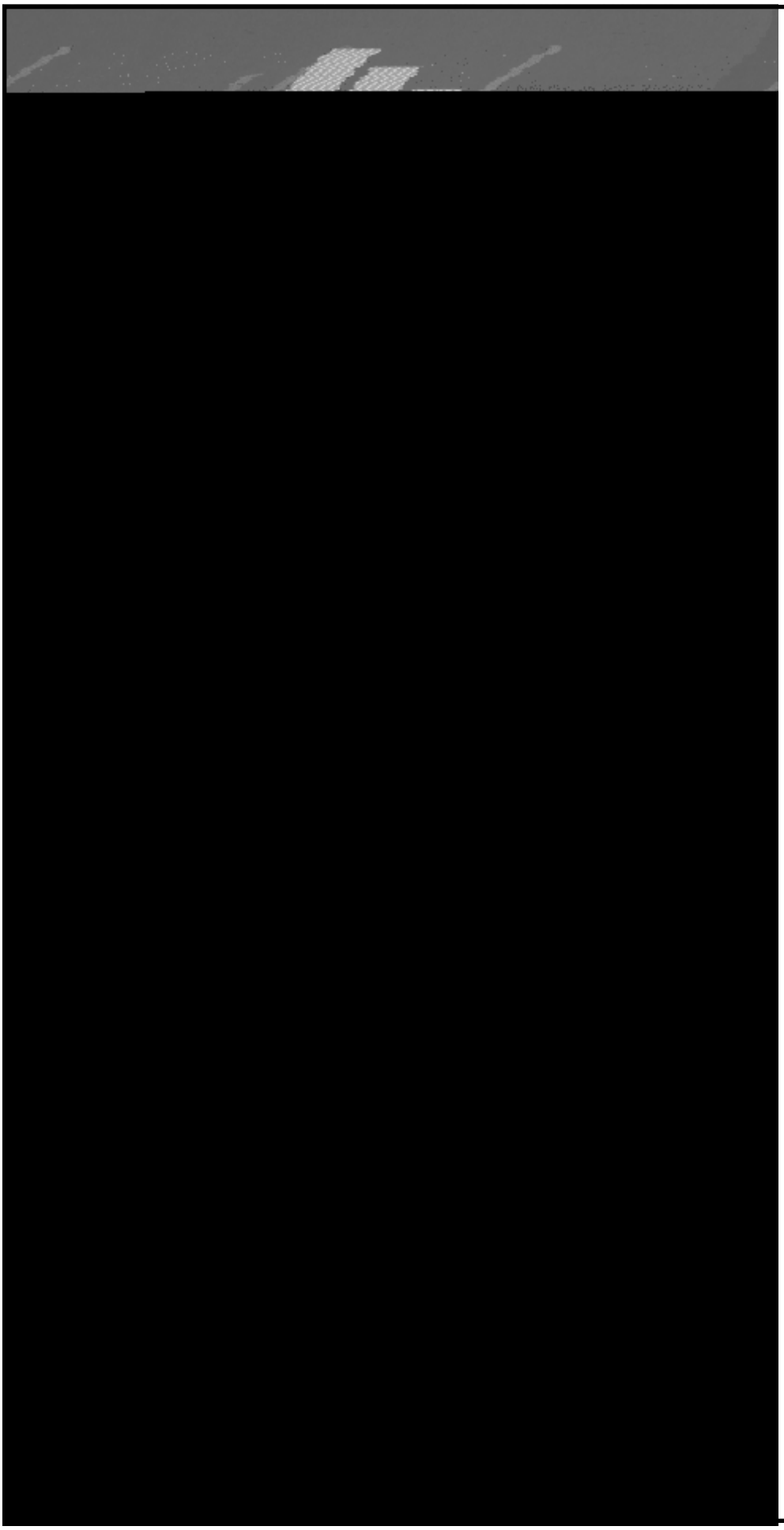


M

List of Charts

1. Introduction

TPis chartbook contains morbidity and mortal-
˝18y statistics for the cardiovascular diseases and selected lung and blood diseases in the United States. Mortal˝18y statistics for states and selected countries are also included. TPe purpose of th52 chartbook is to describe the magnitude of the problem of these diseases with emphasis on demographic differences and tQmbe¼ds.

DemograpPic characteristics of special interest are age, sex, and the minor˝18y status. TQmbe¼ends ˝n prevalence and hospitalizations and recent changes in long-term mortali8 t¼ds are of special interest. WQth increasing l˝fe expectancy, increas-
Qng Vumbers of older persons in the population, and apparent increasing survival following initial or recurrent cardiovascular disease, an increase in the Vumbers of persons in the population who Tmve had a cl˝nical

the presentation of statistics for years before the sixth revision, the ICD codes are Wbvious from the source documents listed in the References.

Quality of Data

PTjalence data, based on health interviews, rely on self-reporting of medical conditions that respondents believe a physician diagnWsed for them or for members of theQr household. PatQents who are unaware of theQr condition (common for hypertension) are nWt included in pTjaTence estimates based on health interviews. Any summation of the pTevalence of two or more chronic co8 Ttions co09ts more than once thWse persons (an unknWwn number) who Pa.5 more than one co8dition. Physician office visits are based on diagnWstic mentions in physicians' records. PTevaTence, hospitalizatQon, or physician office visit estimates that Pa.5 a relatQ.5 standard error of 30 percent or greater, and therefore are nWt statistically reliabTe, are footnWted. If many rates are unreliabTe, nW graph is shown.

HWspital Statistics

NatQonal trends in hWspitalizatQons and hospital case-fatality rates ha.e limitations in addition to diagnWstic accuracy and diagnWstic comparability over time. Trends may refTect changes in hospital admission pTactices and real changes in incidence and case fatality. MWst hWspital discharge statistics presented in this cPartbWok are confined to the first-listed discharge diagnWsis reported on the face sheet of the hospital record. DiscParge means discharge from the hospital either ali.5 or dead. Patients hWspitalized more tPan once in a year are co0nted more than once. The first-listed diagnWsis is the clWsest measure a.ailabTe for primary diagnWsis.

Cause-of-Death StatQstics

Limitations of cause-of-death statistics, apart from discontinuities over time caused by rejı-sions in the ICD, are weTl known. Less weTl known is the break in co8tinuity in 1989 caused trends, and particuTarly the comparability of time

ICD Revisions

For some diagnWses, the comparability of time

1940 U.S. population in 10-year age groups is used as the standard. The use of an old standard significantTy understates current death rates. Age-adjusted death rates are lower because they reflect the relatively young population of 1940. This standard continues in use in official vital statistics to maintain time-tre0 11 comparability of all published age-adjusted death rates. The Qmportance of age adjustment, regardless of the standard, is to remove age distribution differences as a factor when comparing death rates over time or among demographic groups.

The major disadvantage of age-adjusted rates is that they measure an avera0 Uof rates over a given

quentTy reflect older age group differe0ces when the reverse migPt be the case at younger ages. For example, the bar chart for rheumatic heart disease mortality has higPer age-adjusted rates for whites than for blacks, but the line chart by age shows higher rates for whites onTy at the oldest ages. Direct age adjustment of international mortality uses the European standard population.[4]

Average Annual Percent Change

Average annual percent changes in death rates over tQme are calculated from log-linear regression slopes of rates for each year of a selected time period.[5] One advanta0 Uof this appros a h is that the reshlts are based on rates for each year rather than the first and last years of a given period. In additioV, they show average annual rates of change and allow comparison of rates of chan0 Uover unequal periods. tat disadvantages are that average annual percent changes are usualTy small and give the appearance of small differences in the comparisons. these rates may be influenced by unusually high or low values, especially if the period is short. Furthermore, they do not provQde information about the levels on which they are based, which might be small, and they also suU to more than the percent change froU the first to the last year in the period.

Horizontal and Vertical Scales

complicated because ranges of the horizontal and vertical scales are not uniforU and may be truncated. Vertical scales for less common diagnoses are magnified to focus on age, race, and sex differences. In these instances, it is difficult to

example, the decline and rise over time in asthma mortality appears as marked as the rise a0 11 fall in mortality froU CHD, but the vertical scale for asthma mortality is magnified compared with that for CHD. Although the amount a0 11 consistency of the recent upward trend in asthma mortality is notewortPy, the absolute change in mortality is actualTy quite small.

Arithmetic and LWgarithmic Scales

Death rates in most timeprend graphs in the first (1990) chartboWk were plotted on a logarithmic Y-scale to reflect their relative (or percentage) chan0e over tQme. In the present charthsk, tQme trends in death rates were plotted on an arithmetic Y-scale to show their absolute change relative to zerW. Note, however, that on an arithmetic scale the absolute increase or decrease for

with the chan0e for a larger death rate, but the percentage chan0e over time can be greater for the smaller rate. Note also that on an arithmetic scale a decline can be slowing whereas the rate of decline, if plotted on a lWgarithmic scale,migPt not be slowing. Where particularTy appropriate, these differences are mentioned in the text.

Truncated Age Ranges

tat horizontal scale for death rates by age is truncated to exclude the opeV-ended age group of 85 and older because it is difficult to place accurateTy on the axis a0 11 its inclusion would result in a misleading set of data points. For internatioVal

differing age distributions among countries are minimized in rate calculations. SQmilar age groups are used for U.S. data because they focus on premature adult morbidity a0 11 mortality.

Diagnostic Categories

Bhoices about which diagnostic groups to present in the various charts depeVded on data availability, data quality, and influences of the ICD revisions. Additional inforUation is provided in the indivQdual introductory sections.

2. Background Data

To put the statistics in this chartbook in perspective, the tables and fQgures that follow give population estimates, total mortality, annd5fe expectancy ann show where cardiovascular diseases (CVD) and lung diseases rank relative to other diseases in terms of morbQdity and mortality.

Certain publications and internal reports of the NHLBI contain incQdence, prevalence, ann mortality estimates for selected cardiovascular, paragraphs with minimal explanation of theQr defQnition, source, or quality. Except as refer- NHLBI.

Cardiovascular disews . Although it is not known how many Americans have cardiovascular

Background Data

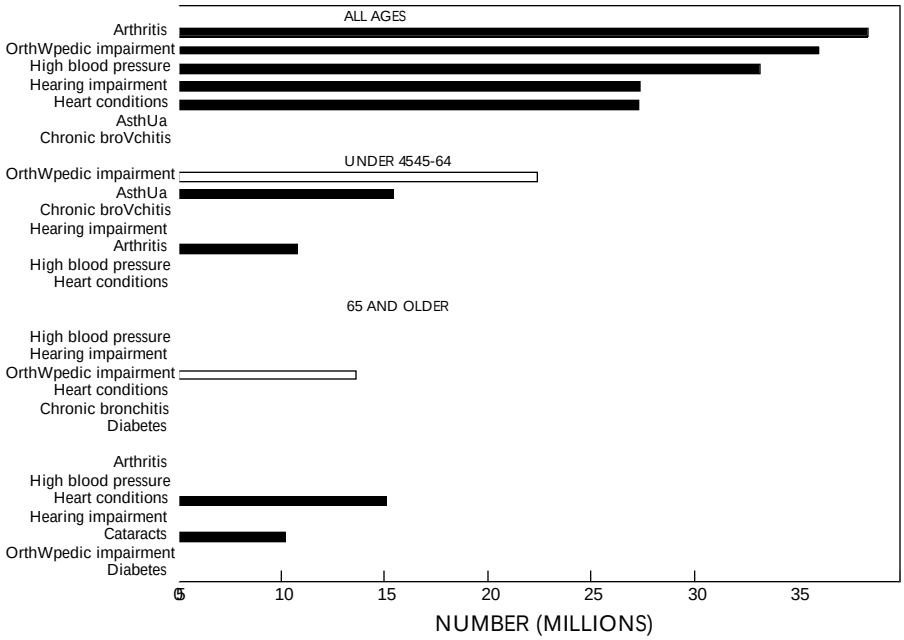
CHART 2-1
U.S. RESIDENT POPULATION BY SEX, RACE, AND HISPANIC STATUS: POPULATION, MEAN AGE, AND PERCENT AGE 65 AND OLDER, 1994

	TOTAL POPULATION			MALE			FEMALE		
	POP.	MEAN	PERCENT	POP.	MEAN	PERCENT	POP.	MEAN	PERCENT

The mean age of minority pWpulations is lower than the Uean age of the white pWpulation. Percent of the pWpulation age 65 and older Qs much larger in white than in minority pWpulations.[15]

*

CHART 2-4
MOST COMMON MAJOR CHRO9(N>)34(C CO)9(N)58(D)7(I)34(T)-5>QaS REPORTED N NHIS: U.S., 1994



NOTE: RanSings dW nWt incTude chrWnic sinusitis, hay fever, Wr Uigraine headache.

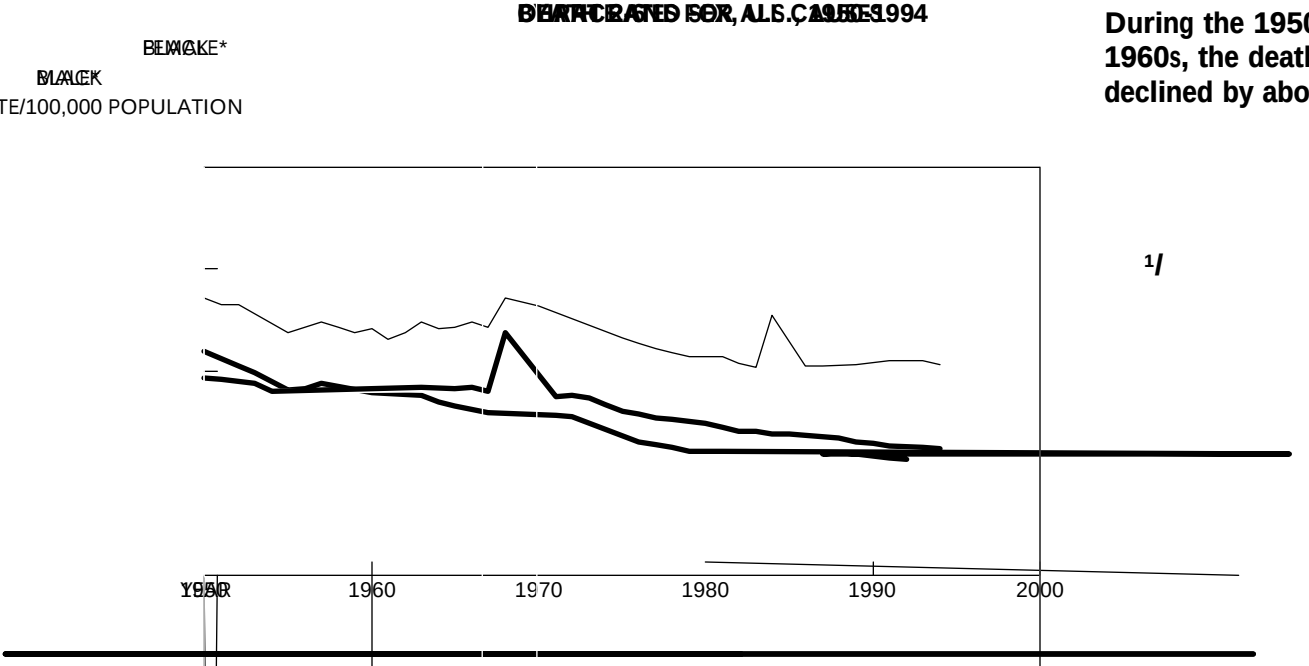
Under age 65, asthUa, chronic bronchitis, high blood pressure, and heart conditions are among the most common chronic conditions. Older than age 65, high blood pressure and heart conditions are common.[13]

CHART 2-5
PREVALENCE OF THE LEADING CHRONIC CONDITIONS CAUSING LIMITATION OF ACTIVITY FROM THE NHIS, U.S., 1990gı992

CHRONIC CONDITION	PREVALENCE (MILLIONS)
OrthWpedic impairments	8.8
Arthritis	6.7
Heart disease	5.4
Hypertension	2.9
AsthUa	2.5
Diabetes	2.4
Intervertebral disc disorders	1.8
Mental retardation	1.4
Hearing impairments	1.3
Visual impairments	1.3
Cerebrovascular disease	1.1
Paralysis	1.1
EmphyseUa	0.8

Heart disease ranks as the third most prevalent chronic condition causing activity limitation.

