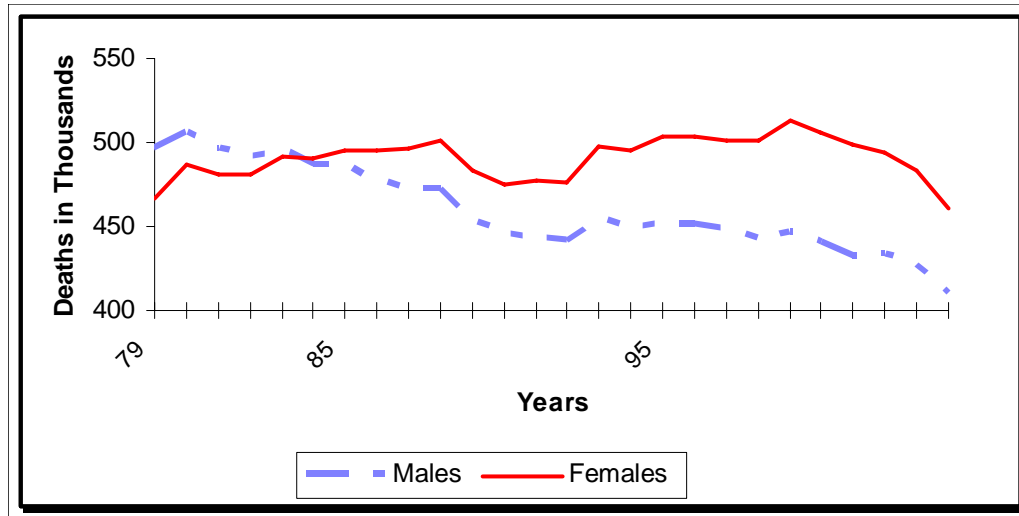


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Cardiovascular Disease Mortality Trends for Males and Females

United States: 1979–2004



Source: NCHS.

Note: The overall comparability for CVD between the ICD/9 (1979–98) and ICD/10 (1999–2004) is 0.9962. No comparability ratios were applied.

Note: Death rates are age-adjusted per 100,000 population, based on the 2000 U.S. standard. Some data are reported according to ICD/9 codes and some use ICD/10 codes.

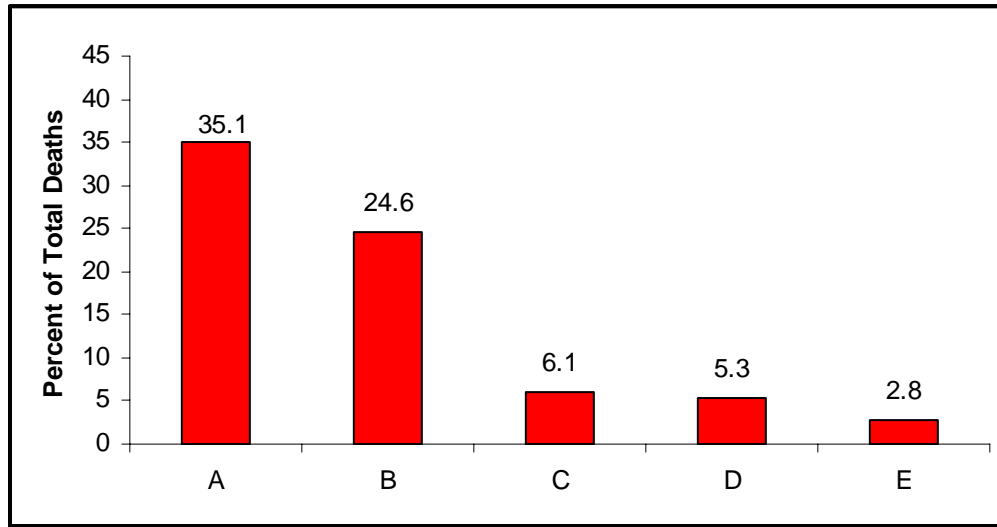
Cardiovascular Disease (CVD) (ICD/10 codes I00-I99, Q20-Q28)

- About one in three adult men have some form of cardiovascular disease.
- In 2004 cardiovascular disease caused the deaths of 410,628 males and 459,096 females. Males represent 47.2 percent of deaths from CVD. Cancer killed 286,830 males in 2004.
- The 2004 overall death rate from CVD was 288.6. Death rates were
 - 335.1 for white males.
 - 454.0 for black males.
- In 2005, cardiovascular disease was the first listed diagnosis of 3,136,000 males discharged from short-stay hospitals. Discharges include people alive, dead and status unknown.

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Causes of Death for White Males

