cancer Death Rates by Site: United States, 1930.78



NOTES: Rates for the population are standardized for age based on the 1970 U.S. population. Rates are for both sexes combined, except breast and uterus for female population only and prostate for male Population only.

SOURCE: American Cancer Society, 1983 (4).

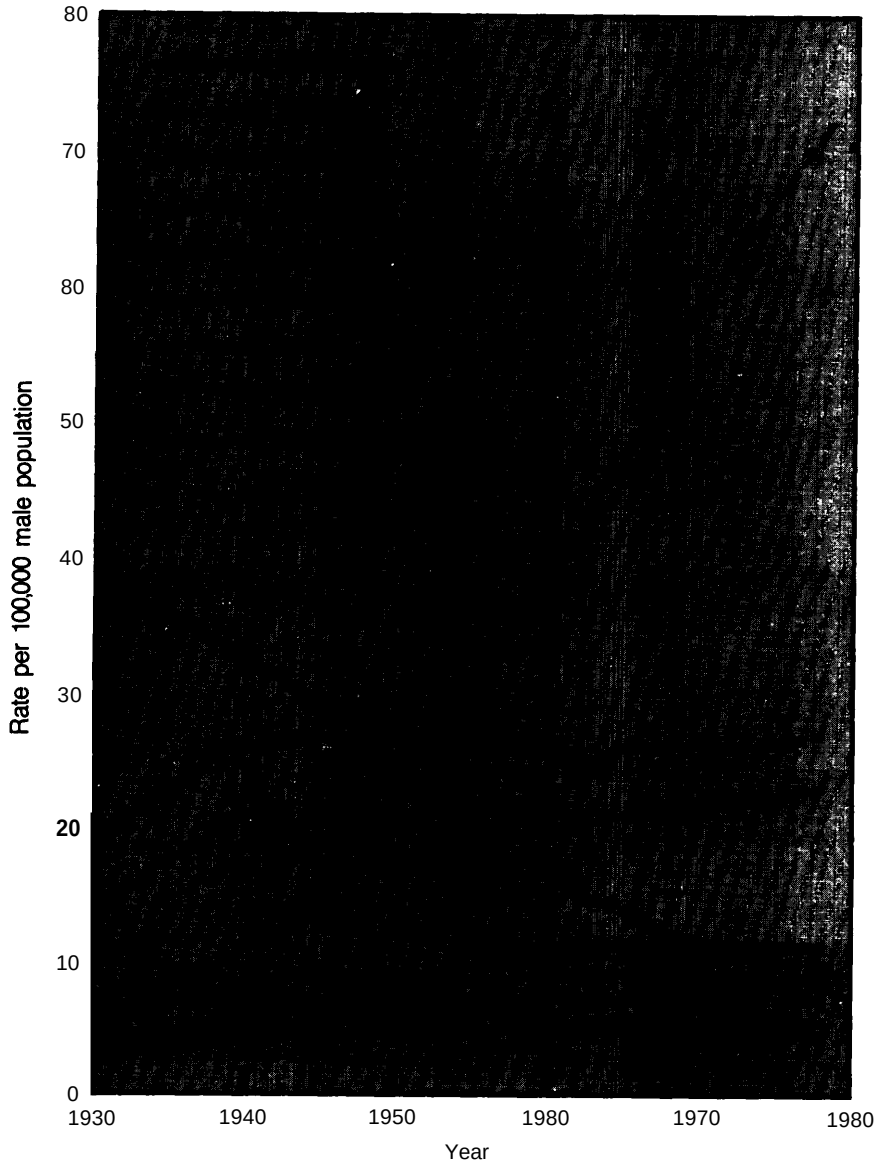
manifested mostly among elderly men (fig. A-7). Cancer mortality is generally higher and has been rising more rapidly in men than in women (fig. A-9, table A-14). This male-female gap has widened over the years, as illustrated by the increasing sex ratios of cancer death rates (table A-15).

Death rates among elderly men for three major types of cancer—respiratory, genital, and colon—have risen notably in the 1950-78 period and are consistently higher for men than for women (tables A-I6 through A-18). The incidence rates of respiratory and genital cancer are likewise higher in men (4) (fig. A-8). These cancers accounted for 43 percent of all new cancers in both sexes in the 1970s (50). In 1978, lung cancer was the leading cause of cancer deaths for men 65 to 84, while cancer of the genital organs (mostly prostate) predominated in men over 85 (tables A-16 and A-17). Comparisons of data from two major surveys (49, so) indicate that the incidence of these three cancers, and cancer in general, increased during the 1970s in men; the exact figures are probably not reliable, however, due to differences in sampling procedures and possible changes in diagnostic efficacy over the period.

The overall cancer death rate among elderly women actually fell slightly from 1950 to 1978 (table A-14). Since the mid-1960s, however, the rate has risen for all persons 65 to 84 (fig. A-4). The increase in female cancer mortality is largely due to the sharp rise in respiratory cancer mortality among elderly women over the period (table A-16). Deaths from cancers of the genital organs, breast, and colon fell in most age groups of elderly women (tables A-17 through A-19), The incidence of all four cancers, especially respiratory, has risen during the 1970s (49)50). The simuhaneous decline in mortality may be partly due to improved early diagnosis and treatment of these cancers. Breast cancer appears more frequently in women (fig. A-8) but has a relatively low associated death rate.

Table A-20b presents the estimated proportions of cancer deaths attributed to different factors. According to these estimates, tobacco and dietary factors combined account for more than 60 percent of cancer deaths (14). Dietary factors have been implicated

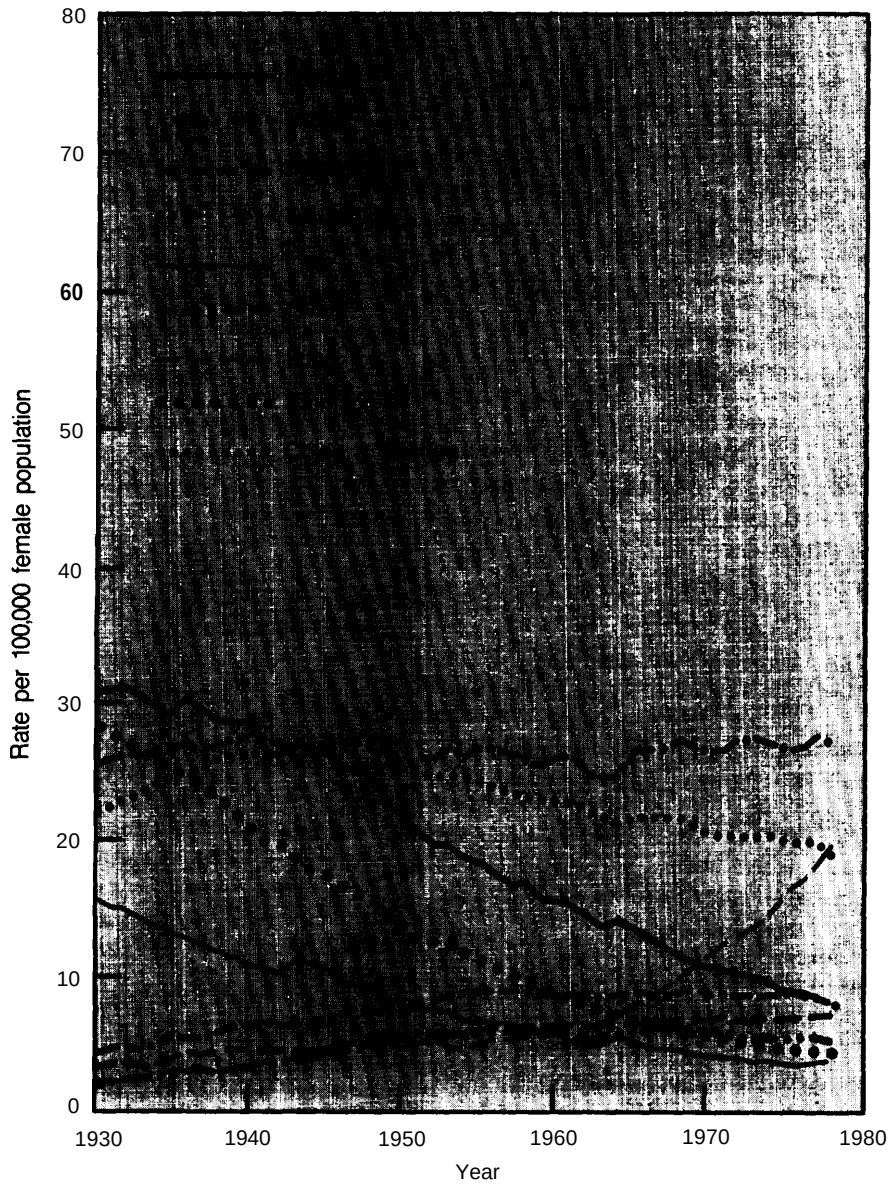
Figure A-7.—Age-Adjusted Cancer Death Rates[a] for Selected Sites, Males: United States, 1930.78



aAdjus@j to **the** age distribution of the 1970 U.S. Census population.

SOURCE: Cancer Stat/st/cs, 1984, American Cancer Society, 1964 (5).

Figure A-9.—Age-Adjusted Cancer Death Rates[a] for Selected Sites, Females: United States, 1930”78



aAdjusted to the We distribution of the 1970 U.S. Census population.

SOURCE: Cancer Statitistics 1984, American Cancer Society, 1984 (5).

Table A.14.—Death Rates Among Persons Aged 65 and Over for Malignant Neoplasms, by Sex and Age: United States, 1950-78

Year	Male			Female		
	65-74 years	75-84 years	85 years and over	65-74 years	75-84 years	85 years and over
	Deaths per 100,000 population					
1950	791.5	1,332.6	1,668.3	612.3	1,000.7	1,299.7
1951	788.5	1,307.3	1,689.1	592.1	987.0	1,284.2
1952	809.1	1,349.2	1,665.6	594.8	990.2	1,304.7
1953	815.0	1,358.9	1,677.9	594.6	986.3	1,296.5
1954	839.4	1,371.6	1,688.8	589.4	972.5	1,275.3
1955	851.0	1,373.9	1,691.0	585.7	962.7	1,303.3
1956	849.3	1,416.6	1,767.9	578.2	957.3	1,286.0
1957	879.3	1,384.5	1,753.4	573.2	945.9	1,309.7
1958	862.5	1,358.6	1,704.9	571.2	919.4	1,268.6
1959	872.8	1,356.4	1,762.8	560.5	903.2	1,241.1
1960	890.5	1,389.4	1,741.2	560.2	924.1	1,263.9
1961	902.4	1,394.8	1,840.8	557.9	891.9	1,273.5
1962	907.7	1,387.2	1,879.7	555.0	885.4	1,264.3
1963	929.8	1,405.2	1,923.9	551.0	881.2	1,280.7
1964	925.9	1,416.6	1,840.3	542.6	868.2	1,238.9
1965	946.1	1,451.6	1,911.1	549.4	874.6	1,234.9
1966	955.4	1,477.9	1,905.4	551.0	872.5	1,252.9
1967	976.8	1,505.2	1,919.0	557.3	867.1	1,215.0
1968	998.2	1,520.1	1,936.1	553.1	860.4	1,223.6
1969	997.3	1,541.1	1,952.9	552.6	871.5	1,202.5
1970	1,006.8	1,588.3	1,908.6	557.9	891.9	1,155.8
1971	1,018.4	1,614.7	1,953.3	557.1	877.1	1,173.2
1972	1,036.1	1,651.7	1,917.4	571.5	878.1	1,174.0
1973	1,003.7	1,665.7	2,018.0	563.7	887.0	1,142.7
1974	1,045.2	1,715.1	1,984.7	566.4	902.0	1,133.9
1975	1,051.8	1,728.4	1,987.4	563.1	910.3	1,128.2
1976	1,060.1	1,782.1	2,042.0	576.0	922.9	1,159.0
1977	1,067.6	1,809.4	2,102.3	581.3	939.1	1,143.5
1978	1,076.7	1,849.4	2,137.2	588.7	958.8	1,139.3
Percent change, 1950-78	+36.00/o	+38.8°10	+28.10/o	-3.80/o	-4.20/o	12.3%

SOURCE: U.S. DHHS,NCHS, 1982(63)

in many cancers of the gastrointestinal tract (see ch. 4) For example, some believe that a diet high in beef and deficient in fiber may contribute to bowel cancer (4).