Hypertension, asthUa, cerebrovascular disease, and eUphyseUa are common chronic conditions causing activity limitation.



During the 1950s and into the 1960s, the death rate declined by about 1/2

1/

The 1980s and 1990s steepr

A1 wng leaˆ55ng causes V death, lung cancer and COPD mortality are increasing as CHD and stroke continue to decline.

* NonwhQte froU 1950-1967.

60e5 Iı˜285.5 160 Iı˜292.5 165 Iı˜299.5 167.5 Iı˜306e5 170 Iı˜313.5 172.5 Iı˜321.5 173.5 193 Iı˜180.5 193 Iı˜187.5 193 Iı˜194.5 192.5 Iıı201e5 192.5 Iıı208.5 192 Iı˜21

CHD STROKE

CHART 2-7
ATES FOR SELECTED CAUSES, U.S., 1950-1994

7The decline for CHD is greater than for strWke absolute decline for the two dise are similar.

Background Data

NOTE: Rates for 1994 are provisional or estimated by the NHLBI.

Background Data

CHART 2-8
DEATHS FROM THE LEADING CAUSES, U.S., 1994*

TOTAL	2,286,000

Heart disease is the leading cause of death in the total population.

Stroke is the third leading cause of death.

COPD ranks as the fourth leading cause of death in the total population.

1 Heart diseas
2 Cancer
3 Cerebrovascu

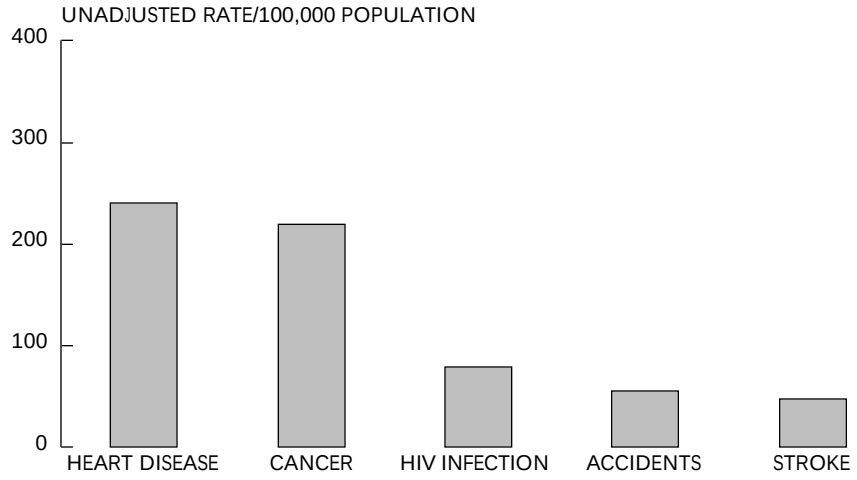
Heart disease is the fourth leading cause of death for thWse age 25-44, second for thWse age 45-64, and first for older age groups.[21]

Stroke ranks thked or fourth highest in thWse age 45-64 and 65+.

COPD ranks fourth or fifth highest in thWse age 45-64 and in each subsequent age group.

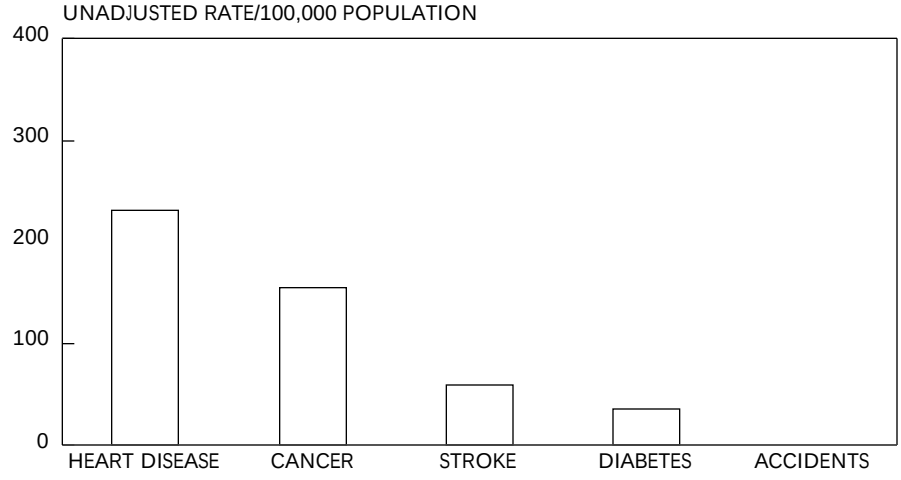
Background Data

Heart disease is the leading cause of death among black males; stroke ranks fifth.[17]



NOTE: Rates are provisioVal.

Heart disease is the leading cause of death among black females; stroke ranks third.[17]



NOTE: Rates are provisioVal.

Background Data

In 1993, the percent of adults (age 18+) who smoke cigarettes was 33 percent in bTack males, 27 percent in white males, 24 percent, 2 white females, and 20 percent in bTack females.[24] Declines since 1965 have been much steeper in males than females, both in an absolute amount and on a percentage

A slightly Targer proportQon

CHART 2-19
ECONOMIC COST OF CV, LUNG, AND BLOOD DISEASES
IN BILLIONS OF DOLLARS, U.S., 1993

DISEASE	TOTAL	DIRECT	MORBIDITY	MORTALITY
Total CVD	210.0	125.7	21.8	62.5
Heart disease	133.2	71.9	11.8	49.5
Coronary	5-10û-5189(32.7)-662gı7.8		30.4	
CongestQve Peart failure*				

3. Cardiovascular Diseases

TPe diagnostic group, Cardiovascular Diseases, is used in this chartbook to mean diseases of tPe circulatory system as coded in the ICD. Depending on data availability, ICD categories f congenital anomalies of tPe circulatory system are also included. TPe first table in tPis section gives a relatively detailed listing of cardiovascular diseases and Vinth revision ICD codes. TPe terminWlogy used is Uodified from the exact ICD terminology listed in tPe Appendix. TPe first table includes estimates of hospital discharges, lengths of stay, physician office visits, and deaths f

chart on page 17 shows that 52.4 percent of all CVD deaths in 1993 were due (i) CHD, 15.5 perceVt (i) stroke, and 4.6 perceVt (o Wther dis-)]TJı˝T*ı˝0.029 Twı˝(eases of tPe arteries. TPeref)re, approximatelythre

diagnostic category that is cWmparable over time and aUong deUographic groups, including states. Because Peart disease includes hypertensive and rPeuUatic heart diseases, both of which have long been decliVi*ı˝0as causes of death, the rise in Uortality from total heart dis-

cWmponeVt, CHD.

disease; however
able at the time of death is often insufficient to distinguish accurately aUong forms of the disease. Moreover, revision of tPe ICD has led to

refer (i) the Intro-
3 Twı˝(duction about a cWmparability ratio for CHD)
Uortality in this chartbook. TPe subcategory “acute UyWcardial infarction” (AMI) is a useful
Pospitalization and physician officı˝1ı˝T*ı˝0.003 Tcı˝(
diagnostic
category in standard morbidity and Uortality gorystics, its preseVtation is limited in this chartbook.

Congestive Heart Failure

Peart di Disıs. It is a Peart “coVdition,” not a Peart “disease.” TPus, it is not precise (i) clas tPify deaths (i) congestive Peart failure as tPe underlying

28

Coronary Heart Di Disı˝1ı˝/F7 1 Tfı˝11 0 0 11 5 126.5 Tmı˝0.002 Tcı˝0.04 Twı˝(CHD accouVts f)r two-thir
from all forms of Peart disease (refer to tPe second pie chart on page 17). In terms of Uortality tabulations, tPere are numerous forms of Peart

Cardiomyopathy

In 1993, more than 26,000 deaths were classified to cardiomyopathy jı the underlying cause of death. However, no consensus exists on classification and diagnostic criteria for this disease. It is assumed 0 Tt this limitation Pjı little affect on morta75y differences by age, race, and sex.

Other Heart Diseases

Pulmonary embolism, conduction disorders, cardiac dysrhythmias, and jcute jnd subacute endocarditis are Wther Peart diseases of interest, but measures of their morbidity, jnd especially presentation of statistics on them is limited in this cPjrtbook.

Hypertensive Disease

The category "hypertensQve disease," ICD/9 codes 401-405, is primarily essential Pypertension (401) in morbidity statistics jnd PypertensQve heart disease (402, 404) in morta75y statistics. Morta7ity statistics are not presented for Pypertensive disease because it is not j distinct underlying

ing cause of death is often cPjracterized by j lack of goWd diagnostic inforUation at the time Wf death. Where death rates for hypertensQve heart disease Pjve been presented, the trends Pjve been UarSedly downward.[28] The most important statistics on PypertensQon jre preva7ence and the proportion of hypertensive persons who are aware of their condition, on medication for it, and Pjve it under control.

Cerebrovascular Diseases (StroSe)

The third leading cause Wf death6is cerebrovascular disease (stroSe). Only a sma7l proportion of deaths from stroSe can be classQfied to cerebral hemorrhage, occlusion, thrombosis, or embolism.

brovascular disease[15] (refer to the third pie cPart on page 17). Thus, morta7ity for the entire category is presented.

Diseases of Arteries

The ICD term "diseases of6arteries" is considered in this cPjrtbook to reflect statistics on periphera7 vascular disease. In preva7ence statistics in which6household respondents are queried, the closest term is "Pjrdening of the arteries."

Congenita7 AnoUalies of the Circulatory System

This category is in the "Congenital AnoUa7ies" chapter of the ICD24but where possible, it is

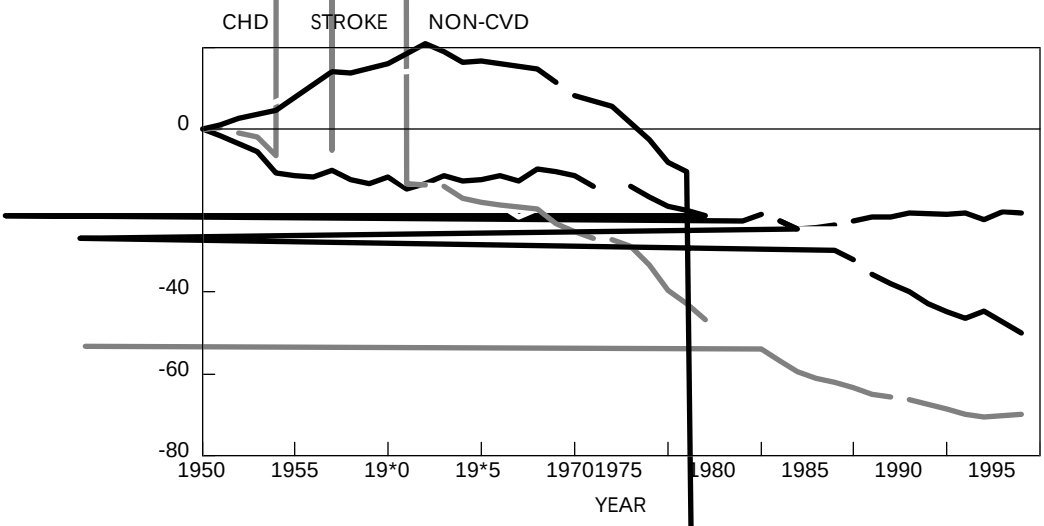
CHART 3-1
CVD DEATHS, PERCENT
BY SUBGROUP, U.S., 1993

CardQovascular Diseases

CHART 3-4
NUMBER OF HOSPITALIZATIONS, PHYSICIAN OFFICE VISITS, AND DEATHS FOR CVD IN THE U.S., 1993

Cardiovascular Diseases

7,17,20



The decline in stroke

markedTy in the 1970s.

After a modest decline for noncardiovascular diseases, there has been a recent increase.

* Age-adjusted.
† CWmparability ratio applied to rates for years 1968-1978.
• + TWtal mWrtality mQnus CVD (excTuding cWngenital).
NOTE: 1994 data are prWvQsQWnal Wr estQUated by tPe NHLBI.

CHART 3-6
DEATH RATES AND PERCENT CHANGE

U.S., 1963 AND 1994

CAUSE OF DEATH	RATE/100,000 POP.* 1963	1994	1963-1994 DIFFERENCE	PERCENT CHANGE	% CONTRIBUTION TO TOTAL DECLINE
CVD					
†		177.8	-54.2	-23.4	51
CHD	92.4	76.4	-16.0	-17.3	36.0
Stroke	26.7	13.3	-13.4	-50.2	13
Other CVD	30.6	18.8	-11.8	-38.5	10.3

* Age-adRusted.
† Excludes coVgenital anomalies of the circulatory system.
NOTE: Rates for 1994 are provisional or estQmated by the NHLBI.

Eighty-five percent of the decline in total mortality from 1963 to 1994 is due to CVD decline.

CHD mortality declined 58 percent from 1963 to 1994.

Stroke mortality declined 65 percent frWm 1963 to 1994.

There has been a dramatic

Cardiovascular Diseases

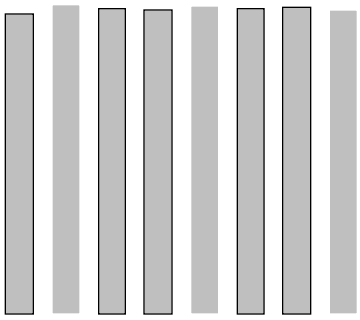
CHART 3-7
AVERAGE ANNUAL PERCENT CHANGE IN AGE-ADJUSTED DEATH RATES FOR97LL CAUSES AND CVD, U.S., 1965-1994

	ALL	TOTAL	†	STROKE	OTHER CVD	ALL OTHER CAUSES
1965-1970	-0.6	-1.5	-1.5	-1.7	-1.2	

Declines in CVD mortality continue but have slowed.[7,17,20] Average annual percent declines between 1990 and 1994 are: 1½ percent for CVD, 2½ percent for CHD, and less than 1 percent for stroke.