United States: 2004

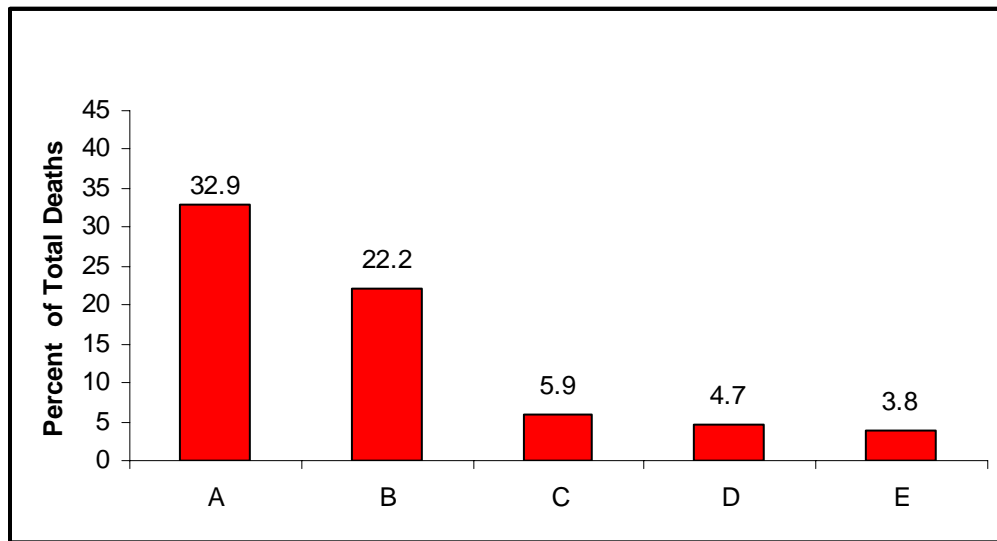


Note: A indicates total CVD plus congenital heart disease; B, cancer; C, accidents; D, CLRD; E, diabetes. Using the combined "Diseases of the Heart" and "Stroke" category, which does not constitute total CVD, the percentage was 32.6.

Source: NCHS

Causes of Death for Black Males

United States: 2004



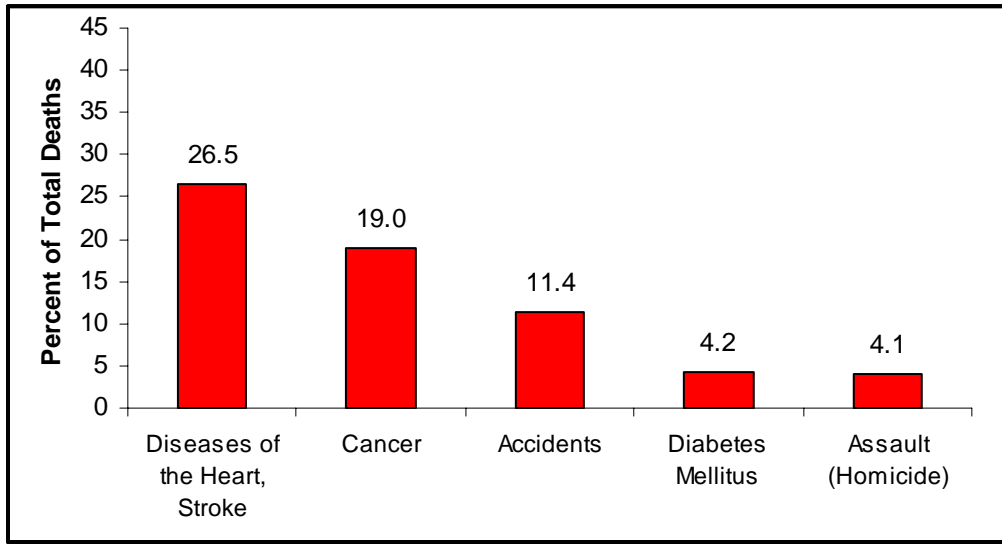
Note: A indicates total CVD plus congenital heart disease; B, cancer; C, accidents; D, assault (homicide); E, diabetes. Using the combined "Diseases of the Heart" and "Stroke" category, which does not constitute total CVD, the percentage was 30.1.

Source: NCHS

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Causes of Death for Hispanic or Latino Males

United States: 2004

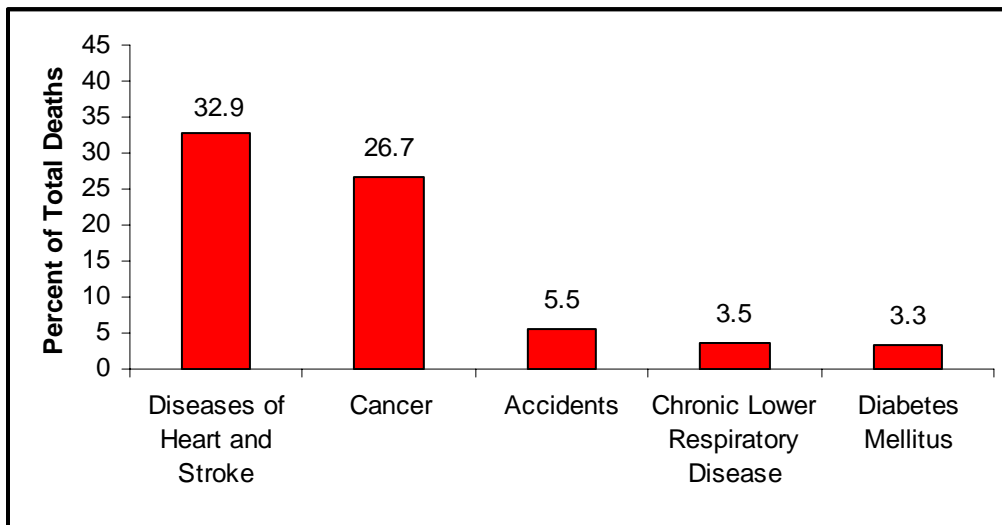


Note: Mortality data for Hispanics include all persons of Hispanic origin of any race. The combined "Diseases of the Heart" and "Stroke" category does not constitute total CVD..

Source: NCHS.

