Reprint From

Health United States 1990

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Preface

Health, United States, 1990 is the 15th annual report on the health status of the Nation submitted by the Secretary of Health and Human Services to the President and Congress of the United States in compliance with Section 308 of the Public Health Service Act. This report was compiled by the National Center for Health Statistics, Centers for Disease Control. The National Committee on Vital and Health Statistics served in a review capacity.

This report is divided into two parts. First, there is a chartbook on minority health consisting of 33 charts and accompanying text. Second, 134 detailed tables in this year's report are organized around four major subject areas—health status and determinants, utilization of health resources, health care resources, and health care expenditures. The detailed tables are designed to show continuing trends in health statistics. A major criterion used in selecting the detailed tables is the availability of comparable national data over a period of several years. Similar tables appear in each volume of *Health, United States,* to enhance the use of this publication as a standard reference source. Data are reported for selected years to highlight major trends.

To most effectively use *Health, United States, 1990* the reader should become familiar with the Guide to Tables and the two appendixes. The Guide to Tables indexes the data presented in the tables and enables the reader to identify tables that cross-classify specific variables. Appendix I describes each data source used in this report and provides references for further information about the sources. Appendix II defines the terms used in the report. It also contains the standard populations used for age adjustment and *International Classification of Diseases* codes for cause of death and diagnostic and procedure categories.

> This reprint of the chartbook on minority health from *Health, United States, 1990* also includes highlights for the entire 1990 report and the appendixes. The most current version of the detailed tables section is available in *Health, United States, 1991.*

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Highlights

Chartbook

- In 1988 only 58 percent of American Indian and Mexican American mothers, 61 percent of black mothers, and 63 percent of Puerto Rican and Central and South American mothers received **prenatal care** in the first trimester of pregnancy. Use of early prenatal care was much greater among Filipino, white, Chinese, Cuban, and Japanese mothers, ranging from 78 to 86 percent. Overall, the proportion of mothers with early prenatal care has remained unchanged at 76 percent between 1980 and 1988 (figure 2).

- In 1988 the percent of **low-birth-weight infants** was much higher for black and Puerto Rican mothers (13.3 and 9.4 percent) than for white mothers (5.7 percent). Chinese mothers had the lowest proportion of low-birth-weight-infants (4.6 percent). Overall, the percent of live-born infants weighing less than 2,500 grams has remained at about 7 percent since 1980 (figure 3).

- **Infant mortality** rates for black and American Indian births during 1983–85 were 2.1 and 1.5 times the rate for white births, respectively. The infant mortality rate was lowest for Japanese births, 6.0 infant deaths per 1,000 live births. Among Hispanics there was wide variation in infant mortality: from 8.0 among Cubans to 12.3 among Puerto Ricans with Mexican Americans (the largest group) having an infant mortality rate (8.8) similar to white mothers (figure 4).

- Overall, Asian persons in the United States had the lowest **death rates** in 1988. Among persons under 45 years of age, black persons and American Indians had the highest death rates with the greatest black-white and American Indian-white ratios occurring at ages 25–44 years (2.5 and 1.8, respectively). With increasing age these differences narrowed and for persons 65 years and over, black-white differences were minimal and white death rates exceeded those for American Indians (figures 6–10).

- In 1988 **death rates** at ages 15–24 and 25–44 years for the Hispanic population exceeded those for white persons by 19 and 24 percent, respectively. Among persons ages 1–14 years and 45 years and over, death rates for Hispanic persons were similar to or lower than those for white persons in 1988 (figures 6–10).

- In 1988 unintentional injuries were the **leading cause of death** for each racial group at ages 1–14 years, 15–24 years, and 25–44 years, except for black persons 15–44 years for whom homicide was the leading cause of death. In each age group under 45 years, the injury death rate was highest for American Indians. Heart disease and cancer were the two leading causes of death for each racial group at ages 45–64 years and 65 years and over. Among those 65 years and over heart disease mortality was about 60 percent lower for Asian than for white persons (figures 6–10).

- During 1986–88 almost 60 percent of all **homicide** victims were between 15 and 34 years of age. About half of white, black, and Asian victims in this age range were murdered with a handgun, and another 12–17 percent were murdered with other types of firearms. Within the American Indian population, handgun use was substantially lower (29 percent) (figure 11).

- In 1977–83 **lung cancer** incidence was 40 percent higher among black than white men, and was considerably lower among Asian than white men, and among Mexican American than non-Hispanic white men. In 1975–84 5-year survival rates for lung cancer were between 10 and 20 percent, regardless of race or ethnicity (figures 12 and 13).

- In 1977–83 **breast cancer** was the most frequently occurring cancer site among women, regardless of race or ethnicity. Breast cancer incidence was much lower among minority women than white women. During 1975–84 the 5-year survival rates for breast cancer exceeded 70 percent except for American Indian and black women for whom survival rates were 46 percent and 63 percent, respectively (figures 16 and 17).

- In 1977–83, in comparison with white men, the incidence of **prostate cancer** among black men was 71 percent higher; among Asian men the incidence was much lower than for white men; and the incidence was similar for Mexican American and lower for American Indian than for non-Hispanic white men. In 1975–84, 5-year survival rates for prostate cancer exceeded 70 percent except among American Indian and black men for whom survival rates were 54 percent and 63 percent, respectively (figures 18 and 19).

- In 1989 among non-Hispanic white and Asian males with **AIDS** nearly 4 out of 5 contracted AIDS through homosexual/bisexual contact compared with about half of Hispanic and American Indian males and 2 out of 5 non-Hispanic black males. On the other hand, 3–12 percent of the Asian, non-Hispanic white, and American Indian male cases resulted from intravenous (IV) drug use compared with 32–36 percent of the Hispanic and non-Hispanic black cases (figure 21).

- In 1989 among non-Hispanic black and Hispanic females, 77–81 percent of **AIDS** cases resulted from either IV drug use or from heterosexual contact with an IV drug user compared with 57 percent of cases among non-Hispanic white females. In all, heterosexual contact accounted for 31–37 percent of female AIDS cases (figure 22).

- The prevalence of **diabetes** for those 45–74 years of age was twice as high for Mexican Americans and Puerto Ricans (24 and 26 percent in 1982–84) and 60 percent higher for non-Hispanic black persons (19 percent in 1976–80) as for

non-Hispanic white persons (12 percent in 1976–80) (figure 23).

■ The age-adjusted prevalence of **overweight** among non-Hispanic black women (44 percent in 1976–80) and among Mexican and Puerto Rican women (40–42 percent in 1982–84) was much higher than among non-Hispanic white women (24 percent in 1976–80) (figure 24).

■ The age-adjusted prevalence of **hypertension** was about 40 percent lower among Cuban and Puerto Rican men in 1982–84 than among non-Hispanic white men in 1976–80. Also in 1976–80 the prevalence of hypertension was 23 percent higher among non-Hispanic black than non-Hispanic white men. Similarly, Hispanic women had a lower prevalence of hypertension than non-Hispanic white women, while the prevalence among non-Hispanic black women was 1.7 times that for non-Hispanic white women (figure 25).

■ The age-adjusted prevalence of **high serum cholesterol** was lower among Hispanic men (16–19 percent) and Hispanic women (17–23 percent) in 1982–84 than among non-Hispanic black or white men (24–25 percent) or women (25–28 percent) in 1976–80 (figure 26).

■ Emergency room episodes for **cocaine** abuse increased dramatically between 1985 and 1988 among black, Hispanic, and white persons. However, data for 1989 show no change in the number of episodes for black persons and modest decreases among Hispanic and white persons (figure 28 and table 58).

■ In 1985–88 among persons 45–64 years of age, Asian, Cuban, and non-Hispanic white adults were less likely than non-Hispanic black, American Indian, Mexican American, and Puerto Rican adults to be in **fair or poor health** (12–18 percent compared with 25–33 percent). Even among those with 12 or more years of education, the percent in fair or poor health was twice as great among American Indian and non-Hispanic black persons compared with Asian and non-Hispanic white persons (figure 29).

■ In the mid-1980's the age-adjusted percent of persons under 65 years of age with no **health insurance** was 35 percent for Mexican Americans and 21–23 percent for Puerto Ricans, non-Hispanic black persons, and Cubans compared with 12–16 percent for non-Hispanic white and Asian persons (figure 31).

Detailed Tables

Health Status and Determinants

■ In 1988 the **fertility rate** was 67.2 live births per 1,000 women 15–44 years of age, up 2 percent from the 1987 rate. Provisional data for 1989 show another 2 percent rise. After a slow decline from 1975 to 1986, the birth rate for teenagers 15–17 years increased by 10 percent between 1986 and 1988. The birth rate for women 30–39 years has increased steadily since 1980, while the birth rate for women 40–44 has increased since 1985 (tables 2 and 3).

■ In 1988, 26 percent of live births were to **unmarried mothers,** up from 11 percent in 1970. The percent of live births to unmarried mothers has been increasing for all racial and ethnic groups except for Chinese mothers with only 3–4 percent unmarried over this period. In 1988 the highest percents of live births to unmarried mothers were for black (64 percent), American Indian (46 percent), Puerto Rican (53 percent), Central and South American (36 percent), and Mexican American births (31 percent) (tables 6 and 7).

■ In 1988 overall **life expectancy at birth** was 74.9 years, slightly down from the 1987 high of 75.0 years. Life expectancy for black males declined from 65.2 to 64.9 years and life expectancy for black females declined from 73.6 to 73.4 years. Since 1984 the difference in life expectancy between the white and black populations has increased from 6.2 to 7.4 years for males and from 5.0 to 5.5 years for females. Provisional data

show that overall life expectancy increased slightly from 1988 to 1989 (table 15).

■ In 1988 the **infant mortality rate** was 10.0 deaths per 1,000 live births. Between 1987 and 1988, the infant mortality rate declined by 1.2 percent for white infants to 8.5 deaths per 1,000 live births, while declining by 1.7 percent for black infants to 17.6 deaths per 1,000 live births (table 16).

■ In 1987 the United States ranked 24th among **industrial countries** on infant mortality with a rate twice as great as in Japan. The perinatal mortality ratio and feto-infant mortality rate are alternative measures of pregnancy outcome that help reduce international variation due to differences among countries in clinical distinctions between fetal and infant deaths. The United States ranked 20th on the perinatal mortality ratio, with a ratio about 45 percent greater than for Japan, and 18th on the feto-infant mortality rate, with a rate about 50 percent higher than for Japan (table 21).

■ Between 1987 and 1988, the age-adjusted death rate for **human immunodeficiency virus (HIV)** infection, the 15th leading cause of death, increased by 20 percent. The age-adjusted death rate for **pneumonia and influenza,** the 6th leading cause, increased by 8 percent, reflecting a major outbreak of influenza in 1988 (table 24).

■ Years of potential life lost per 1,000 population under 65 years of age, a measure of premature mortality increased substantially for **HIV** infection between 1987 and 1988. Increases in premature mortality due to HIV infection were somewhat greater for black males (24 percent), black females (27 percent), and white females (25 percent) than for white males (19 percent). In 1988 premature mortality due to HIV infection was nearly three times as great among black males as white males and was nine times as great among black females as white females (table 26).

■ The age-adjusted death rate for **heart disease,** the leading cause of death, declined by 34 percent from 1970 to 1988. During this period heart disease mortality declined by 37 percent for white males, 32 percent for white females, 28 percent for black females, and 24 percent for black males. In 1988, the heart disease death rate remained essentially unchanged for black persons while continuing to decline for white persons (table 27).

■ The age-adjusted death rate for **stroke,** the third leading cause of death, declined by 55 percent from 1970 to 1988. The average annual rate of decline has been less rapid during 1985–88 (2.8 percent per year) than during 1970–85 (5.2 percent). In 1988 the age-adjusted death rate for stroke increased by 1.2 percent for black men, remained stable for black women, and declined by 1 and 3 percent, respectively, for white men and women (table 28).

■ The age-adjusted death rate for **lung cancer,** the leading cause of cancer deaths among women, increased by 36 percent for white women and 26 percent for black women between 1980 and 1988. Among men the age-adjusted death rate for lung cancer has remained fairly stable over this period (table 30).

■ In 1988 the age-adjusted **homicide** rate increased 8 percent for black males and 3 percent for black females while remaining stable for white persons. Among black persons increases were especially large for males 15–24 years of age (19 percent) and for males and females 25–34 years (10 and 14 percent, respectively). In 1988 the homicide rate for black males 15–34 years was more than eight times the rate for white males of the same age (table 34).

Utilization of Health Resources

■ Between 1984 and 1989 the age-adjusted percent of **ambulatory physician contacts** that occur in doctors' offices increased slightly from 56 to 60 percent. In both years

persons with higher incomes were more likely than those with lower incomes to use doctors' offices for their care (63 compared with 49 percent in 1989). Persons with lower incomes were more likely than those with higher incomes to use hospital outpatient services (18 compared with 11 percent in 1989) (table 67).

■ In 1989 the age-adjusted **discharge rate** for non-Federal short-stay hospitals varied among the geographic regions, with the highest level found in the Northeast (125 per 1,000 population) and the lowest in the West (98 per 1,000 population). The age-adjusted **average length of stay** in the Northeast (7.3 days) was more than a full day longer than in the other regions (6.2 days in the Midwest, 6.1 days in the South, and 5.5 days in the West) (table 73).

■ Between 1988 and 1989 the number of discharges from non-Federal short-stay hospitals with a diagnosis of **AIDS** increased 35 percent to 96,000 discharges. Men 20–49 years of age accounted for 74,000 (77 percent) of all AIDS discharges in 1989. A total of 1.3 million days of care were provided to AIDS patients in 1989. The average length of stay for AIDS patients was twice that for all discharges (13.6 days compared with 6.5 days in 1989) (table 74).

■ In 1989 there were 30.9 million discharges from non-Federal short-stay hospitals. Among men, the most common first-listed **diagnoses** were diseases of the heart (1.9 million), malignant neoplasms (770 thousand), and pneumonia (544 thousand). For women, the most common first-listed diagnoses were delivery (3.9 million), diseases of the heart (1.6 million), and malignant neoplasms (838 thousand) (table 76).

■ In 1989 the leading diagnostic and nonsurgical **inpatient procedures** performed for men in non-Federal short-stay hospitals were angiocardiography (767 thousand), followed by CAT scans (721 thousand), and diagnostic ultrasound (628 thousand). Among women, the same three procedures were in the

top three but the ranking differed. Diagnostic ultrasound was most common (930 thousand), followed by CAT scans (798 thousand), and angiocardiography (432 thousand) (table 78).

■ Between 1980 and 1988 the percent of surgery performed on an outpatient basis in short-stay hospitals almost tripled from 16 to 47 percent. The proportion of **outpatient surgery** was inversely related to hospital size, ranging from 40 percent for hospitals with 500 beds or more to 53 percent for hospitals with fewer than 100 beds in 1988 (table 79).

■ Between 1983 and 1988 the admission rate to **mental health** organizations for inpatient and residential treatment increased 17 percent to 820 per 100,000 population. The trend differed according to type of organization with admission rates for private psychiatric hospitals more than doubling, while admission rates for State and county mental hospitals declined by 15 percent, and those for non-Federal general hospital psychiatric services increased by 7 percent (table 82).

Health Care Resources

■ Between 1985 and 1989 the number of civilians employed in the health services industry increased at an average annual rate of 3.6 percent to 9.1 million workers. In 1989 half of all **health services industry workers** were employed in hospitals, 17 percent in nursing and personal care facilities, and 11 percent in physicians' offices (table 86).

■ During the 1980's the mix of **nurses** employed in community hospitals changed. Between 1981 and 1988 the number of full-time equivalent (FTE) registered nurses in community hospitals grew at an average annual rate of 3 percent, while licensed practical nurses had an average annual decline of 5 percent through 1987 and then stabilized in 1988 (table 91).

■ Between 1980 and 1989 **first-year enrollment** in medical schools remained stable while dental school

enrollment declined by 32 percent. The number of first-year registered nursing students increased by 17 percent between 1980 and 1984, declined by 27 percent between 1984 and 1987, and finally increased by 4 percent between 1987 and 1988 (table 93).

■ Between 1980 and 1988 the number of **hospitals with fewer than 100 beds** fell 9 percent, compared with a 5 percent decline for all short-stay hospitals. Throughout the 1980's occupancy rates have been lower in smaller hospitals than larger hospitals and the gap has widened. In 1988 occupancy rates ranged from 48 percent for hospitals with fewer than 100 beds to 76 percent for hospitals with 500 beds or more (table 96).