Smoking is most likely the major contributor to the striking rise in respiratory cancer mortality, and cancermortality in general, among elderly men and women. Proportionally more elderly men than women smoke, but this gaphas narrowed considerably in recent years; the percent of men over 65 who smoke dropped between 1965 and 1980, while that for elderlY women rose by 75 percent (tableA-20a)The American Cancer Society estimates that cigarette smoking is responsible for 83 percent of lung cancer among men and 43 percent among women, more than 75percent combined (4). By its estimate, smoking accounts for 25 percent of all cancers and has been linked to conditions ranging from gastric ulcers to chronic bronchitis and emphysema to heart disease.

Industrial and other environmental exposures further compound the hazard: asbestos, for example, in combination with cigarette smoking, increases the cancer risk nearly 60 times (4). This and similar synergistic effects between behavioral and environmental risks illustrate the need for public education about avoidable cancer risks as well as close regulation of carcinogenic hazards in the workplace and the environment in general.

Cerebrovascular Disease (Stroke).-In 1980 stroke was the third leading cause of death amongper-

Table A"15.—Mortality Sex Ratios[a] Among Persons Aged 65 and Over for Malignant Neoplasms, by Age: United States, 1950-78

Year	65-74 years	75-84 years	85 years and over
		Ratio	
1950 .....,	1.29	1.33	1.28
1951	1.33	1.32	1.32
1952	1.36	1.36	1.28
1953	1.37	1.38	1.29
1954	1.42	1.41	1.32
1955	1.45	1.43	1.30
1956	1.47	1.48	1.37
1957	1.53	1.46	1.34
1958	1.51	1.48	1.34
1959	1.56	1.50	1.42
1960	1.59	1.50	1.38
1961	1.62	1.56	1.45
1962	1.64	1.57	1.49
1963	1.69	1.59	1.50
1964	1.71	1.63	1.49
1965	1.72	1.66	1.55
1966	1.73	1.69	1.52
1967	1.75	1.74	1.58
1968	1.80	1.75	1.58
1969	1.80	1.77	1.62
1970	1.80	1.78	1.65
1971	1.83	1.84	1.66
1972	1.81	1.88	1.63
1973	1.83	1.88	1.77
1974	1.85	1.90	1.75
1975	1.87	1.90	1.76
1976	1.84	1.93	1.76
1977	1.84	1.93	1.84
1978	1.83	1.93	1.88

a Ratio of male death rate to female death rate; data derived from tabl [14].

SOURCE: U.S. DHHS,NCHS, 1952(63)

sons 65to 84 and the second among those 85 and over (67). The death rate from stroke increases markedly withage, from 8 percent of all deaths among persons 65 to 74 to16 percent among those 85 and over (63).

The sex difference for stroke mortality is far smaller than that for either heart disease or cancer, especially in the older age groups. The gap has widened over the years for those 65t064, with men in this agegroup exhibiting consistently higher rates than women since 1950 (see table A-22). In the age group over 85) however, women have had consistently higherrates.Death rates for stroke from blood clots or other occlusions of cerebral arteries slightly lead those for hemorrhagic (Bleeding) stroke in both 1970 and 1980(67,68)

Death rates for stroke among the elderly have decreased more rapidly during the past 30 years than those for heart disease, especially since the mid-1970s when stroke mortality began to fall most steeply (fig. A-10). The decline in stroke mortality, as in heart disease, was generally greater among women than men. The decline forboth sexes is smaller in the older age groups (table A-21).

Risk factors for cerebrovascular diseaseare similar to those for heart disease; again, most of these factors, except for hypertension, are less significant among the elderly. As noted above, hypertension is the most powerful risk factor for stroke (30). Therecent decline immortality due to stroke, and cardiovascular disease in general, is probably due largely to improved acute care, more reliable diagnosis, the reduction of certain risk factors through changes in the dietary habits of the public, and better medical treatment of chronic conditions contributing to the risk (as noted in the section on heart disease).

Other Major Causes of Death-The death rates of the remaining seven major causes of death among the elderly generally fell during the last four decades (table A-23). Pneumonia and influenza death rates decreased by 55 to 70 percent among the elderly between 1940 and 1980 (less in older age groups) but

Table A-16.—Death Rates Among Persons Aged 65 and Over for Cancer of Trachea, Bronchus, and Lung, by Sex and Age: United States, 1950.78

Year	Male			Female		
	65-74 years	75-84 years	85 years and over	65-74 years	75-84 years	85 years and over
	Deaths per 100,000 population					
1950	98.7	82.6	62.4	23.3	32.9	28.2
1951	108.4	85.3	60.5	22.1	33.6	30.6
1952	117.7	95.6	71.1	24.5	33.8	28.9
1953	127.1	106.2	69.2	23.4	32.8	29.4
1954	139.6	110.5	75.0	22.9	34.5	31.8
1955	148.9	126.9	73.9	23.9	34.1	30.3
1956	163.7	133.3	85.0	24.1	33.9	31.1
1957	173.5	138.8	89.6	24.2	34.3	34.6
1958	181.1	143.2	91.5	24.6	36.0	36.4
1959	192.1	152.2	111.5	24.2	34.4	30.9
1960	204.2	167.1	107.7	24.4	32.8	38.8
1961	217.1	176.2	128.7	25.6	35.8	39.4
1962	228.1	191.4	126.2	25.6	35.6	40.1
1963	240.2	205.9	142.7	27.3	35.0	43.2
1964	247.0	218.6	135.6	27.7	38.2	38.7
1965	261.8	231.7	155.0	30.4	36.6	43.7
1966	272.6	254.2	156.0	31.7	40.9	50.7
1967	284.7	278.1	173.7	34.2	41.9	43.8
1968	305.5	292.9	193.6	39.1	49.7	55.3
1969	312.8	303.3	205.2	42.1	47.5	51.3
1970	320.8	330.8	215.1	43.1	52.4	52.7
1971	334.5	357.1	236.6	48.6	55.0	58.7
1972	345.4	373.3	228.4	53.0	56.4	57.4
1973	350.3	381.5	252.5	55.0	60.5	58.4
1974	354.4	407.2	262.0	60.2	64.2	63.2
1975	365.4	417.9	267.4	64.5	66.8	65.7
1976	371.8	443.0	289.7	71.7	74.9	69.3
1977	382.4	467.8	305.3	76.7	78.6	70.1
1978	389.0	478.6	317.4	84.9	87.1	70.0
Percent change, 1950-78	+291.4°10	+479.40/0	+508.60/o	+264.4%	+164.7%	–148.2%

SOURCE:US. DHHS, NCHS,1982(63)

remain the fourth leading killers among the elderly. Tuberculosis, the second leading killer in the general population in 1900, has declined by at least 80 percent among the eldery since 1940 and is no longer a major cause of death in the United States. Vaccination, improved public sanitation, and improved acute care account for most of the decline in such infectious diseases.

The fifth and tenth leading causes of death among the elderly, chronic obstructive pulmonary (lung)disease (including bronchitis, emphysema, and asthma) and chronic liver disease (including cirrhosis) have both increased in some age groups in recent years (table A-23) Death rates were much higher forelderly men than women for both diseases; they were four to nighttimes higher for chronic obstructive lungdisease. This is due in part to the higher percentage of men who smoke, a risk factor for both diseases (64), and to the generalyhigher proportion of heavy drinkers among men, a risk factor for cirrhosis (65). The death rate for obstructive pulmonary disease increases with age and has risen more in the older age groups since 1970 (more than twofold for those over 85; see table A-23). Chronic liver disease mortality rose in both the general population and among the population 65 to 74.

Mortality due to arteriosclerosis, currently the sixth leading cause of death among the elderly, fell by at least 60 percent between 1950 and 1980, with smaller declines in older age groups. Mortality due to hypertension similarly fell by at least 67 percent during the same period—elderly women exhibited lower rates than men for both conditions (table A-23)

Death rates for diabetes mellitus (currently ranked seventh among the elderly) have generally fallen since 1940 except in the 85 and over group, for which the

Table A-17.—Death Rates Among Persons Aged 65 and Over for Cancer of Genital Organs, by Sex and Age: United States, 1950.78

Year	Male			Female		
	65-74 years	75-84 years	85 years and over	65-74 years	75-84 years	85 years and over
	Deaths per 100,000 population					
1950	103.9	281.4	436.2	**110.1**	136.9	141.4
1951	100.6	286.5	421.9	105.7	132.3	132.8
1952	103.5	290.2	464.5	106.0	132.6	138.3
1953	105.7	296.9	451.9	105.8	131.0	134,8
1954	106.1	305.5	464.1	102.5	132.0	128,9
1955	106.4	296.2	465.7	103.0	126.5	136.3
1956	105.3	309.1	488.4	99.3	124.1	137.4
1957	103.4	299.8	479.2	99.8	118.9	135.2
1958	104.3	286.9	470.1	100.3	123.0	138.6
1959	102.0	278.5	467.9	98.4	119.2	133.7
1960	102.1	285.9	468.2	97.9	119.1	131.4
1961	101.3	286.1	508.4	98.4	112.9	123.0
1962	102.3	284.8	505.6	95.0	114.1	129.1
1963	104.6	282.4	514.9	93.4	115.0	128.4
1964	103.0	282.4	497.4	91.6	112.9	123.3
1965	100.4	286.6	513.3	92.7	108.9	124.3
1966	101.3	283.6	507.1	91.7	110.4	128.1
1967	102.4	286.4	513.6	90.2	104.5	118.6
1968	105.8	285.1	512.3	86.0	107.7	120.4
1969	102.9	288.5	493.2	84.5	105.7	121.1
1970	103.7	299.4	481.6	85.6	104.9	113.1
1971	103.2	297.9	493.8	83.3	105.0	116.8
1972	106.1	300.8	489.0	83.5	104.9	114.3
1973	105.5	309.3	514.3	79.4	103.3	108.4
1974	106.9	310.5	439.9	77.7	102.2	110.5
1975	105.4	312.4	494.9	77.4	102.5	108.7
1976	106.4	321.4	514.6	77.5	108.7	106.4
1977	105.4	322.1	527.0	75.3	102.8	104.4
1978	107.1	331.6	548.7	74.7	100.8	103.6
Percent change, 1950-78	+3.1%	+.13.8%	+25.8%	-32.2%	-26.4%	–26.7%