Causes of Death for Asian/Pacific Islander Males

United States: 2004



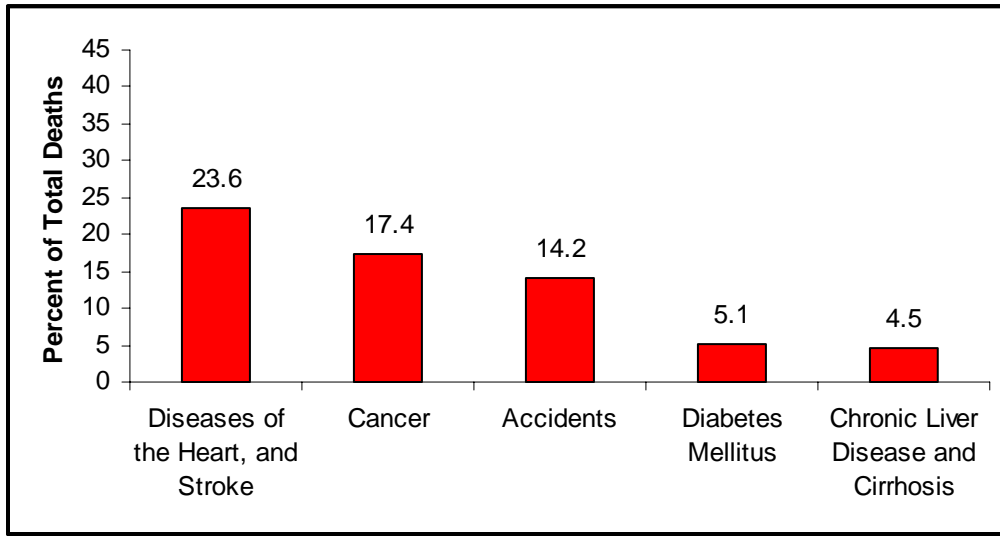
Note This Asian/Pacific Islander category includes people at high CVD risk (South Asian) and people at low CVD risk (Japanese). More specific data on these groups aren't available. The combined "Diseases of the Heart" and "Stroke" category does not constitute total CVD.

Source: NCHS.

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Causes of Death for American Indian/Alaska Native Males

United States: 2004

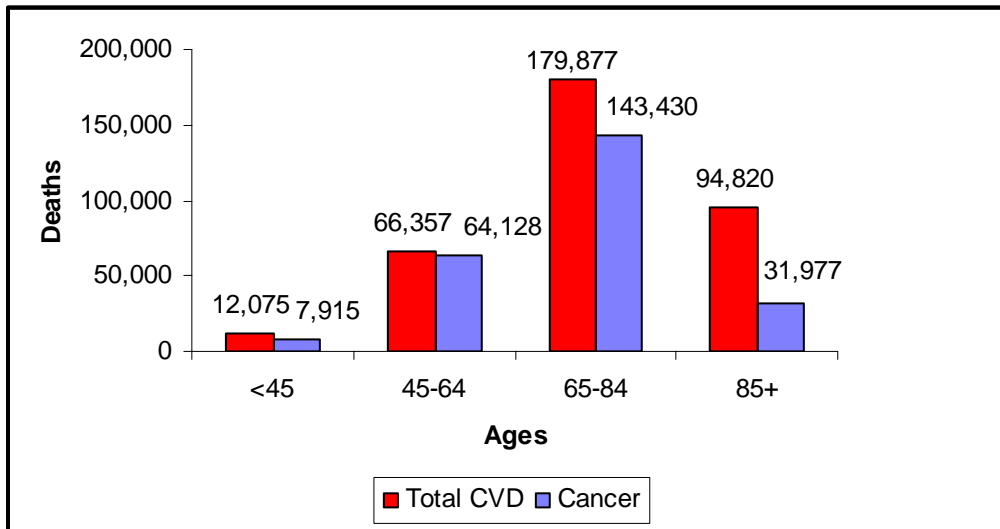


Note: The combined "Diseases of the Heart" and "Stroke" category does not constitute total CVD.

Source: NCHS.

Deaths From Cardiovascular Diseases and Cancer for White Males by Age

United States: 2004

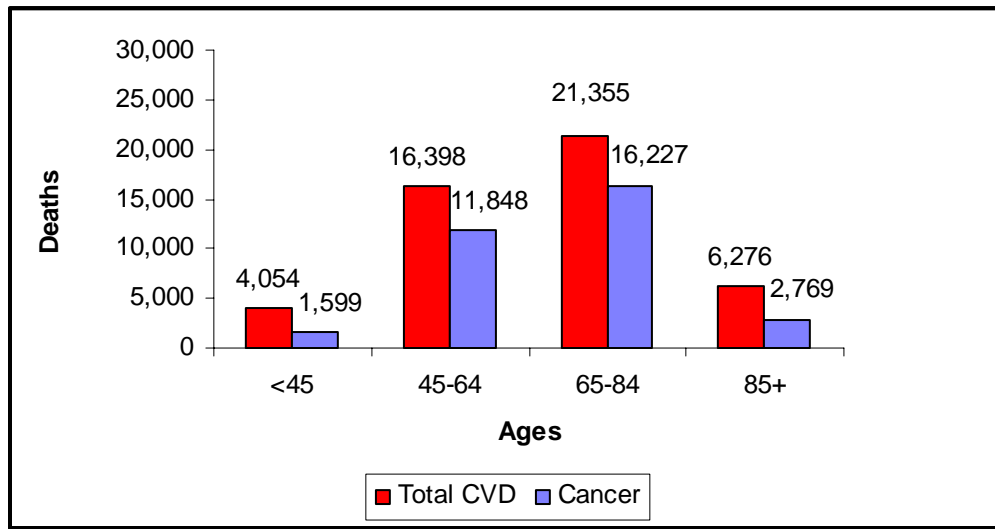


Source: NCHS.