■ Between 1980 and 1988 the number of **long-term psychiatric beds** fell 34 percent to 143,853. During the 1980's, proprietary psychiatric beds grew by 70 percent while State-local and Federal psychiatric beds declined by 38–41 percent. In 1988 State-local psychiatric beds comprised 80 percent of all long-term psychiatric beds, compared with 85 percent of all long-term psychiatric beds in 1980 (table 97).

■ In both 1980 and 1988 the largest number of **community hospital beds** per 1,000 population were in the States of North Dakota, Nebraska, and Montana. In 1988 these States had 7.0, 5.8, and 5.6 beds per 1,000 population, respectively, compared with a national average of 3.9 beds per 1,000. In 1988 South Dakota also had 5.6 beds per 1,000 population (table 99).

Health Care Expenditures

■ In 1988 **national health care** expenditures in the United States totaled $540 billion, an average of $2,124 per person. Between 1980 and 1988 expenditures increased at a higher annual rate for physician services than for hospital care. In 1988 hospital care accounted for 39 percent of national health expenditures, physician services for 19 percent, nursing home care for

8 percent, drugs and other medical nondurables for 8 percent, and dentist services for 5 percent of health expenditures (tables 103 and 105).

■ In 1988 rising prices continued to explain the largest portion (68 percent) of the growth in **personal health care** expenditures. Ten percent of the growth was attributed to population increase and 23 percent to changes in the use and kinds of services and supplies (table 106).

■ In 1989 the rate of increase in the medical care component of the **Consumer Price Index** (CPI) was 7.7 percent, compared with an overall inflation rate of 4.8 percent. Since 1980 the medical care component of the CPI has grown at an average annual rate of 7.9 percent compared with 4.6 percent for the overall CPI. The hospital component of the CPI increased by 11.5 percent in 1989, physicians' services by 7.4 percent, and prescription drugs by 8.7 percent (tables 107 and 108).

■ In 1988 non-Federal short-stay **hospital expenses** per inpatient day increased 8 percent to $581, and expenses per inpatient stay increased 9 percent to $4,194. Expenses in proprietary hospitals have been growing faster than for other types of hospitals. In 1988 expenses per inpatient day and per inpatient stay in proprietary hospitals increased 11 percent to $649 and $4,023, respectively (table 110).

■ Since 1965 the share of **health care expenditures** paid by households, private business, and the government has changed markedly. Expenditures paid by private business increased from 17 to 29 percent of the total between 1965 and 1988. Expenditures paid by households declined from 61 to 37 percent over the same period. Public payments (excluding Medicare premiums) rose from 21 to 31 percent of the total, with the federal share nearly doubling to 17 percent by 1988. Between 1987 and 1988 the private employer share of health insurance premiums increased by 9 percent, while the

employee share increased by 16 percent (table 113).

■ In 1988 the major **sources of funds** for hospital care were the government (54 percent) and private health insurance (35 percent). Medicare provided half of government funds for hospital care. Physician services were primarily funded by private health insurance (48 percent) and the government (33 percent), with Medicare providing the largest share of government funds. Almost half of nursing home care was financed by out-of-pocket payments and almost half by the government, primarily the Medicaid program (table 114).

■ Expenditures for **HIV-related activities** by the Federal Government increased from $6 million in 1982 to $2.3 billion in 1989. The National Institutes of Health accounted for 26 percent of these expenditures in 1989, the Health Care Financing Administration for 24 percent, and the Centers for Disease Control for 17 percent. Of the total in 1989, 43 percent was for research, 34 percent for medical care, 17 percent for education and prevention, and 7 percent for cash assistance (disability insurance and Supplemental Security Income) (table 119).

■ In 1988 total **public health expenditures** by State and territorial health agencies increased by 5 percent, while expenditures for the supplemental food program for women, infants, and children (WIC) increased by only 2 percent. Growth in the WIC program has slowed from average annual increases of 18 percent from 1980 to 1984 and 9 percent from 1984 to 1987 (table 120).

■ Between 1980 and 1989 the age-adjusted percent of persons under age 65 with no **health care coverage** increased from 13 to 16 percent. In 1989 the percent with no health care coverage increased steadily with decreasing income. Residents of the South and West were nearly twice as likely as those in the Northeast and Midwest to have no coverage. Nonmetropolitan

residents were somewhat more likely to lack health care coverage than metro residents (18 compared with 15 percent) (table 124).

■ Between 1980 and 1989 the age-adjusted percent of persons age 65 years and over with both Medicare and private **health insurance** rose from 64 to 74 percent; those with Medicare only declined from 23 to 17 percent (table 125).

■ In 1989 **Medicare** expenditures totaled $61 billion under Hospital Insurance (HI) and $40 billion under Supplementary Medical Insurance (SMI). Average annual increases in HI expenditures had slowed from 16 percent between 1967 and 1985 to 3 percent between 1985 and 1988. However, HI expenditures increased by 14 percent in 1989, probably due in part to the Medicare Catastrophic Coverage Act of 1988 (table 127).

■ The proportion of **Medicare** enrollees age 85 years and over increased from 7 to 10 percent between 1967 and 1988. In 1988 payments per enrollee averaged $3,378 for those 85 years and over, compared with $1,618 for those 65–66 years of age (table 128).

■ In 1989 children in families receiving Aid to Families with Dependent Children (AFDC) comprised 44 percent of **Medicaid** recipients but accounted for only 13 percent of expenditures. The aged, blind, and disabled accounted for less than 30 percent of recipients and 72 percent of expenditures. Payments per recipient ranged from $668 for children in AFDC families to more than $5,800 per recipient among the aged, blind, and disabled (table 130).

Chartbook
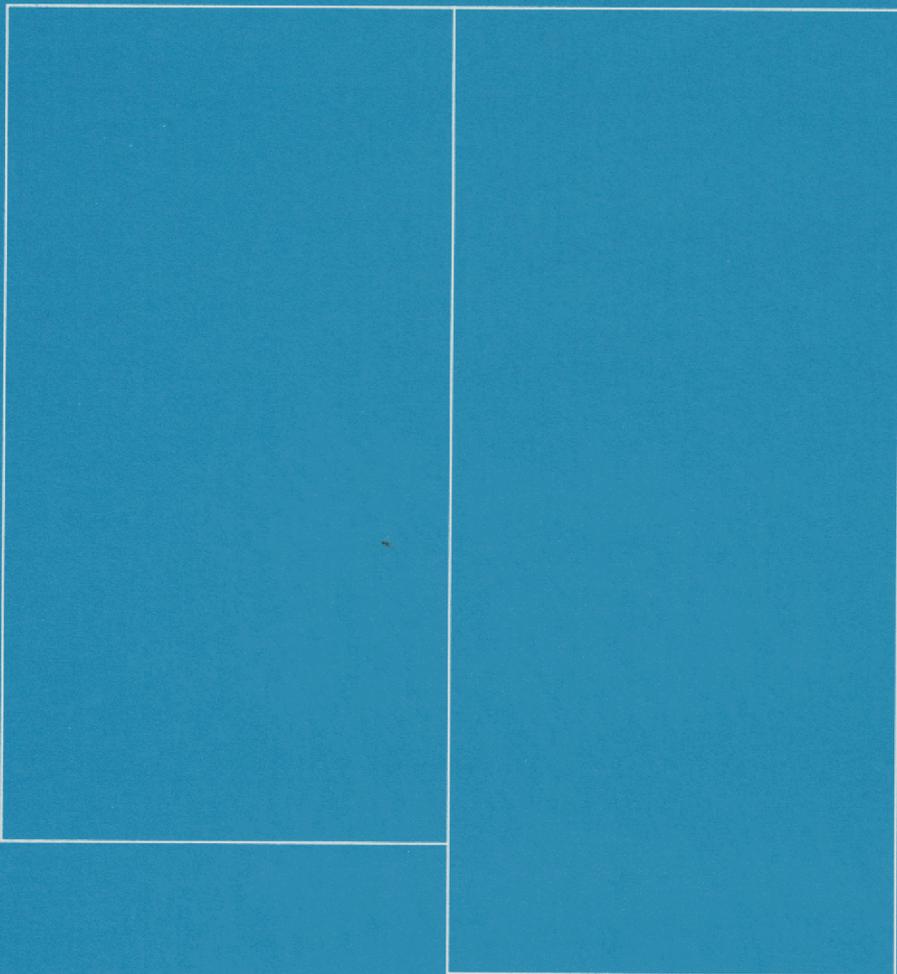
Introduction

Improving the health of all Americans is a major goal for this Nation. However, regardless of whether the focus is on mortality, morbidity, or the utilization of health services, disparities in the health status of Americans remain widespread. The rapid improvements in medical science and in the systems designed to provide essential health care services have not benefited all racial and ethnic groups equally. In *Healthy People 2000, National Health Promotion and Disease Prevention Objectives* (hereafter referred to as *Healthy People 2000),* substantial numbers of objectives are targeted to minority racial and ethnic groups who continue to bear the disparate burden of poor health in this country (1).

Studies of minority health in the United States have primarily focused on the black population. This chartbook expands that focus by comparing selected health indicators among several minority groups with particular emphasis on the following groups: Asian and Pacific Islanders, American Indians and Alaskan Natives, black Americans, and persons whose ethnic origin is Hispanic, including Mexican Americans, Cubans, and Puerto Ricans.

Throughout the chartbook, the term ethnicity refers to whether a person is of Hispanic origin. References to white and black persons include persons of Hispanic origin while references to non-Hispanic white or non-Hispanic black persons exclude those of Hispanic origin. In most cases, the presentation of data by race (e.g., white), by race and ethnicity (e.g., non-Hispanic white), or by detailed Hispanic origin (e.g., Mexican American, Puerto Rican, or Cuban) was dependent upon how the data were originally collected and tabulated. Further, Asian and Pacific Islander is used synonymously with Asian and includes, unless specified otherwise, Japanese, Chinese, Filipino, Hawaiian, and others of Asian or Pacific Island descent. American Indian and Alaskan Native is used interchangeably with American Indian unless specified otherwise.

Topics for inclusion in the chartbook were generally chosen with these criteria in mind: (a) coverage in *Healthy People 2000* (1); (b) relevance to minority populations; and (c) availability of data for minority populations in addition to black. While reference is made to *Healthy People 2000* throughout the chartbook, the report will not be cited each time it is referenced.

Figure 1 charts the growth of minority populations during the 1980's. Figures 2–4 present data on prenatal care, low birth weight, and infant mortality. Trends in life expectancy at birth, although available only for white and black persons, are presented in figure 5 because of the recent slowdown in improvement for the black population. Death rates for selected causes of death are shown in figures 6–10. The types of weapons used in homicides are examined in figure 11. Incidence and survival rates for cancers of the lung and bronchus, colon and rectum, breast, and prostate gland are presented in figures 12–19. Trends in and modes of transmission of AIDS cases are presented in figures 20–22. The prevalence of diabetes, overweight, hypertension, high serum cholesterol, and cigarette smoking are shown in figures 23–27. Figure 28 displays trends in emergency room visits for cocaine use. Respondent-assessed health status, physician utilization rates, and health insurance coverage are presented in figures 29–32. Finally, trends in minority student enrollment in medical schools are shown in figure 33.

The Technical Notes section that follows the charts contains detailed information on data sources and methods. A table providing the data for each chart is also included. As described in the Technical Notes, the chartbook data are not necessarily national-level data. Thus, data for Hispanic populations are based on selected States; the cancer incidence and survival rates are from selected cancer registries; and the data showing emergency room visits for cocaine abuse are from participating emergency rooms in selected metropolitan areas.

Reference

1. U.S. Department of Health and Human Services. 1990. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives.* Public Health Service. Washington: U.S. Government Printing Office.

Demographic and Socioeconomic Background

Most minority populations in the United States have been increasing at a far greater pace than the white population. Since 1980, the Asian population has increased by 70 percent to 6.5 million in 1988 (figure 1). The Hispanic population has increased 34 percent to 19.8 million, while the American Indian population has grown by 19 percent to 1.7 million. The black population in the United States, the largest minority group, has increased 13 percent to 30.2 million persons in 1988. During this same period, the white population has increased by 6 percent, reaching 207.4 million persons in 1988 (1).

In 1988, the racial composition of the population of the United States was 12 percent black persons, 3 percent Asian and Pacific Islander, 1 percent American Indian and Alaskan Native, 84 percent white, and 8 percent who were of Hispanic origin (of any race) (1).

Growth of the Hispanic population has resulted equally from immigration and natural increase. Close to 40 percent of all immigration during the 1980's has been from Latin America. From 1980 to 1988 the Hispanic population increased from 6.5 to 8.1 percent of the total population (1).

The rapid growth of the Asian population is attributed largely to immigration. Since 1980, 45–50 percent of the nearly 600,000 annual legal alien immigrants have been from Asia (1).

Racial and ethnic variation in socioeconomic status is large. Poverty rates are one measure of economic differences among population groups. In 1988, 32 percent of black persons and 27 percent of those of Hispanic origin had incomes below the poverty level compared with 10 percent of white persons (2). These percentages

Figure 1. Resident minority populations, according to race/ethnicity: United States, 1980–88
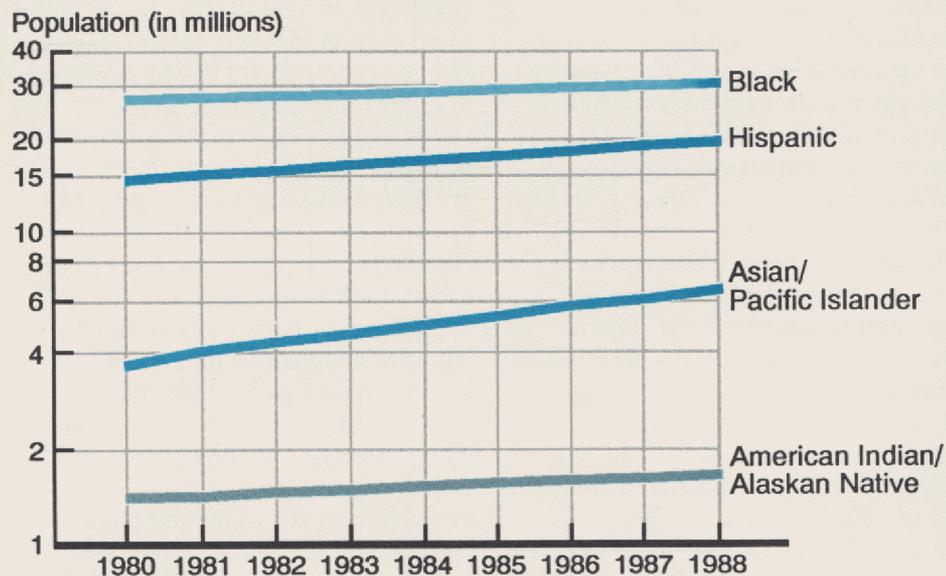
SOURCE: U.S. Bureau of the Census, Current Population Surveys (1).

have remained largely unchanged over the past decade. In 1979, 28 percent of American Indians had incomes that were below the poverty level, as did 13 percent of Asian persons (3). (The most recent year for Asian and American Indian data is 1979.)

Differences in poverty rates among children and families are even greater. In 1988, 44 percent of black children and 38 percent of Hispanic children under 18 years of age compared with 14 percent of white children were below poverty. Further, 52 percent of all black families and 26 percent of Hispanic families had female householders with no husband present and with children under 18 years present compared with 16 percent of white families. The poverty rate for these groups was 56 percent among black families, 59 percent among Hispanic families, and 38 percent among white families (2).

References

1. U.S. Bureau of the Census. 1990. *United States Population Estimates, by Age, Sex, Race, and Hispanic Origin: 1980 to 1988.* Series P–25, No. 1045. Washington: U.S. Government Printing Office.

2. U.S. Bureau of the Census. 1989. *Money Income and Poverty Status in the United States: 1988.* Series P–60, No. 166. Washington: U.S. Government Printing Office.

3. U.S. Bureau of the Census. 1980. *General Social and Economic Characteristics, U.S. Summary.* PC80–1–C1. Washington: U.S. Government Printing Office.

Prenatal Care

The importance of beginning prenatal care early in pregnancy, especially for women known to be at increased medical or social risk of adverse outcomes, has been well documented (1).

■ The objectives in *Healthy People 2000* include increasing to at least 90 percent the proportion of all pregnant women who receive prenatal care in the first trimester of pregnancy. There are wide variations in the percent receiving early prenatal care among mothers of different racial and ethnic groups, and these variations have remained stable over the past decade.

■ In 1988, only 58 percent of American Indian and of Mexican American mothers received early prenatal care (figure 2). Similarly, only 61 percent of black mothers, and 63 percent of Puerto Rican and Central and South American mothers received early care. (Proportions are based on race of mother rather than race of child. See Technical Notes.)