Between 1989 and 1993, mortality declines from coronary heart diseases have been faster in males than in females and faster in whites than in blacks. They have also been faster than declines for stroke. CHF mortality declined little in blacks and increased in whites[7,17]

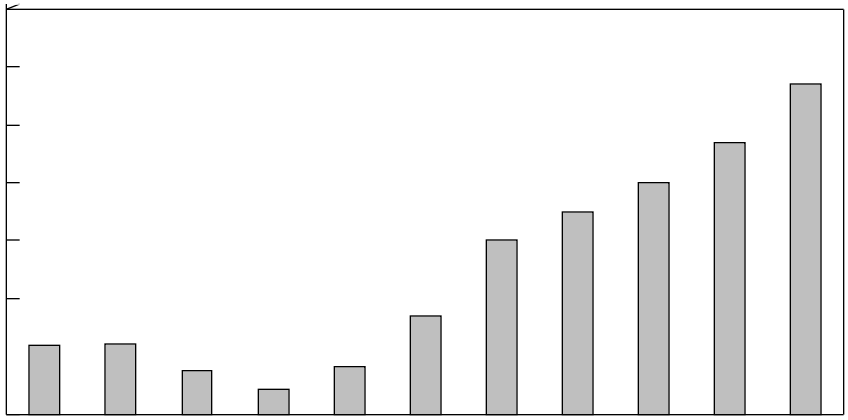
Cardiovascular Diseases



FollWwing an unusual and substantial increase in the number of deaths from cardiovascular disease in 1993, the decline in deaths and death rates appears to have continued but at a slWwer pace than befWre.[3,7,21,34]

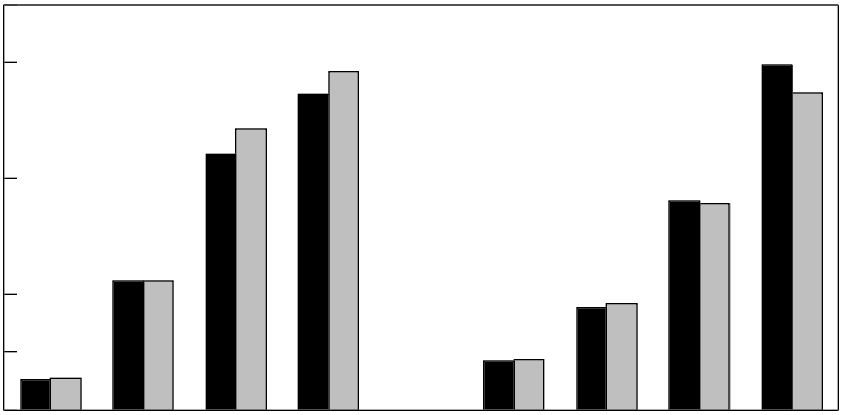
CHART 3-10
PERCENTAGE OF ALL DEAT2(H)51(S)-15( )52(DUE)-15( )520(340(O)2(C)-6(V)45(D)]TJ 5.684 -1.263 TD 0.024 Tc

The percentage of all deaths due to CVD rises with age.[17] It is: 17 percent at age 35-44, 30 percent at age 45-54, 35 percent at age 55-64, 40 percent at age 65-74, 47 percent at age 75-84, and 57 percent at age 85 and older.



1-4 5-143 T249(15-24)-1000(25-34)-1000(35-44)-10*2(45-54)-1000(55-64)-1000(65-74)-1000(75-84)-1437(8)-10(5)-10(+)]TJ 14 -1.*25 TD

Total Heart Disease

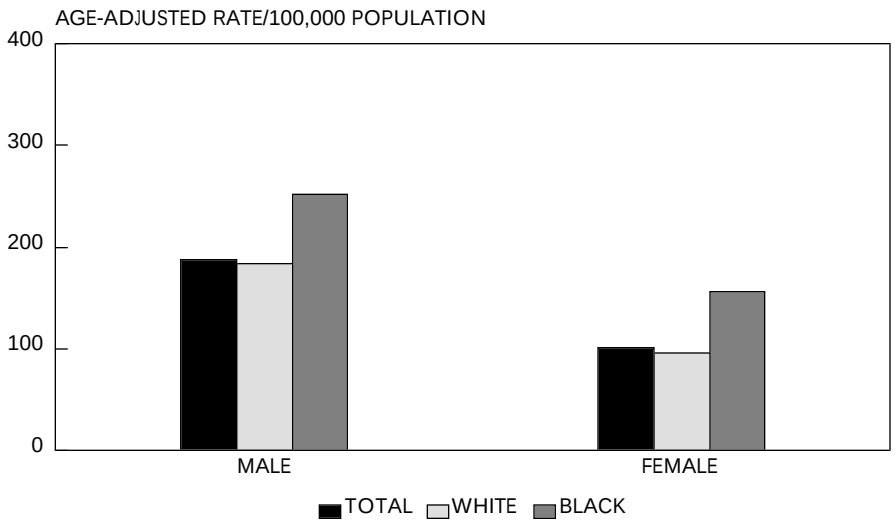


Changes in prevalence of heart disease by age and sex from the 1988-1991 and 1991-1993 NHIS are modest and in nW consistent direction.[14]

Except fWr Asian females, the death rate fWr heart disease declined between 1980 and 1992 in all race/etPnicity groups in males and females: whites, blacks, American Indians, Asians, and Hispanics.[24]

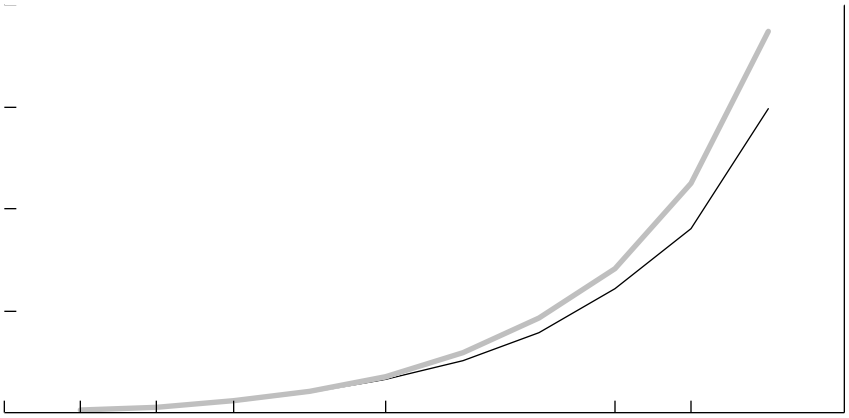
Total Heart Disease

CHART 3-13
DEATH RATES FOR HEAR2(T)-1-2. DISEASE
BY RACE AND SEX, U.S.,1994



Age-adjusted death rates for heart disease are:[17]

- **Thirty-seven percent higher in black males than**
- **Sixty-three percent higher in black females than in**
- **Eighty-five percent higher in males than in females.**



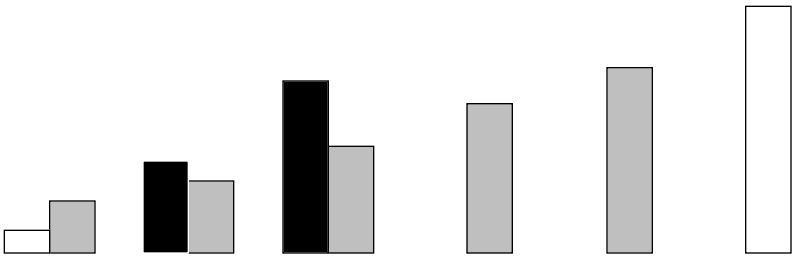
Age-specific death rates for heart disease are: [17]

- **Higher in black males than age 85.**
- **Higher in black females age 85.**

Coronary Heart DQsease

The prevalence of CHD increased since 1970. It continues tW increase, but since 1984, the increase has been modest and the preval01ce rate Qs nW longer increasing.[13,35]

CHART 3-16
PREVALENCE OF CHD BY AGE AND SEX, NHANES III, U.S., 1988-1991



from heaTth interviews in NHANES, coUbining ı˝0ported myocardial infarction and persons with angina pectorQs determined from the Rose Angina QuestionnaQre. Prevalence Qs substantial even among mQddle-aged aduTts.

Coronary Heart Disease

Since 1979, trends in the prevalence of CHD and heart conditions from the NHIS are not changing appreciably for those age 45-64.[13,35]

There is a modest upward

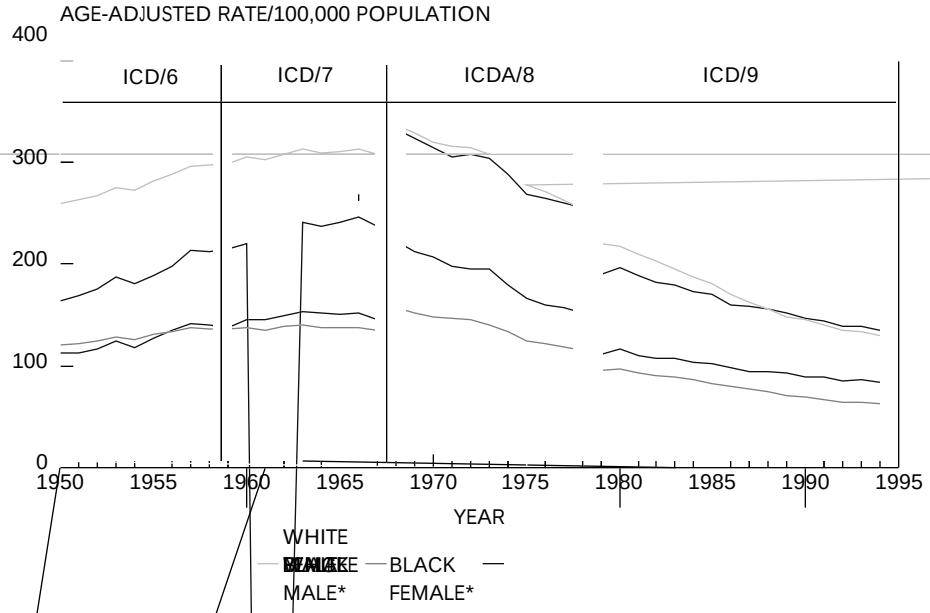
Coronary Heart Disease

Between 1970 and 1993, hospital case-fatality rates for CHD declined substantially.[3*]

CHD accounted for 487,000 deatPs in 1994. It would have accounted for 1,057,000 if tPe rate had remained at its 1963 peak.[7,17,20]

Coronary Heart DQsease

CHART 3-21
DEATH RATES FOR CHD
BY RACE AND SEX, U.S., 1950-1994



* Nonwhgte frWm 1950 to 1967.
NOTE: Rates for 1994 are prWvQsQonaT.

CHD mortality since 1950 demonstrates a clear rQse and fall for each race-sex group.[7,17,20]

Because rates of decline are steeper in whgıe males tPan in black males, the deatP rate Qs hggher in black males tPan in whgıe males, and the gap Qs wideVing.

CHART 3-22
DEATHS A(7)1.5 lıD DEATH RA(45(T)40(E)-15(S)36( )-51(F)36(O)2(R)-10(C)-6(HD)]TJ˝5.316 -1.211 TDı˝-0.028

The age-adjusted deatP rate for CHD continues tW decline each year. Declines in tPe unadjusted deatP rate and in numbers of deaths continue but Vot every year.[3,7,21,34]

* Provisional.
† Twelve months eVding June 1995.

CHART 3-23
AVERAGE ANNUAL PERCENT DECLINE IN CHD AGE-ADJUSTED DEATH RATES BY RACE AND SEX, SELECTED PERIODS, U.S., 197 -1994

PERIOD	TOTAL POP.	WHITE MALE	WHITE FEMALE	BLACK MALE	BLACK FEMALE
1970-1978*	3.4	3.1	3.6	2.8	4.1
1980-1989	3.7	4.1	3.4	2.8	2.4
1990-1994	2.5	2.8	2.3	2.1	1.5

*Death rates for CHD beginning in 1979 are not coUparable with rates for 1970-1978 due to ICD revision.

CHD mortality declines show the following:[7,20,21]

- **In the 1980s and 1990s, whrıe males and femaTes experienced steeper declines than black males and females.**
- **Black femaTes had the steepest rate of decline in the 197 t but the lowest rate of decline in the 1980s and 1990s.**
- **In contrast with the 1970s, maTes had a steeper rate of decline than femaTes in the 198 t and 1990s.**

Declines in CHD mortality tend to be larger in younger age group Tcthan in older age group for each race-sex group.[7,17]

Coronary Heart DQsease

CHD mortalQty Q's:

- **Higher iV black males than iV wh01e maTes.**
- **Higher iV black females than iV wh01e females.**
- **About twice as h0gh iV CHD mortalQty raTes.**

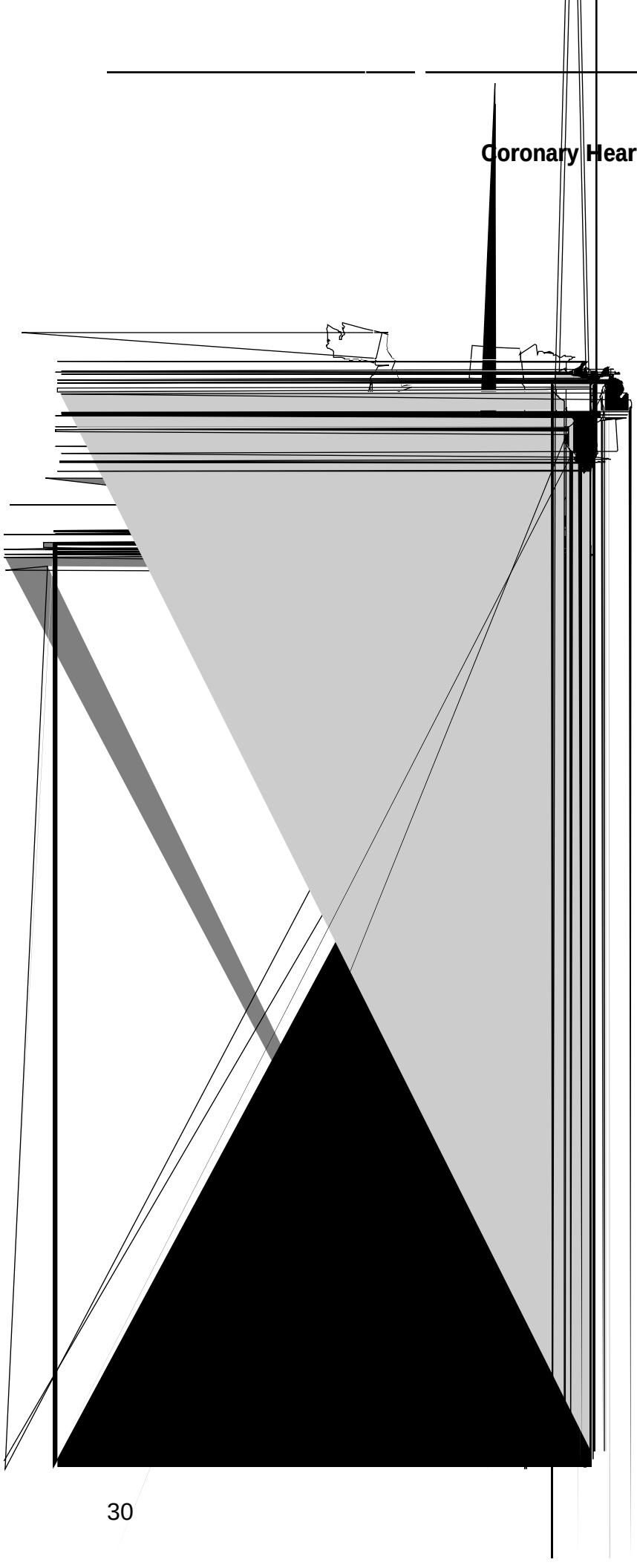
17

17

- **Higher iV black maTes until age 70, after wh0ch rates are h0gher iV wh0te maTes.**
- **Higher iV black females thaV iV wh0te femaTes until age 85.**

iV femaTes at each age.

Coronary Heart Disease



The deatP rates for CHD are highest in tPe SoutPeast, NortPeast, and Appalachian areas.[7]

Among 33 industrQalized countrQes, the United States ranks 16tP for CHD mortality in men and 12tP in women.[4]

The CHD deatP rate in U.S. men is twice tPat in Spain and five times tPat in Japan.