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Deaths From Cardiovascular Diseases and Cancer for Black Males by Age

United States: 2004



Source: NCHS.

- Based on the NHLBI's Framingham Heart Study (FHS) original and offspring cohort data from 1980 to 2003...
 - The average annual rates of first major cardiovascular events rise from three per 1,000 men at ages 35–44 to 74 per 1,000 at ages 85–94. For women, comparable rates occur 10 years later in life. The gap narrows with advancing age.
 - Under age 75, a higher proportion of CVD events due to coronary heart disease (CHD) occur in men than in women, and a higher proportion of events due to stroke occur in women than in men.

(NIH, NHLBI. *Incidence and Prevalence: 2006 Chart Book of Cardiovascular and Lung Diseases.*)

Coronary Heart Disease (CHD) (ICD/10 codes I20-I25) (ICD/9 codes 410-414, 429.2)

- About 8.7 million males alive today have a history of heart attack, angina pectoris (chest pain or discomfort caused by reduced blood supply to the heart muscle) or both. Of these, about 5.0 million have a history of myocardial infarction (MI; heart attack).
- This year an estimated 710,000 men will have a new or recurrent coronary attack. Of these, about 555,000 will have a heart attack (MI). (*ARIC and CHS, NHLBI*)
- The average age-adjusted incidence rates per 1,000 person-years in men ages 45 to 64 are
 - 12.5 for whites.
 - 10.6 for blacks.

Incidence rates excluding revascularization procedures are

- 7.9 for whites.
- 9.2 for blacks.

(*Jones DW, et al. Risk factors for coronary heart disease in African Americans: the Atherosclerotic Risk in Communities Study 1987-1997. Arch Intern Med 2002;162:2565–71*)

- Hypertension is a particularly powerful risk factor for CHD in blacks, especially in black women. Diabetes is a weaker predictor of CHD in blacks than in whites. (*Jones DW, et al. Risk factors for coronary heart disease in African Americans: the Atherosclerotic Risk in Communities Study 1987-1997. Arch Intern Med 2002;162[22]:2565–71*)

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- The annual age-adjusted rate per 1,000 population of first heart attack (MI) or CHD death in white men was 3.9. For black men the rate was 4.2
(ARIC [1987-2001], NHLBI; NHLBI Incidence & Prevalence: 2006 Chart Book on Cardiovascular and Lung Diseases.)
- The average age of a person having a first heart attack is 64.5 for men and 70.4 for women.
(National Heart, Lung, and Blood Institute. Unpublished data from ARIC surveillance and CHS, extrapolated to the U.S. population)
- Based on the NHLBI's FHS in its 44-year follow-up of participants and the 20-year follow-up of their offspring...
 - CHD comprises more than half of all cardiovascular events in men and women under age 75. *(FHS/NHLBI)*
 - The lifetime risk of developing CHD after age 40 is 49 percent for men and 32 percent for women. *(Lloyd-Jones DM, Larson MG, Beiser A, Levy D. Lifetime risk for developing coronary heart disease. Lancet. 1999;353:89-92.)*
 - The incidence of CHD in women lags behind men by 10 years for total CHD and by 20 years for more serious clinical events such as MI and sudden death.
(FHS/NHLBI)
- Among American Indian men ages 65–74, the rate per 1,000 population of incident heart attack is 7.6. *(SHS [1989-2002], NHLBI)*
- CHD is the single leading cause of death of American males, killing 233,538 in 2004. This represents 51.7 percent of deaths from CHD.
- The 2004 overall CHD death rate was 150.2. Death rates were 194.2 for white males and 223.9 for black males.
- 50 percent of men who died suddenly of CHD had no previous symptoms. *(FHS, NHLBI)*
- Within five years after a recognized heart attack (MI):
 - At 40 years of age and older, 33 percent of men will die.
 - At 40 to 69 years of age, 15 percent of white men, and 27 percent of black men will die.
 - At 70 years of age and older, 50 percent of white men, and 56 percent of black men will die.
- Of those who have a first MI, the percentage with a recurrent MI or fatal CHD within five years is:
 - at 40 to 69 years of age, 16 percent of men.
 - at 40 to 69 years of age, 14 percent of white men, and 27 percent of black men.
 - at 70 years of age and older, 24 percent of white men and 30 percent of black men.
- The percentage of persons with a first MI who will have HF in five years is:
 - at 40 to 69 years of age, 7 percent of men.
 - at 70 years of age and older, 22 percent of men.
 - at 40 to 69 years of age, 7 percent of white men, and 11 percent of black men.
 - at 70 years of age and older, 21 percent of white men, and 29 percent of black men.
- The percentage of persons with a first MI who will have a stroke within five years is:
 - at 40 to 69 years of age, 4 percent of men.
 - at 70 years of age and older, 6 percent of men.
 - at 40 to 69 years of age, 3 percent of white men, and 8 percent of black men.