■ The proportions of mothers with early prenatal care were much higher among Japanese mothers (86 percent), followed by mothers who were Cuban (83 percent), Chinese (82 percent), white (79 percent), and Filipino (78 percent).

Reference

1. Institute of Medicine. 1985. *Preventing Low Birthweight.* National Academy Press. Washington. U.S. Government Printing Office.

Figure 2. Early prenatal care, according to race/ethnicity of mother: United States, 1988
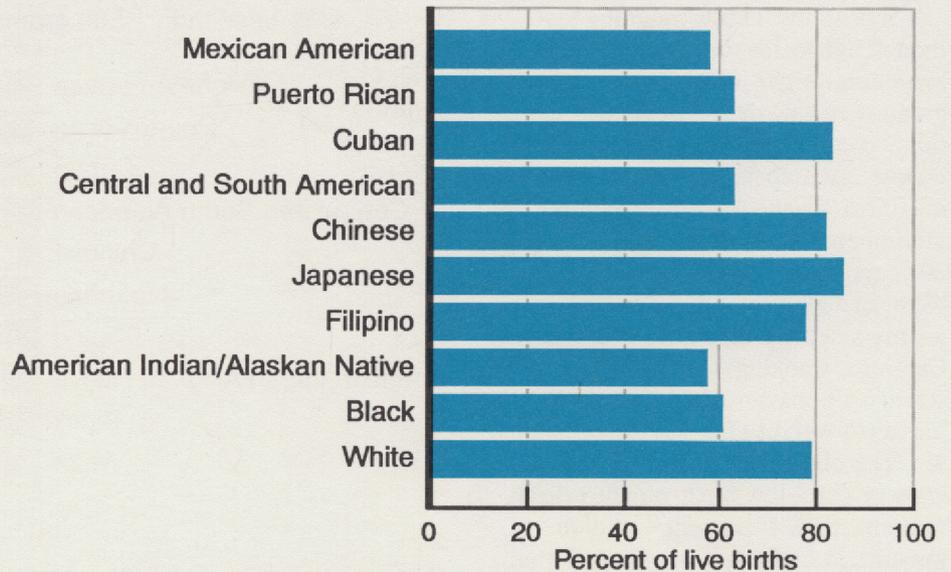
NOTE: Early prenatal care is defined as care beginning in the first trimester of pregnancy. Data on Hispanic origin of mother are from 30 States and the District of Columbia.

SOURCE: National Center for Health Statistics, National Vital Statistics System.

Low Birth Weight

Infants born weighing less than 2,500 grams at birth are known to be at increased risk of infant mortality and morbidity. Those weighing less than 1,500 grams, the very low-birth-weight infants, are at greatest risk of death. Several socioeconomic and demographic factors are associated with the risk of low birth weight: lower educational attainment, unmarried status, being 30 years of age or older having a first birth, or being a teenage mother having a second or higher order birth. Cigarette smoking is one of the strongest behavioral risk factors for low birth weight (1).

■ The objectives in *Healthy People 2000* target a low-birth-weight rate of no more than 5 percent and a very low-birth-weight rate of no more than 1 percent of all live births. Special targets of no more than 9 percent low birth weight and 2 percent very low birth weight were set for births to black mothers.

■ During the 1970's the incidence of low birth weight declined about 1 percent annually among each of the racial and ethnic groups. In contrast, the 1980's has been a decade of little or no change in the percent of infants born at low birth weight.

■ In 1988, black mothers had the highest percent of low-birth-weight births, 13.3 percent, more than twice the rate for white mothers (figure 3). Puerto Rican mothers ranked second highest, with 9.4 percent of infants weighing less than 2,500 grams. (Proportions are based on race of mother rather than race of child. See Technical Notes.)

■ Chinese mothers had the lowest proportion of births that were low birth weight, 4.6 percent. Among white mothers, 5.7 percent of births were low birth weight. Similar rates were observed for Mexican American, Central and South American, Cuban, and American Indian mothers (5.6 percent to 6.0 percent).

Figure 3. Low birth weight, according to race/ethnicity of mother: United States, 1988
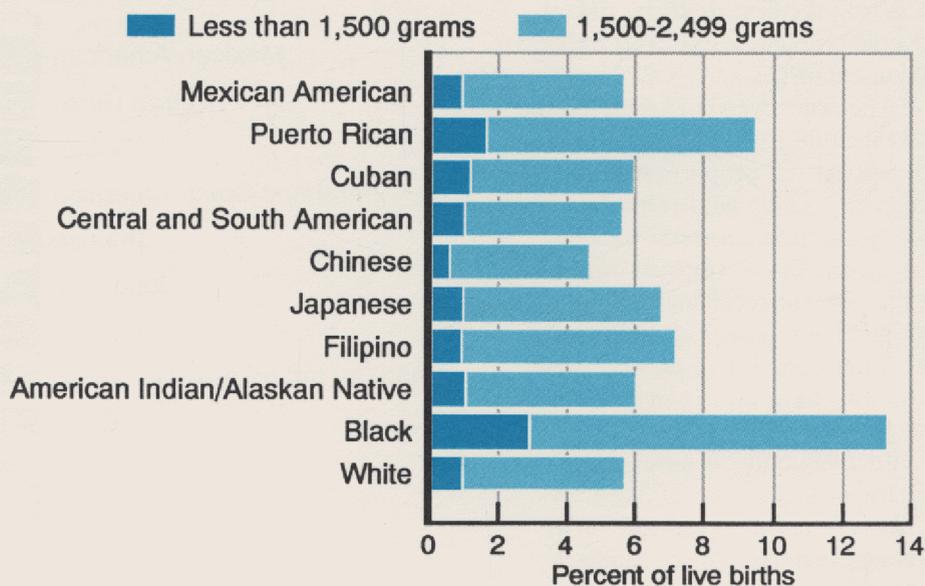
NOTE: Data on Hispanic origin of mother are from 30 States and the District of Columbia.
SOURCE: National Center for Health Statistics, National Vital Statistics System.

■ Chinese mothers also had the lowest incidence of very low birth weight, 0.6 percent, one-third lower than the rate for white mothers (0.9 percent). Black mothers had three times and Puerto Ricans 1.8 times the incidence of very low birth weight compared with white mothers.

Reference
1. Kleinman, J.C., and S.S. Kessel. 1987. Racial differences in low birth weight. *N. Engl. J. Med.* 317:749–53.

Infant Mortality

One of the major concerns related to infant mortality has been the high rate among black infants. Less attention has been paid to the variation in infant mortality among other minority groups (1). Newly available data from linked birth and death records for the birth cohorts of 1983–85 (most recent years available) make it possible to obtain reliable national figures on infant mortality for these minority groups, not previously available on an annual basis (see Technical Notes).

■ The objectives in *Healthy People 2000* include reducing infant mortality to no more than 7 infant deaths, 4.5 neonatal deaths and 2.5 postneonatal deaths per 1,000 live births. In 1983–85, the infant mortality rate among the Japanese was below the target level.

■ The infant mortality rate was lowest among the Japanese, 6.0 infant deaths per 1,000 live births during 1983–85 (figure 4). The rate for white mothers was 9.0. Among Hispanics, there was wide variation in infant mortality: from 8.0 among Cubans to 12.3 among Puerto Ricans with Mexican Americans (the largest group) having about the same rate (8.8) as white mothers. The American Indian rate (13.9) and the black rate (18.7) were 1.5 and 2.1 times the rate for white mothers, respectively.

■ The high infant mortality for American Indians was mainly a result of excess postneonatal mortality. The postneonatal mortality rate for American Indians was 2.3 times the white rate, 7.2 compared with 3.1. Neonatal mortality for American Indians (6.7) was only 14 percent higher than among white mothers.

■ The high infant mortality rate for Puerto Rican mothers, on the other hand, was a result of excess neonatal and postneonatal mortality, 41 percent and 29 percent higher, respectively, than the rates for white mothers. Similarly, neonatal and postneonatal mortality among black mothers were twice the rates for white mothers.

■ The low Japanese infant mortality rate was a function of both low neonatal (3.4) and postneonatal (2.6) mortality. Only Cuban mothers had a postneonatal rate that was lower (2.2), 29 percent below the rate for white mothers.

■ The low infant mortality rate among Mexican American mothers and the low neonatal mortality among American Indians are noteworthy in that both groups have relatively high maternal risk profiles compared with white mothers (higher parity, higher proportion of births to unmarried mothers, lower educational attainment, and later entry into prenatal care).

Figure 4. Infant mortality rates, according to race/ethnicity of mother: United States, 1983–85 birth cohorts
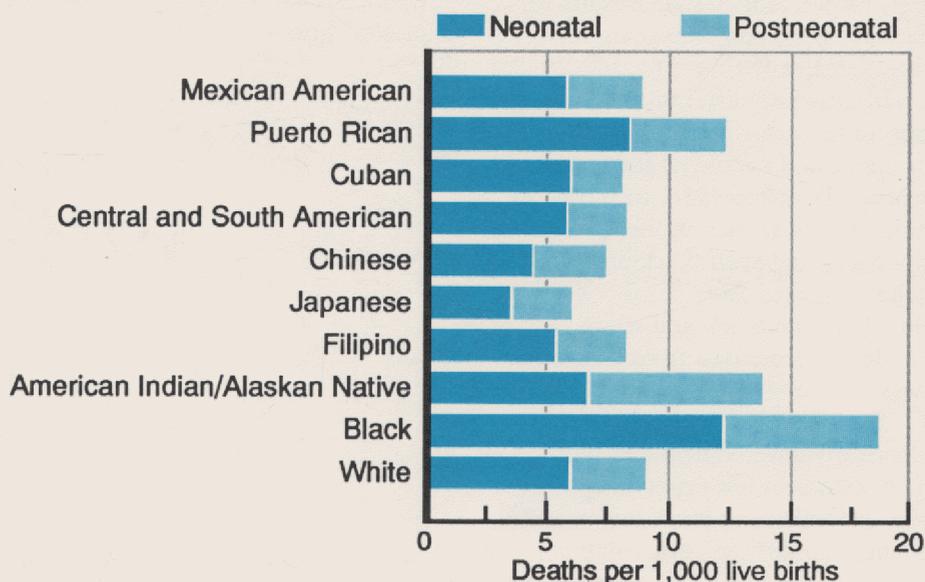
NOTE: Data on Hispanic origin of mother are from 23 States and the District of Columbia.
SOURCE: National Center for Health Statistics, National Vital Statistics System.

Reference

1. Kleinman, J.C. 1990. Infant mortality among minority groups. CDC Surveillance Summaries. *MMWR* 39(No. SS-3):31–40.

Life Expectancy

■ In 1988, life expectancy at birth was 64.9 years for black males; 72.3 years for white males; 73.4 years for black females; and 78.9 years for white females (figure 5).

■ Black-white differences in life expectancy at birth increased slightly for males and narrowed for females between 1960 and 1988. In those 28 years, the difference in life expectancy between black and white males increased from 6.7 to 7.4 years, while between black and white females, it decreased from 8.2 to 5.5 years.

■ The causes of death that historically have contributed most to the disparity in life expectancy between white and black males and females are the cardiovascular diseases, homicide, malignant neoplasms, and infant mortality. Those causes accounted for about 60 percent of the black-white differential for males and for females in life expectancy at birth (1).

■ Throughout most of the 1970's life expectancy improved for each of the four race-sex groups. From 1979 to 1980, however, life expectancy declined (albeit by only 0.1–0.4 years of age) in each group; this decline being attributed to the influenza epidemic in 1980.

■ Since 1981, life expectancy at birth for white males has risen steadily. For black males life expectancy increased during the early 1980's, then declined for two consecutive years from 65.6 years of age in 1984 to 65.2 years of age in 1986 and declined again from 1987 to 1988 to 64.9 years. Recent increases in age-specific death rates for black males under 45 years of age, particularly due to rising death rates for human immunodeficiency virus (HIV) infection and homicide, have contributed to the lack of improvement in life expectancy.

■ Life expectancy for black females was relatively unchanged during

Figure 5. Life expectancy at birth, according to race and sex: United States, 1960 and 1970–88
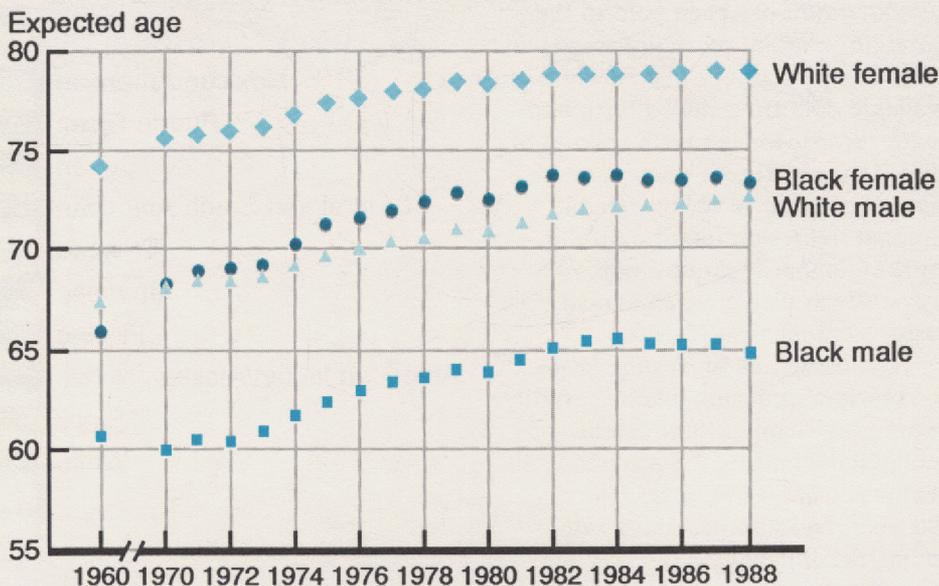
SOURCE: National Center for Health Statistics, National Vital Statistics System.

1982–87 and declined slightly in 1988. Among white females, life expectancy rose only slightly during the 1980's having held unchanged at 78.7 years for the years 1982 through 1985.

Reference

1. Keith, V.M., and D.P. Smith. 1988. The cultural differential in black and white life expectancy. *Demography* 25:625–632 (modified with author's permission).

Death Rates

In the following five charts, death rates for minority populations are based on population estimates for 1988 prepared by the Office of Analysis and Epidemiology, National Center for Health Statistics (NCHS). Thus, the death rates for Asians, American Indians, and for Hispanic persons should be considered interim and subject to change. Death rates for Hispanic persons are based on data from 26 States and therefore are not national estimates, (see Technical Notes).

Specific causes of death were selected for their impact on minority populations, their magnitude, and their racial and ethnic variation. As a cause of death, "unintentional injuries," "injuries," and "accidents and adverse effects" are used synonymously. See Appendix II, table V for cause of death codes.

Overall, Asian persons in the United States have the lowest death rates across each age group and for nearly all of the causes of death compared. Among those under 45 years of age, black persons and American Indians have the highest death rates, with the greatest black-white and American Indian-white differences occurring at ages 25–44 years. With increasing age, these relative differences narrow and by age 65 years and older, the black-white ratio is minimal and white death rates exceed those for American Indians. In the Hispanic population at ages 15–44 years, death rates exceed white death rates, although not by as much as the black and American Indian rates. Both the younger and older Hispanic populations have similar or lower death rates than white persons.

Children 1–14 Years of Age

■ In 1988, death rates for black and American Indian children were much higher (49 and 44 per 100,000) than for Asian, Hispanic, and white children (24, 30, and 30 per 100,000, respectively) (figure 6).

Figure 6. Death rates for selected causes for persons 1–14 years of age, according to race/ethnicity: United States, 1988
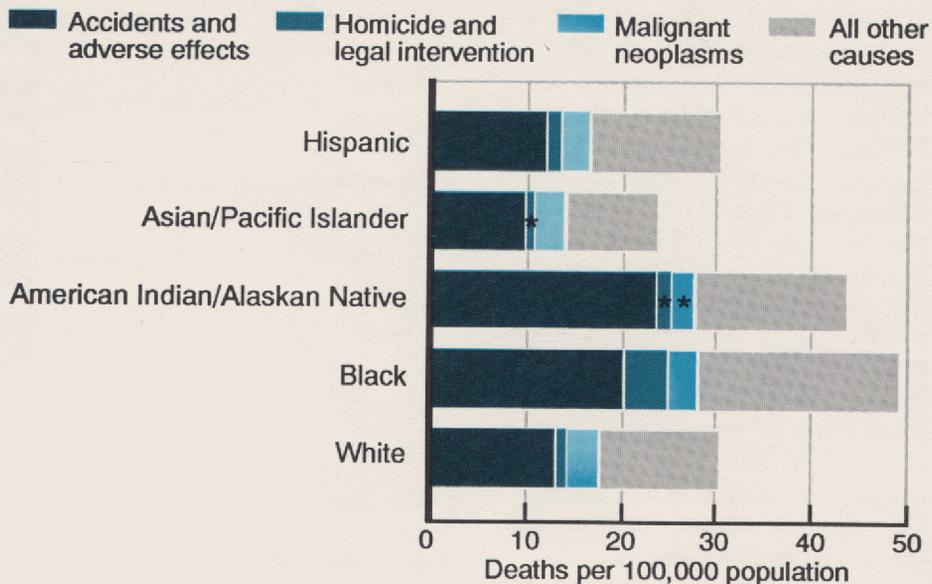
NOTE: Data on Hispanic origin are from 26 States and the District of Columbia.