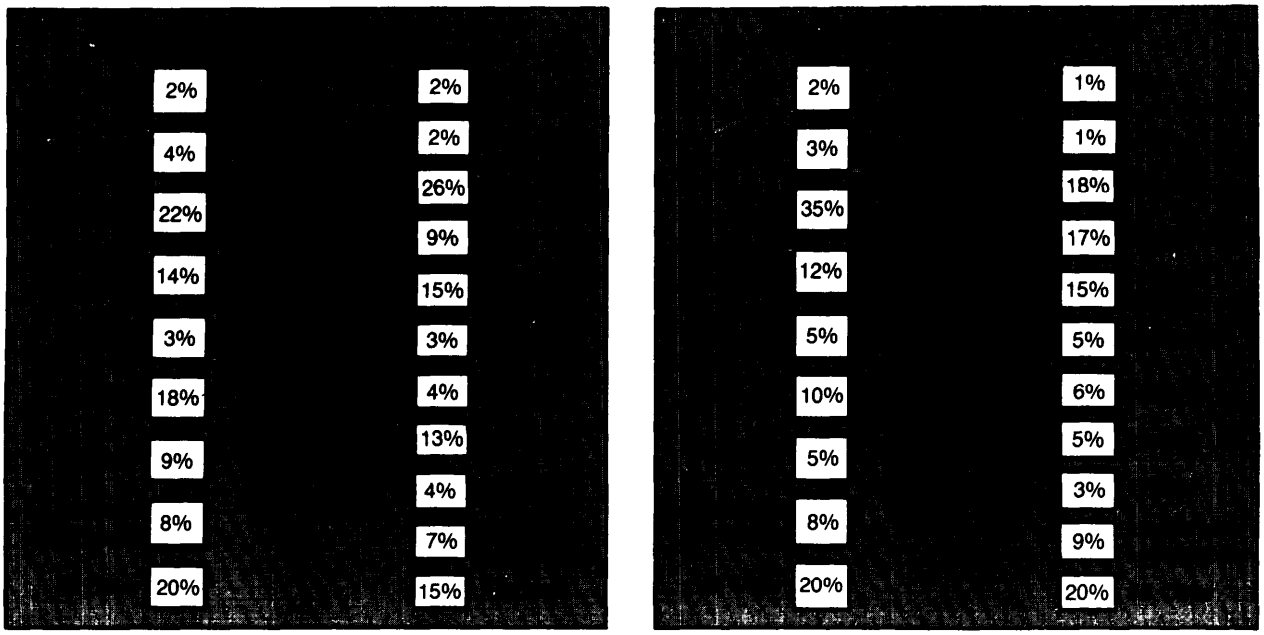
SOURCE:US. DHHS, NCHS,1982(63)

Table A"18.—Death Rates Among Persons Aged 65 and Over for Cancer of Colon, by Sex and Age: United States, 1950-78

Year	Male			Female		
	65-74 years	75-84 years	85 years and over	65-74 years	75-84 years	85 years and over
	Deaths per 100,000 population					
1950	84.9	155.0	181.0	86.1	171.6	240.0
1951	85.6	151.1	194.9	83.3	168.8	230.8
1952	87.1	159.1	178.8	82.0	165.9	231.0
1953	85.0	158.1	191.3	81.8	163.7	241.0
1954	84.2	158.4	179.9	83.7	164.2	240.9
1955	85.9	158.4	202.8	83.9	162.5	245.9
1956	87.5	169.1	200.6	81.9	161.4	227.4
1957	89.4	162.7	209.2	81.6	159.6	243.5
1958	87.4	160.2	205.4	81.2	155.2	250.2
1959	87.5	160.9	214.6	79.8	159.4	231.1
1960	86.7	164.0	205.6	79.6	159.6	232.6
1961	89.6	165.3	215.8	79.6	157.9	235.8
1962	88.3	159.0	242.8	81.8	153.4	233.9
1963	90.5	162.3	224.1	80.1	155.8	242.6
1964	88.7	170.6	215.0	80.5	152.2	230.0
1965	93.2	172.5	242.5	80.1	150.0	227.0
1966	93.8	175.4	227.6	81.2	151.2	244.0
1967	94.0	172.2	237.1	79.5	152.5	223.3
1968	95.2	177.7	229.5	79.4	149.7	235.3
1969	95.6	181.8	245.8	77.4	153.3	229.8
1970	95.7	184.8	244.4	81.0	157.4	224.8
1971	97.0	183.8	236.6	78.0	151.5	224.1
1972	95.8	194.2	235.2	80.7	150.3	229.7
1973	96.0	188.5	252.3	78.5	159.3	214.2
1974	100.8	197.4	267.6	79.9	156.9	224.9
1975	99.1	200.1	241.9	77.0	158.9	211.6
1976	102.6	207.5	260.7	79.8	159.0	229.6
1977	104.5	202.8	273.9	77.6	162.5	221.8
1978	104.9	214.3	282.1	80.4	167.1	228.5
Percent change, 1950-78	+23.60/o	+38.20/o	+55.8%	-6.6%	–2.60/o	–4.80/6

SOURCE:U.S. DHHS, NCHS, 1982(83)

Figure A-8.-Cancer Incidence and Deaths, by Site and by Sex: United States, 1983 (percent distribution)



Excluding non-melanoma sk cancer and carcinoma in situ

SOURCE" American Cancer Society, 1983 (4).

rate has almost doubled (table A-23). The reason for this age-specific upturn is unclear, but the trend could become increasingly important if, as projected, the over-85 group grows proportionally larger in the future.

Mortality due to accidents of all kinds is ranked eighth among those over 65, but fell substantially from 1950 to 1980 with a smaller drop in the "motor vehicle accidents" category. Among older women, mortality from accidents was higher only in the 85 and over group. Nephritis, the sixth leading cause of death among the general population in 1900, now ranks ninth among the elderly. The percent drop shown in table A-23 is probably not reliable, however, because the statistical description of the disease has changed.

Morbidity

TRENDS IN CHRONIC CONDITIONS CAUSING DISABILITY

The prevalence of chronic disease is expected to increase as the population ages (18; see chs. 2 and 3). Effective prevention and treatment of acute illness at earlier ages have been key factors in helping people to live longer. People who would once have died of tuberculosis or other infectious diseases in their twen - ties, for example, now live to develop chronic illnesses whose risk and prevalence tend to rise with age. Advancing age also brings increased risk of certain acute medical episodes (e.g., stroke, heart attack, and pneumonia) that may also add to the burden of morbidity among the elderly through their deleterious aftereffects (e.g., dementia, paralysis, chronic heart disease, and chronic obstructive lung disease).

Chronic disease is responsible for more than 80 percent of all disability (69) and usurps 80 percent of all health care resources in the United States (13). An estimated 86 percent, or six of every seven, elderly people have one or more chronic conditions, compared to less than 50 percent of the general population (21,44,51). Most significantly, the proportion of those with chronic conditions who suffer major disability is much higher among the elderly: only 4 percent of the general population afflicted with chronic illness reported limitation in a major activity (i.e., working, keeping house, or engaging in educational activities) compared to 18 percent in the over-65 group. About 47 percent of community dwelling elderly exhibit some degree of activity limitation due to chronic conditions (see ch. 2). All of the chronic conditions discussed in this appendix are relatively more prevalent among the elderly and can cause significant functional

Table A"19.—Death Rates Among Females Aged 65 and Over for Cancer of Breast, by Age: United States, 1950.78

Year	65-74 years	75-84 years	85 years and over
	Deaths per 100,000 females		
1950	95.0	139.8	195.5
1951	91.1	143.6	196.7
1952	91.2	133.9	184.8
1953	93.6	140.5	198.8
1954	93.2	136.4	193.9
1955	92.8	141.3	198.2
1956	93.6	136.3	199.1
1957	93.0	136.0	199.8
1958	90.4	129.5	182.8
1959	89.2	125.9	191.3
1960	90.0	129.9	191.9
1961	90.3	130.6	194.9
1962	90.5	125.5	188.2
1963	90.1	119.2	183.3
1964	89.3	120.3	188.4
1965	90.2	126.8	181.4
1966	90.2	122.7	177.3
1967	90.9	122.6	181.7
1968	94.3	124.1	179.4
1969	93.0	120.1	170.2
1970	93.8	127.4	165.6
1971	92.9	125.2	170.4
1972	98.1	125.4	169.9
1973	101.1	128.1	169.4
1974	97.5	130.3	168.9
1975	97.0	130.7	160.0
1976	98.9	130.5	163.8
1977	102.2	135.3	169.4
1978	98.9	133.1	157.2
Percent chanGe, 1950-78	+4.1%	–4.80/0	–19.60/o

SOURCE:US. DHHS, NCHS,1982(63)

Table A-20b.—Proportions of Cancer Deaths Attributed to Various Factors

Text section number	Factor or class of factors	Percentage of all cancer deaths: Best estimate	Percentage of all cancer deaths: Rangeof acceptable estimates
5.1	Tobacco	30	25-40
5.2	Alcohol		2-4
5.3	Diet	35	10-70
5.4	Food additives	<1	
5.5	Reproductive and sexual behavior	7	1-13
5.6	Occupation	4	2-8
5.7	Pollution	2	<1-5
5.8	Industrial products	<1	<l–2
5.9	Medicines and medical procedures		0.5-3
5.10	Geophysical factors	.	2-4
5.11	Infection	107	l_?
5.12	Unknown	9	?

a Allowing for, possibly protective effect of antioxidants and other Preservities

SOURCE: Doll and Peto,1961 (14)

Table A.20a.—Cigarette Smoking Status of Persons Aged 20 and Over, by Sex, Race, and Age: United States, 1965, 1976, and 1980

Sex, race, and age	Smoking status					
	Current smoker [a]			Former smoker		
	1965	1976	1980[b]	1965	1976	1980 b
MALE	Percent of persons					
Total [c, d]						
All ages, 20 years and over	52.4%	41.9%	38.3%	20.5%	*28.9%*	29.3%
20-24 years	59.2	45.9	39.7	9.0	*12.2*	12.1
25-34 years	60.7	48.5	43.1	14.7	*18.3*	20.6
35-44 years	58.2	47.6	42.6	20.6	*27.3*	27.6
45-64 years	51.9	41.3	40.8	24.1	*37.1*	36.9
65 years and over	28.5	23.0	17.9	28.1	*44.4*	47.4
White:						
All ages, 20 years and over	51.5	41.2	37.4	21.4	*30.0*	30.9
20-24 years	58.1	45.3	39.0	9.6	*13.3*	12.2
25-34 years	60.1	47.7	42.0	15.5	*18.9*	21.9
35-44 years	57.3	46.8	42.4	21.5	*28.9*	28.8
45-64 years	51.3	40.6	40.0	25.1	*38.1*	38.4
65 years and over	27.7	22.8	16.6	28.7	*45.6*	50.1
Black:						
All ages, 20 years and over	60.8	50.5	45.6	12.1	*19.3*	19.1
20-24 years	67.4	52.8	45.5	3.8	*4.1*	10.6
25-34 years	68.4	59.4	52.0	6.7	*11.8*	11.9
35-44 years. <...	67.3	58.8	44.2	12.3	*13.8*	21.2
45-64 years	57.9	49.7	48.8	15.3	*28.6*	26.3
65 years and over	36.4	26.4	27.9	21.5	*33.0*	26.6
FEMALE						
TotalC,d						
All ages, 20 years and over	34.1	32.0	29.4	*8.2*	*13.8*	15.5
20-24 years	41.9	34.2	32.7	*7.3*	*10.4*	11.0
25-34 years	43.7	37.5	31.6	*9.9*	*12.9*	14.4
35-44 years	43.7	38.2	34.9	*9.6*	*15.8*	18.9
45-64 years	32.0	34.8	30.8	*8.6*	*15.9*	17.1
65 years and over	9.6	12.8	16.8	*4.5*	*11.7*	14.2
White:						
All ages, 20 years And over	34.2	31.8	29.5	8.5	*14.4*	16.0
20-24 years	41.9	34.4	33.3	8.0	*11.4*	12.5
25-34 years	43.4	37.1	31.6	10.3	*13.7*	14.7
35-44 years	43.9	38.1	35.6	9.9	*17.0*	20.2
45-64 years	32.7	34.7	30.6	8.8	*16.4*	17.4
65 years and over	9.8	13.2	17.4	4.5	*11.5*	14.3
Black:						
All ages, 20 years and over	34.4	35.1	*30.8*	*6.0*	*9.9*	11.2
20-24 years	44.2	34.9	*32.3*	*2.5*	*5.0*	2.2
25-34 years	47.8	42.5	*34.2*	*6.7*	*8.9*	11.6
35-44 years	42.8	41.3	*36.5*	7.0	*9.6*	12.5
45-64 years	25.7	38.1	*34.3*	6.6	*11.9*	14.1
65 years and over	7.1	9.2	9.4	4.5	*13.3*	14.1

a A current smoker is a person Who has Srlloked at least 100 cigarettes and who now smokes; includes occasional smokers
bBasedon data for the last 6 months of 1980.
cBase ofpercent excludes persons with unknown smoking status.
dIncludes all other races not shown separately.