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- at 70 years of age and older, 6 percent of white men, and 7 percent of black men.
- The percentage of persons with a first MI who will experience sudden death in five years is:
 - at 40 to 69 years of age, 1.1 percent of white men, and 2.5 percent of black men.
 - at 70 years of age and older, 6.0 percent of white men, and 14.9 percent of black men.
- The median survival time (in years) after a first MI is:
 - at 70 to 79 years of age, 7.4 for men.
 - at 80 years of age and older, 2.0 for men.
- 1,117,000 males diagnosed with CHD were discharged from short-stay hospitals in 2005.

Angina Pectoris (ICD/10 code I20) (ICD/9 code 413)

- Among men age 20 and older, the following have angina:
 - 4.8 percent of non-Hispanic whites.
 - 3.4 percent of non-Hispanic blacks.
 - 2.3 percent of Mexican Americans.

(NHANES [1999-2004], NCHS and NHLBI)
- The annual rates per 1,000 population of new and recurrent episodes of angina in non-black men are
 - 28.3 for ages 65–74.
 - 36.3 for ages 75–84.
 - 33.0 for age 85 and older.

For black men in these age groups the rates are

- 22.4 for ages 65–74.
 - 33.8 for ages 75–84.
 - 39.5 for age 85 and older.
- (CHS, NHLBI)*
- About 18,000 males diagnosed with angina were discharged from short-stay hospitals in 2005

Stroke (ICD/10 codes I60-I69) (ICD/9 codes 430-438)

- An estimated 2.3 million male stroke survivors are alive today.
- Among men age 20 and older, the following have had a stroke:
 - 2.4 percent of non-Hispanic whites.
 - 4.1 percent of non-Hispanic blacks.
 - 3.1 percent of Mexican Americans.

(NHANES [1999-2004], NCHS and NHLBI)
- The prevalence of transient ischemic attack (TIA or mini-stroke) in men is estimated to be
 - 2.7 percent for ages 65–69.
 - 3.6 percent for ages 75–79.

(CHS, NHLBI)
- The prevalence of stroke in American Indian men aged 45 to 74 years ranges from 0.2 percent to 1.4 percent. Among American Indian women in the same age group, the prevalence ranges from 0.2 percent to 0.7 percent. *(Strong Ali T, Jarvis B, O'Leary M. Strong Heart Study Data Book: A Report to American Indian Communities. Rockville, Md: NIH, NHLBI; 2001.)*

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- The annual rate per 1,000 population of new and recurrent strokes in American Indian men ages 65–74 is 6.1. (*Strong Heart Study, NIH, NHLBI, 1989-2002*)
- 2004 stroke mortality was 58,800 for males (39.2 percent of total stroke deaths).
- The 2004 overall death rate for stroke was 50.0. Death rates were 48.1 for white males and 74.9 for black males. In 2004, death rates for stroke were 41.5 for Hispanic or Latino males; 44.2 for Asian or Pacific Islander males; and 35.0 for American Indian/Alaska Native males. (*Health, United States, 2006, NCHS*).
- In 2005, 418,000 males were discharged from short-stay hospitals after having a stroke.
- On the basis of pooled data from the FHS, ARIC, and CHS studies of the NHLBI:
 - The percentages dead one year after a first stroke were as follows:
 - at ≥ 40 years of age, 21 percent of men.
 - at 40 to 69 years of age: 14 percent of white men and 19 percent of black men.
 - at ≥ 70 years of age: 24 percent of white men and 25 percent of black men.
 - The percentages dead within five years after a first stroke were as follows:
 - at ≥ 40 years of age: 47 percent of men.
 - at 40 to 69 years of age: 32 percent of white men and 34 percent of black men.
 - at ≥ 70 years of age: 58 percent of white men and 49 percent of black men.
 - Of those who have a first stroke, the percentages with a recurrent stroke in five years are as follows:
 - at 40 to 69 years of age: 13 percent of men.
 - at ≥ 70 years of age: 23 percent of men.
 - at 40 to 69 years of age: 15 percent of white men and 10 percent of black men.
 - at ≥ 70 years of age: 23 percent of white men and 16 percent of black men.
 - The median survival times (in years) after a first stroke are:
 - at 60 to 69 years of age: 6.8 for men.
 - at 70 to 79 years of age: 5.4 for men.
 - at ≥ 80 years of age: 1.8 for men.

High Blood Pressure (HBP) (ICD/10 codes I10-I15) (ICD/9 codes 401-404)

- About one in three American adults has HBP. (*Hypertension 2004;44:398-404*)
- A higher percentage of men than women have HBP until age 45. From ages 45–54 the percentage of men and women are similar. After that a much higher percentage of women than men have HBP. (*Health, United States, 2006. NCHS*)
- Among men age 20 and older, the following have HBP:
 - 32.5 percent of whites.
 - 42.6 percent of blacks.
 - 28.7 percent of Mexican Americans.