SOURCE: National Center for Health Statistics, National Vital Statistics System, and U.S. Bureau of the Census, Current Population Surveys.

■ Unintentional injuries were the leading cause of death for each group of children, accounting for about 40 percent of the deaths among black, Asian, Hispanic, and white children and for about 55 percent of deaths among American Indian children. The injury death rates were highest among American Indian and black children (24 and 20 per 100,000, respectively), about 85 and 55 percent higher, respectively, than for white children (13 per 100,000). The injury death rates for Asian children were about 25 percent lower than the rate for white children, while the rates for Hispanic and white children were similar. Half of the injury deaths among white, Asian, American Indian, and Hispanic children resulted from motor vehicle injuries compared with about 40 percent of the injury deaths among black children. Fires and drowning were the leading causes of nonmotor vehicle injury deaths among black children.

■ In 1988, homicide was the second leading cause of death among black children, with a death rate 3–4 times the rate for any other group. Malignant neoplasms ranked second for all others, with minimal racial variation.

Young Persons 15–24 Years of Age

■ Death rates were much higher for American Indians and black persons 15–24 years of age (162 and 145 per 100,000) than for others in 1988 (figure 7). The lowest rate (57 per 100,000) was among Asian youth, while mortality among white and Hispanic youth fell midway (95 and 113 per 100,000).

■ Unintentional injuries were the leading cause of death for all except black youth (for whom it was the second leading cause). The injury death rate for American Indians (89 per 100,000) was two to three times the injury rates for any other group. The lowest injury rate was for Asian

youth (29 per 100,000). Between 74 and 79 percent of injury deaths in this age group were motor vehicle fatalities, except among black youth where they accounted for 66 percent.

■ Homicide was the leading cause of death among black youth. The black homicide rate (59 per 100,000) was more than seven times the homicide rate for white youth (8 per 100,000). The homicide rates for American Indian and Hispanic youth were about three to four times the rate for white youth. The homicide rate for Asian youth (7 per 100,000) was similar to the rate for white youth.

■ The suicide rate for American Indians was nearly twice that for white youth, 26 compared with 14 per 100,000. The suicide rates for Hispanic, black, and Asian youth were about 30–60 percent lower than the rate for white youth.

Adults 25–44 Years of Age

■ In 1988, black adults 25–44 years had the highest death rate (367 per 100,000), 2.5 times the rate for white adults (149 per 100,000) (figure 8). The death rate for American Indian adults was second highest, 1.8 times the rate for white adults, while the death rate for Hispanic adults was about 25 percent higher than for white adults. Asians had the lowest rate, about half the rate for white adults.

■ Unintentional injuries were the leading cause of death for American Indian, Hispanic, Asian, and white persons. The rate for American Indians was nearly three times the rate for white adults (97 compared with 34 per 100,000). The injury rate for black adults was about 44 percent higher than for white adults, while the rate for Hispanics was about 20 percent higher than the rate for white adults. Asian adults had the lowest injury death rate (15 per 100,000), less than half the rate for white adults. About 6 of every 10 injury deaths among American Indians were motor vehicle fatalities; the motor vehicle death rate was 2.5 to five times the rate for any other

Figure 7. Death rates for selected causes for persons 15–24 years of age, according to race/ethnicity: United States, 1988
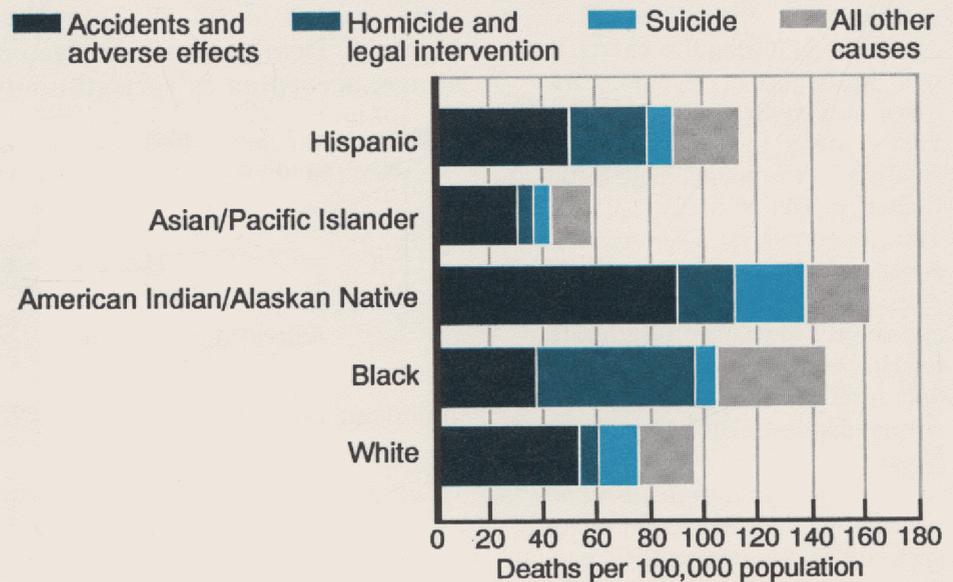
NOTE: Data on Hispanic origin are from 26 States and the District of Columbia.

SOURCE: National Center for Health Statistics, National Vital Statistics System, and U.S. Bureau of the Census, Current Population Surveys.

Figure 8. Death rates for selected causes for persons 25–44 years of age, according to race/ethnicity: United States, 1988
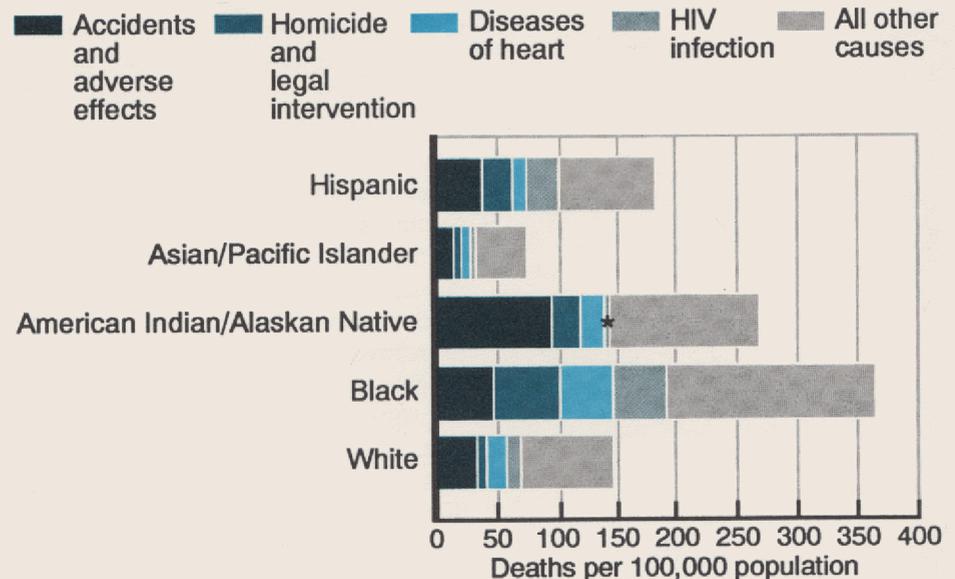
NOTE: Data on Hispanic origin are from 26 States and the District of Columbia.

SOURCE: National Center for Health Statistics, National Vital Statistics System, and U.S. Bureau of the Census, Current Population Surveys.

group. Similarly, the injury death rate for nonmotor vehicle causes was also considerably higher among American Indians than others.

■ Homicide was the leading cause of death for black adults 25–44 years of age. The homicide rate for black adults (56 per 100,000) was seven times the rate for white adults (8 per 100,000). The homicide rates for American Indian and Hispanic adults were similar and were three times that for white adults. The homicide rates for Asian and white adults were similar.

■ The heart disease death rate was also highest among black adults (44 per 100,000), about 2.6 times the rate among white adults (17 per 100,000). Compared with white adults, the rate for American Indians was similar, while the rates for Hispanic and Asian adults were about 30 percent and 60 percent lower, respectively.

■ Human immunodeficiency virus (HIV) infection was the second leading cause of death for Hispanic adults, and the fourth and fifth leading causes of death for black and white adults, respectively, ages 25–44. The death rate for HIV infection among black persons was 43 per 100,000, 3.6 times the rate among white adults (12 per 100,000). The rate for Hispanic adults was 2.3 times the rate for white adults. As a proportion of all deaths, HIV infection was responsible for 15 percent of Hispanic deaths, 12 percent of black deaths, and 8 percent of white deaths in this age group. HIV infection death rates among Asian and American Indian adults were about 70 percent below the rate for white adults, accounting for 1–4 percent of the deaths in these groups.

Adults 45–64 Years of Age

■ In 1988, the death rate for black adults 45–64 years of age was 75 percent higher than for white persons (1,380 compared with 790 per 100,000) (figure 9). The death rate for American Indians was 8 percent higher than the rate for white persons while the rate for Hispanic adults was

Figure 9. Death rates for selected causes for persons 45–64 years of age, according to race/ethnicity: United States, 1988
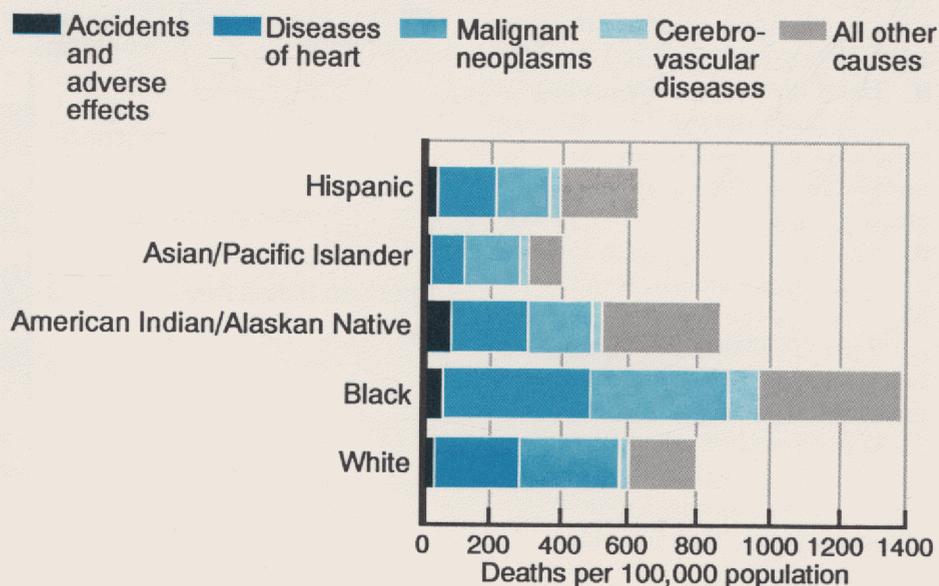
NOTE: Data on Hispanic origin are from 26 States and the District of Columbia.

SOURCE: National Center for Health Statistics, National Vital Statistics System, and U.S. Bureau of the Census, Current Population Surveys.

23 percent lower and the rate for Asians was lowest, 49 percent below the rate for white persons. Malignant neoplasms and diseases of the heart were the two leading causes of death for all persons 45–64 years of age.

■ The death rate for heart disease was highest for black adults (426 per 100,000), 1.7 times the rate for white adults (244 per 100,000). The rate for American Indians was about 10 percent lower than that for white adults, while the rates for Hispanic and Asian adults were about 30 percent and 60 percent lower, respectively, than for white adults.

■ The death rate for malignant neoplasms was highest for black adults (401 per 100,000), 1.4 times the rate for white adults (289 per 100,000). The death rates for Hispanic and Asian adults were similar to each other, about half the rate among white adults, while the rate for American Indians was about 40 percent lower than among white adults.

■ The death rate for cerebrovascular diseases was also highest for black adults (86 per 100,000), about three times the rate among white adults (29 per 100,000).

The rates for American Indians, Asian, and Hispanic adults were similar to that for white adults.

■ Unintentional injuries were also among the leading causes of death in this age group. The rate was highest for American Indians (77 per 100,000). Compared with the rate of 31 per 100,000 for white adults, the injury death rate for black adults was nearly 70 percent higher; the rate for Hispanic adults was similar; and the rate for Asian adults was about 40 percent lower than the white injury death rate.

■ Among American Indians, the death rate from chronic liver disease and cirrhosis (77 per 100,000) was similar to that for injuries and was nearly two times the death rates for black and Hispanic adults, more than three times the rate for white adults, and nearly eight times that for Asian adults.

Adults 65 Years of Age and Over

■ In 1988, the death rate among persons 65 years of age and over was highest for black persons, although only 11 percent higher than for white

older persons (figure 10). Death rates were considerably lower (30–50 percent) among Hispanic, American Indian, and Asian elderly than among white elderly adults.

■ Heart disease was the leading cause of death, followed by malignant neoplasms and cerebrovascular diseases in each of the racial and ethnic groups.

■ The heart disease death rate was lowest for Asian elderly, about 60 percent lower than the rate of 2,079 per 100,000 for white persons. For Hispanic and American Indian persons, the death rates were about 35–45 percent below that for white persons. Heart disease mortality for black persons was only about 5 percent higher than for white persons.

■ Death rates for malignant neoplasms were lowest for Asian (549 per 100,000) followed by American Indian and Hispanic older persons. The rate for Asians was nearly 50 percent lower, for American Indians about 45 percent lower, and the rate for Hispanics was nearly 40 percent lower than the rate for white persons (1,062 per 100,000). Cancer mortality for black persons was 17 percent higher than for white persons.

■ Cerebrovascular diseases mortality was 36–42 percent lower for Hispanic, Asian, and American Indian older persons than for white persons, while it was 24 percent higher for black than white persons.

Figure 10. Death rates for selected causes for persons 65 years of age and over, according to race/ethnicity: United States, 1988
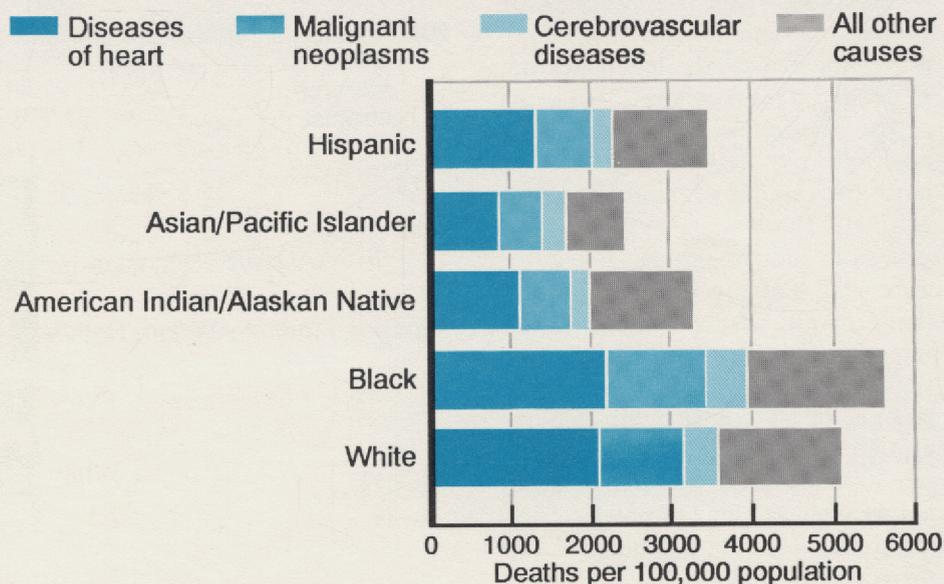
NOTE: Data on Hispanic origin are from 26 States and the District of Columbia.

SOURCE: National Center for Health Statistics, National Vital Statistics System, and U.S. Bureau of the Census, Current Population Surveys.

Weapons in Homicides

Homicide claimed 22,000 lives in the United States in 1988. The total U.S. homicide rate was 9.0 per 100,000, and homicide was the leading cause of death among black males 15–24 and 25–34 years of age. Firearms were involved in 62 percent of all homicides in the United States in 1988 (1). The homicide rate in the United States continues to be 3–8 times higher than rates in most other industrialized countries (2).