NOTE: Data are based on household interviews ofa sampleof the civilian noninstitutionalized population.

SOURCE: U.S. DHHS, NCHS, 1982 (65)

Table A-22.—Mortality Sex Ratios[a] Among Persons Aged 65 and Over for Cerebrovascular Diseases, by Age: United States, 1950-78

Year	65-74 years	75-84 years	85 years and over
		Ratio	
1950	1.13	1.06	1.03
1951	1.16	1.04	0.96
1952	1.15	1.07	0.95
1953	1.16	1.06	0.93
1954	1.19	1.07	0.91
1955	1.20	1.07	0.95
1956	1.21	1.07	0.94
1957	1.22	1.08	0.95
1958	1.24	1.07	0.93
1959	1.24	1.07	0.96
1960	1.28	1.08	0.98
1961	1.26	1.09	0.98
1962	1.28	1.10	0.98
1963	1.29	1.10	0.99
1964	1.29	1.12	0.99
1965	1.33	1.12	0.99
1966	1.32	1.13	0.98
1967	1.36	1.15	1.00
1968	1.37	1.14	0.99
1969	1.37	1.15	0.98
1970	1.35	1.15	0.99
1971	1.40	1.18	0.99
1972	1.41	1.17	0.99
1973	1.41	1.15	0.97
1974	1.41	1.15	0.99
1975	1.41	1.16	1.00
1976	1.41	1.14	0.99
1977	1.40	1.16	0.99
1978	1.39	1.14	0.98

a Ratio of male death rate to female death rate

SOURCE:U.S. DHHS, NCHS, 1982(83)

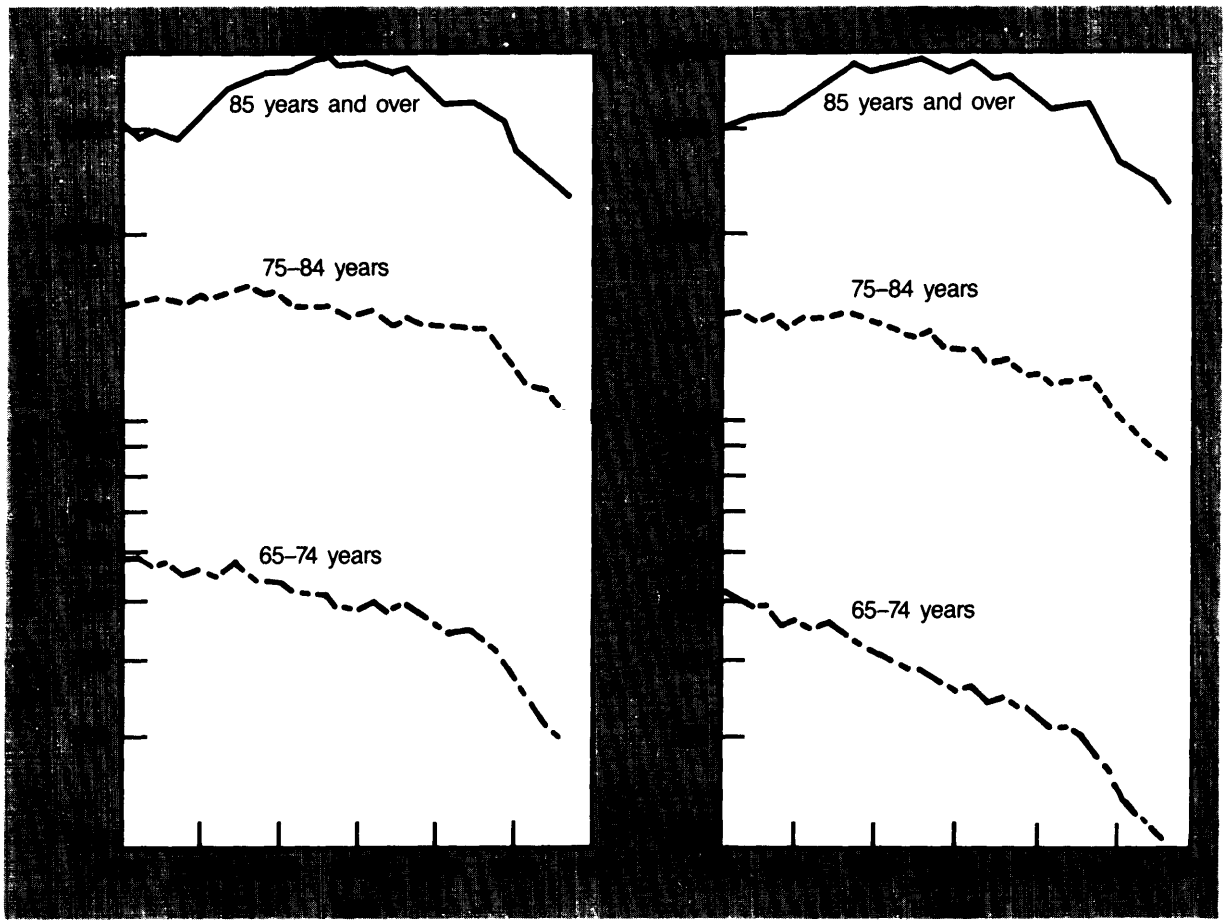
disability (the types and degree of disability inflicted by specific chronic conditions arediscussed inch.7)

The proportion of people with multiple diseases rises rapidly with age. Surveys of the noninstitutionalized elderly report an average of three chronic conditions per person (51,71)0ther estimates areas high as five per person, doubling for institutionalized elderly, and rising to more than a dozen in the veryold (6). Table A-24 lists the problems commonly coexisting in the elderly.

This frequent multiplicity of disorders combines With and exacerbates the tendency of diseases topresent different symptoms in the elderly than in younger people, rendering diagnosis difficult. The classic symptoms are often replaced by one or more nonspecific problems that may be wrongly attributed to ''aging" in general (7; table A-25). This diagnostic difficulty has implications for the accuracy of survey data and, most importantly, for health care delivery. Improved detection, diagnosis, and statistical reporting of certain conditions has led to greater awareness of the multiplicity of chronic diseases among the elderly.

Unfortunately, most of the trend analyses of prevalencein this appendix are limited to the period of the eighth revision of the ICD (1968-78) since there are no comparability ratios for chronic conditions. ln addition, NCHS data began to be collected annually only in 1978, are not subdivided into age and sex groups for the elderly, and represent only the civilian, noninstitutionalized population. Sporadic reports focusing on one of the six categories of conditions—circulatory, respiratory, digestive, skin and musculoskeletal, other chronic conditions, and selected impairmentsare used where possible. Because the prevalence of most of these conditions is higher among the institutionalized elderly, who are not represented here, and since methodological studies show that chronic conditions are generally underreported in interview surveys (especially those with stigma attached), the given rates are very likely to be underestimates.

Figure A-IO.— Death Rates Among Persons Aged 65 and Over for Cerebrovascular Diseases, by Sex and Age: United States, 1950.78



NOTES: Death rates for the group aged 65 and over in 1970 are based on population estimates revised by the US. Bureau of the Censos to correct for overestimates of the group aged 100 and over ICD codes for 1950-67 are 330-334, and ICDA codes for 1988-78 are 430438.

SOURCE: U S. DHHS, NCHS, 1982 (83)

Table A-21 .—Death Rates Among Persons Aged 65 and Over for Cerebrovascular Diseases, by Sex and Age: United States, 1950-78

Year	Male			Female		
	65-74 years	75-84 years	85 years and over	65-74 years	75-84 years	85 years and over
	Deaths per 100,000 population					
1950	589.6	1,543.6	3,048.6	522.1	1,462.2	2,949.4
1951	593.7	1,546.0	2,925.8	511.1	1,490.8	3,047.8
1952	572.8	1,559.1	2,965.9	499.9	1,451.7	3,127.6
1953	573.2	1,552.7	2,918.3	493.1	1,461.6	3,147.3
1954	550.9	1,514.9	2,887.2	461.2	1,414,6	3,179.1
1955	554.7	1,553.1	3,185.5	462.1	1,452.8	3,365.0
1956	548.1	1,547.5	3,257.8	452.4	1,443.6	2,480.9
1957	561.8	1,594.1	3,474.5	460.5	1,470.9	3,655.3
1958	552.4	1,601.0	3,529.1	444.4	1,490.7	3,775.4
1959	534.1	1,566.7	3,558.0	429.7	1,462.9	3,695.0
1960	530.7	1,555.9	3,643.1	415.7	1,441.1	3,704.4
1961	503.6	1,495.9	3,659.2	400.0	1,375.9	3,746.8
1962	502.4	1,493.2	3,771.4	393.3	1,359.6	3,844.2
1963	500.4	1,497.1	3,803.2	389.3	1,365.2	3,824.4
1964	481.4	1,448.8	3,638.5	372.5	1,295.5	3,673.8
1965	480.9	1,439,0	3,693.7	362.6	1,284.3	3,731.4
1966	482.2	1,445.1	3,663.8	364.3	1,281.7	3,740.4
1967	468.1	1,398.4	3,548.6	343.7	1,219.0	3,550.4
1968	483.1	1,418.2	3,591.6	351.6	1,248.8	3,618.3
1969	465.7	1,373.9	3,396.1	339.8	1,190.1	3,450.0
1970	449.5	1,361.6	3,211.2	333.3	1,183.1	3,247.0
1971	438.9	1,358.9	3,167.5	313.5	1,151.1	3,204.0
1972	439.3	1,356.2	3,188.6	312.1	1,162.3	3,212.4
1973	425.0	1,338.5	3,133.8	301.3	1,167.6	3,230.1
1974	400.4	1,277.2	2,969.5	283.7	1,114.0	3,013.0
1975	363.1	1,176.7	2,650.9	256.9	1,014.5	2,656.6
1976	334.7	1,098.9	2,574.4	238.1	962.1	2,592.6
1977	310.4	1,060.0	2,402.4	221.0	916.5	2,435.6
1978	290.0	984.5	2,244.2	207.9	865.5	2,298.5
Percent change. 1950-78	-50.80/o	-36.2%	-26.4%	–60.2%	–40.8%	-22.10/0

SOURCE:US. DHHS, NCHS,1982(63)

Table A-23.—Death Rates for Major Causes of Death, by Sex and Age: United States, 1940-80[a]