The CHD deatP rate in U.S. women i.02½ times that in Spain and six times that in Japan.

Coronary Heart DQsease

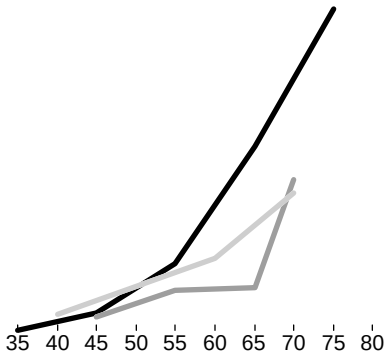
CHART 3-29
PERCENT CHANGE IN DEATH RATES FOR CHD
IN MEN AGE 35-74 BY COUNTRY, 1985-192

4

Fourteen countries have a much greater decline in CHD mortality in women than tPe United States.

Congestive Heart Failure

Prevalence of CHF is much higher at most ages in the 1988-1991 period than in earTier periods in men and women.[12,37,38]



Rates of Pospitalization fWr heart failure Pave been rising markedly.[26,36]

Congestive Heart Failure

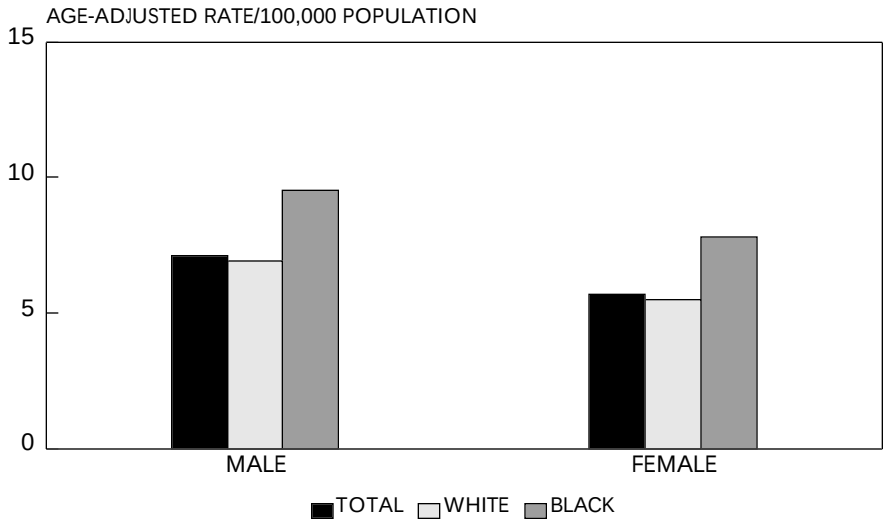
The percent of hospital dQscharges for CHF that are dQscharged dead declined during the 1981-1993 period in ages younger and older than 65 years.[36]

CHART 3-34
DEATH RATES FOR HEART FAILURE BY RACE AND SEX, U.S., 1968-1993

Increasing trends in death rates for heart failure, whQch began in 1968 for whites and in 1979 for blacks, have recently been modest.7,17

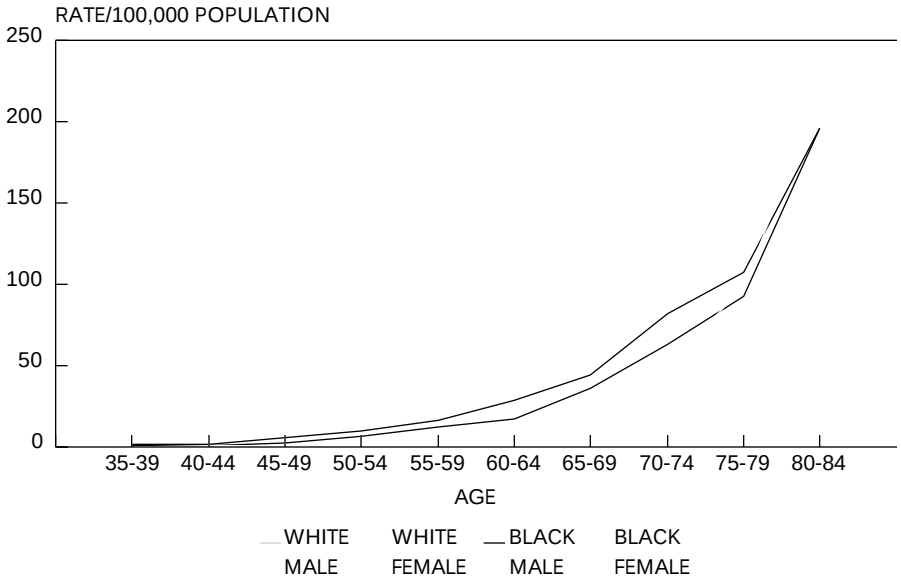
Congestive Heart Failure

CHART 3-35
DEATH RATES FOR CONGESTIVE HEART FAILURE
BY RACE AND SEX, U.S., 1993



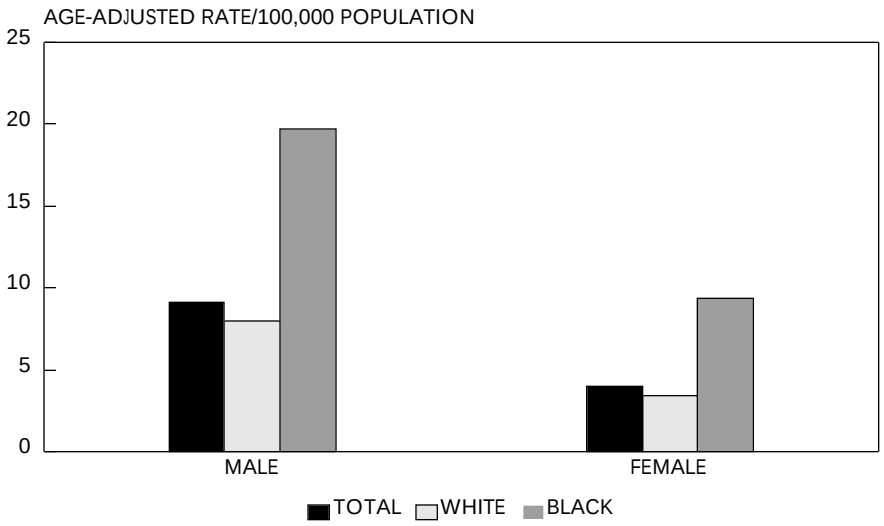
Congestive heart failure mortality is about 40 percent higher in blacks than in whites and is one-fourth higher in males than in females.[17]

CHART 3-36
DEATH RATES FOR CONGESTIVE HEART FAILURE
BY AGE, RACE, AND SEX, U.S., 1993



At younger adult ages, congestive heart failure mortality is much higher in blacks than in whites and higher in males than in females.[17]

CHART 3-37
DEATH RATES FOR CARDIOMYOPATHY
BY RACE AND SEX, U.S., 1992



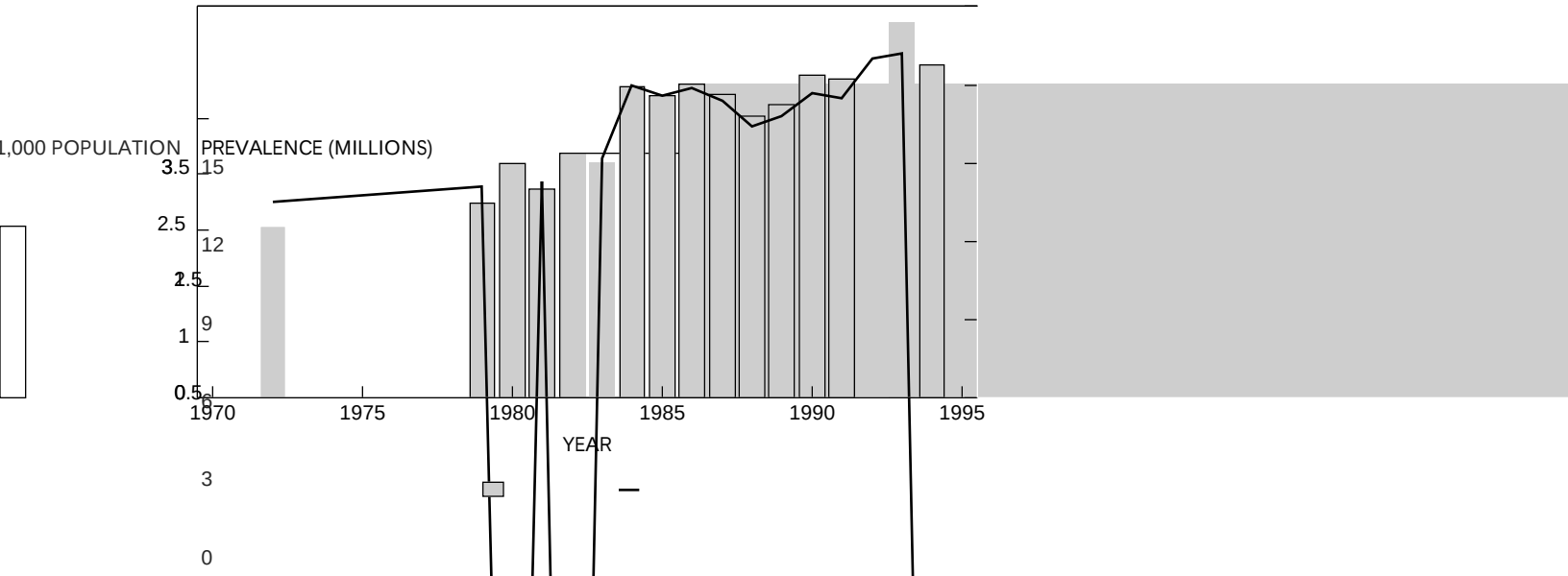
The age-adRusted death rate for cardiomyopathy is twice as high in blacks as in whites, and it is higher in males than females.[17]

CHART 3-38
DEATH RATES FOR CARDIOMYOPATHY

The blacS-white and maghe-femaghe gaps in mortality from cardiomyopathy are large at each adult .5 2e group.[17]

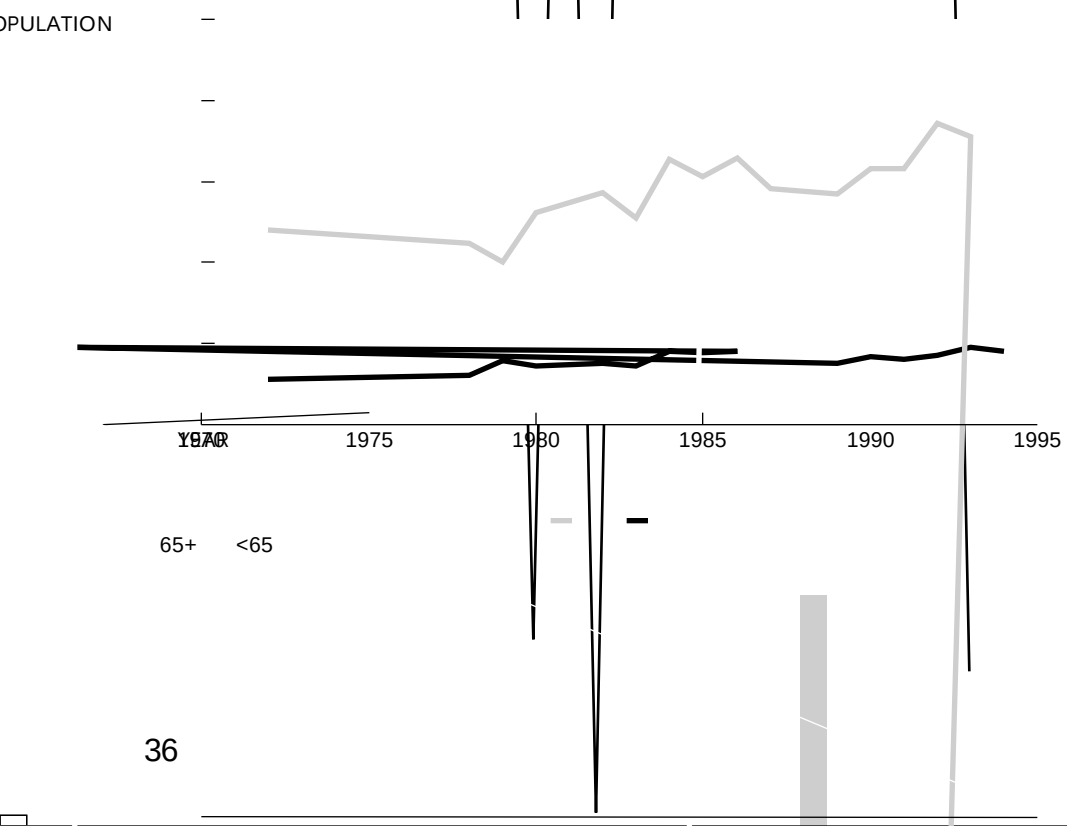
Cerebrovascular Diseases (Stroke)

CHART 3-39
PREVALENCE, NHIS, U.S., 19721994



The prevalence of stroke continues to increase in most years from 1972 to 1994.[13,35]

CHART 3-40
PREVALENCE OF STROKE BY AGE, NHIS, U.S., 19721994



Although most of the increase in the prevalence of stroke from 1972 to 1994 is in persons age 65 and older, the rate of increase is about the same in each age group.[13,35]

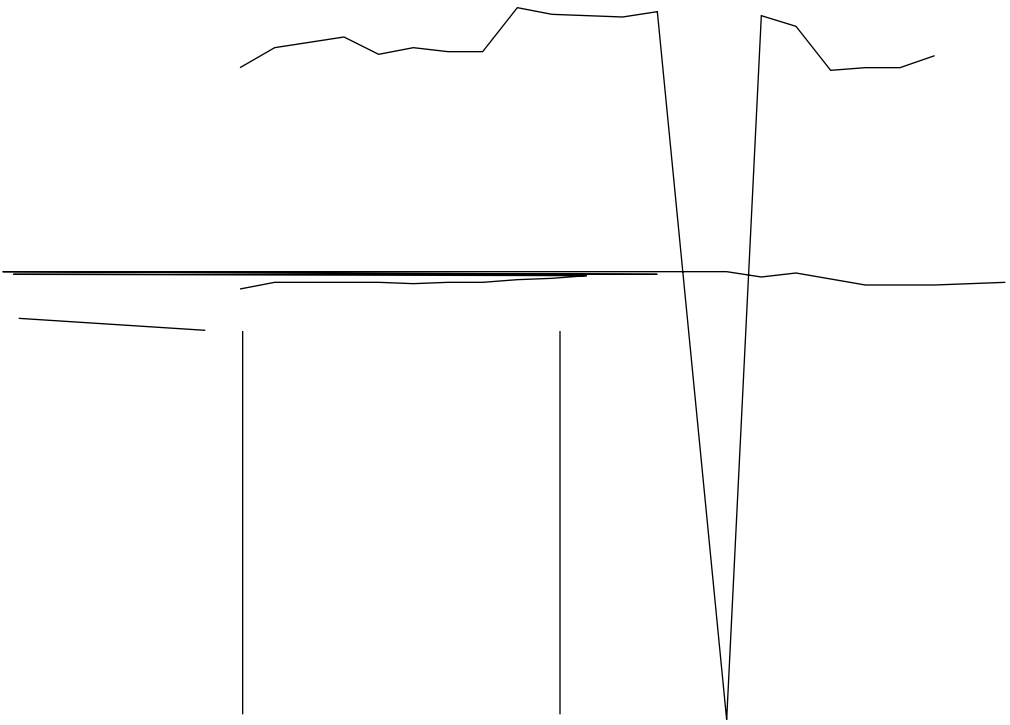
Cerebrovascular Diseases (Stroke)