■ *Healthy People 2000* targets the prevention of violence by reducing the homicide rate to no more than 7.2 per 100,000 persons, with special targets set for black males and females ages 15–34 years and Hispanic males ages 15–34 years as well as American Indians and Alaskan Natives.

■ During the period 1986–88 more than half (57 percent) of all homicide victims were between 15 and 34 years of age. Based on data from the Federal Bureau of Investigation, about half of white, black, and Asian victims in this age range were murdered with a handgun and another 12–17 percent with other types of firearms (figure 11). Within the American Indian population, handgun use was substantially lower (29 percent).

■ Knives or other instruments for cutting or stabbing were used in about one-fifth of the homicides in which the victim was white, black, or Asian and in about one-third of the homicides of American Indians.

References

1. National Center for Health Statistics: Vital Statistics of the United States, Vol. II, Mortality, Part A, for data years 1986–88. Public Health Service. Washington. U.S. Government Printing Office.

2. Fingerhut, L.A., and J.C. Kleinman. 1990. International and interstate comparisons of homicide among young males. *JAMA* 263:3292–5.

Figure 11. Weapons used in homicides among victims 15–34 years of age, according to type of weapon and race of victim: United States, 1986–88
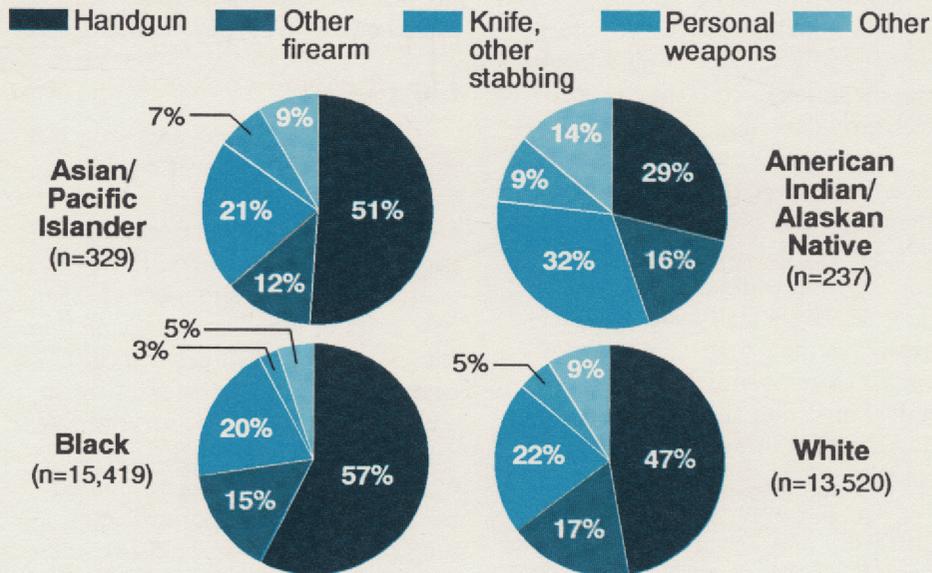
NOTE: Numbers of victims are in parentheses.

SOURCE: Federal Bureau of Investigation, Supplemental Homicide Reporting System.

Cancer Incidence and Survival

In *Healthy People 2000,* the objectives for cancer focus on issues related to prevention and detection, as well as mortality reduction. Targets include smoking reduction, dietary changes with respect to fat and fiber, and increases in screening procedures and early detection.

Four cancer sites — lung and bronchus, colon and rectum, breast (females), and prostate gland — were selected for detailed sex and racial or ethnic group comparisons based on their relatively high incidence rates, as well as their treatment prognosis and/or their potential for mortality reduction either through early detection or through modification of specific risk factors.

The age-adjusted incidence rates (1977–83) and 5-year relative survival rates (1975–84) in each of the following eight charts are specific for the Surveillance, Epidemiology, and End Results (SEER) registry area from which the cancer data come (see Technical Notes) (1). These geographic-specific rates are necessary because there is geographic variation in cancer incidence and death rates. Thus, each chart shows three different rates for the white population. Rates for black and for Asian persons are compared with rates for white persons (regardless of ethnicity) and rates for Mexican Americans and for American Indians are compared with rates for non-Hispanic white persons. To illustrate the geographic differences, the age-adjusted lung cancer incidence rate among white males was 80.0 per 100,000 in the cancer registries of San Francisco, Detroit, Atlanta, and Connecticut, 77.5 per 100,000 in the San Francisco and Hawaii cancer registries, and 53.5 per 100,000 among non-Hispanic white males in the New Mexico registry (figure 12).

As a result of the geographic basis for these rates, comparisons are not made across minority groups (e.g.,

between Asians and black persons or between black persons and Mexicans), but rather are between the minority group and the white population in a particular SEER area.

Lung Cancer

Cancer of the lung and bronchus (lung cancer) is the most common form of cancer diagnosed in the United States and is the leading cause of cancer mortality. For 1990, it is estimated that there were 157,000 new cases of lung cancer, accounting for 15 percent of all new cancer cases. Two-thirds of the cases were among males. Five-year survival rates remain low, only about 13 percent (2,3). Cigarette smoking accounted for an estimated 87 percent of all lung cancer deaths in 1985 (4).

■ In 1977–83, the age-adjusted lung cancer incidence rate was about 40 percent higher for black than for white males, 111 compared with 80 per 100,000 but 10 percent lower for black than white females, 28 compared with 31 per 100,000 (figure 12). Relative survival rates for 1975–84 were slightly lower among black than white persons, 10 percent compared with 13 percent among males and 16 compared with 18 percent among females (figure 13).

■ Within the Asian populations, Filipino males had the lowest incidence rate for lung cancer (36 per 100,000), about 55 percent below the rate for white males (77 per 100,000). Rates for Japanese and Chinese males (57 and 45 per 100,000, respectively) were also much lower than for white males. Among females, the incidence rates among Japanese and Filipinos were about 60 percent lower, and among Chinese, about 30 percent lower than the rate among white females (36 per 100,000). Lung cancer survival rates were 13–15 percent for Asian and white males and 15–19 percent for Asian and white females.

■ Lung cancer incidence among Mexican Americans was about 45 percent lower than among non-Hispanic white persons, for both sexes. Survival rates, however, were similar for the two groups, 9 percent for Mexican American and 11 percent for non-Hispanic white males and 15 percent for both groups of females.

■ The major risk factor for lung cancer is smoking. Because lung cancer incidence reflects cumulative exposure to smoking, current smoking patterns will not be directly related to current lung cancer incidence unless smoking patterns have not changed. It is interesting to note that the age-adjusted smoking rates around 1980 showed that black males were about 20 percent more likely to smoke than white males. Smoking rates were similar for black and white females (table 55). Data for Asian populations are available for more recent years and show a much lower smoking rate among both males and females compared with either non-Hispanic white or non-Hispanic black persons (figure 26).

Figure 12. Lung and bronchus cancer incidence rates, according to sex and race/ethnicity: Selected cancer registries, 1977–83
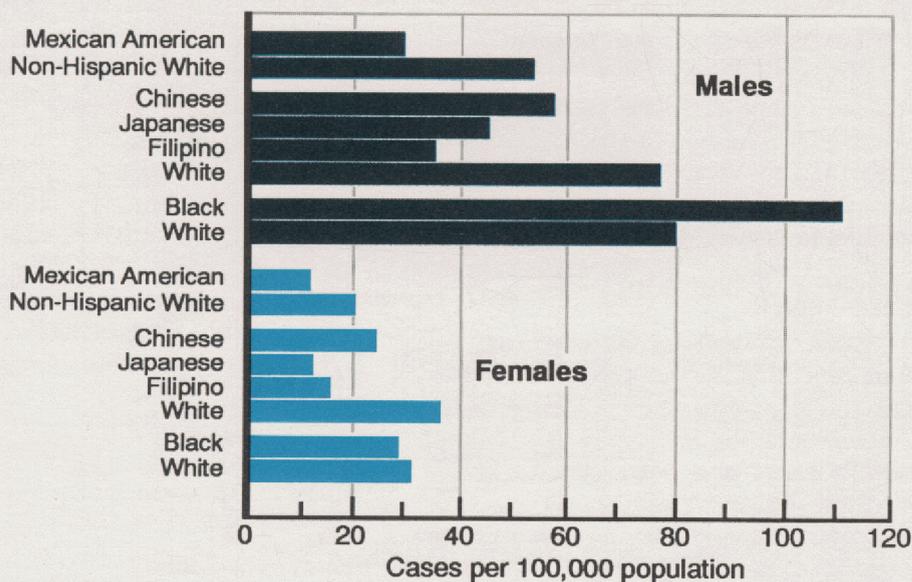
NOTE: Rates are average annual age adjusted. For each racial/ethnic comparison, data for white and minority populations are geographic-specific. See Technical Notes.

SOURCE: National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program registries (1).

Figure 13. Lung and bronchus cancer 5-year relative survival rates, according to sex and race/ethnicity: Selected cancer registries, 1975–84
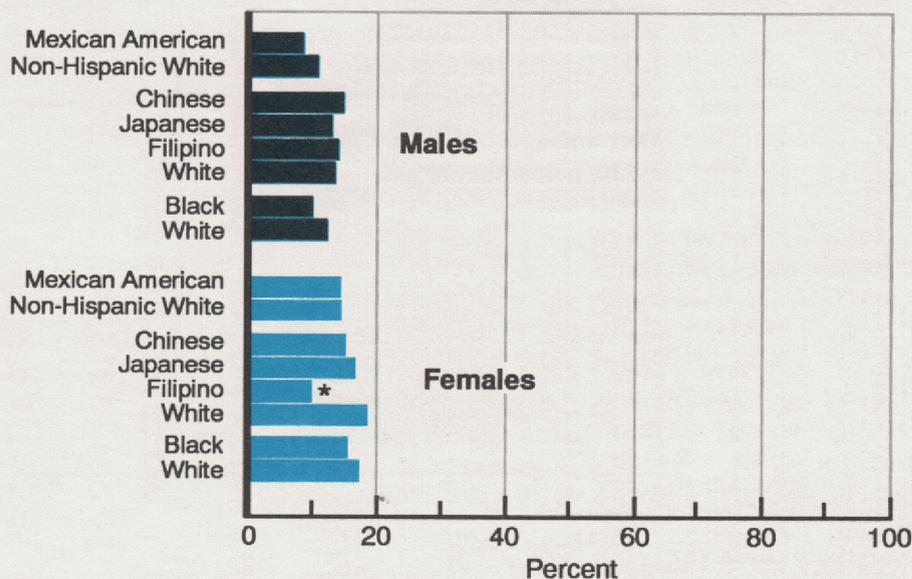
NOTE: For each racial/ethnic comparison, data for white and minority populations are geographic-specific. See Technical Notes.

SOURCE: National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program registries (1).

Colorectal Cancer

An estimated 155,000 new cases of cancer of the colon and rectum were diagnosed in 1990 (3). Overall, colorectal cancer accounted for about 15 percent of all cancer diagnoses, second but almost equal to lung cancer. Relative survival rates, however, are much higher for colorectal cancer than for lung cancer.

■ Incidence of cancer of the colon and rectum was generally lower for minority populations than for white persons, but in most instances survival was somewhat better for white persons. In each population group, incidence was higher for males than for females, and females had slightly higher survival rates.

■ In 1977–83, the age-adjusted incidence rate was 15 percent lower among black than white males (53 compared with 62 per 100,000) (figure 14); rates were similar for black and white females (43 per 100,000). The 5-year relative survival rates for 1975–84, on the other hand, were 17 percent lower for black than white males, and 11 percent lower for black than white females (figure 15).

■ In the Asian populations, the incidence rate among Japanese males (62 per 100,000) was considerably higher than for Chinese or Filipino males, and was similar to the rate for white males (60 per 100,000). Filipino males and females had the lowest rates, with the rate for Filipino females 57 percent lower than the rate for white females (18 compared with 42 per 100,000). Survival rates were highest for the Japanese and lowest for Filipinos.

■ Colon and rectum cancer incidence rates were about 25 percent lower for Mexican Americans than for non-Hispanic white persons of both sexes. However, survival rates were slightly lower for the Mexican American males than for non-Hispanic white males (41 compared with 46 percent) and similar for Mexican American and non-Hispanic white females (50 percent).

■ Risk factors for colon and rectal cancer include personal or family history of cancer or polyps of the colon or rectum and history of inflammatory bowel disease. A high fat and/or low fiber diet may be a causative factor (2). Early detection of colorectal cancer has improved through use of blood testing, sigmoidoscopy, and regular examinations.

Figure 14. Colon and rectum cancer incidence rates, according to sex and race/ethnicity: Selected cancer registries, 1977–83
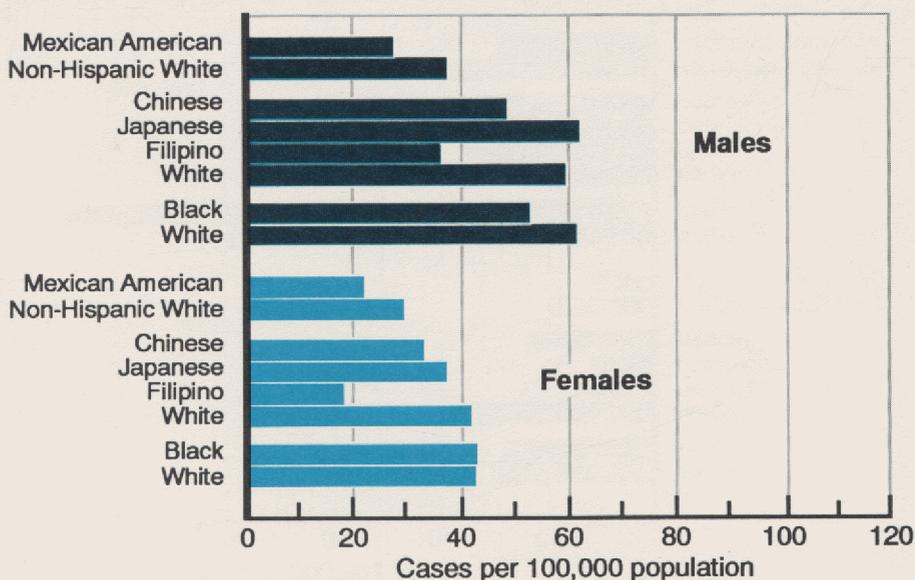
NOTE: Rates are average annual age adjusted. For each racial/ethnic comparison, data for white and minority populations are geographic-specific. See Technical Notes.

SOURCE: National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program registries (1).

Figure 15. Colon and rectum cancer 5-year relative survival rates, according to sex and race/ethnicity: Selected cancer registries, 1975–84

NOTE: For each racial/ethnic comparison, data for white and minority populations are geographic-specific. See Technical Notes.

SOURCE: National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program registries (1).

Breast Cancer

In 1990, an estimated 150,000 new cases of breast cancer were diagnosed among women. Breast cancer is the leading cause of cancer for females and the third leading site overall. It is estimated that approximately 1 in 10 women will develop breast cancer in their lifetime. The incidence of breast cancer has increased more than 1 percent per year since the early 1970's (table 50). The most recent increases are believed to be related, in part, to early detection of breast cancer as a result of increased use of mammography and breast self-examination (2,3). In 1987, breast cancer was the leading cause of death due to cancer among white and black females ages 25–54 years and for those 85 years of age and over. For all other ages, it ranked second to lung cancer (tables 30 and 31).

■ In 1977–83, the age-adjusted incidence rate for breast cancer was higher than for any other individual cancer site among females in each of the minority and white population groups (figure 16). The 5-year survival rates for breast cancer during 1975–84 were among the highest of any site, exceeding 70 percent, for each racial group, except among American Indian and black females (figure 17).

■ Breast cancer incidence was much lower in each of the minority female populations than among white females. The incidence rate for black females was 20 percent lower than for white females (73 compared with 91 per 100,000). Five-year relative survival rates were lower for black than white females (63 percent compared with 76 percent).