Cause of death	1940		1950		1960		1970		1980	Percent change 1940–80
	Male	Female	Male	Female	Male	Female	Male	Female	Both sexes	Both sexes[b]
Major cardiovascular diseases										
All ages	5.4	4.3	[illegible]	4.4	5.9	4.5	5.5	4.4	4.4	10%
65–74	32.6	24.9	[illegible]	21.2	30.3	18.0	27.8	14.9	15.1	47
75–84	78.9	68.4	59.8	69.2	55.0	63.6	46.1	40.2	41	
85+	161.2	148.4	140.8	154.9	146.0	126.0	118.6	109.5	29	
Hypertensive disease										
All ages	1	1	1	1	0.8	0.[illegible]	0.7	0.4	0.4	0.3	−60
65–74	1	1	1	1	0.3	0.[illegible]	0.2	0.2	0.1	0.1	−67
75–84	1	1	1	1	1.1	0.[illegible]	0.8	0.5	0.3	0.3	−73
85+	1	1	1	1	2.7	2.[illegible]	2.2	1.2	0.9	0.9	−68
Diabetes:										
All ages	0.1	0.2	0.1	0.2	0.1	0.2	0.2	[illegible]	0.1	−50
65–74	0.8	1.3	0.8	1.2	0.8	1.1	0.8	[illegible]	0.6	−40
75–84	1.3	1.6	1.4	1.9	1.4	1.8	1.7	[illegible]	1.3	−13
85+	1.2	1.2	1.4	1.6	1.7	1.9	2.2	[illegible]	2.2	+83
Nephritis[c]:										
All ages	1.4	1.2	0.2	[illegible]	0.5	[illegible]	0.5	0.7	0.7	+95
65–74	8.9	7.3	0.8	[illegible]	0.3	[illegible]	0.3	0.2	0.2	−98
75–84	24.2	19.5	2.0	[illegible]	0.5	[illegible]	0.7	0.3	0.7	−97
85+	51.5	40.6	4.7	[illegible]	1.4	[illegible]	1.4	0.9	1.7	−96
Influenza and pneumonia:										
All ages	[illegible]	0.6	0.3	0.3	0.4	0.3	0.4	0.3	0.2	−71
65–74	[illegible]	2.0	1.2	0.8	1.5	0.8	1.3	0.6	0.6	−74
75–84	[illegible]	6.6	3.3	2.7	4.2	2.8	3.8	2.0	2.2	−68
85+	[illegible]	19.4	10.3	9.0	12.7	10.4	9.6	17.3	8.9	−55
Tuberculosis:										
All ages	0.5	0.4	0.3	0.2	0.9	0.3	[illegible]	[illegible]	0.1	−93
65–74	1.1	0.6	0.9	0.3	0.4	0.9	[illegible]	[illegible]	0.3	−97
75–84	0.9	0.7	0.9	0.4	0.5	0.2	[illegible]	[illegible]	0.6	−92
85+	0.7	0.6	0.7	0.3	0.6	0.2	[illegible]	[illegible]	0.1	−80
Cirrhosis of liver:										
All ages	0.8	0.5	[illegible]	0.6	0.1	[illegible]	0.2	[illegible]	[illegible]	+43
65–74	0.4	0.2	0.2	0.6	[illegible]	0.7	[illegible]	[illegible]	+33
75–84	0.6	0.3	0.3	0.5	[illegible]	0.5	[illegible]	[illegible]	−25
85+	0.5	0.5	0.4	0.4	[illegible]	0.3	[illegible]	[illegible]	−60
Chronic obstructive pulmonary diseases and allied conditions:										
[illegible]	1	1	1	1	1	1	1	1	0.2	0.6	0.2	—
[illegible]	1	1	1	1	1	1	1	1	1.6	0.2	1.3	+44
[illegible]	1	1	1	1	1	1	1	1	2.7	0.4	2.2	+70
[illegible]	1	1	1	1	1	1	1	1	2.4	0.6	2.7	+125
Accidents and adverse effects:										
All ages	1	1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	−50
65–74	1	1	0.8	0.6	0.7	0.5	0.6	0.3	0.2	−71
75–84	1	1	4.4	3.5	3.4	2.8	2.3	1.8	1.2	−69
85+	1	1	18.6	16.4	14.5	14.0	8.7	8.9	6.6	−62

Table A-23.—Death Rates for Major Causes of Death, by Sex and Age: United States, 1940-80[a]—continued

Cause of death	1940		1950		1960		1970		1980	Percent change 1940–80
	Male	Female	Male	Female	Male	Female	Male	Female	Both sexes	Both sexes[b]
Accidents (all kinds)[e]:										
All ages			0.8	0.4	0.7	0.3	0.8	0.3	0.5	–17%
65–74			1.5	0.8	1.2	0.6	1.2	0.6	0.6	–50
75–84			3.2	3.1	2.4	2.0	2.2	1.4	1.2	–62
85+			8.2	10.8	5.8	6.5	4.3	3.7	2.9	–70
Motor vehicle										
All ages			0.1	0.3					0.2	—
65–74			0.2	0.5					0.2	–50
75–84			0.2	0.7					0.3	–40
85+			0.2	0.6					0.3	–25
			0.5	0.3	0.4	0.2	0.4	0.2	0.2	
			1.0	0.6	0.7	0.4	0.8	0.3	0.4	
			2.3	2.9	1.7	1.7	1.5	1.2	0.9	
			7.4	10.6	5.2	6.3	3.6	3.6	2.6	

[a] Rate per 1,000 population.
[b] Data not shown each year.
[c] Due to several changes in ICD code, trends in this category not statistically reliable. Percent change is calculated for 1950–80.
[d] Percent change calculated for 1970–80.
[e] Percent change calculated for 1950–80.

SOURCES: OTA; based on data from U.S. DHHS, NCHS, 1982 (63,64,65) and 1983 (67) and the Vital Statistics annual reports on mortality in the United States.

Table A-24.—Most Common Problems Coexisting in Elderly Individuals

	Congestive heart failure
;:	Depression
3.	Dementia syndrome
4.	Chronic renal failure
5.	Angina pectoris
6.	Degenerative joint disease
7.	Gait disturbance
8.	Urinary dysfunction
9.	Constipation
10.	Vascular insufficiency in the legs
11.	Diabetes mellitus
12.	Chronic pain
13.	Sleep disturbance
14.	Multiple drug regimens
15.	Anemia

SOURCE: Besdlne, et al., 1962 (6).

Table A-25.—Disorders Likely to Present Nonspecifically in Old Age

1.	Depression
2.	Drug intoxication
3.	Myxedema
4.	Alcoholism
5.	Myocardial infarction
6.	Pulmonary embolism
7.	Pneumonia
8.	Cancer
9.	Surgical abdomen
10.	Thyrotoxicosis, masked or apathetic

SOURCE: Besdine, Levkoff, Wetle, 1963 (7)

Table A-26 summarizes the general conclusions drawn concerning which chronic conditions are rising or falling among the elderly, which exhibit gender or race differences in prevalence, and whether these differences are pronounced.

Degenerative Mental Illness. --Older people represent about one-fifth of all first admissions to psychiatric hospitals and occupy almost one-fourth of all psychiatric beds in the Nation (11). Physiological bases for increasing numbers of mental disorders are emerging, bringing with them hope for treatment and prevention. About 50 to 60 percent of the institutionalized elderly are thought to suffer from organic mental disorders (11). The distinction between organic (physiological) and inorganic (emotional) mental illness remains blurred, however. The interaction of mental and physical disorders also warrants further study; emotional problems and stress can precipitate physical illness and, conversely, chronic illness can cause psychological problems such as depression (11,20).

Two major types of mental illness in the elderly are depression and senile dementia. There are many other illnesses that are significant: almost one out of every three elderly people suffers from a sleep disorder, for example (36). Although estimates for depression range from 10 to 30 percent of those over 65, these figures are suspected to be low because of difficulty in diagnosis (29). Isolation, chronic disease, and terminal illness can all contribute to depression.

Awareness of the prevalence and impact of dementia among our elderly population has only recently taken root (25)38). Some even speculate that it is a major cause of death (26). Dementia, or the progressive deterioration of cognitive function (usually accompanied by changes in emotions and personality), is a clinical syndrome whose underlying causes are varied and ill-defined. The prevalence of severe dementia among the elderly may be approximated at 1 to 6 percent, with that of milder cases ranging from 3 to 15 percent (32). If an average prevalence of 4.1 percent for severe dementia (32) is applied to the 1980 elderly population, it amounts to over 1 million persons. These figures represent a significant public health problem, even when excluding the milder cases that are harder to diagnose.

The prevalence of dementia increases markedly with age, showing a four- to seven-fold increase between persons aged 70-79 and those over 80; cumulative morbidity risk of severe dementia has been estimated to be 20 percent by age 80 (32). Alzheimer disease is the most prevalent form of dementia, accounting for an estimated 50 to 75 percent of dementia cases (see ch. 3). The other types are due to arteriosclerotic brain disease and other specific organic brain disorders. The age-specific prevalence for Alzheimer disease, which is estimated to be 17 percent at age 80, rises almost twofold to 30 percent by age 85 (45).

The prevalence of major mental disorders, particularly depression and senile dementia whose prevalence are known to rise with age, is likely to increase as the very old segment of the U.S. population grows (31). Much research is needed into the causes and risk factors for these debilitating diseases.

Chronic Skin and Musculoskeletal Conditions. —The most prevalent and debilitating among chronic skin and musculoskeletal conditions is arthritis. Arthritis is a type of rheumatism in which the inflammation and degeneration are confined to the joints, This category includes osteoarthritis in which the articular (joint) cartilage degenerates. According to 1981 figures, almost 50 percent of all persons over 65 are afflicted with arthritis, The rate for women is more than 50 percent higher than that for men, and the rate for blacks is higher than that for whites (table A-27). During the 1969-76 period, the prevalence of arthritis increased by 13 percent among the elderly.

Table A"26.—Differential Prevalence of Chronic Conditions Among Persons Aged 65 and Over, by Race and Sex: United States, Recent Trends

Chronic conditions	Race difference	Sex difference
Rising prevalence:		
Heart conditions:	x	
Coronary		x
Disorders in heart rhythm		x
Unspecified head trouble	x	x
Hypertensive disease		
Poor circulation		x
Chronic bronchitis		x
Emphysema		
Ulcers of stomach and duodenum	x	x
Hernia abdominal cavity		x
Upper gastrointestinal tract disorders	x	
Arthritis		
Bone disease		x
ynovitis, bursitis, tenosynovitis		x
Visual impairment	x	x
Hearing impairment	:	g
Thyroid problems		x
Diabetes	~	~
All anemias		~
Nephritis		
Calculus of kidney		~
Sciatica		x
Falling prevalence:		
Hypertensive heart disease		x
Stroke	x	
Arteriosclerosis		x
Varicose veins		
Sinusitis		
Frequent constipation	x	
Gallbladder conditions		x
Enteritis and ulcerative colitis	x	
Gastritis and duodenitis		
Rheumatism (non-articular)	x	x
Corns and callosities		
Severe visual impairment		x
Paralysis (complete or partial)	x	x
Iron deficiency anemia		
Disorders of urinary system		
Neuralgia and neuritis		
Prostate disease		

a A bold, underscored "X" indicates strong differences; other differences are less notable.

SOURCE Summarized from data in tables 27-32,

Nonarticular rheumatism (inflammation or degeneration of connective tissue in the body, including muscles and tendons) was less common and, in contrast to arthritis, was more prevalent in elderly men than in women. Rheumatism decreased for all subcategories from 1969 to 1976, although the drop was much less for blacks than for whites (table A-27). Bursitis and other inflammatory diseases of the membranes and other tissues relating to the joints were also fairly prevalent (more so in women) and increased over the period.

Diseases of the bone, including osteomyelitis (inflammation), are generally more prevalent in elderly women than men. The percent increase in prevalence from 1969 to 1976 was more than three times higher in women than in men. Although osteoporosis (loss of bone density leading to brittleness and increased risk of fracture) is supposed to be included in these figures, it is likely that the disease is not well represented. Because osteoporosis is difficult to diagnose, there are no definitive prevalence figures on this costly, debilitating disease (see ch. 3). One case study, however, reported high prevalence of X-ray diagnosed osteoporosis increasing with age among elderly women: 74 percent of those aged 65 to 69, 84 percent of those aged 70 to 74, and 89 percent of those over 75 (23). Much research is needed to develop tools for early diagnosis and to establish the true dimensions of the problem.