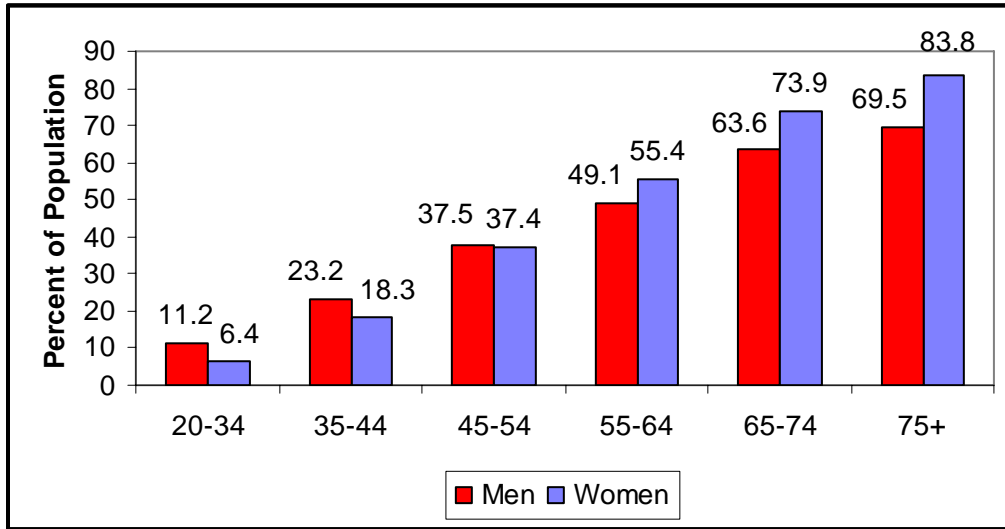
(*NHANES [1999-2004], NCHS and NHLBI*)

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Prevalence of High Blood Pressure in Adults Age 20 and Older by Age and Sex

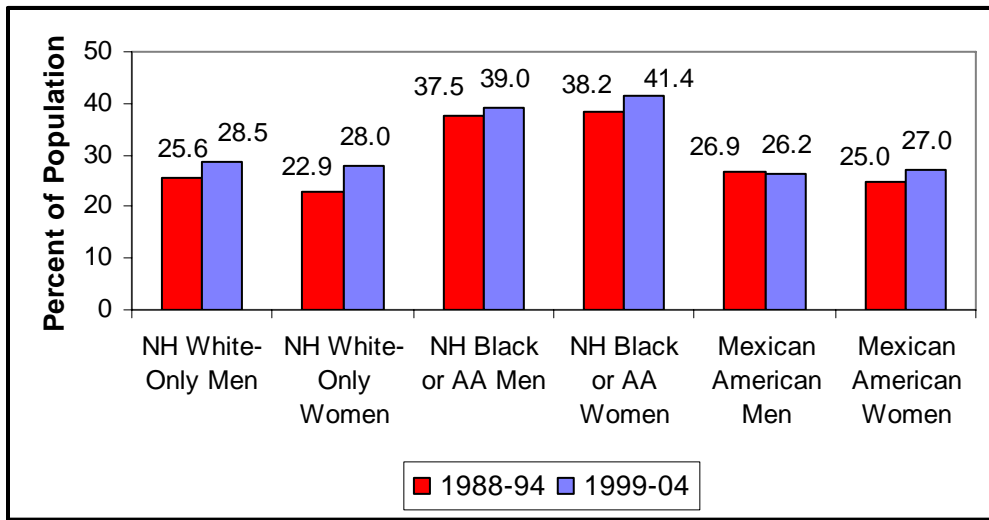
NHANES: 1999–2004



Source: NCHS and NHLBI.

Age-Adjusted Prevalence Trends for High Blood Pressure in Adults Age 20 and Older by Race/Ethnicity, Sex and Survey

NHANES: 1988–94 and 1999–2004



Source: NCHS and NHLBI.

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- The 2004 overall death rate from HBP was 18.1. Death rates were
 - 15.7 for white males.
 - 51.0 for black males.
- 215,000 males diagnosed with HBP were discharged from short-stay hospitals in 2005.

Congenital Cardiovascular Defects (ICD/10 codes Q20-Q28) (ICD/9 codes 745-747)

- The 2004 overall death rate for congenital cardiovascular defects was 1.3. Death rates were
 - 1.4 for white males.
 - 1.8 for black males.
- Crude infant death rates (under 1 year) were 38.3 for white infants and 56.0 for black infants. Some types of defects occur more commonly in females or males.
- 29,000 males were discharged from short-stay hospitals in 2005 with a diagnosis of congenital cardiovascular defects.

Heart Failure (HF) (ICD/10 code I50.0) (ICD/9 code 428.0)

- About 2,700,000 males alive today have HF.
- The annual rates per 1,000 population of new HF events in white men are
 - 15.2 for ages 65–74.
 - 31.7 for ages 75–84.
 - 65.2 for age 85 and older.For black men the rates are
 - 16.9 for ages 65–74.
 - 25.5 for ages 75–84.
 - 50.6* for age 85 and older.

*(CHS, NHLBI) * - Unreliable estimate.*
- In 2004, the total mentions mortality for heart failure in males was 122,749, (43 percent of total mentions mortality from HF).
- The 2004 overall total mentions death rate from HF was 52.0. Death rates were
 - 63.2 for white males.
 - 78.8 for black males.
- On the basis of the 44-year follow-up of the original FHS cohort and the 20-year follow-up of the offspring cohort (NHLBI):
 - 80 percent of men younger than age 65 who have HF will die within eight years.
 - After HF is diagnosed, the survival rate is lower in men than in women, but fewer than 15 percent of women survive more than eight to 12 years. The one-year mortality rate is high, with one in five dying.
 - In people diagnosed with HF, sudden cardiac death occurs at six to nine times the rate of the general population.

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- 494,000 males were discharged from short-stay hospitals in 2005 with a diagnosis of HF.

Kawasaki Disease (ICD/10 code M30.3) (ICD/9 code 446.1)

- Kawasaki disease occurs more often among boys (63 percent) and among those of Asian ancestry.