■ Breast cancer incidence rates for Filipino females (41 per 100,000) were 57 percent lower, and rates for Chinese and Japanese females (about 56 per 100,000) were 42 percent lower than for white females (97 per 100,000). Survival rates among Asian females were relatively similar to the rate for white females (78 percent). Within the Asian populations, Japanese women had the highest

Figure 16. Breast cancer incidence rates among females, according to race/ethnicity: Selected cancer registries, 1977–83
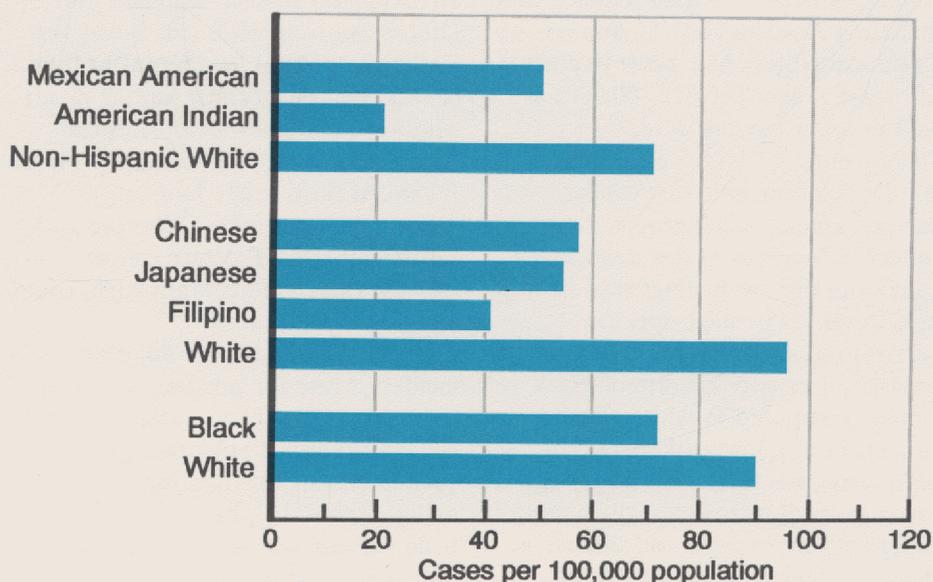
NOTE: Rates are average annual age adjusted. For each racial/ethnic comparison, data for white and minority populations are geographic-specific. See Technical Notes.

SOURCE: National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program registries (1).

Figure 17. Breast cancer 5-year relative survival rates among females, according to race/ethnicity: Selected cancer registries, 1975–84
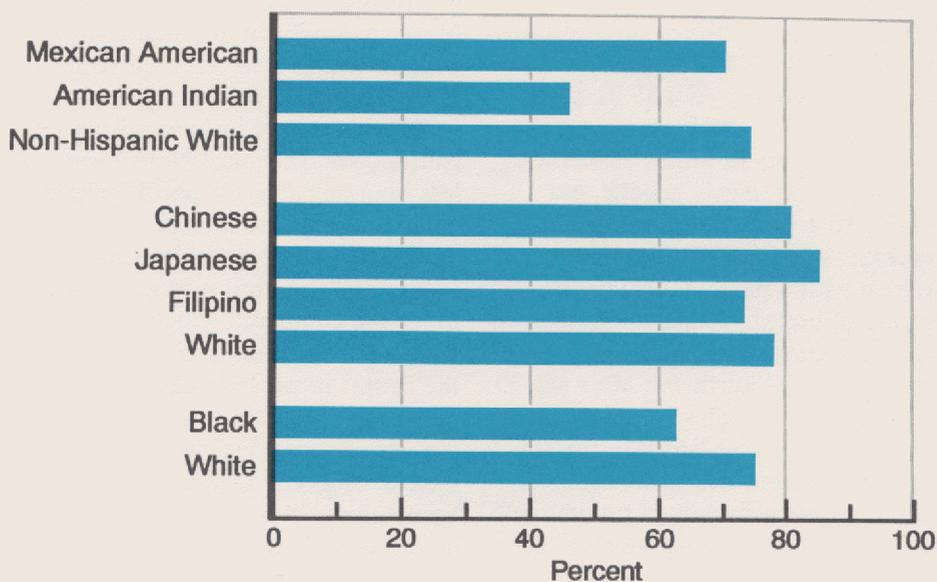
NOTE: For each racial/ethnic comparison, data for white and minority populations are geographic-specific. See Technical Notes.

SOURCE: National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program registries (1).

survival rates (85 percent) and Filipino women the lowest (74 percent).

■ Among Mexican American females, breast cancer incidence was 29 percent lower than the rate for

non-Hispanic white females (72 per 100,000) while survival rates were similar. American Indian females (not including Alaskan Natives, see Technical Notes) had a low incidence of breast cancer (21 per 100,000) as well as a low survival rate, 46 percent.

■ Differences in breast cancer survival among racial groups may reflect differences in the stage at which the disease is diagnosed as well as differences in stage-specific survival rates. For example, the lower breast cancer survival rate of black women compared to white women reflects both a lower likelihood of early diagnosis (localized stage) and a lower survival rate, especially among those with more advanced disease at diagnosis (regional stage) (2). In 1974–86, 41 percent of black women with breast cancer were diagnosed with localized disease compared with 49 percent of white women. Further, among women with breast cancer that was regional at diagnosis, 5-year survival rates were 56 percent for black women compared with 70 percent for white women. For localized breast cancer cases, differences in the 5-year survival rates for black and white women were smaller (86 compared with 91 percent).

■ Risk factors in breast cancer are believed to be largely genetic and related to reproductive factors. Risk increases after age 50; for those women with a personal or family history of breast cancer; for women who have never had children or whose first childbirth was after age 30 (3). The role of behavioral risk factors such as diet is still uncertain. Thus, the known risk factors for incidence are generally not modifiable (as opposed to smoking being a modifiable risk factor for lung cancer). However, it is clear that early detection of breast cancer through mammography and self-examination can improve survival rates. If breast cancer is diagnosed in situ (noninvasive) and treated, the survival rate approaches 100 percent (3).

Prostate Cancer

Prostate cancer was diagnosed in an estimated 106,000 males in the United States in 1990 (3). It was the leading or second leading (after lung cancer) cause of cancer among males who were black, Filipino, Mexican American, American Indian, or white. It ranked third (after lung and colo-rectal cancers) for Chinese and Japanese males. Prostate cancer survival rates are generally high, often exceeding 70 percent.

■ In 1977–83, the age-adjusted incidence rate for prostate cancer was much higher for black males (119 per 100,000) than for any other group, 71 percent higher than for white males (figure 18). Further, black male survival was 10 percent lower than among white males during 1975–84 (figure 19).

■ Prostate cancer incidence was much lower among Asian than white males. Rates for Chinese males were the lowest (30 per 100,000), less than half the rate for white males. Survival was similar for Asian and white males with the Japanese doing somewhat better than the others.

■ Incidence was similar among Mexican American and non-Hispanic white males as were their survival rates. The incidence among American Indian males (not including Alaskan Natives, see Technical Notes) was less than half that for non-Hispanic white males (31 compared with 75 per 100,000), although the American Indian male survival rate was much lower (54 compared with 76 percent).

■ Relatively little is known about the causes of prostate cancer. Risk factors are believed to include various aspects of sexual activity, endocrine factors, diet, and possibly occupational exposures. Incidence increases with age and is most likely among males aged 65 years and over. Further, incidence is higher in unmarried than in married males (2,5).

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4. U.S. Department of Health and Human Services. 1989. *Reducing the Health Consequences of Smoking: 25 Years of Progress. A Report of the Surgeon General*. DHHS Pub. No. (CDC) 89–8411. Public Health Service. Rockville, Md.

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Figure 18. Prostate gland cancer incidence rates among males, according to race/ethnicity: Selected cancer registries, 1977–83
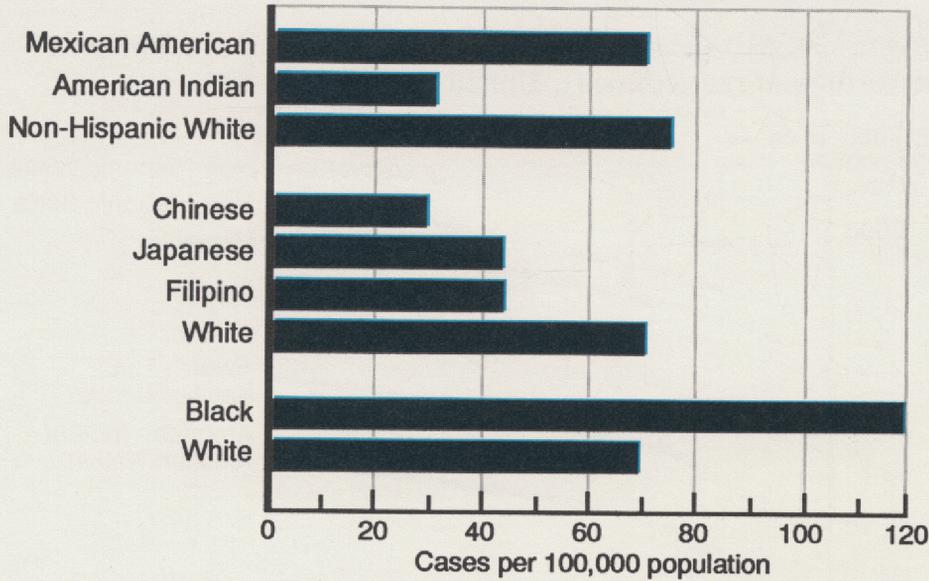
Cases per 100,000 population

NOTE: Rates are average annual age adjusted. For each racial/ethnic comparison, data for white and minority populations are geographic-specific. See Technical Notes.

SOURCE: National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program registries (1).

Figure 19. Prostate gland cancer 5-year relative survival rates among males, according to race/ethnicity: Selected cancer registries, 1975–84
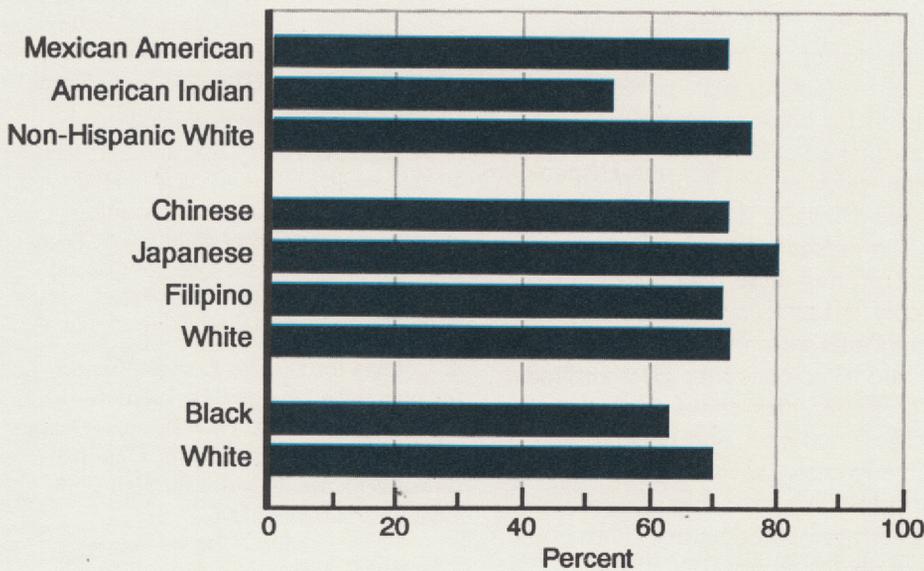
Percent

NOTE: For each racial/ethnic comparison, data for white and minority populations are geographic-specific. See Technical Notes.

SOURCE: National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program registries (1).

Trends in AIDS

Before 1983 there were only a total of 800 reported cases of acquired immunodeficiency syndrome (AIDS); during 1989 over 33,000 adolescent and adult AIDS cases were reported. In 1988, human immunodeficiency virus (HIV) infection was the 4th leading cause of death among persons 25–44 years of age and the 6th leading cause among persons 15–24 years of age (1).

■ The *Healthy People 2000* objectives for HIV/AIDS include confining the annual incidence of diagnosed AIDS cases to no more than 98,000 cases and confining the prevalence of HIV to no more than 800 per 100,000 population. Risk reduction objectives and objectives related to services and protection are also included. Current estimates of the total number of persons infected with HIV range from 800,000 to 1.3 million.

■ From 1986 to 1989, the annual numbers of incident cases of AIDS among non-Hispanic black and American Indian persons aged 13 years and over tripled, while they increased by factors of 2.4–2.6 for Hispanic, non-Hispanic white, and Asian persons (figure 20).

■ Estimates for 1989 from the Center for Infectious Diseases indicate that the risk of AIDS among non-Hispanic black and Hispanic adolescents and adults was 3–4 times the risk for non-Hispanic white persons, while for Asian and American Indian adolescents and adults the risk was one-third to one-half that of non-Hispanic white persons (2). Further, the annual incidence rates of AIDS among children and among women of childbearing age have been increasing more among black and Hispanic population groups than among other racial groups (3).

■ The cumulative HIV seroprevalence of civilian applicants for the military service from October 1985 to December 1989 was 0.12 percent (about 1 positive for every

Figure 20. AIDS cases among persons 13 years of age and over, according to race/ethnicity: United States, 1984–89
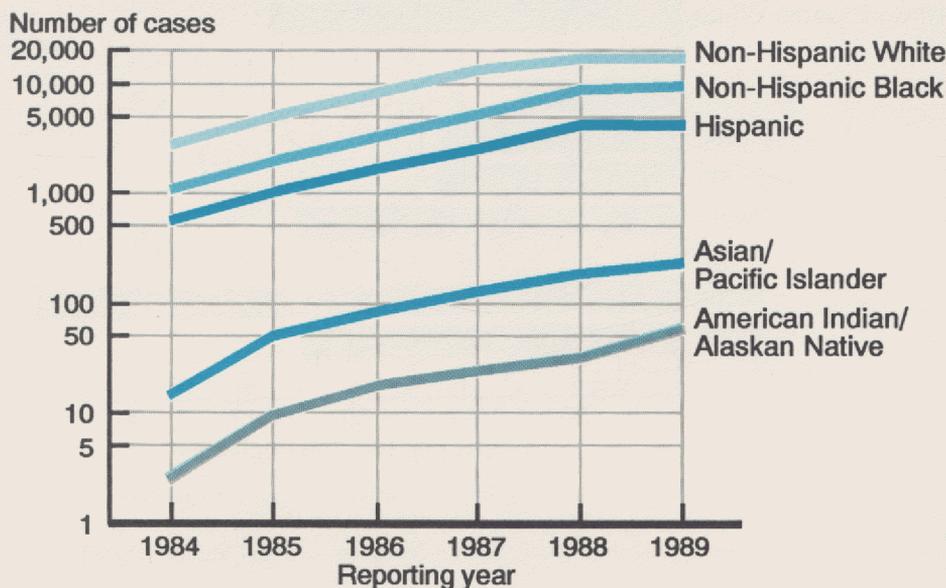
NOTE: The AIDS case definition was changed in September 1987 to allow for the presumptive diagnosis of AIDS-associated diseases and conditions and to expand the spectrum of human immunodeficiency virus-associated diseases reportable as AIDS. Excludes residents of U.S. territories. Data are as of September 30, 1990.

SOURCE: Centers for Disease Control, Center for Infectious Diseases, HIV/AIDS Surveillance data.

800 tested) (3). Cumulative rates were higher for males (0.14 percent) than for females (0.06 percent) and higher for black persons (0.35 percent) and Hispanics (0.19 percent) than for American Indian (0.10 percent), white (0.06 percent), or Asian persons (0.05 percent). In interpreting these data, it is important to recognize that potential applicants were informed that they would be screened for HIV antibody. Therefore, intravenous drug users, homosexual men, and persons who already knew that they were infected with HIV are probably underrepresented among those actually tested for HIV.

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3. Gayle, J.A., R.M. Selik, and S.Y. Chu. 1990 Surveillance for AIDS and HIV infection among black and Hispanic children and women of child bearing age, 1981–1989. Centers for Disease Control Surveillance Summaries. *MMWR* 39(No.SS-3):23–30.

4. Centers for Disease Control, Center for Infectious Diseases, Division of HIV/AIDS. National HIV Seroprevalence Surveys, Summary of Results, Data for serosurveillance activities through 1989. 1990. HIV/CID/9-90/006.

AIDS Mode of Transmission

Patterns in the transmission of acquired immunodeficiency syndrome (AIDS) differ for males and females and also among racial and ethnic groups. For cases reported in 1989, the major categories of transmission among adolescent and adult males were homosexual/bisexual contact (66 percent), IV drug use (18 percent), or both (7 percent). For females, the major modes of transmission were IV drug use (52 percent) or heterosexual contact (33 percent), most of which resulted from sex with IV drug users (table 46).

■ In 1989, among non-Hispanic white and Asian males with AIDS about 79 percent contracted AIDS through homosexual/bisexual contact compared with 44 percent of non-Hispanic black, 52 percent of Hispanic males, and 54 percent of American Indian males (figure 21). Further, 3–12 percent of the Asian, non-Hispanic white, and American Indian male cases resulted from IV drug use compared with 32–36 percent of Hispanic and non-Hispanic black cases.