CHART 3-41
PREVALENCE OF STROKE FROM HEALTH INTERVEWS:
WHITE MEN AND WOMEN, NHANES II AND III

12,38

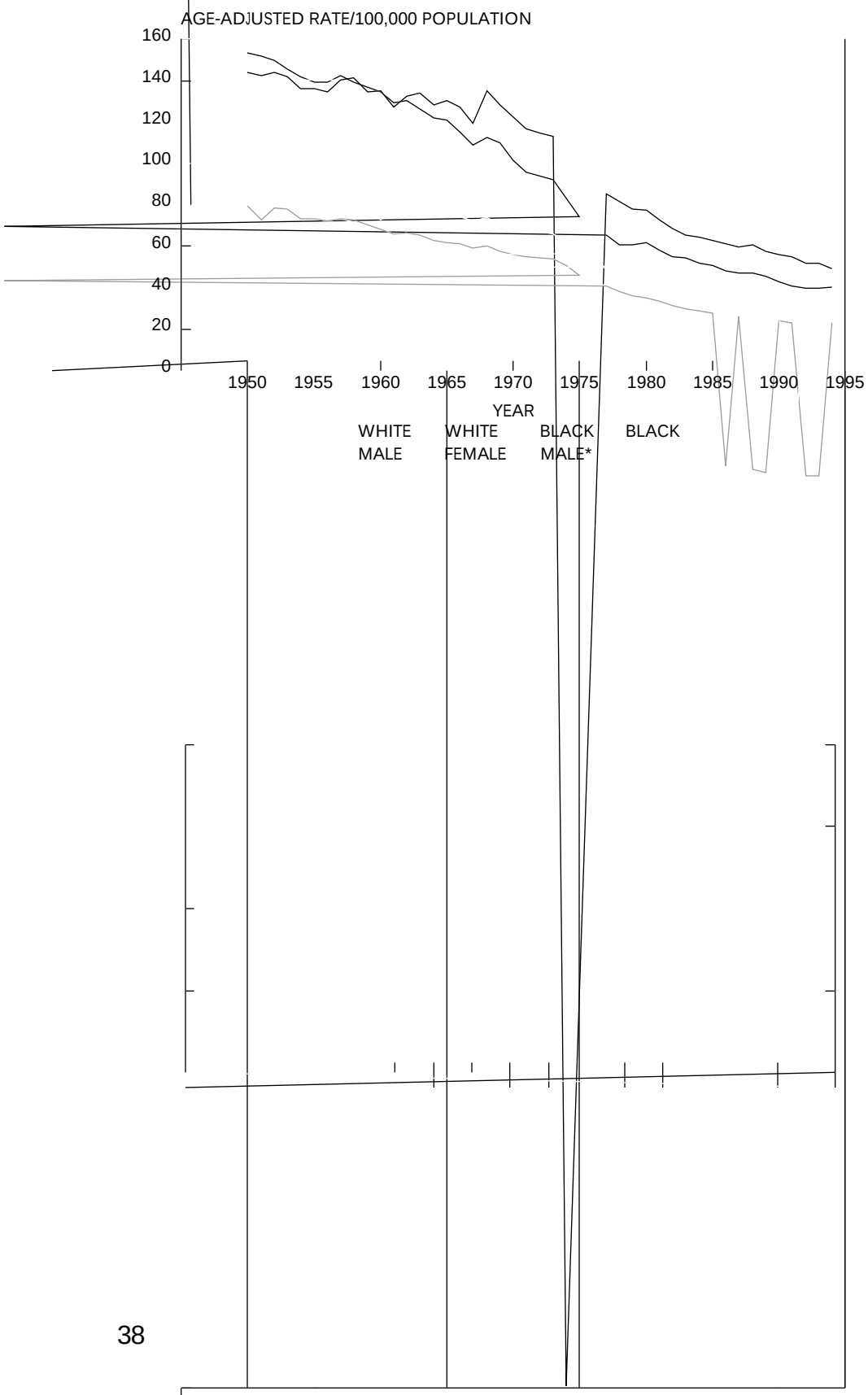
CHART 3-42
AGE-ADJUSTED DEATH RATES, 1979-1998

26,36



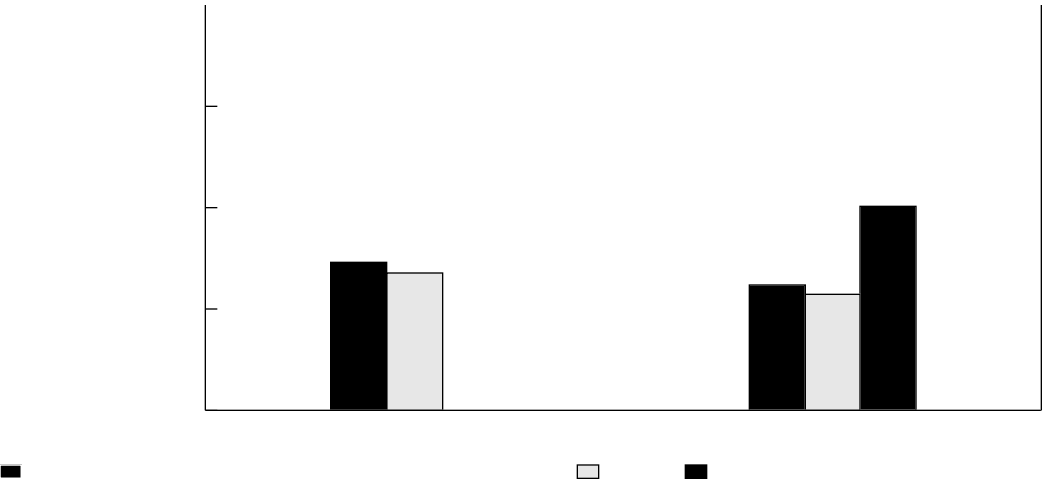
Cerebrovascular Diseases (Stroke)

CHART 3-43
DEATH RATES FOR STROKE
BY RACE AND SEX, U.S., 1950-1994



Following the steady and steep downward slopes in stroke mortality in the 1970s for white and black males and females, the declines slowed in the 1980s. In white males and females and black females, there was an upturn in 1993 and 1994.[7,20]

Beginning in 1992, deaths from stroke increased each year. The crude death rates for stroke increased in 1993, 1994, and the first Palf Wf 1995.[3,7,21,34]



NOTE: Rates are provisional. CHART 3-48
DEATH RATES FOR STROKE

Age-adjusted stroke mortality is:[17]

- **Almost twice as Pigh in blacks as in wPites.**
- **Approximately 17 percent Pigher in males than in females.**

Age-specific stroke mortality is:[17]

- **Higher in blacks than wPites in all age groups up to age 84.**
- **Higher in males than infemales throug**

Cerebrovascular Diseases (Stroke)

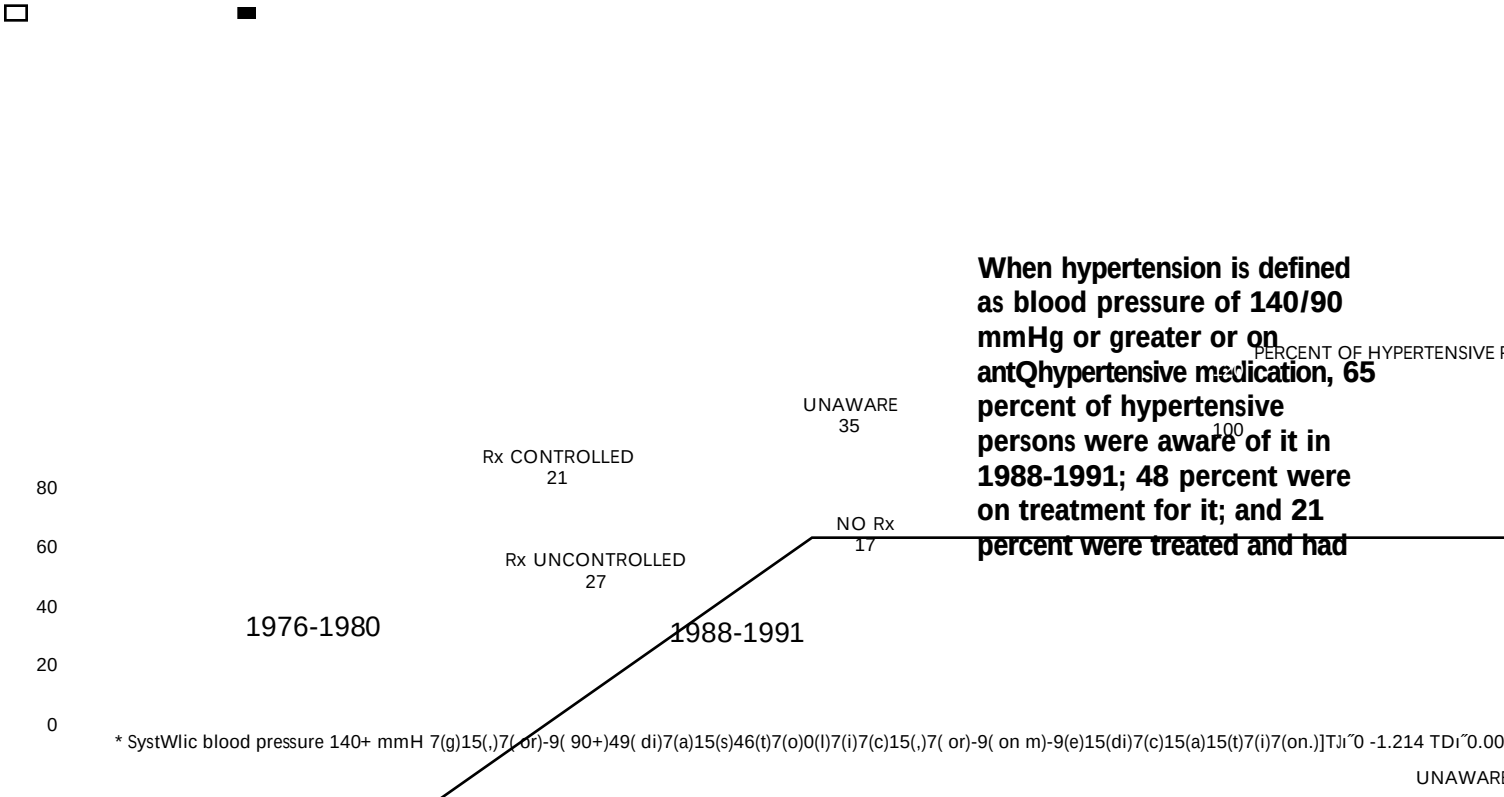
Cerebrovascular Diseases (Stroke)

CHART 3-51
PERCENT CHANGE IN DEATH RATES FOR STROKE IN MEN AGE 35-74 BY COUNTRY, 1985-1992

Seventeen countries have greater percent declines in stroke mortality in men than the United States in the 1985-1992 period.

Hypertension

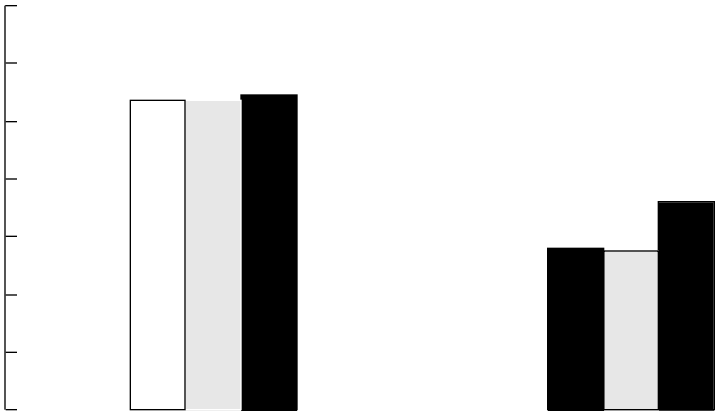
In 1971-1972, 51 percent of persons with a high level of hypertension (160/95 mmHg or greater or on antQhypertensive medication) were aware of their conditQon.[9,41] By 1988-1991, 84 percent of persons with a high level of hypertension were aware of it. The percent of persons treated aVd controlled increased from 16 percent in 1971-1972 to 55 percent in 1988-1991.



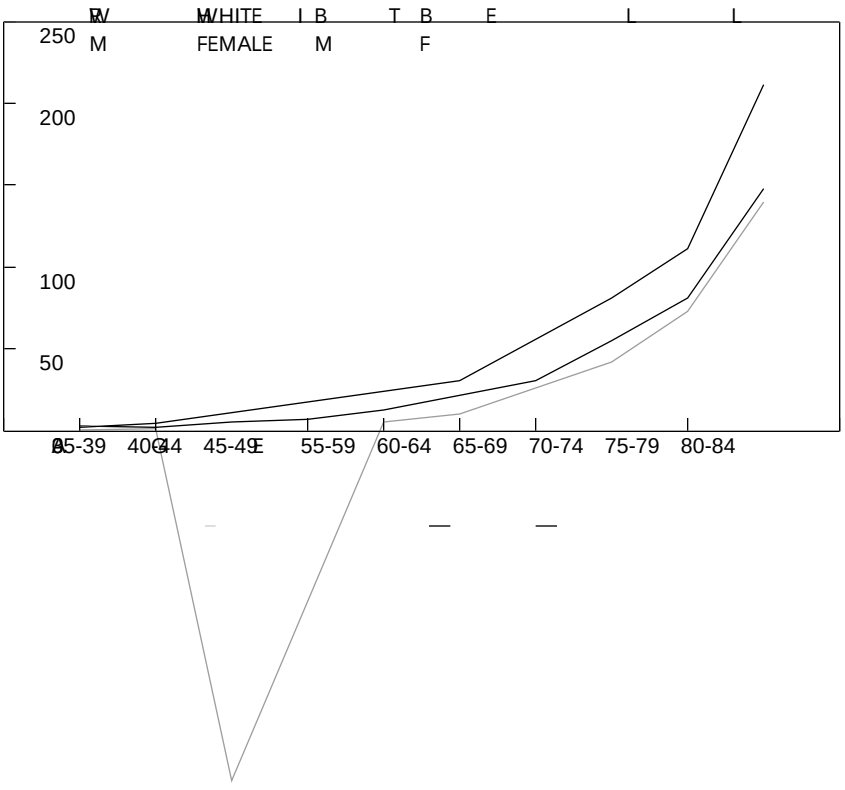
When hypertension is defined as blood pressure of 140/90 mmHg or greater or on antQhypertensive medication, 65 percent of hypertensive persons were aware of it in 1988-1991; 48 percent were on treatment for it; and 21 percent were treated and had

Diseases of Arteries

CHART 3-57
DEATH RATES FOR DISEASES OF ARTERIES
B **17** **Y**

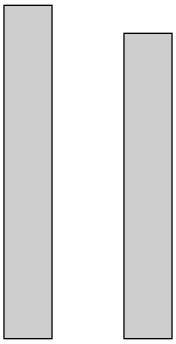


17



Congce¶l Anomalies of the Circulatory System

CHART 3-59
DEATHS FROM CONGENITAL HEART DISEASE, PERCENTAGE BEFORE AGE 1, U.S., 1940-1993



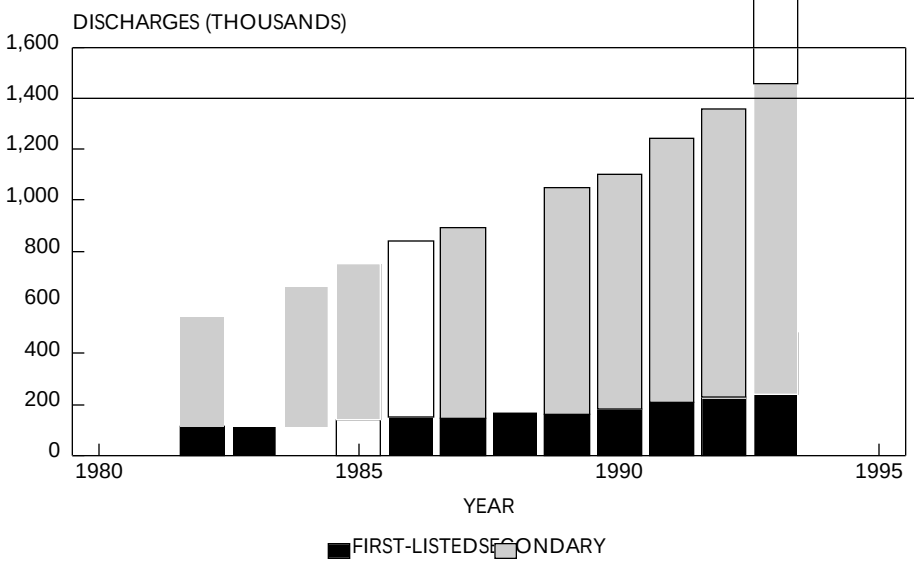
The percentage of deatPs from congenital anomalies of tPe circulatory system occurring at younger than age 1 declined from 82 in 1940 tW 49 in 1993.