Rheumatic Fever/Rheumatic Heart Disease (RF/RHD) (ICD/10 codes I00-I09) (ICD/9 codes 390-398)

- 2004 mortality showed 1,009 male deaths from rheumatic fever and rheumatic heart disease. This represents 31.0 percent of deaths from RF/RHD.
- The 2004 overall death rate for RF/RHD was 1.1. Death rates were
 - 0.8 for white males.
 - 0.6 for black males.

Tobacco

- Among Americans age 18 and older, 25.9 million men (23.9 percent) are smokers. Data are for 2005. (*MMWR Morb Mortal Wkly Rep. 2006; 55: 1145–1148.*) Among men age 18 and older, the following are smokers:
 - 24.0 percent of non-Hispanic whites.
 - 26.7 percent of non-Hispanic blacks.
 - 21.1 percent of Hispanics
 - 20.6 percent of NH Asians only.

High Blood Cholesterol and Other Lipids

- In 2005, 50.8 million adult men had total blood cholesterol levels of 200 mg/dL or higher. In adults, total cholesterol levels of 240 mg/dL or higher are considered high risk. Levels from 200 to 239 mg/dL are considered borderline-high risk. (*NHANES [1999-2004], NCHS and NHLBI*)
- Among men age 20 and older, the following have total blood cholesterol levels over 200 mg/dL:
 - 47.9 percent of non-Hispanic whites.
 - 44.8 percent of non-Hispanic blacks.
 - 49.9 percent of Mexican Americans.

Of these, the following have levels of 240 mg/dL or higher:

 - 16.1 percent of non-Hispanic whites .
 - 14.1 percent of non-Hispanic blacks
 - 16.0 percent of Mexican Americans

(*NHANES [1999-2004], NCHS and NHLBI*)
- Among men age 20 and older, the following have LDL cholesterol of 130 mg/dL or higher :
 - 31.7 percent of non-Hispanic whites.
 - 32.4 percent of non-Hispanic blacks.
 - 39.0 percent of Mexican Americans.

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Low-density lipoprotein (LDL or bad) cholesterol levels of 130–159 mg/dL are considered borderline high. Levels of 160–189 mg/dL are classified as high, and levels of 190 mg/dL or higher are very high. (NHANES I [1999-2004], NCHS and NHLBI)

- Among men age 20 and older, the prevalence with an HDL cholesterol less than 40 mg/dL are
 - 26.2 percent of non-Hispanic whites.
 - 15.5 percent of non-Hispanic blacks.
 - 27.7 percent of Mexican Americans.

High-density lipoprotein (HDL or good) cholesterol levels of less than 40 mg/dL are associated with a higher risk of coronary heart disease. (NHANES [1999-2004], NCHS and NHLBI)

Physical Inactivity

- Among men age 18 and older, 33 percent do regular leisure-time physical activity (NHIS 2006)

Overweight and Obesity

- Among men age 20 and older, the following are overweight or obese (BMI of 25.0 kg/m² and higher):
 - 71.0 percent of non-Hispanic whites.
 - 67.0 percent of non-Hispanic blacks.
 - 74.6 percent of Mexican Americans.

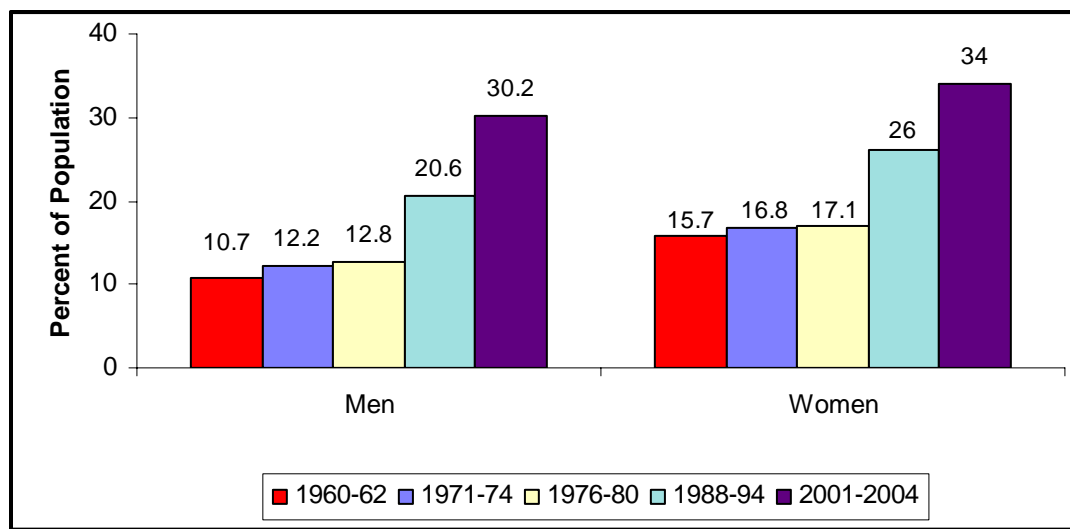
Of these, the following are obese (BMI of 30.0 kg/m² and higher):

- 30.2 percent of non-Hispanic whites.
- 30.8 percent of non-Hispanic blacks.
- 29.1 percent of Mexican Americans.

(NHANES [2001-2004], NCHS)

Age-Adjusted Prevalence of Obesity in Adults Ages 20–74 by Sex and Survey

NHES 1960–62; NHANES: 1971–74, 1976–80, 1988–94 and 2001–04



Note: Obesity is defined as a BMI (body mass index) of 30.0 and higher.