■ In 1989, among non-Hispanic black and Hispanic females with AIDS, 77–81 percent of AIDS cases resulted from either direct IV drug use or from heterosexual contact with IV drug users compared with 57 percent of cases among non-Hispanic white females (figure 22). Hetero-sexual contact accounts for a large proportion of female AIDS cases, 37 percent among Hispanic females and 31–33 percent among non-Hispanic white and black females. Twenty percent of all non-Hispanic white female cases resulted from the receipt of blood transfusions, blood components, or tissue, whereas this type of transmission accounted for 3–4 percent of cases for non-Hispanic black and Hispanic females. Data for Asian and American Indian females are not shown because there were only 19 and 9 cases, respectively, reported in 1989.

Figure 21. Transmission mode of AIDS cases among males 13 years of age and over, according to race/ethnicity: United States, 1989
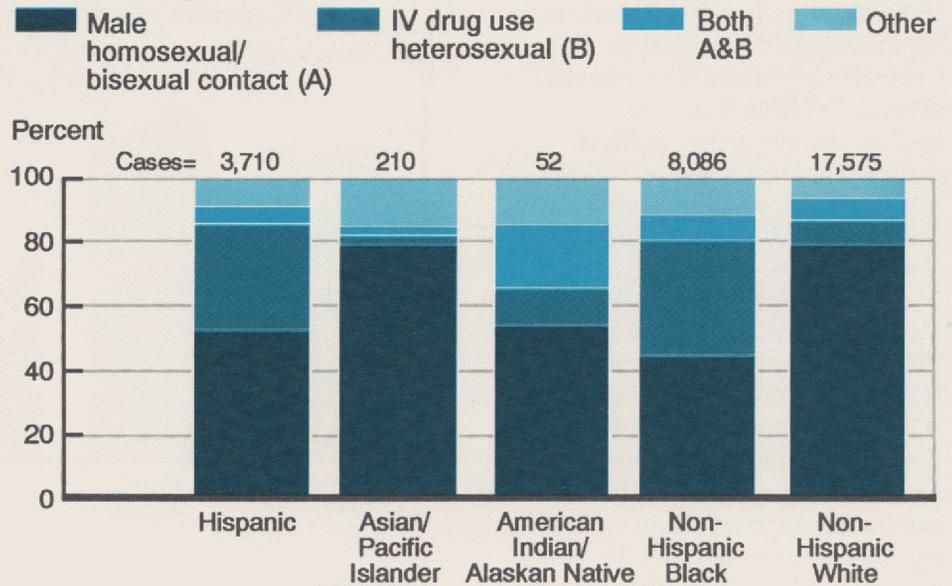
Legend: ■ Male homosexual/bisexual contact (A) ■ IV drug use heterosexual (B) ■ Both A&B ■ Other

NOTE: Excludes residents of U.S. territories. Data are as of September 30, 1990.

SOURCE: Centers for Disease Control, Center for Infectious Diseases, HIV/AIDS Surveillance data.

Figure 22. Transmission mode of AIDS cases among females 13 years of age and over, according to race/ethnicity: United States, 1989
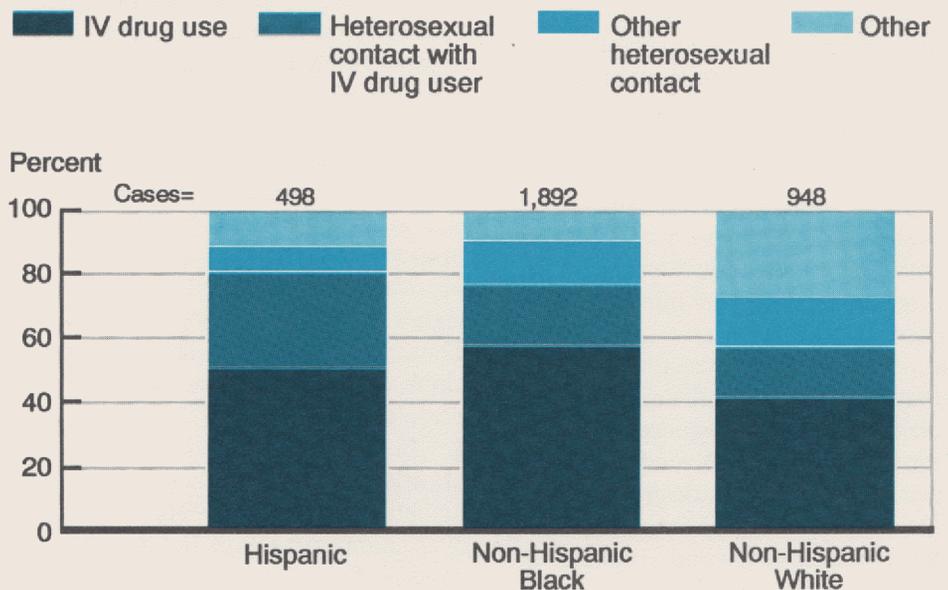
Legend: ■ IV drug use ■ Heterosexual contact with IV drug user ■ Other heterosexual contact ■ Other

NOTE: Excludes residents of U.S. territories. Data are as of September 30, 1990.

SOURCE: Centers for Disease Control, Center for Infectious Diseases, HIV/AIDS Surveillance data.

Diabetes

Diabetes mellitus is a disease characterized by abnormal glucose metabolism. An estimated 7 million people in the United States have been diagnosed with diabetes, and an additional 5 million may unknowingly have the disease. Diabetes is frequently associated with vascular changes involving many organ systems, including eyes, kidneys, peripheral nervous system, and the heart. In 1987, costs attributed to diabetes were upwards of $20 billion (1).

Non-Hispanic white and non-Hispanic black persons in the 1976–80 National Health and Nutrition Examination Survey II and Hispanic persons in the 1982–84 Hispanic Health and Nutrition Examination Survey were identified as diabetic if the results of an oral glucose tolerance test indicated a diabetic condition or if diabetes was self-reported during the medical history. In the 1987 Survey of American Indians and Alaskan Natives (SAIAN), the prevalence of diabetes was also measured by reports from respondents or their families.

■ *Healthy People 2000* targets reductions in deaths from diabetes, as well as diabetes incidence and prevalence, with special attention focused on black, Mexican American, Puerto Rican, and Cuban persons, as well as on American Indians and Alaskan Natives. Further, since overweight is a known risk factor for diabetes, weight reduction is also targeted for the same minority populations.

■ The total prevalence of diabetes, that is, the sum of previously diagnosed and undiagnosed diabetes, for those aged 45–74 years of age was twice as high for Mexican Americans (24 percent) and for Puerto Ricans (26 percent) as for non-Hispanic white persons (12 percent) (figure 23). The prevalence of diabetes among Cubans was similar to that for non-Hispanic white persons. The prevalence of diabetes among

Figure 23. Diabetes prevalence among persons 45–74 years of age, according to race/ethnicity: United States, 1976–80 and 1982–84
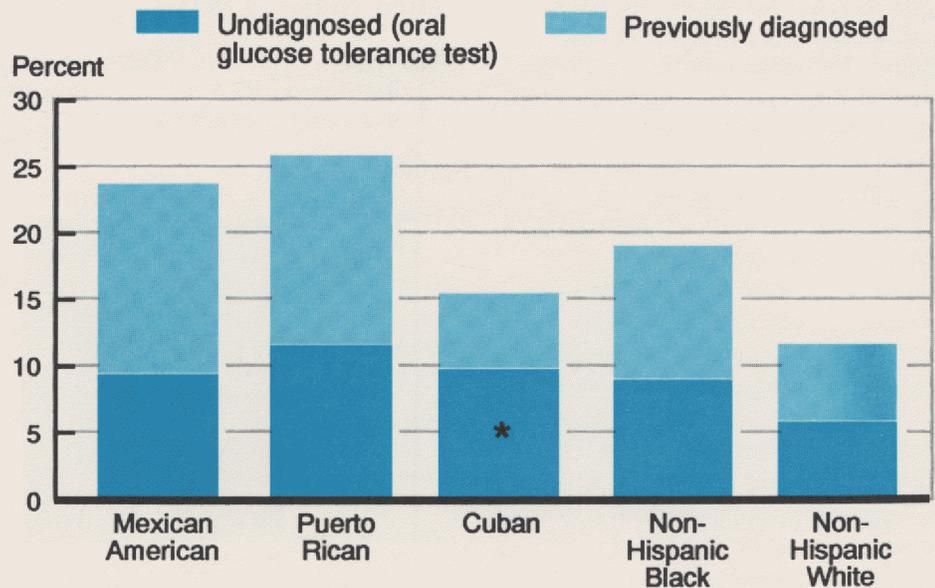
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey II, 1976–80 and Hispanic Health and Nutrition Examination Survey, 1982–84 (2).

non-Hispanic black persons was 1.6 times that for non-Hispanic white persons.

■ The prevalence of undiagnosed diabetes was higher among Puerto Ricans and Mexican Americans than in non-Hispanic white persons. Undiagnosed diabetes accounted for approximately half of the total prevalence of diabetes among non-Hispanic black and white as well as Puerto Rican persons 45–74 years of age. Undiagnosed diabetes accounted for a somewhat lower proportion of total prevalence among Mexican Americans and a somewhat higher proportion among Cubans. Thus, reports from medical histories alone underestimate the total prevalence of diabetes (2).

■ In 1987, the age-adjusted prevalence of previously diagnosed diabetes for those 19 years of age and over among American Indians and Alaskan Natives was estimated to be more than twice that of the U.S. civilian noninstitutionalized population (13 compared with 5 percent) with equally large

differences for males (11 compared with 5 percent) and for females (13 compared with 6 percent). While other studies confirm the high diabetes rate among American Indians, considerable differences in diabetes rates among various tribes are evident (3).

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Overweight

Being overweight has adverse effects on health and longevity; severe overweight is associated with increased risks of hypertension, hypercholesterolemia, noninsulin dependent diabetes, and certain cancers and has significant psychosocial consequences (1). Overweight is defined as excess body weight for height; the criterion was body mass index at or above the sex-specific 85th percentile of the National Health and Nutrition Examination Survey (NHANES) II reference population aged 20–29 years. Data for non-Hispanic persons are from the 1976–80 NHANES II, and data for Hispanic persons are from the 1982–84 Hispanic Health and Nutrition Examination Survey.

■ *Healthy People 2000* includes reducing the prevalence of overweight among persons 20–74 years of age to no more than 20 percent, with special targets for black women (30 percent), Hispanic women (25 percent), and American Indian and Alaskan Native men and women (30 percent).

■ The age-adjusted prevalence of overweight was similarly high among non-Hispanic black (44 percent), Mexican American (42 percent), and Puerto Rican (40 percent) females compared with non-Hispanic white females (24 percent) (figure 24). The prevalence of overweight among Cuban females fell midway between that for non-Hispanic white and other females. In general, family income below the poverty level was associated with higher prevalence of overweight in females.

■ Among males, there was much less variation by ethnicity and race. Non-Hispanic white males had the lowest prevalence of overweight (24 percent) and Mexican Americans the highest (31 percent). The prevalence of overweight among males varied little with poverty status.

■ Overweight is more prevalent among females than males in all groups except non-Hispanic white persons.

Figure 24. Overweight persons 20–74 years of age, according to race/ethnicity: United States, 1976–80 and 1982–84
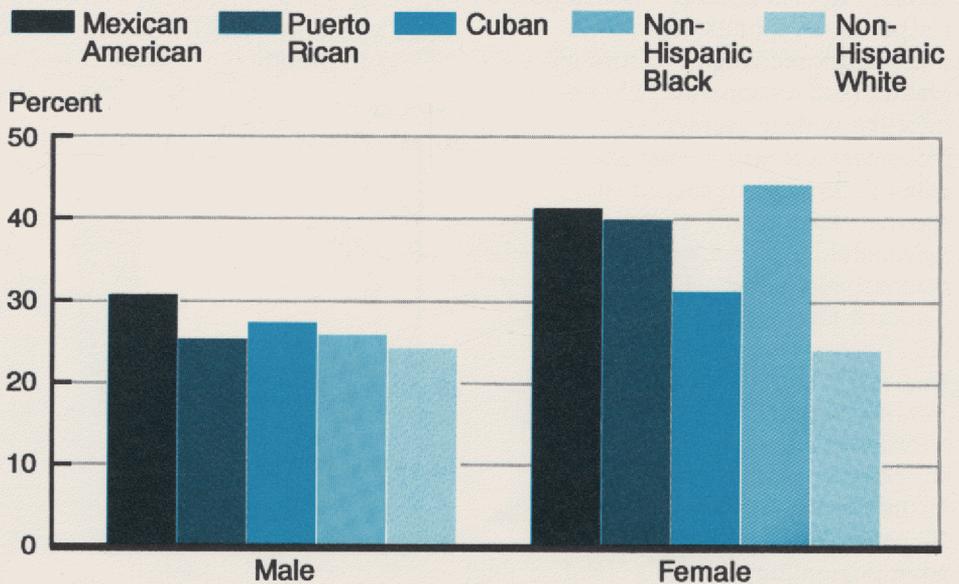
NOTE: Percents are age adjusted. Data for females exclude pregnant women.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey II, 1976–80 and Hispanic Health and Nutrition Examination Survey, 1982–84 (1).

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Hypertension

Hypertension is an important risk factor for coronary heart disease and cerebrovascular disease. Persons were classified as hypertensive if their average systolic blood pressure was greater than or equal to 140 mm mercury or their average diastolic blood pressure was greater than or equal to 90 mm mercury or they reported taking antihypertensive medication. Data for non-Hispanic persons are from the 1976–80 National Health and Nutrition Examination Survey II and data for Hispanic persons are from the 1982–84 Hispanic Health and Nutrition Examination Survey.

■ *Healthy People 2000* objectives include increasing to at least 50 percent the proportion of the adult population with high blood pressure who maintain control of their high blood pressure. A related objective calls for the reduction of overweight among hypertensive persons.

■ The age-adjusted prevalence of hypertension was much lower among Hispanic persons and much higher among non-Hispanic black persons than among non-Hispanic white persons (figure 25). Non-Hispanic black males had 23 percent higher prevalence of hypertension than non-Hispanic white males. Hypertension estimates for Cuban and Puerto Rican males were about 40 percent lower and for Mexican American males, about 30 percent lower than for non-Hispanic white males.

■ Hispanic females also had lower prevalence estimates of hypertension compared with non-Hispanic white females, although the differences by ethnicity were not as large as among males. Cuban females had the lowest prevalence, 14 percent. Hypertension among non-Hispanic black females was 1.7 times the prevalence among non-Hispanic white females.

■ Recent data suggest that long-term control of hypertension has increased from 11 percent in 1976–80 to 24 percent in 1982–84 (1).

Figure 25. Hypertension among persons 20–74 years of age, according to race/ethnicity: United States, 1976–80 and 1982–84
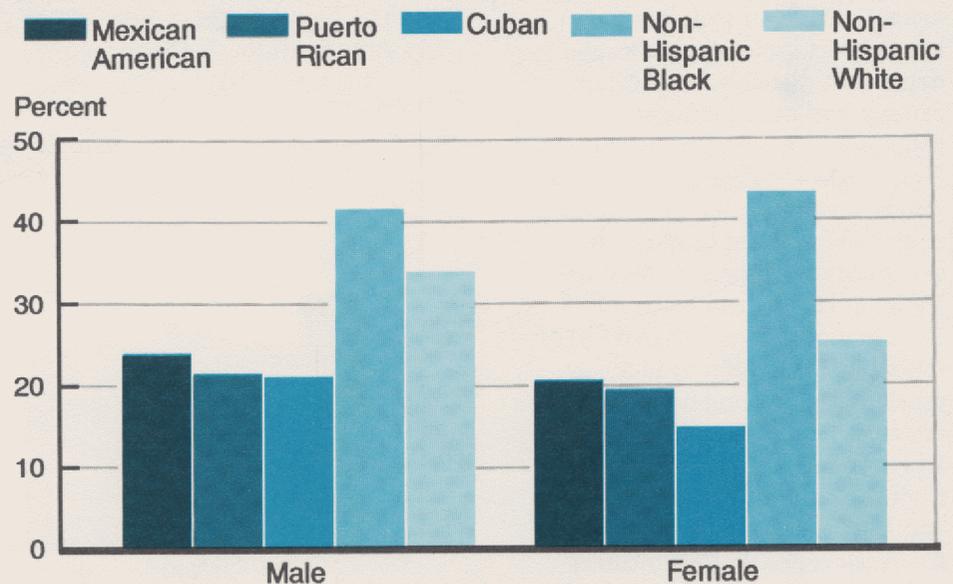
NOTE: Percents are age adjusted. Data for females exclude pregnant women.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey II, 1976–80 and Hispanic Health and Nutrition Examination Survey, 1982–84 (4).