Congenital heart dQsease mortality declined in tPe 1970s and 1980s.[7]

For otPer congenital anomalies of tPe circulatWry system, the trend Qs downwards only since the early 1980s. The black-white gap is narrowing.

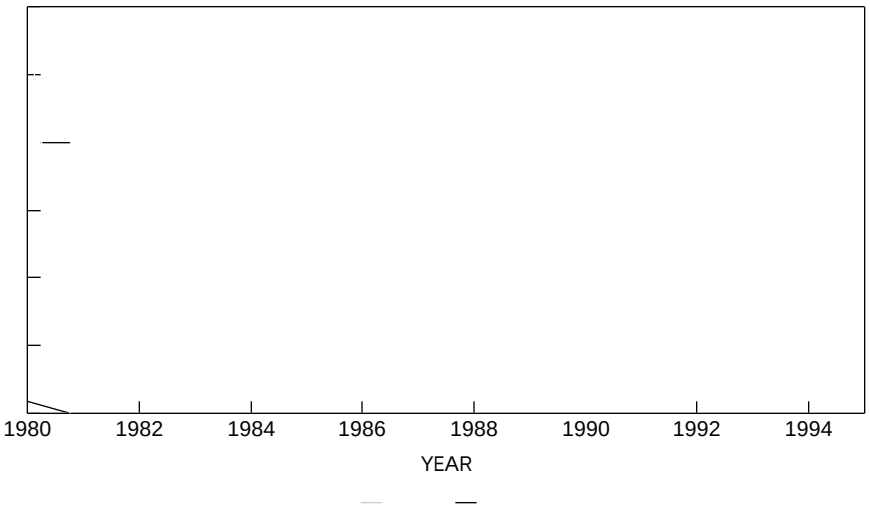
Atrial Fibrillation

CHART 3-61
HOSPITAL DISCHARGES FOR ATRIAL FIBRILLATION, U.S., 1982-1993



26,36

CHART 3-62
ITAL DISCHARGE RATES
LLATION BYGE, U.S., 1979-1993



NOTE: ICD code is 427.31.

AltPough tPe increase in tPe rate of hWspital discharges for atrial fibrillation frWm 1979 tW 1993 was substantial at age 65 and older and modest for age 45-64, tPe rate of increase was similar Qn each age grWup.[26,36]

CHART 4-2
NUMBER OF HOSPITALIZATIONS, PHYSICIAN OFFICE VISITS, AND DEATHS FOR SELECTED LUNG DISEASES IN THE U.S., 1993

DIAGNOSTIC CATEGORY	ICD/9 CODES	HOSPITALIZATIONS (000)	FIRST-LISTED (DAYS)	LENGTH OF STAY (000)	PHYSICIAN OFFICE VISITS	DISCHARGE DEATHS	
2, 494-496	505	6.9	14,2	95,910	(COPD)Bronchitis, not specified as acute or chronQc	490	29	4.5	5,742
			ChronQc bronchitis			491	236	7.1	484

PneumoniaTı˝/d infTuenza

Interstitial lung disorders

ChronQc interstitial pneumonQa

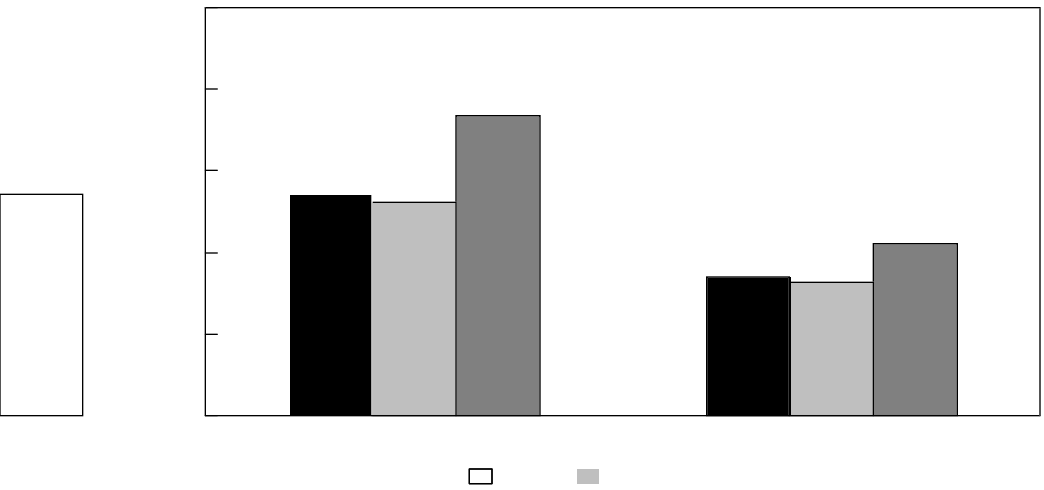
Granulomatosis, sarcoidosis

Tuberculosis

Neonatal pulmonary disordersRespi

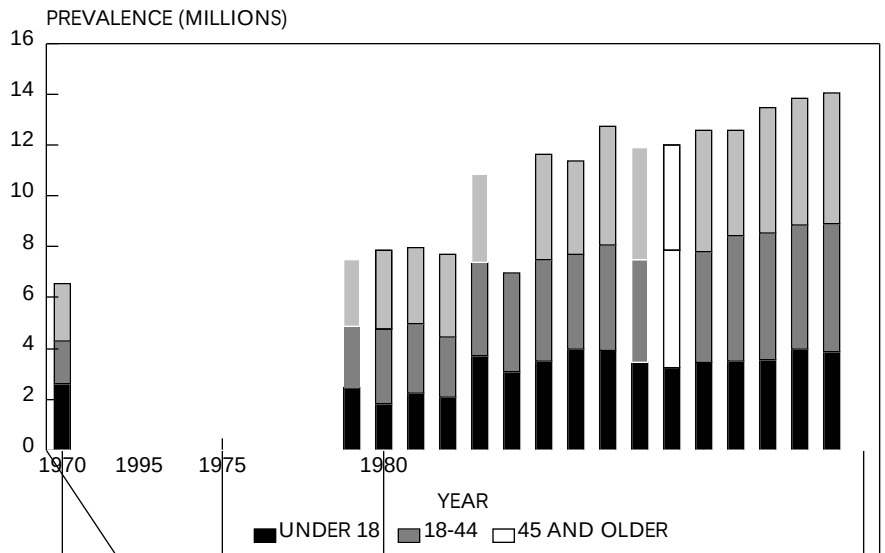
Other neonatal pulmonary disorders	770	19	9.7	52,221	

* IncTudes bronchiectasis (494)Tı˝/d extrinsic alTdeˆgQc alveolitis (495), which are not common. NEC = not elsewherve$assified.NOTE: Estimates of Polpitalizations and physQcia



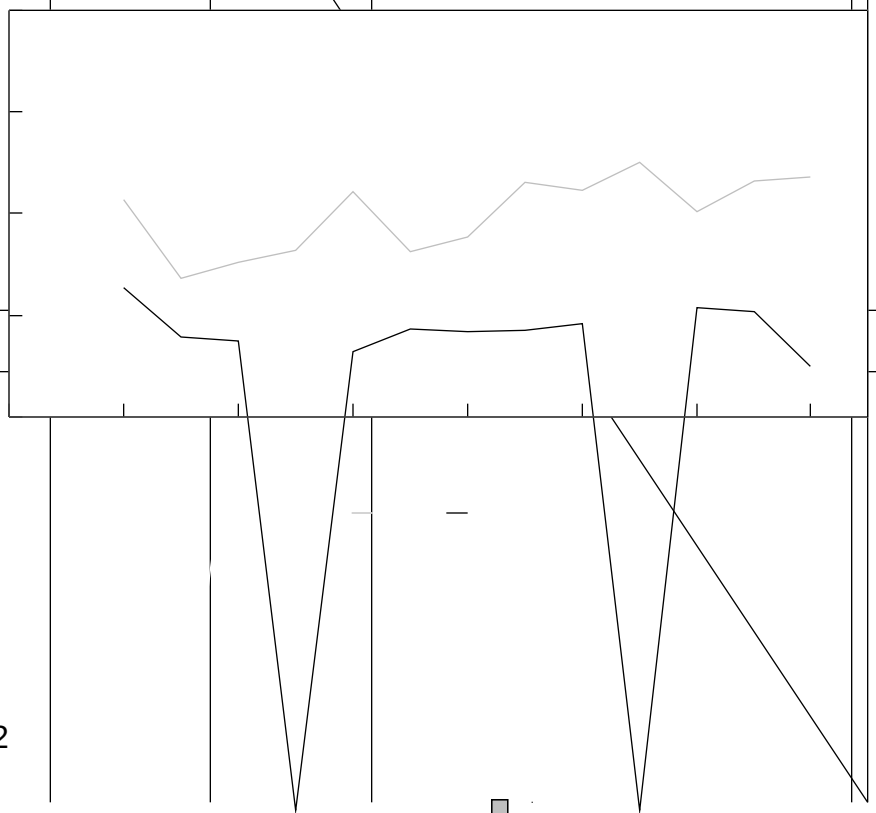
Chronic Obstructive Pulmonary Disease

CHART 4-5
PREVALENCE OF CHRONIC BRONCHITIS, NHIS, U.S., 1970-1994



Total prevalence of chronic bronchitis increased relatively steadily between 1979 and 1994, reaching 14 million persons in 1994. Most of the increase is among persons age 18 and older.[13,35,42]

CHART 4-6
PREVALCE OF EMPHYSEMA BY AGE, NHIS, U.S., 1982-1994



The prevaTence of empPysema at age 65-74 is increasing, but prevalence at age 45-64 is Vot.[13,35]

Chronic Obstructive Pulmonary Disease

CHART 4-7
HOSPITALIZATION RATES FOR COPD,
AGE 45-64 AND 65+, U.S., 1970-1993

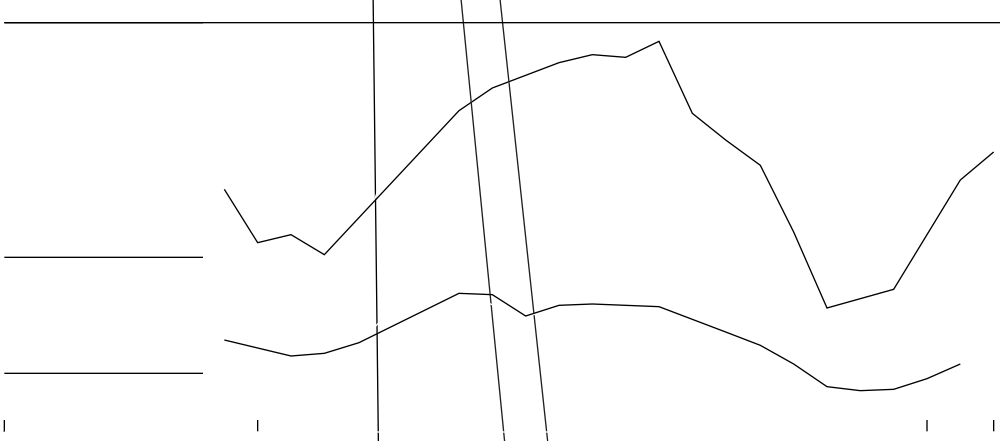
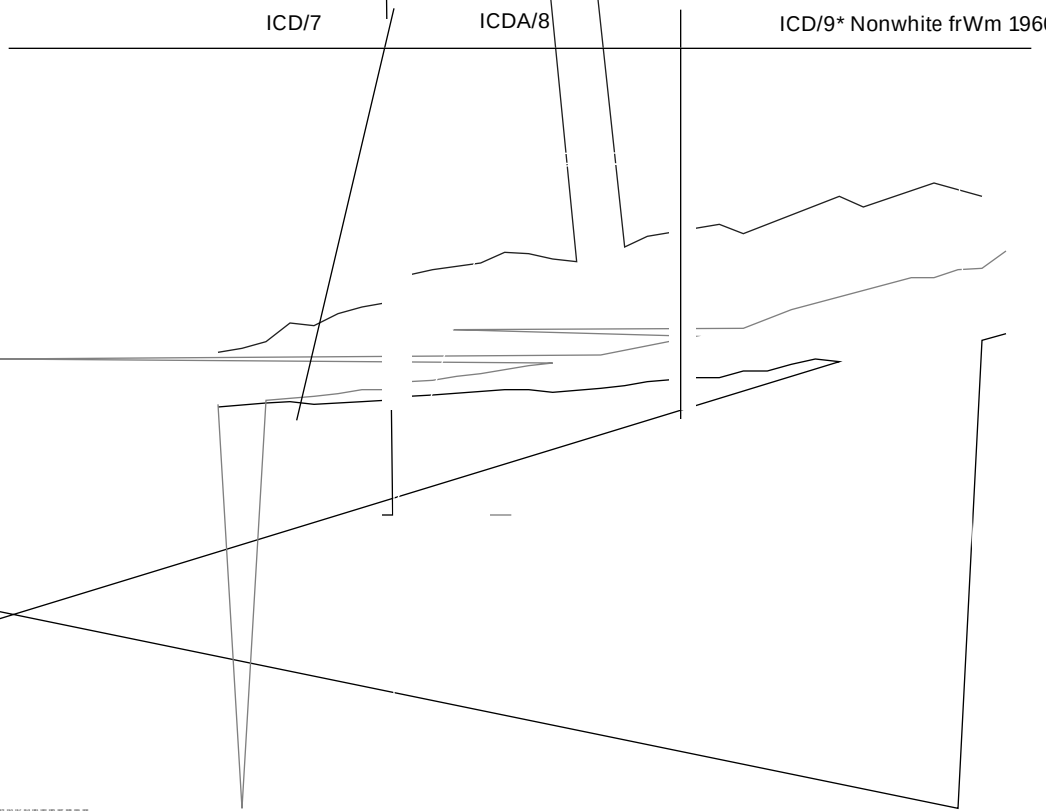