Table A.27a.—Prevalence of Chronic Skin and Musculoskeletal Conditions, by Age, Sex, and Race: United States, 1969=76[a] (number per 1,000)

Condition	Total		Male		Female		White		Nonwhite	
	All ages	65+	All ages	65+	All ages	65+	All ages	65+	All ages	65+
1969:										
Arthritis	92.9	380.3	64.6	287.0	119.2	450.1	95.1	376.3	77.2	424.8
Rheumatism	6.1	23.2	5.7	28.0	6.5	19.6	6.3	22.1	5.0	36.0
Bone diseases	4.5	9.7	4.1	8.0	4.9	11.0	5.0	10.3		[d]
Synovitis bursitis tenosynovitis	16.5	27.7	15.2	25.0	17.7	29.6	17.8	28.3	6.9	[d]
Corns and callosities	41.5	109.9	24.7	65.5	57.1	143.1	38.8	105.6	61.0	158.5
Skin neoplasmse	—	—	—	—	—	—	—	—	—	[d]
1976:										
Arthritis	116.7	436.6	83.4	337.9	147.7	505.5		431.9	[1 d]	482.8
Rheumatism	4.0	16.0	3.5	18.2	4.4	14.5	: : ;	14.3	4.3	32.5
Bone diseases	8.0	17.8	7.0	10.7	8.9	22.7	8.8	19.1	2.8	[4.9d]
Synovitis bursitis tenosynovitis	19.0	30.3	16.5	28.3	21.4	31.6	20.7	31.7	8.2	17.2
Corns and callosities	26.5	69.5	17.6	45.7	34.8	86.0	25.1	66.1	36.0	102.5
Skin neoplasms	5.2	16.8	5.4	19.6	5.0	14.8	5.9	18.3	[1.0d]	**[3.0d]**
Percent change in rate, 1969-76, age 65+:										
Arthritis	—	+ 25.6	—	+ 17.7	—	+ 12.3	—	+ 14.8	—	[+13.6]
Rheumatism	—	-31.0	—	-35.0	—	-26.0	—	-35.3	—	-9.7
Bone diseases	—	+ 187.2	—	+ 33.8	—	+ 106.4	—	+ 85.4	—	[d]
Synovitis bursitis tenosynovitis	—	+ 9.4	—	+ 13.2	—	+ 6.8	—	+ 12.0	—	[d]
Corns and callosities	—	-62.3	—	-30.2	—	-39.9	—	-37.4	—	[-41.0]
Skin neoplasmse	—	—	—	—	—	—	—	—	—	—

aBased on household interviews of the civilian, noninstitutionalized population
b Not elsewhere classified.
c Nonarticular unspecified,
d Not statistically reliable.
'No data available.

SOURCE: U.S. DHHS, NCHS, 1974 (55) and 1978 (59)

Table A-27b.—Prevaience of Chronic Skin and Musculoskeietai Conditions, by Age and Sex: United States, 1981[a] (number per 1,000)

Condition	Total		Male	Female
	All ages	65+	All ages	All ages
Arthritis	12.1	464.7	87.5	152.3
Rheumatism	2,8	8.9	2.5	3.2
Bone diseases		11.8	4.8	
Synovitis, bursitis tenosynovitis.	21.3	35.7	15.9	2 : : :
Corns and callosities.	19.1	5.9	12.6	25.1
Skin neoplasms	6.0	23.2	6.1	6.0

aBased on household interviews Of the civilian, noninstitutionalized population.
b Not elsewhere classified.
c Nonarticular unspecified.

SOURCE: National Center for Health Statistics, unpublished data.

Although comparative data were not available for skin neoplasms, it is worth noting that prevalence among the elderly is more than five times that in the general population and that the prevalence among whites is many times that among blacks (table A-27) due in large part to the relative lack of skin pigment in whites (4). Corns and callosities (thickenings) of the skin may seem relatively trivial but wararrant attention due to their prevalence" and potential to limit mobility, especially among the very old. These conditions are more than twice as common in women than men.

Selected Impairments.—There are several gender and race differences in the prevalence of visual, hearing, paralytic, and nonparalytic orthopedic impairments-all of which are important causes of disability. Elderly women have higher rates than men for visual impairments and orthopedic impairments of the back and lower extremities. Hearing impairments and partial or complete paralysis, by contrast, are more common in elderly men (table A-28), Blacks over 65 exhibit 20 percent higher prevalence of visual impairments, approaching double the rate among whites for severe visual impairment[5] and for paralysis (table A-28). Whites, however, have 26 to 34 percent higher rates for hearing impairments than blacks. Hearing impairments and most orthopedic impairments become more common with advancing age,

From 1971 to 1977 visual impairments in general tended to rise in prevalence among all elderly groups Whil0e sevrere visual impairments fell (table A-28). Since the most common cause of visual impairment is cataracts, this rise may be due to the increased prevalence of cataracts which, in turn, may be linked to a rise in diabetes (see section on "Other Selected Chronic Conditions"), a major risk factor for cataracts. Hearing impairments rose in prevalence in the 65 to 74 age group but fell in the over-75 group. Paralytic impairments also rose, especially among whites and women. Orthopedic impairments appeared to fall in most groups (table A-28).

Chronic Circulatory Conditions.—The most common chronic circulatory conditions among the elderly are heart conditions (mostly coronary heart disease—CHD) and hypertensive disease. Striking gender and race differences can be found in their prevalence: prevalence of general hypertensive disease is almost 30 percent higher for blacks, whose prevalence of hypertensive heart disease more than twice that of whites (table A-29). Stroke prevalence is also 28 percent higher among blacks. Elderly whites, conversely, have more than twice the prevalence of coronary heart disease and varicose veins. As for gender differences, the prevalence of both general and cardiac hypertensive disease are more than 70 percent higher in elderly women than men (table A-29a). But the prevalence of coronary heart disease is 26 percent higher in elderly men.

The comparatively higher prevalence of hypertensive disease in elderly women and blacks is surprising. Their death rates from heart disease are lower for both as compared to men and whites, respectively, and lower for stroke and hypertensive disease for women (see previous section on "Mortality"). This could mean that hypertension is better controlled, not as severe, or generally not as strong a risk factor for cardiovascular mortality in womnen and blacks. Also, the high mortality associated with chronic coronary heart disease may considerably raise the death rates of whites and men.

Unfortunately, trends among these subgroups cannot be analyzed because the 1978 data are not subdivided by sex or race. Certain general observations can be made about the 1972-78 period, however (table A-29a): the prevalence of cerebrovascular disease, arteriosclerosis, and varicose veins all fell among the elderly; the prevalence of all heart conditions except hypertensive heart disease rose, particularly among the elderly; coronary heart disease rose the least (1 percent). The available data indicate that the prevalence of general hypertensive disease also rose by more than 26 percent among the elderly. [6]

These simultaneous increases in prevalence and decreases in mortality for heart conditions and hypertension among the elderly in the 1970s indicate that: 1) incidence is increasing; 2) better ongoing treatment of the chronic condition has reduced its associated mortality risk; and/or 3) improved acute care is allowing increasing numbers of people to survive crises and become chronic disease sufferers (see "Conclusion").

Chronic Respiratory Conditions.–All three of the chronic respiratory conditions discussed here-chronic bronchitis, emphysema, and sinusitis–are markedly more prevalent among the elderly. Emphysema, for example, is more than four times more common among those over 65 than in the general population. The prevalence of all but sinusitis is higher in elderly men, especially emphysema, for which the rate is more than five times that of elderly women (table A-30). This gender difference is partly due to the greater number of current and former smokers among men (table A-20a).

[5]Severe visual impairment is defined by NCHS as no useful sight or blindness in both eyes, or inability to read ordinary newspaper print with either eye even while using corrective lenses

[6]Comparisons of data on both general and cardiac hypertensive disease are limited in accuracy because the diseases are frequently redefined for data collection purposes, while the trends may be indicative, the specific figures are unreliable

Table A-28a.—Prevalence of Selected Impairments, by Age, Sex, and Race: United States, 1971-77[a] (number per 1,000)

Condition	Total			Male			Female			White			Nonwhite		
	All ages	65–74	75+	All ages	65–74	75+	All ages	65–74	75+	All ages	65–74	75+	All ages	65–74	75+
1971:															
Visual impairment	47.4	*204.6*[b]		50.8	*183.0*		44.2	*220.4*		47.9	*200.9*		44.3	*245.7*	
Severe	6.5	*47.0*		5.2	*38.3*		7.7	*53.3*		6.0	*44.3*		9.4	*78.1*	
Hearing impairment	71.6	231.1	398.6	80.6	277.8	449.2	63.3	194.4	365.5	75.5	235.3	405.8	11.1	181.4	322.2
Paralysis (complete/partial)	6.9	*23.1*		7.5	*27.5*		6.3	*19.8*		7.1	*21.6*		5.5	*40.0*	
Orthopedic impairments or deformities:															
Back or spine	39.6	68.4	64.9	2.2	55.1	53.6	4.1	79.0	72.3	3.5	67.8	62.4	[c]	75.9	90.9
Upper extremities	12.1	*29.9*		15.0	*28.7*		9.3	*30.7*		1.9	*30.5*		[c]	*22.9*	
Lower extremities	36.5	70.8	94.6	39.7	56.2	82.3	15.4	82.3	102.7	19.8	68.9	92.8	16.6	92.8	114.8
1977:															
Visual impairment	53.8	*220.2*		57.7	*204.5*		50.2	*231.1*		54.7	*215.9*		47.8	*261.1*	
Severe	6.6	*44.5*		5.4	*37.2*		7.6	*49.6*		6.2	*41.7*		8.8	*71.3*	
Hearing impairment	76.4	240.6	385.5	87.2	289.1	439.3	66.4	203.3	353.3	81.3	246.7	393.0	45.1	184.1	310.6
Paralysis (complete/partial)	7.2	*26.4*		7.8	*30.3*		6.6	*23.6*		7.1	*24.6*		8.3	*43.7*	
Orthopedic impairments or deformities:															
Back or spine	44.1	65.9	68.1	40.1	57.6	49.3	47.9	72.2	79.3	5.7	66.0	69.3	2.8[d]	65.0	54.3
Upper extremities	11.8	*28.5*		14.5	*29.1*		9.2	*28.0*		12.4	*29.2*		*7.8*	*21.9*	
Lower extremities	33.7	63.0	89.7	35.6	59.7	74.0	31.9	65.6	99.1	34.0	60.7	89.6	31.7	84.5	90.5
Percentage change in rate, 1971–77:															
Visual impairment	+13.5	*+7.6*		+13.6	*+11.7*		+13.6	*+4.8*		+14.2	*+7.5*		+7.9	*+6.3*	
Severe	+0.2	*−5.3*		−3.8	*−2.9*		−0.1	*−6.9*		+3.3	*−5.9*		−6.4	*−8.7*	
Hearing impairment	+6.7	+4.1	−3.3	+8.2	+4.1	−2.2	+4.9	+4.6	−3.3	+7.7	+4.8	−3.2	+306.3	+1.5	−3.6
Paralysis (complete/partial)	+4.3	*+14.3*		+4.0	*+9.2*		+4.8	*+19.2*		0	*+13.9*		+50.9	*+9.2*	
Orthopedic impairments or deformities:															
Back or spine	+11.4	−3.6	+4.7	[c]	+4.5	−8.0	[c]	−8.6	+9.7	+62.9	−2.6	+11.1	[c]	−14.4	−67.4
Upper extremities	−2.5	*−4.7*		−3.3	*+1.4*		−1.1	*−8.8*		[c]	*−4.3*		[c]	*−4.4*	
Lower extremities	−7.7	−11.0	−5.2	−10.3	+6.2	−10.1	+107.1	−20.3	−3.5	+71.7	11.9	3.4	+91.0	−8.9	−21.2

[a]Based on household interviews of the civilian, noninstitutionalized population.
[b]Italized numbers are for the total 65 and over age group.
[c]No data available.
[d]Not statistically reliable.