Source: Health, United States, 2006. NCHS.

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Diabetes Mellitus (ICD/10 codes E10-E14) (ICD/9 code 250)

- Of the estimated 15.1 million Americans with physician-diagnosed diabetes, about 7.6 million are male. *(NHANES [1999-2004], NCHS)*
- In the total population age 20 and older, 7.6 percent of men have physician-diagnosed diabetes. The prevalences are
 - 6.7 percent of non-Hispanic whites.
 - 10.7 percent of non-Hispanic blacks.
 - 11.0 percent of Mexican Americans.*(NHANES [1999-2004], NCHS)*
- An estimated 6.0 million Americans age 20 and older have undiagnosed diabetes.
- Of those with undiagnosed diabetes, 3.6 percent are men, using American Diabetes Association criteria of fasting plasma glucose of 126 mg/dL or more. The prevalences are
 - 3.2 percent of non-Hispanic whites.
 - 1.7 percent of non-Hispanic blacks.
 - 1.1 percent of Mexican Americans.Estimates are based on glucose tests of persons not previously diagnosed by a physician.
(NHANES [1999-2004], NCHS)
- Of the estimated 59.7 million Americans age 20 and older with pre-diabetes, about 34.8 million (33.5 percent) are male.
- 33.5 percent of men have pre-diabetes, using American Diabetes Association criteria of fasting plasma glucose of 100 to less than 126 mg/dL. The prevalences are
 - 34.3 percent of non-Hispanic whites.
 - 23.1 percent of non-Hispanic blacks.
 - 37.5 percent of Mexican Americans.*(NHANES [1999-2004], NCHS and NHLBI)*
- In 2004, mortality data showed that diabetes killed 35,267 males (48.2 percent of deaths from diabetes).
- The 2004 overall death rate from diabetes was 24.5 Death rates were
 - 26.2 for white males.
 - 51.3 for black males.
- 283,000 males diagnosed with diabetes mellitus were discharged from short-stay hospitals in 2005.

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Metabolic Syndrome

- The age-adjusted prevalence of the metabolic syndrome for adults is 23.7 percent. For men the age-adjusted prevalence is 24.0.
 - Among African Americans, women have about a 57 percent higher prevalence than men. Among Mexican Americans, women have a 26 percent higher prevalence than men.

(Ford ES, et al. Prevalence of the metabolic syndrome among US adults: findings from the Third National Health and Examination Survey. JAMA 2002;287:356–9)

Nutrition

- In 1999–2000 the mean dietary intakes of energy and 10 key nutrients for men were
 - Calories: 2,475 (kcal)
 - Protein: 14.9 percent of calories
 - Carbohydrate: 50.9 percent of calories
 - Total fat: 32.7 percent of calories
 - Saturated fat: 11.2 percent of calories
 - Cholesterol: 307 mg
 - Calcium: 966 mg
 - Folate: 405 micrograms (mcg)
 - Iron: 17.2 mg
 - Zinc: 13.3 mg
 - Sodium: 3,877 mg

(NHANES [1999-2000] NCHS, 2003)

- The average daily intake of total fat in the United States is 79 grams (g). For males the average is 91 g overall.
(NHANES [1999-2000], NCHS)
- The average daily intake of saturated fat in the United States is 27 grams. For males the average is 31g overall.
(NHANES [1999-2000], NCHS)

- The average daily percentage of calories from fat in the United States:⁶
 - Non-Latino white: male: 33.9 percent
 - Non-Latino black: male: 34.7 percent
 - Other non-Latino: male: 33.4 percent
 - Latino: male: 33.7 percent

(Thompson FE, Midthune D, Subar AF, McNeel T, Berrigan D, Kipnis V. Dietary intake estimates in the National Health Interview Survey, 2000: methodology, results, and interpretation. J Am Diet Assoc. 2005;105:352-363.)

- Age does not appear to make a change in percentage of calories from fat until over the age of 60.
 - Ages 18–39: male: 34.4 percent
 - Ages 40–59: male: 34.2 percent

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- Over age of 60: male: 32.6 percent

(Thompson FE, Midthune D, Subar AF, McNeel T, Berrigan D, Kipnis V. Dietary intake estimates in the National Health Interview Survey, 2000: methodology, results, and interpretation. J Am Diet Assoc. 2005;105:352-363.)

Surgery

- In 2004, 69 percent of bypass and 69 percent of PCI procedures were performed on men. Bypass data represent a combination of code and vessel data, so it's impossible to determine the average number of vessels per patient.
- In 2006 in the United States, 74.2 percent of heart transplant patients were male.

Abbreviations Used:

ARIC – Atherosclerosis Risk in Communities, NHLBI
BMI – body mass index.
CHS – Cardiovascular Health Study, NHLBI
FHS – Framingham Heart Study, NHLBI
JAMA – *Journal of the American Medical Association*
Kg/m² – kilograms/meter²
Kcal – kilocalories
Mg – milligrams.
Mg/dL – milligrams per deciliter
MI – myocardial infarction
NCHS – National Center for Health Statistics
NH – non-Hispanic
NHANES – National Health and Nutrition Examination Survey , NCHS
NHLBI – National Heart, Lung, and Blood Institute
PCI – percutaneous coronary intervention
SHS – Strong Heart Study, NCHS

For additional information see the Heart Disease and Stroke Statistics – 2008 Update, published in *Circulation*, available on our Web site.