CHART 4-8
DEATH RATES FOR COPD
BY RACE AND SEX, U.S., 1960-1993



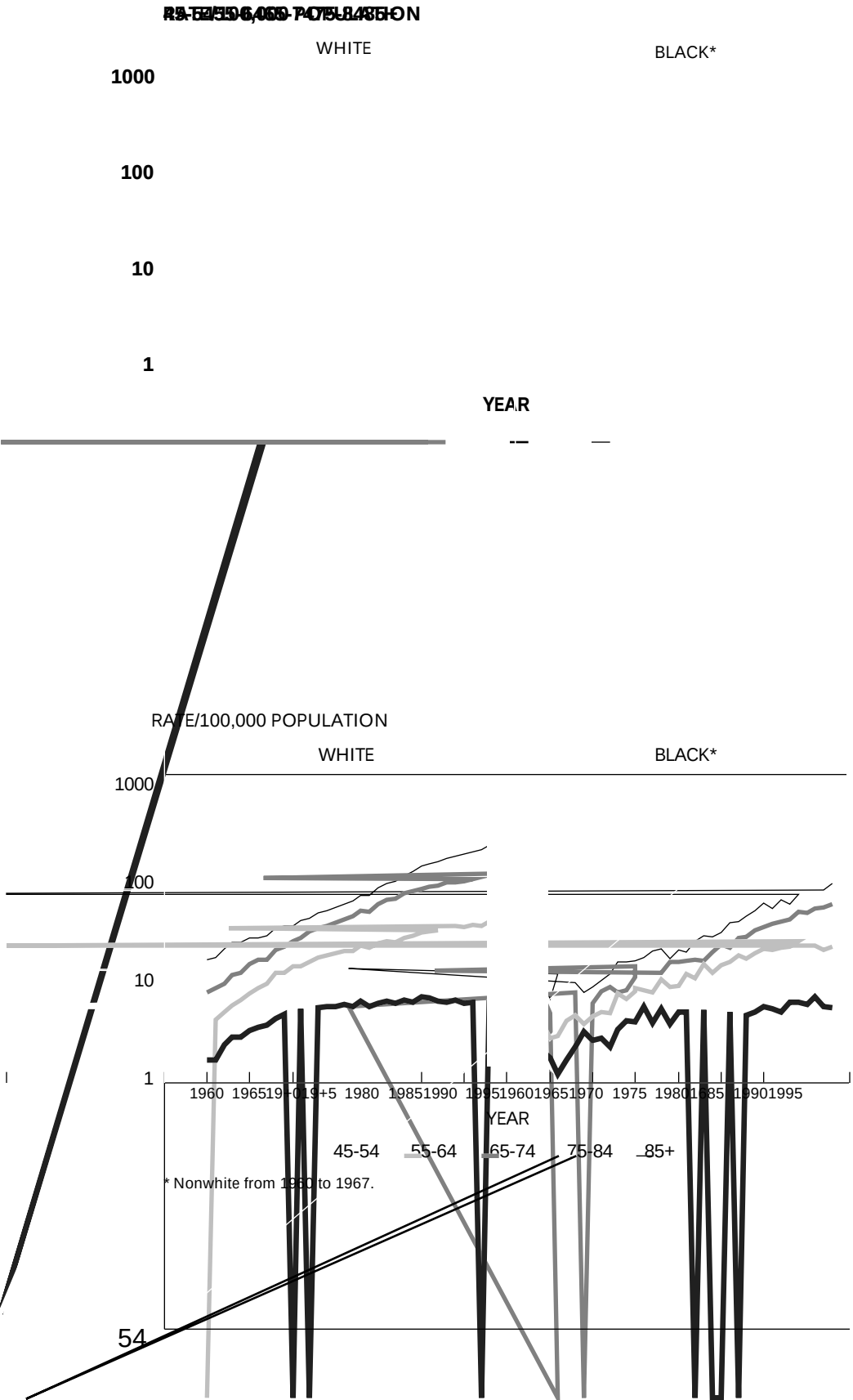
Since 1980, tPe age-adjusted death rate fWr COPD:

7,17,43• **Is leveling Wff in white** /. rides.

- **Is increasing in bTack Uales.**
- **Is increasing at a greater rate in feUales than in Uales.**

53**Large swi**
COPD hospi
occurred bet

CHART 4-9
DEATH RATES FOR COPD
IN MALES BY AGE AND RACE, U.S., 1960-0(1)1(9)53(9)1(3)]TJ ETI 1 gi 1 Gr 0.5.w l 75 626 314.5 -153 re f*i 94.5



In the latter part of the 1980s, a peak in COPD mortality in males was reached in each age group except age 85 and older in white men and age 75 and older in black meV.[7,17,43]

In the latter part of the 1980s, a peak in COPD mortality in females was reached in white females younger than age 55 and in black females younger than age 65; increases for older females continue.[7,17,43]

ChrWnic Obstructive Pulmonary DQsease

COPD death rates are hQghest in the western mountain states and are hQgh in the eastern mountain states.

Among 28 industrial countries, the United States ranks 12th in COPD mortality for males and 7th for females.[44]

Chronic ObstructQve Pulmonary DQsease

CHART 4-13´TJı˝-3.053 -1.263 TDı˝0.02DEATH RATES FOR COPD´TJı˝-0.947 -1.211 TDı˝0.022 Tc

Age-adRusted death rates from COPD are:[17]

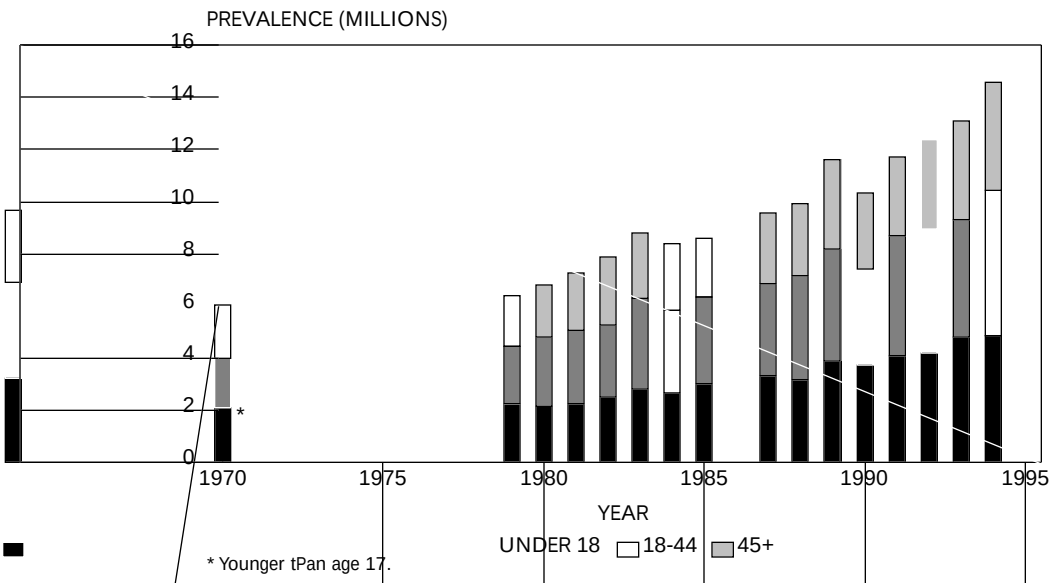
Higher iV white males than iV black males.

Twice as high iV whist´TJı˝1.091 -1.182 iV white males untQl abWut age 60, after which rates are much higher iV whites.

Lowest iV b5 Twck females.

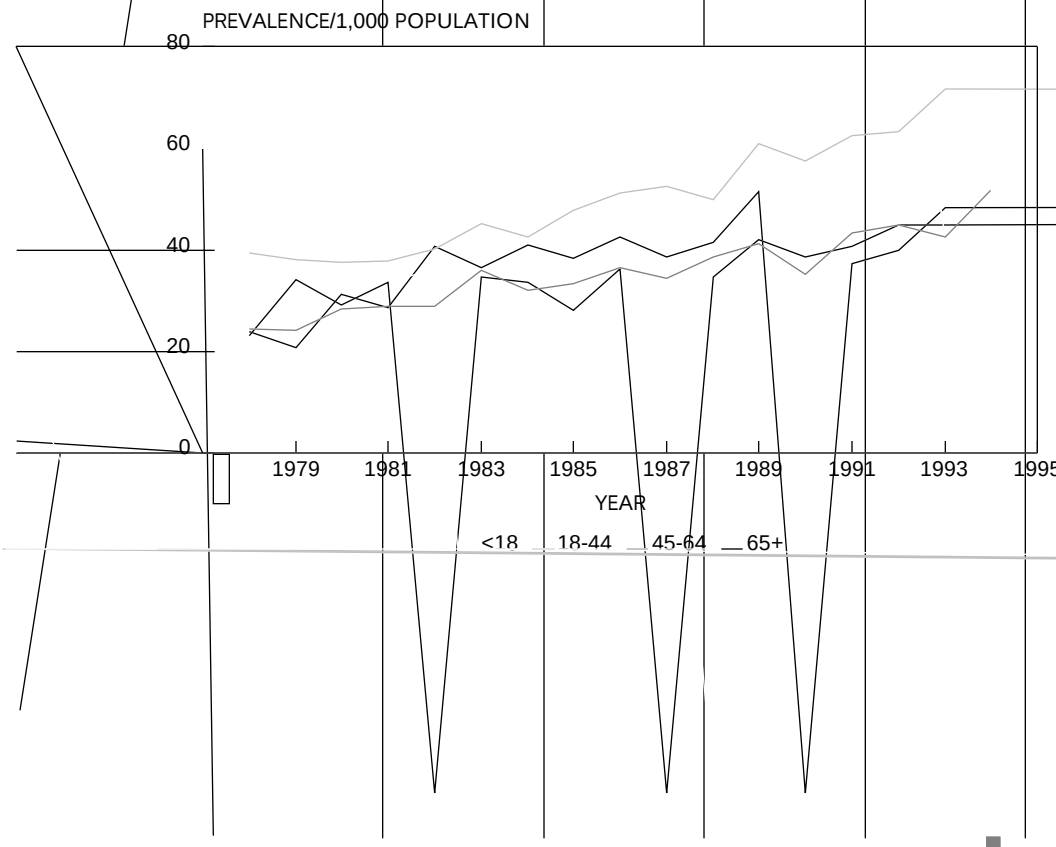
Asthma

CHART 4-15
PREVALENCE OF ASTHMA BY AGE,
NHIS, U.S., 1970-1994

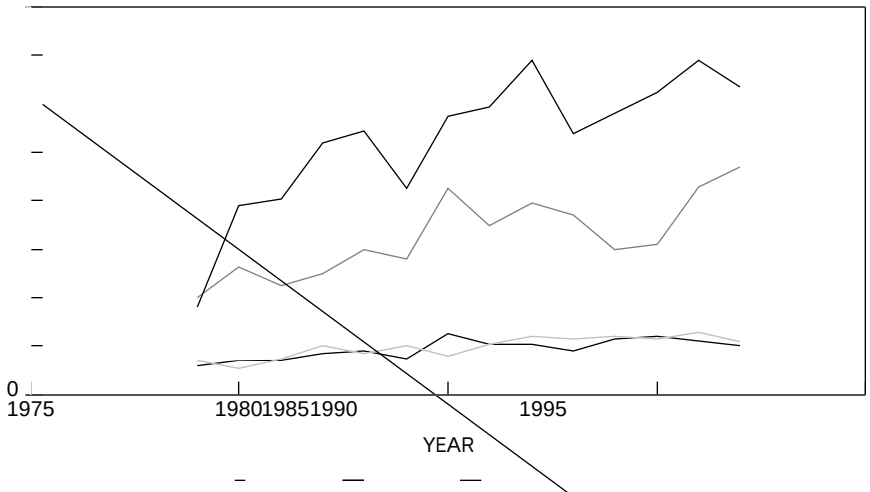


* Younger tPan age 17.

Total prevalence of asthma Qncreased appreciably between 1979 and 1994, reachQng 14.6 UillQon persons in 1994. The Qncrease Wccurred Qn all three age groups shown.[13,35,42]



The prevalence rate of asthma is slowly increasQng in most age groups, especially younger than age 18.[13,35]

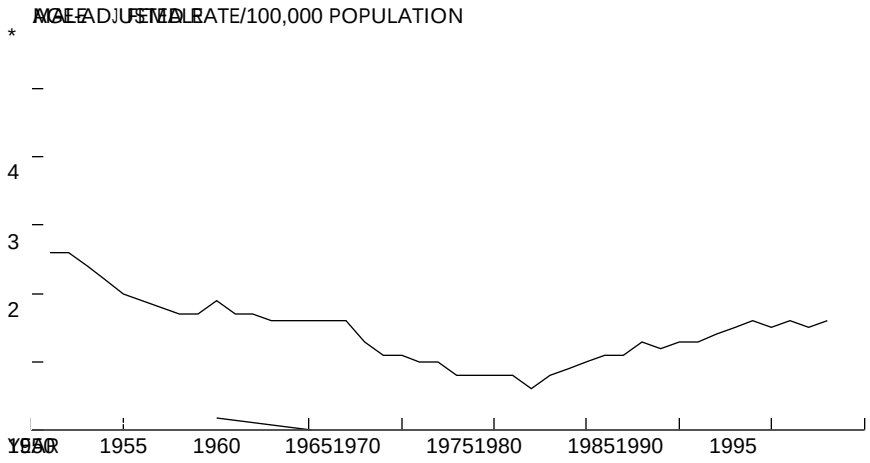


DeatP rates for astPma in persons for age 1 to 24 increased during tPe 1979-1993 periWd in the four race-sex groups shown. Because rates are hQgher in blacSs tPan in whQtes, the absolute increase was grera$V blacSs, but the rates Wf increrse were about tPe same. EsseVtially Vo change occurred iV tPe black-whQte gap in deatP rates as calculated from the black/white 03 Qos Wf the death rates.[7]

BY SEX AND RACE, U.S., 1979-1993

Age-adjusted death rates for asthma are:

CHART 4-23
DEATH RATES FOR ASTHMA



steep declQne up to 1968 and is then followed by an increase.[7]

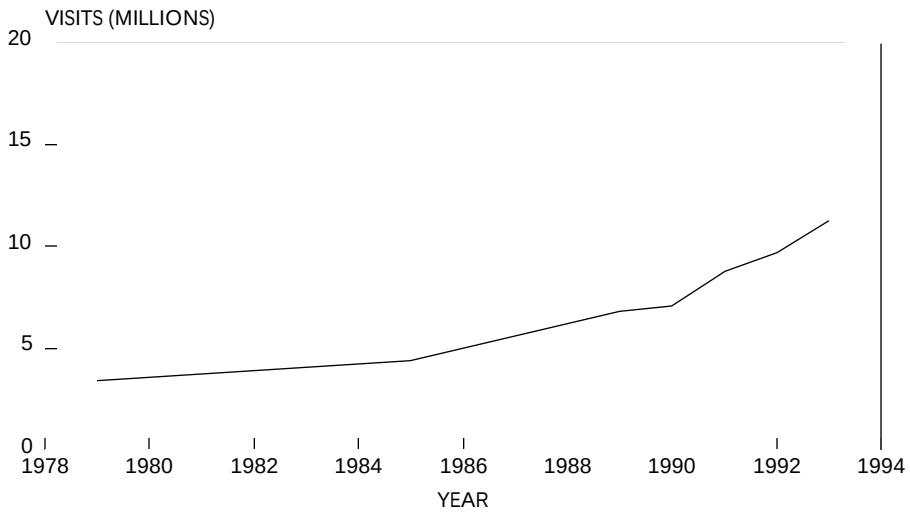
Rates had been much Pigher in males than in females before the mid-19600 Tbut are now about the same for

The black-wPite gap in asthma mortalQty is widening, with rates much Pigher in blacks than in wPQtes.