SOURCE: U.S. DHHS, NCHS, 1975 (57) and 1981 (62).

Table A"28b.—Prevalence of Selected Impairments, by Age and Sex: United States, 1981[a] (number per 1,000)

Condition	Total		Male	Female
	All ages	65+	All ages	All ages
Visual impairment	40.4	136.6	47.8	33.4
Severe [b]				—
Hearing impairment	82.9	283.6	91.1	75.3
Paralysis (complete/partial)		19.6	7.0	4.8
Orthopedic impairments or deformities	81.8	128.2	86.4	77.6
Back or spine	51.9	73.2	50.4	53.3
Upper extremities	13.2	27.6	15.4	11.0
Lower extremities	23.2	44.5	27.8	19.0

[a]Based on household interviews of the civilian, noninstitutionalized population.
[b]No data available.

SOURCE: National Center for Health Statistics, unpublished data.

The prevalence of sinusitis dropped slightly from 1970 to 1978, while that of the other two conditions rose. Emphysema among the elderly jumped more than 25 percent during this period. The reason for this rising trend is not clear, but it may be linked to the increase in mortality due to obstructive lung disease in some older age groups since 1970 (see "Mortality" section).

Chronic Digestive Conditions–There is a well-documented age-related rise in the prevalence of many digestive disorders (see ch. 4). The most common chronic digestive condition reported by the elderly is constipation, followed by abdominal hernias. The 1975 NCHS data reveal certain race and gender differences (table A-31). Elderly whites exhibit much higher rates than blacks for abdominal hernias, chronic enteritis, and ulcerative colitis (inflammations of the intestine and colon, respectively), and intestinal diverticula (outpocketings of the intestinal wall that are prone to infection). Elderly women report two to three times the prevalence in men of frequent constipation, gallbladder conditions, intestinal diverticula, and chronic enteritis and colitis. The rate of abdominal hernias, however, is almost 30 percent higher among men.

In the period 1968-75, the prevalence rose for ulcers, abdominal hernias, and particularly for functional and symptomatic disorders of the upper gastrointestinal tract (including the stomach). Prevalence fell for all other conditions, most dramatically for enteritis and colitis.

Other Selected Chronic Conditions.—This category includes chronic thyroid disorders, anemias, diabetes, neurological disorders, and disorders of the urinary tract. According to 1973 data, diabetes is the most common ailment of this category among elderly women, while disease of the prostate is the most common among men.

Both thyroid disorders and anemias are more than three times more prevalent in elderly wornen than men (table A-32), Women also report higher prevalence of diabetes (50 percent), urinary disorders (60 percent), and specific neurological disorders: sciatica (pain along the course of the sciatic nerve from the lower back into the legs), neuralgia (pain along the course of one or more nerves), and neuritis (inflammation of a nerve). Calculus of the kidney, by contrast, was almost twice as prevalent among men.

From 1973 to 1978 the prevalence of diabetes among the elderly rose by 8 percent. The significance of this rise, when paired with declining death rates for both diabetes and heart disease, is discussed in the conclusion. The dramatic changes found in the prevalence of other conditions—the rises in thyroid problems, anemias, nephritis and calculus of the kidney, and drops in iron-deficiency anemia, neuralgia and neuritis, and diseases of the prostate—may be generally indicative of trends, but are probably exaggerated due to improved diagnostic and reporting techniques. Moreover, the figures on irond-eficiency anemia and nephritis have been statistically unreliable (table A-32).

An important urinary disorder that is not covered in these data is urinary incontinence, the inabilitv to control excretion of urine. Incontinence is most common among the elderly and affects between 10 and 20 percent of community dwelling elderly to some degree and nearly 50 percent of those in nursing homes (up to 700,000 persons) –about 50 percent of the latter also have episodes of fecal incontinence (16,34). These figures are probably underestimates because they reflect only those afflicted at the time and not those with a history of incontinence (72). The medical and psychosocial impact of incontinence on the Nation's growing elderly population is discussed in a case study accompanying this report.

Table A-29a.—Prevalence of Chronic Circulatory Conditions, by Age, Sex, and Race: United States, 1972= 78a (number per 1,000)

Condition	Total		Male		Female		White		Nonwhite	
	All ages	65+	All ages	65+	All ages	65+	All ages[a]	65+	All ages	65+
1972:										
Heart conditions	50.4	198.7	48.0	199.3	52.7	198.3	51.7	200.0	41.5	185.2
Coronary	16.2	84.0	19.0	95.7	13.6	75.7	17.8	89.7	5.1	24.6
Unspecified disorders:										
Heart rhythm [b]	12.0	22.0	10.0	21.0	13.7	22.7	12.4	23.0	8.8	
Heart trouble [b]	5.8	28.1	6.9	36.0	4.8	22.3	5.7	27.0	6.4	38.9
Hypertensive disease [b]	10.5	52.8	7.4	36.6	13.3	64.4	9.6	47.7	17.2	105.8
Hypertensive disease [d]	60.1	199.4	46.4	141.2	72.9	240.9	58.3	194.6	72.9	248.7
Cerebrovascular disease	7.5	48.2	7.6	54.0	7.4	44.0		47.0	9.1	60.0
Arteriosclerosis [d]		25.7	3.5	30.0		22.7	; : ;	27.2	[c]	
Varicose veins d	36.8	93.9	14,5	52.2	57.6	123.8	39.4	99.6	18.7	34.3
Poor circulation	4.6	24.1	3.4	19.8	5.7	27.2	4.7	24.7	3.6	[c]
1978:										
Heart conditions	62.9	214.6	60.8	—	64.7	—	—	—	—	—
Coronary	18.4	84.8	20.9	—	16.0	—	—	—	—	—
Unspecified disorders:										
Heart rhythm b	14.7	23.8	12.6	—	16.6	—	—	—	—	—
Heart trouble b	8.5	45.5	10.5	—	6.6	—	—	—	—	—
Hypertensive disease b	13.0	45.3	10,4	—	15.4	—	—	—	—	—
Hypertensive disease d	87.8	251.6	72,1	—	102.4	—	—	—	—	—
Cerebrovascular disease	80.0	44.9	9.4	—	6.7	—	—	—	—	—
Arteriosclerosis		25.1	3.4	—	3.4	—	—	—	—	—
Varicose veins d	3.4	75.4	12.4	—	46.4	—	—	—	—	—
Poor circulation	5.3	25.1	4.6	—	6.0	—	—	—	—	—
Percentage change **in rate,** 1972-78:										
Heart conditions	+ 24.8	+ 8.4	+ 26.7	—	+ 22.8	—	—	—	—	—
Coronary	+ 13.6	+ 1.0	+ 10.0	—	+ 17.6	—	—	—	—	—
Unspecified disorders:										
Heart rhythm b	+ 22.5	+ 8.2	+ 26.0	—	+21 .2	—	—	—	—	—
Heart trouble b	+ 46.5	+61 .9	+ 52.2	—	+ 37.5	—	—	—	—	—
Hypertensive disease b	+ 23.8	-14.2	+ 40.5	—	+ 15.8	—	—	—	—	—
Hypertensive disease d	+ 46.1	+ 26.2	+ 55.4	—	+ 40.5	—	—	—	—	—
Cerebrovascular disease	+ 6.7	-6.8	+ 23.7	—	-9.5	—	—	—	—	—
Arteriosclerosis	0.0	-2.3	-2.9	—	0.0	—	—	—	—	—
Varicose veins d	-18.5	-19.7	-14.5	—	-19.4	—	—	—	—	—
Poor circulation	+ 15.3	+ 4.2	+ 35.3	—	+ 5.3	—	—	—	—	—

aBased on housebold interviews of the civilian, non institutionalized population.
bNot otherwise specified.
cNot statistically reliable.
d N,t elsewhere classified.

SOURCE: U.S. DHHS, NCHS, 1974 (56) and unpublished data

Table A-29 b.—Prevalence of Chronic Circulatory Conditions, by Age and Sex: United States, 1981[a] (number per 1,000)

Condition	Total		Male	Female
	All ages	65+	All ages	All ages
Heart conditions	76.4	*277.0*	*80.7*	81.6
Coronary	25.2	*117.7*	*29.1*	21.6
Unspecified disorders:				
Heart rhythm b	27.5	60.2	20.9	33.7
Heart trouble b	11.5	63.5	10.2	12.7
Hypertensive disease b	0.7	3.1	0.3	1.0
Hypertensive disease c	113.4	378.6	100.4	125.5
Cerebrovascular disease	8.3	45.4	8.7	8.0
Arteriosclerosis	15.1	97.0	15.8	14.5
Varicose veins C	27.2	83.2	10.4	43.0
Poor circulation b	3.1	18.1	2.5	3.7

a Based on household interviews of the civilian, noninstitutionalized Population.
b Not otherwise specified.
c Not elsewhere classified,

SOURCE National Center for Health Statistics, unpublished data

Table A.30a.— Prevalence of Chronic Respiratory Conditions, by Age, Sex, and Race: United States, 1970-78[a] (number per 1,000)

Condition	Total		Male		Female		White		Nonwhite	
	All ages	65+	All ages	65+	All ages	65+	All ages	65+	All ages	65+
1970:										
Chronic bronchitis	32.7	41.2	31.2	*47.3*	34.0	36.6	*34.4*	*42.5*	*20.0*	[b]
Emphysema	6.6	31.7	10.3	*58.8*	3.1	11.6	*7.4*	*34.3*	[b]	[b]
Sinusitis	103.0	136.1	92.6	*121.5*	112.6	147.1	110.0	141.1	53.2	79.2
1978:										
Chronic bronchitis	*33.0*	*47.4*	*29.0*	—	*36.8*	—	—	—	—	—
Emphysema	*9.7*	*39.8*	*14.4*	—	*5.2*	—	—	—	—	—
Sinusitis	*105.4*	*129.9*	*96.3*	—	*114.0*	—	—	—	—	—
Percentage change in rate 1970–78:										
Chronic bronchitis	+0.9	+15.0	+7.0	—	**+8.2**	—	—	—	—	—
Emphysema	+47.0	+25.5	+39.8	—	**+67.7**	—	—	—	—	—
Sinusitis	+2.3	-4.5	+4.0	—	**+1.2**	—	—	—	—	—

aBased on household intemlews of the civilian, noninstitutionalized population
b N,t statisticall, reliable.

SOURCE:US. DHHS, NCHS, 1973(53)

Table A-30b.—Prevalence of Chronic Respiratory Conditions, by Age and Sex: United States, 1981 (number per l,000)a

Condition	Total		Male	Female
	All ages	65+	All ages	All ages
Chronic bronchitis	35.3	46.1	31.7	38.7
Emphysema	9.3	42.9	14.3	4.6
Sinusitis	137.9	183.6	121.0	153.7

a BaSed on household **interviews of the** civilian, noninstitutionalized population.

SOURCE National Center for Health Statistics, unpublished data

Table A-31a.—Prevalence of Chronic Digestive Conditions, by Age, Sex, and Race: United States, 1968-75[a]

Condition	Total		Male		Female		White		Nonwhite	
	All ages	65+	All ages	65+	All ages	65+	All ages	65+	All ages	65+
1968:										
Ulcer of stomach/duodenum	17.2	29.0	22.0	38.4	12.6	22.0	17.8	29.8	12.5	[b]
Frequent constipation	23.8	96.3	13.7	62.5	53.1	121.9	23.8	96.5	23.7	94.3
Hernias of abdominal cavity	16.3	58.8	20.9	80.9	12.0	42.2	17.1	61.0	10.5	33.9
Functional/symptomatic upper GI tract	13.1	37.7	13.5	32.4	12.7	41.7	13.4	37.8	11.1	36.6
Gall bladder conditions	10.3	32.8	5.0	17.3	15.1	44.6	10.7	32.7	7.5	33.9
Gastritis/duodenitis	8.6	24.0	7.1	17.7	10.0	28.7	8.8	23.6	7.5	[b]
Diverticula of intestine[b]	—	—	—			—	—	—	—	—
Chronic enteritis/ulcerative	9.3	34.0	5.7	13.4	12.7	49.6	10.4	36.6	[b]	[b]
1975:										
Ulcer of stomach/duodenum	18.9	30.8	20.7	36.9	17.2	26.5	19.5	31.3	15.2	25.7
Frequent constipation	18.2	67.1	8.9	43.6	26.9	83.6	17.5	65.5	23.2	83.6
Hernias of abdominal cavity	17.8	62.2	19.4	71.2	16.4	55.9	19.2	66.1	8.4	23.1
Functional/symptomatic upper G	16.6	38.5	17.3	37.4	15.9	39.3	16.5	38.0	17.1	44.6
Gall bladder conditions	7.8	22.0	3.0	10.6	12.2	30.1	8.0	22.1	6.1	21.0
Gastritis/duodenitis	7.0	17.4	5.8	15.4	8.1	18.8	7.0	17.3	6.9	18.5
Diverticula of intestine	6.3	31.0	3.6	17.4	8.8	40.5	7.2	38.8	0.7[c]	3.1[c]
Chronic enteritis/ulcerative colitis	5.7	13.5	3.6	8.5	7.6	17.0	6.3	14.6	1.4	2.6[c]
Percentage change in rate, 1968-										
Ulcer of stomach/duodenum	+9.0	+6.2	-5.9	-3.9	+36.5	+20.4	+9.6	+5.0	+21.6	[b]
Frequent constipation	-23.5	-30.3	-35.0	-30.2	-18.7	-23.2	-26.5	+32.1	-2.1	-11.3
Hernias of abdominal cavity	+9.2	+5.8	-7.2	-12.0	+36.7	+32.5	+12.3	+8.4	-20.0	-31.8
Functional/symptomatic upper G	+26.7	+2.1	+28.1	+15.4	+25.2	-5.8	+23.1	+0.5	+54.0	+21.9
Gall bladder conditions	-24.3	-32.9	-40.0	-42.2	-19.2	-32.5	-25.2	-32.4	-18.7	-38.0
Gastritis/duodenitis	-18.6	-27.5	-18.3	-13.0	-19.0	-34.5	-20.4	-26.7	-8.0	[b]
Diverticula of intestine[b]	—	—	—	—	—	—	—	—	—	—
Chronic enteritis/ulcerative colitis	-38.7	-60.3	-36.8	-36.6	-40.2	-65.7	-39.4	-60.1	[b]	[b]

[a]Based on household interviews of the civilian, noninstitutionalized population.
[b]No data available.
[c]Not statistically reliable.

SOURCE: U.S. DHHS, NCHS, 1973 (52) and 1979 (60).

Table A-31 b.—Prevalence of Chronic Digestive Conditions, by Age and Sex: United States, 1981[a] (number per 1,000)

Condition	Total		Male	Female
	All ages	65+	All ages	All ages
Ulcer of stomach/duodenum	17.5	28.8	17.7	17.2
Frequent constipation	16.0	52.2	8.5	23.0
Hernias of abdominal cavity	16.4	49.1	17.6	15.4
Functionallsymptomatic upper GI tract disorders	17.4	39.9	17.5	17.2
Gall bladder conditions	6.8	18.5	2.5	10.7
Gastritislduodenitis	7.2	10.7	5.2	9.1
Diverticula of intestine	6.8	38.4	3.6	9.7
Chronic enteritis)colitis	9.5	16.5	6.6	12.3

aBased on household interviews of the civilian, noninstitutionalized population.

SOURCE: National Center for Health Statistics, unpublished data.

Table A"32.—Prevaience of Other Selected Chronic Conditions, by Age, Sex, and Race: United States, 1973"78[a] (number per 1,000)

Condition	Total		Male		Female		White		Nonwhite	
	All ages	65+	All ages	65+	All ages	65+	All ages	65+	All ages	65+
1973:										
Thyroid	13.9	19.7	3.7	7.3	23.4	28.4	14.9	20.2	7.1	[b]
Diabetes	20.4	78.5	16.3	60.3	24.1	91.3	19.9	75.9	23.9	104.5
All anemias	14.5	20.9	4.6	8.0	23.7	30.2	13.7	22.3	20.4	[b]
Iron deficiency	3.2	2.6	1.0	[b]	5.2	3.9	3.1	2.9	3.5	[b]
Sciatica	4.3	11.9	3.4	9.8	5.1	13.4	4.9	12.7	[b]	[b]
Neuralgia/neuritis	1.9	9.0	1.1	6.7	2.8	10.7	2.1	9.5	[b]	[b]
Urinary system disease	28.0	60.7	14.1	44.8	41.0	72.0	28.3	59.1	26.4	**77.7**
Nephritis	0.7	1.0	0.5	[b]	0.9	1.5	0.7	1.1	[b]	[b]
Calculus kidney	3.3	7.0	3.9	9.9	2.7	5.0	3.4	6.4	2.5	[b]
Prostate disease	—	—	13.1	66.8	—	—	3.6	68.3	[b]	51.6
1978:										
Thyroid	13.6	25.6	2.2	–	24.1	—	—	—	—	—
Diabetes	24.3	84.8	20.1	–	28.2	—	—	—	—	—
All anemias	13.0	27.0	**4.8**	**—**	20.7	—	—	—	—	—
Iron deficiency	2.0	l,5b	O.lb	–	3.8	—	—	—	—	—
Sciatica	4,5	13.0	**2.5**	**–**	6.4	—	—	—	—	—
Neuralgia/neuritis	2.5	6.1	**1.5**	**–**	3.5	—	—	—	—	—
Urinary system disease	25.9	56.6	**14.6**	**—**	36.4	—	—	—	—	—
Nephritis	0.9	l,7b	**1.1**	**–**	0.8	—	—	—	—	—
Calculus kidney	4.0	11.0	**4.7**	**–**	3.4	—	—	—	—	—
Prostate disease	—	—	**13.2**	**28.7**	—	—	—	—	—	—
Percentage change in rate, 1973-78:										
Thryoid	-2.2	+29.9	**-40.5**	**–**	+3.0	—	—	—	—	—
Diabetes	+19.1	+8.0	**+23.3**	**—**	+17.0	—	—	—	—	—
Ail anemias	-10.3	+29.2	**+4.2**	**—**	-12.7	—	—	—	—	—
Iron deficiency	-37.5	-42.3b	**—b**	**—**	-26.9	—	—	—	—	—
Sciatica	+23.2	+9.2	**-26.5**	**–**	+25.5	—	—	—	—	—
Neuralgia/neuritis	-31.6	-32.2	**-36.4**	**–**	-25.0	—	—	—	—	—
Urinary system disease	-7.5	-6.8	**+3.5**	**—**	-11.2	—	—	—	—	—
Nephritis	+28.6	+i'O[b]+lzo.o	—		-11.1	—	—	—	—	—
Calculus kidney	+21.2	+57.1	+20.5	—	+25.9	—	·	—	—	—
Prostrate disease	—	—	-0.8	-57.0	—	—	—	—	—	—

aBased on household interviews of the civilian, noninstitutionalized population.
bNot statistica~y re~able.

SOURCE:U.S. DHHS, NCHS,1977(58)

Conclusions

Older Americans are very heterogeneous according to age, sex, and race-specific prevalence and death rates for many conditions. Some general conclusions can be drawn from available data on the health and functional status of the elderly, recent trends in their mortality and morbidity, and the cross-analyses of these trends. These, in turn, yield further implications for our health care system:

- Mortality:
  - The overall death rate of elderly women Was consistently lower than that of elderly men and decreased almost twice as much from 1940 to 1978.
  - Death rates for both heart disease and stroke declined most rapidly among the elderly in the 1968-78 period and were generally lower for women.
  - Cancer and chronic obstructive pulmonary disease are the only major causes of death for which rates have risen recently among the elderly. The rise in cancer is mostly due to a dramatic rise in lung cancer among men; rates among women have also risen since the mid-**1960s,** probably due to the increased proportion of women who smoke.
  - Mortality from diabetes mellitus has fallen since **1940 except among those over 85;** in this group the rate almost doubled.
- Morbidity:
  - The age-specific prevalence of Alzheimer disease is estimated to be **17** percent at age 80, rising almost twofold to 30 percent by age 85.
  - Almost 50 percent of all persons over 65 are afflicted with arthritis. The rates for elderly women are 50 percent higher than those for elderly men.
  - The prevalence of visual, hearing, and paralytic impairments—all particularly debilitating conditions–rose in some elderly age groups.
  - The prevalence of chronic hypertension, most types of chronic heart disease, and diabetes—all risk factors for cardiovascular mortality—rose in the 1970s.
  - Elderly blacks exhibit a much higher prevalence of hypertensive disease and stroke than whites, although the latter exhibit twice the prevalence of coronary heart disease.
  - Elderly women have a 70 percent higher prevalence of general hypertensive disease than elderly men, but the latter have a 26 percent higher prevalence of coronary heart disease.
  - '[']here is a lack of **accurate prevalence data** for dementia, cancer, and osteoporosis, and a gen - erak lack of prelalence data subdivided age groups above? age 65.
- Cross analyses:
  - The prevalences of general hyperststione, diabetes, and most chronic heart conditions—all risk factors for cardiovascular disease-are rising at the same time cardiovascular mortality is falling. This probably indicates better treatment of these chronic conditions, which reduces associated risk, and improved acute care, which allows more people to survive crises, live longer, and develop chronic illnesses.
  - The paradox of higher prevalence of hypertension and declining heart disease mortality in elderly blacks and women (also stroke and hypertension in the latter) suggests that hypertension is better controlled, less severe, or generally not as strong a risk factor in these groups.
  - Both the prevalence and the death rate are rising for chronic lung disease, indicating that the incidence is also rising. The rising incidence of lung disease and of certain cancers—especially cancer of the lung and gastrointestinal tract—are probably linked to rises in controllable risk factors such as smoking and dietary habits, that could be addressed through health promotion education.
  - The prevalence and death rates for stroke (the third leading killer among the elderly) are both falling. This indicates that incidence is falling and that risk factors like high blood cholesterol have been behaviorally reduced and/or reduced through medical treatment,

In sum, *death rates* for most major causes of death continue to fall, both among the elderly and in the general population. The *prevalence* of more than half of the *chronic conditions* examined in this chapter, however, is rising. If these trends continue, they could result in a decrease in the general well-being of older Americans—especially the very old—and a long-term burden on our health care system-especially for conditions with high associated disability such as arthritis, heart conditions, and visual and hearing impairrnents. More intensive research into the causes and progression of chronic conditions that become more common with age may lead to more effective prevention, better diagnostic techniques, and improved treatment to reduce disability. More emphasis on preventive health strategies and education of the public about controllable risk factors may help to delay onset or to eventually eliminate these conditions and their associated disabilities.

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