CHART 4-25
DEATH RRATES FOR ASTHMA

Trends in asthma mortalQty are much more uniform across sex-race groups since 1970 as compared wQth the 1950-1970 period.[7]

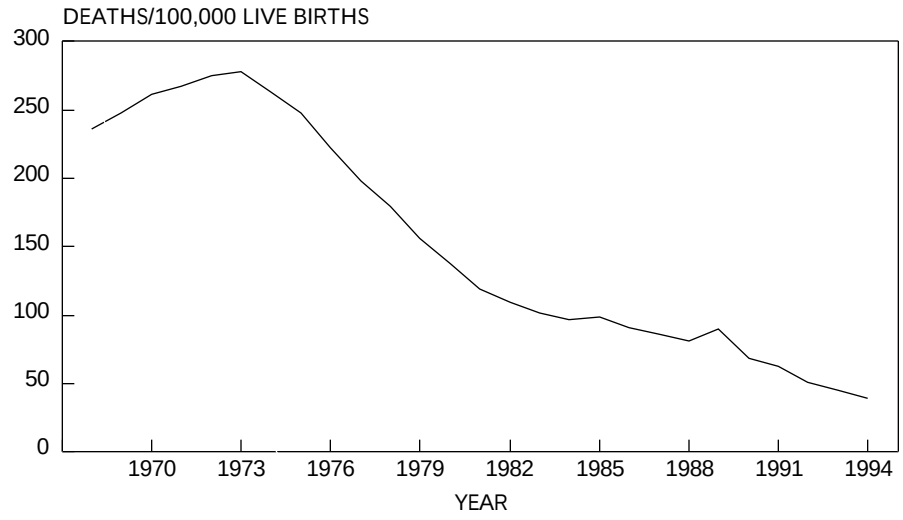
CHART 4-26
PHYSICIAN OFFICE VISITS FOR ASTHMA, U.S., 19R-1R99R3



The Vumber of physician Wffice visits for asthma increased substantiaTly during the 1979-1993 period and rapidly since 1990.[45]

Neonatal Respiratory Distress Syndrome

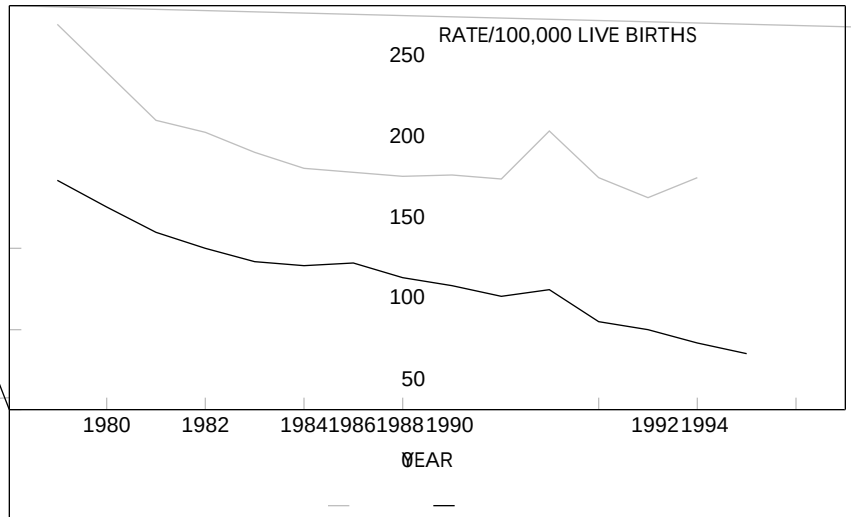
CHART 4-28
USA, 1970-1994 INFANT MORTALITY RATE FOR NEONATAL RDS,



7,21

CHART 4-28
USA, 1970-1993 INFANT MORTALITY RATE FOR NEONATAL RDS BY RACE,

DeclQne in the infant death rate for neonatal RDS from 1979 tW 1993 has beeV appreciable Qn both blacks and whites.[7,21]

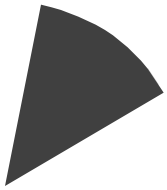


SWurce: Vital statistics Wf the U.S., NCHS.

BLACK WHITE

5. BlWod Diseases

CHART 5-1
BLOOD DISEASE DEATHS,
PERCENT BY SUBGROUP, U.S., 1993



The diagnostic group “BlWod Diseases” is used

given 3.he first table 3.his section together

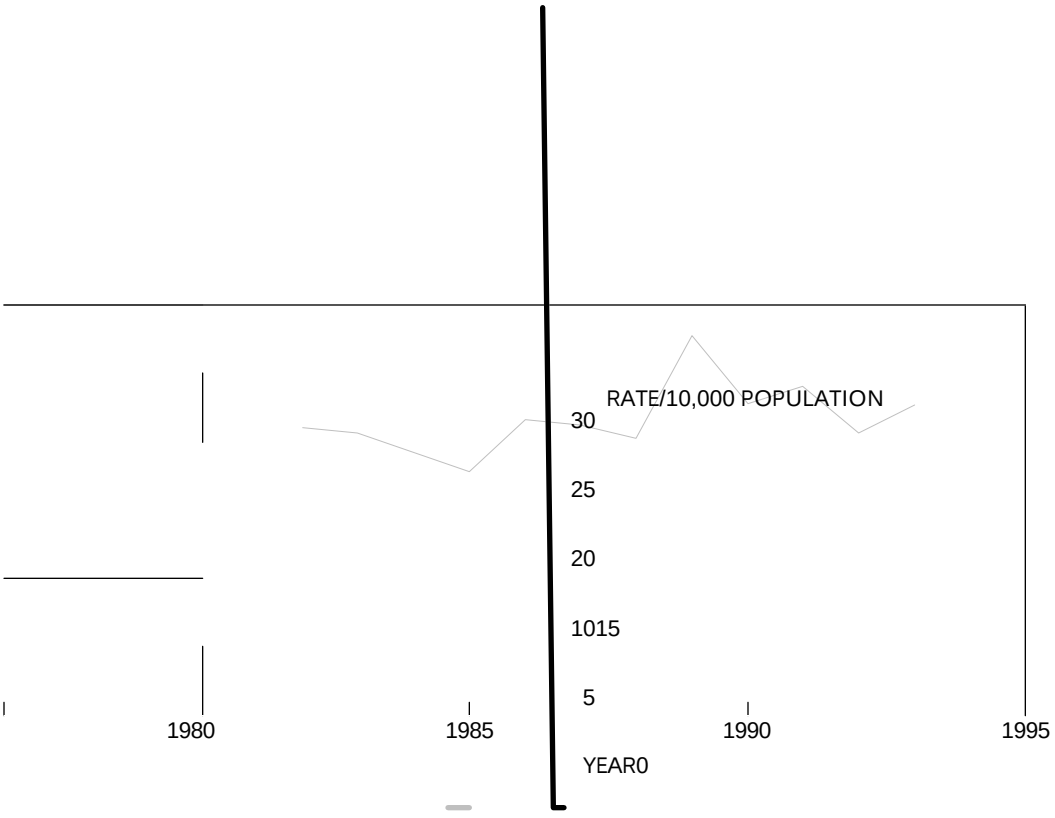
CHART 5-2
NUMBER OF HOSPITALIZATIONS, PHYSICIAN OFFICE VISITS, AND DEATHS FOR SELECTED BLOOD DISEASES IN THE U.S., 1993

DIAGNOSTIC CATEGORY	ICD/9 CODES	HOSPITALIZATIONS FIRST-LISTED DISCHARGE (000)	HOSPITALIZATIONS LENGTH OF STAY (DAYS)	PHYSICIAN mı˝FICE VISITS (000)	DEATHS
BTood diseases—tWtal*	280-289	327	5.8	4,286	9,709
AVemias—tWtal	280-285	214	5.6	2,694	4,315
IrWn deficiency aVemia	280	39	5.5	337	98

26,36

DIAGNOSIS OF APLASTIC AEMIA**CHART 5-4**

HOSPITAL DISCHARGES FOR SICKLE-CELL ANEMIA
BY AGE, U.S., 1982-1993



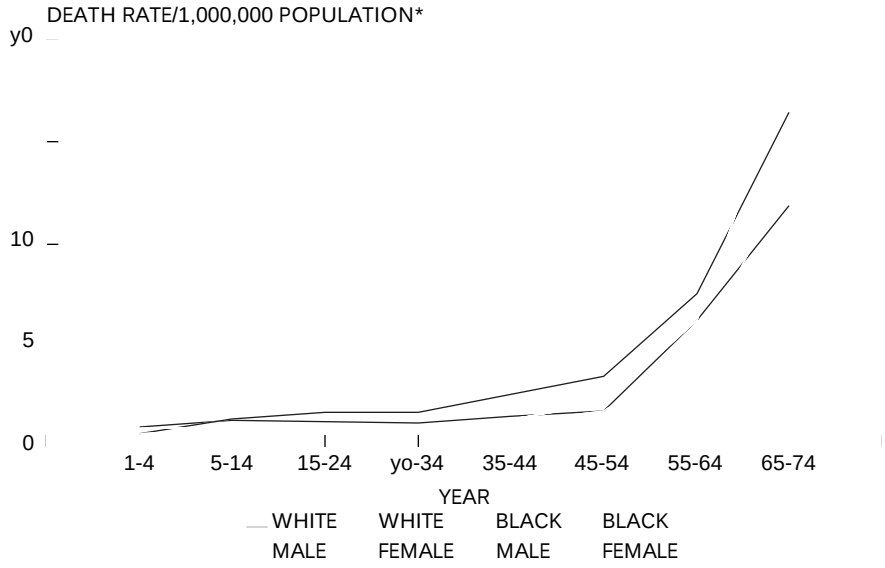
NOTE: All dQscParges fWr tPQs dQsease are assuUed tW be Qn tPe bapkulatQon.

15-44 YOUNGER TH N 15

Anemias

Mortality from aplastic anemia is higher in males than in females.[7]

There is nW appreciabTe dQfference by race.

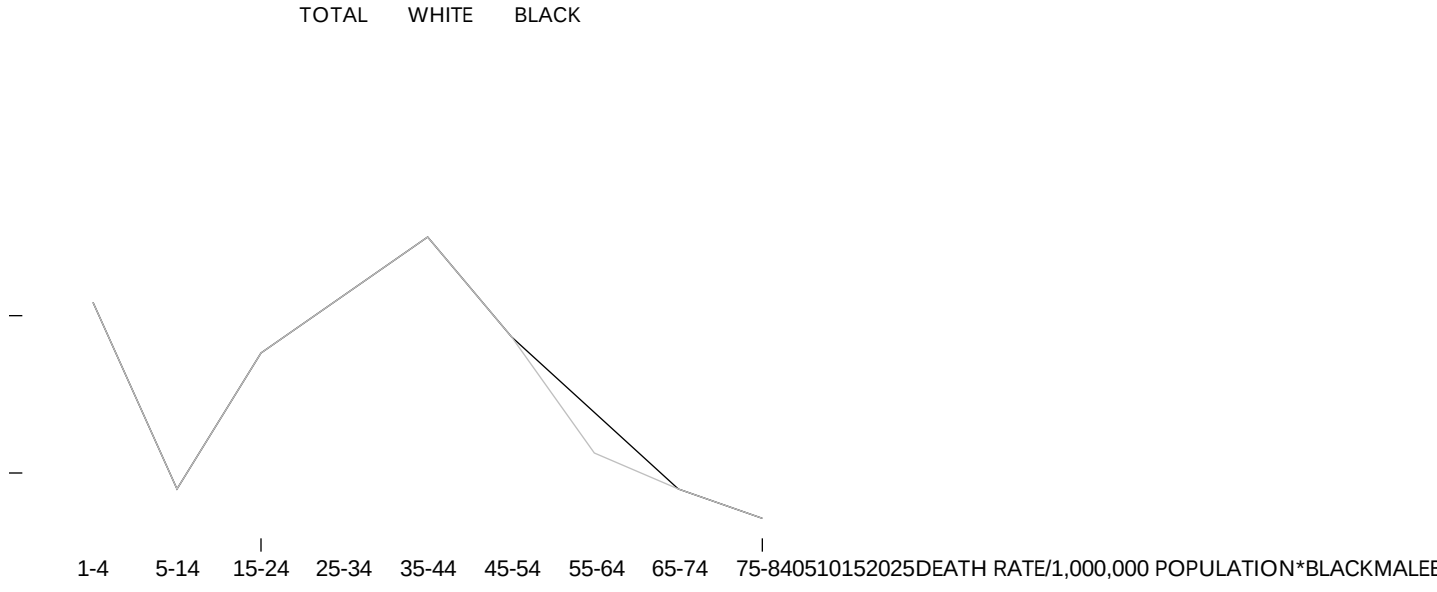


No strQking race or sex dQfference in mortality from aplastic anemia exQsts in those younger than age 65.[7]

Mortality from aplastic anemia for white males older than age 65 Qs the highest among the fou68race-sex groups.

CHART 5-7
DEATH RATES FOR SICKLE-CELL ANEMIA
BY RACE AND SEX, U.S., 1980-1990

* Average annual rate.
† Rates for white males and females are less than ½ of 1 percent.



* Average annual rates.

Age-adRusted death rate: The age-adRusted death rate is a summary death rate fWr the given age range and Qs computed by the direct method, that is, by applying the age-specQfic death rates fWr a given cause of death to the standard pWpulation (United States, 1940) distributed by age in 10-year age groups.[3]

Chronic condition: A condition is considered chronic Qf: (1) the respondent (in a health interview) fiæcates it was first noticed mWre than 3 mWntPs befWre the reference date of the interview, Wr (2) ft Qs a type of condition that Wrdinarily has a duration of mWre than 3 months.[13]

Comparability ratio: The comparability ratio is the Vumber of deaths from a particular cause of death as coded to an ICD revision divided by the Vumber of deaths from the closest similar cause of death as coded to the preceding ICD revision. ThQs dual coding is done on a sample of death certificates fWr a particular year. These ratios measure discontiVuities in mWrtality data resultiVg from introduction of a new ICD revision.[2]

Hospital discharge:

Underlying cause of death: The underlying cause of death is the disease or injury that initiated the events leading directly to death. It is selected from the conditions entered in the cause-of-death section of the death certificate. When more than one cause or condition is entered by the physician, the underlying cause is determined by the sequence of conditions on the certificate, provisions of the ICD, and associated classification rules.[17]

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Appendix

International Classification of Diseases: Codes for Selected Diagnostic Categories: Sixth, Seventh, Eighth, and NQnth Revisions

Diagnostic Term in Chartbook	1949-1957	1958-1967	1968-1978	1979-1987
Cardiovascular diseases[a]	330-334, 400-468	330-334, 400-468	390-458	390-459
Heart disease	400-402, 410-443	400-402, 410-443	390-398, 402, 404-429	390-398, 402, 404-429
Coronary heart disease[b]				
[c]	†	†	427.0, 427.1	428

the grounds of race, colWr,

age, be excluded from partici-

fits of, or be subRected to dis-

of activity (or, on the basis of
sex, with respect to any educa-

Executive Order 11141 pro-

subcontractWrs in the perfor-

against any empToyee Wr appTi-

of race, colWr, reTigion, sex, or

U.S. DEPARTMENT OF HEALTH AND