Successful control has generally been higher for females than for males. Cuban females were as likely as Cuban males, but Mexican and Puerto Rican males were less likely than females in those groups, to control their blood pressures (2).

■ Data from the 1987 Survey of American Indians and Alaskan Natives (SAIAN) indicate that for persons 19 years of age and over, the age-adjusted prevalence of hypertension (based on self-reporting) was similar to that for the total U.S. civilian noninstitutionalized population. For males, age-adjusted rates of hypertension (based on self-reporting) were 23 and 22 percent for the SAIAN and U.S. populations and for females, the rates were 22 and 23 percent, respectively (3).

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High Serum Cholesterol

High serum cholesterol is a known modifiable risk factor for cardiovascular disease. Both coronary heart disease morbidity and mortality increase with increases in blood cholesterol levels. An estimated 60 million American adults require medical advice and intervention to lower their blood cholesterol levels (1). High serum cholesterol is defined as 240 milligrams per deciliter (mg/dl) or more (2). Data for non-Hispanic persons are from the 1976–80 NHANES II (3) and data for Hispanic persons are from the 1982–84 Hispanic Health and Nutrition Examination Survey (4).

■ *Healthy People 2000* includes an objective to reduce the prevalence of blood cholesterol levels of 240 mg/dl or greater to no more than 20 percent among adults.

■ The age-adjusted prevalence of high serum cholesterol was lower among Hispanic than non-Hispanic populations. There was relatively little difference among the three Hispanic populations for either males or females. Among Hispanic males, the proportions ranged from 16 percent for Cuban men to 19 percent for Mexican American men (figure 26). Among non-Hispanics, 24 percent of black males and 25 percent of white males had high serum cholesterol. Among Hispanic females, the proportions with high serum cholesterol ranged from 17 percent among Cuban women to 23 percent among Puerto Rican women. Compared with Hispanic females, the proportions were generally higher among non-Hispanic black and white females, 25 and 28 percent, respectively.

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1. Sempos, C., Fulwood, R., Haines, C., et al. 1989. The prevalence of high blood cholesterol levels among adults in the United States. *JAMA* 262:45–52.

2. National Cholesterol Education Program. Expert Panel on Detection,

Figure 26. High serum cholesterol among persons 20–74 years of age, according to race/ethnicity: United States, 1976–80 and 1982–84
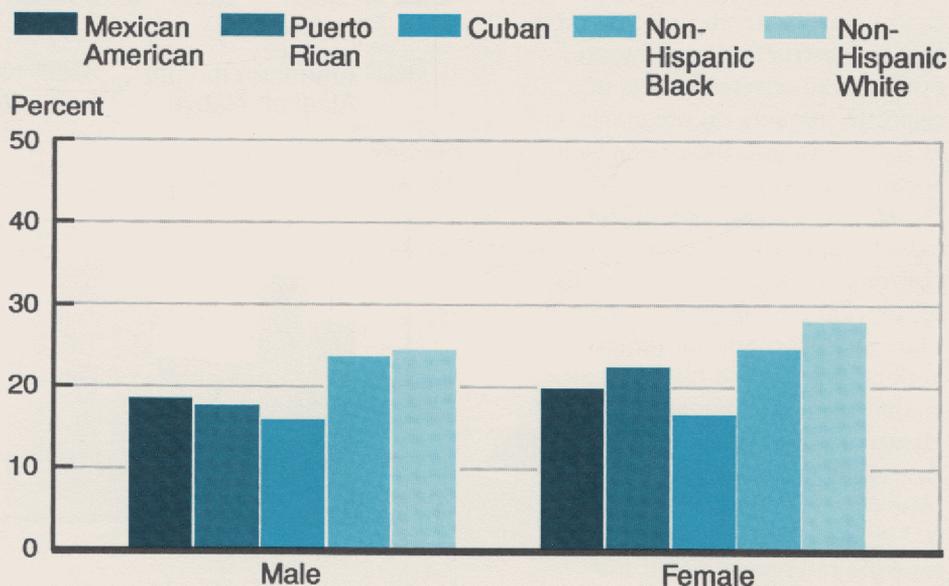
NOTE: Percents are age adjusted. High serum cholesterol is defined as 240 mg/dl or more.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey II, 1976–80 and Hispanic Health and Nutrition Examination Survey, 1982–84 (3,4).

Evaluation and Treatment of High Blood Cholesterol in Adults, November 1987. Archives of Internal Medicine: Jan. 1988, 148:36–69.

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Cigarette Smoking

Cigarette smoking has been identified as the single most avoidable cause of death in the United States. Some 400,000 lives are lost each year from smoking, primarily from lung cancer, cardiovascular disease, and chronic obstructive lung disease. Further, the adverse effects of cigarette smoking on pregnancy and infant health also have been well documented (1).

Healthy People 2000 objectives include reducing the prevalence of cigarette smoking to no more than 15 percent among persons ages 20 years and over. Special target populations include black persons (reduction to 18 percent), those of Hispanic origin (to 18 percent), and American Indians and Alaskan Natives (to 20 percent).

■ Similarly high age-adjusted smoking rates were noted for non-Hispanic black (39 percent), American Indian (37 percent), and Puerto Rican (37 percent) males compared with much lower rates among Asian (25 percent) and Cuban (24 percent) males during 1985 and 1987 (figure 27). Non-Hispanic white and Mexican American males had smoking rates that fell between these percents.

■ Age-adjusted smoking rates among females were equally high for non-Hispanic white and black females (29 percent) and American Indian (31 percent) females, with lower rates noted for Puerto Rican (23 percent) and Cuban (20 percent) females. Smoking rates were lowest for Asian (12 percent) and Mexican American females (16 percent).

■ In each racial and ethnic group except non-Hispanic white persons, the age-adjusted prevalence of cigarette smoking was higher for males than for females. Among non-Hispanic white males and females, smoking rates were similar (31 percent compared with 29 percent).

■ Data on cigarette smoking from the Hispanic Health and Nutrition Examination Survey (HHANES) for

Figure 27. Current cigarette smokers among persons 18 years of age and over, according to sex and race/ethnicity: United States, 1985 and 1987
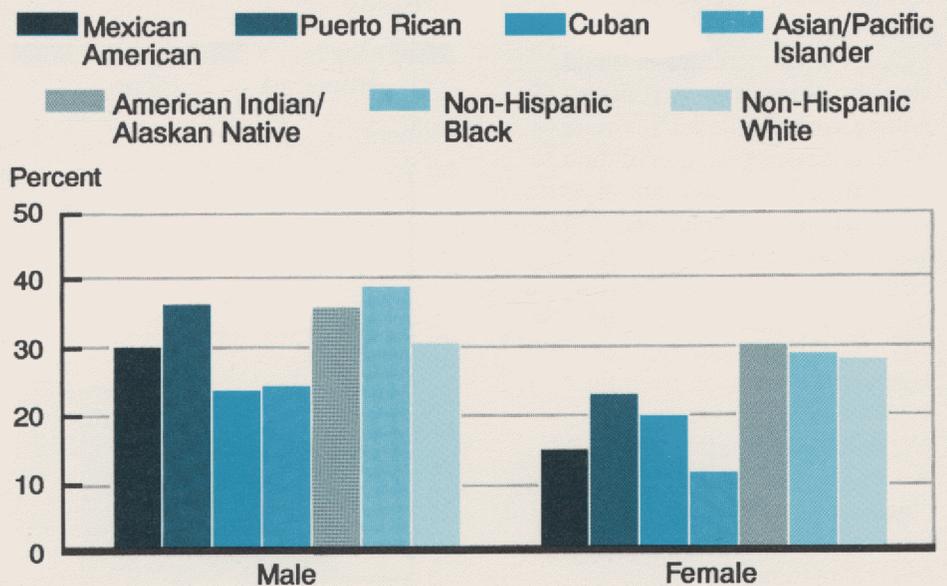
NOTE: Percents are age adjusted annual averages.
SOURCE: National Center for Health Statistics, National Health Interview Survey.

1982–84 show that the prevalence of current smoking was higher among Mexican Americans, Cubans, and Puerto Ricans than indicated by the National Health Interview Survey for 1985 and 1987 (2). The age-adjusted smoking rates from the HHANES for Mexican American, Puerto Rican, and Cuban males were 42.5, 39.8, and 41.6 percent, respectively. Among females the rates were 23.8, 30.3, and 24.4 percent, respectively. Differences in the two survey designs include: time frame, use of Spanish language interviews in HHANES, lower response rates in HHANES, and geographic rather than national sampling in HHANES. Thus, data on cigarette smoking prevalence for the three Hispanic population groups need to be interpreted with caution.

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2. Haynes, S.G. etal. 1990. Patterns of cigarette smoking among Hispanics in the United States: Results from HHANES 1982-1984. *AJPH* 80(Supp.):47–53.

Cocaine Episodes

Estimates of cocaine use in the United States range from nearly 900,000 to over 1 million persons using cocaine at least once a week. Although the precise dimensions of the problem of cocaine use and addiction are unknown, cocaine abuse presents a major problem for the country in terms of costs and treatment. The *Healthy People 2000* objectives include targeting reductions in cocaine use among those 12–25 years of age and in reducing the number of drug-abuse-related emergency room visits for all persons.

■ Cocaine-related emergency room episodes are one measure of severe cocaine abuse. The data are from hospital emergency rooms located in 21 metropolitan areas of the United States. Between 1985 and 1988, the number of such episodes increased dramatically among black, white, and Hispanic persons (figure 28), a likely result of increased adverse health effects. Throughout this period, both the number of episodes as well as the annual percent increases among black persons remained highest.

■ Annual percent increases were greatest from 1985 to 1986; the number of episodes among black persons increased 90 percent, among white persons by 70 percent, and among Hispanic persons by 78 percent. Over the following 2 years the annual increases slowed; between 1987 and 1988, the number of cocaine-related emergency room episodes among black persons increased by 37 percent and by 28 percent among white and Hispanic persons.

■ Data for 1988 to 1989 show no change among black persons and modest decreases among white and Hispanic persons in the number of emergency room visits for cocaine use. It is not clear whether this small decline represents a decrease in cocaine abuse or rather changes in patterns of use (thereby not necessitating emergency room visits). Nevertheless, the number of visits remains very high.

Figure 28. Cocaine-related emergency room episodes, according to race/ethnicity: Selected emergency rooms in metropolitan areas, 1985–89
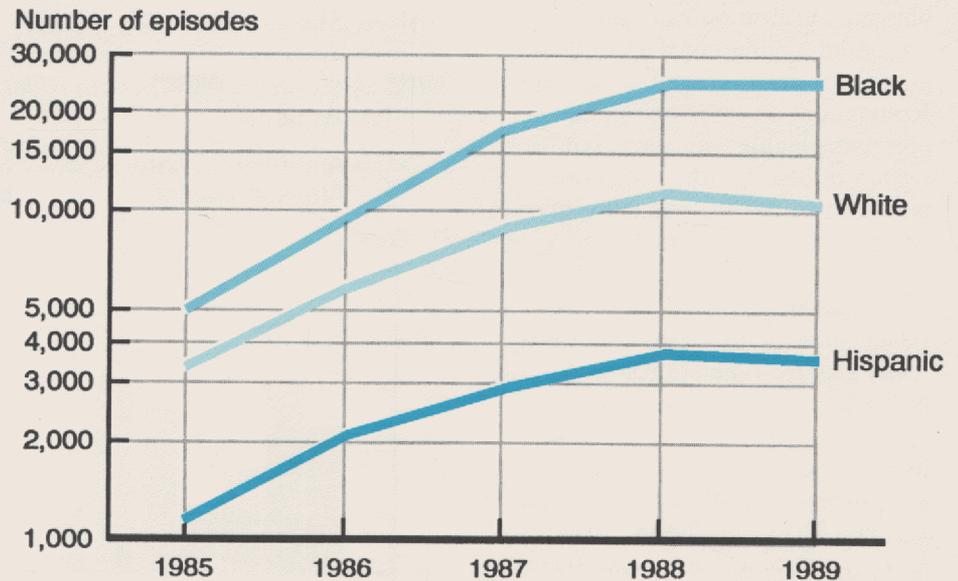
SOURCE: National Institute on Drug Abuse, Drug Abuse Warning Network.

Health Status and Utilization

In figures 29 and 30, respondent-assessed health status and physician utilization rates are compared among racial and ethnic groups for persons aged 45–64 years. Respondent-assessed health status correlates highly with physician ratings of health, other objective measures of health, and mortality (1,2,3). Figure 29 examines the extent to which racial differences in health status can be attributed to socioeconomic differences among racial groups. Education was chosen as the socioeconomic measure because, unlike income, it is less likely to be affected by health.

■ During 1985–88, Asian, Cuban, and non-Hispanic white persons 45–64 years of age were less likely than non-Hispanic black, American Indian, Mexican American, or Puerto Rican adults ages 45–64 years to be assessed in fair or poor health (12–18 percent compared with 25–33 percent) (figure 29).

■ As educational attainment increases, the percent in each racial and ethnic group who are in fair or poor health decreases. In each group, those with less than a high school education were 2–3 times as likely as those with 12 or more years of education to assess their health as fair or poor.

■ Regardless of level of education, racial differences in health status remain substantial. Even among those with 12 or more years of education, the percent in fair or poor health still varied by more than a factor of two (22 percent compared with 9 percent). The large racial and ethnic differences in respondent-perceived health status may reflect differences in income, in access to health care, in health-related behaviors such as cigarette smoking, as well as in cultural differences of sick-role perceptions.

Utilization of physician services reflects both access to care and

Figure 29. Fair or poor health status among persons 45–64 years of age, according to educational attainment and race/ethnicity: United States, 1985–88
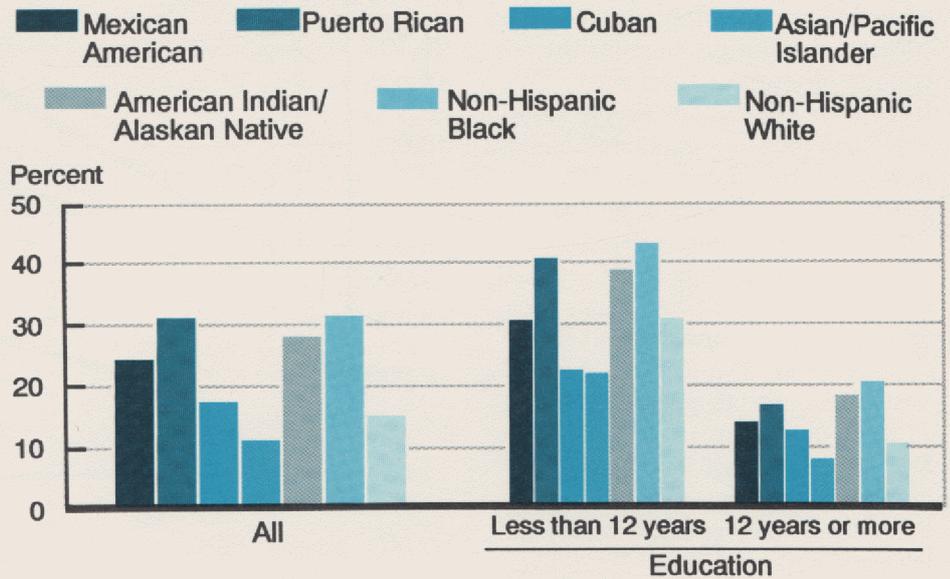
SOURCE: National Center for Health Statistics, National Health Interview Survey.

health status. In general, persons who are less healthy have more physician contacts than those who are more healthy. Because of the wide variation among racial and ethnic groups in respondent-assessed health status noted in figure 28, it is important to take health status into account when comparing utilization of physician services.

■ During 1985–88, physician utilization rates for persons 45–64 years of age were lower for Asians than for non-Hispanic white persons (4.9 compared with 6.3 visits per year); further, these two groups together with Cubans (4.9 per year) and Mexican Americans (5.4 per year) had fewer visits per year than non-Hispanic black persons (7.0 visits per year) (figure 30). Non-Hispanic black persons also had among the highest percent assessed in fair or poor health.

■ Taking health status into account allows for a better understanding of differences in utilization rates. Health status-adjusted utilization rates are

estimates of the annual number of physician visits per person for each racial and ethnic group that would occur if the group had the same respondent-assessed health status as all persons (18 percent with fair or poor health and 82 percent with good to excellent health).

■ After adjusting for health status, physician utilization rates show a different ranking from the unadjusted rates. The adjusted physician utilization rate for non-Hispanic black persons was lower than for non-Hispanic white persons, 5.6 compared with 6.5 visits per person (while the unadjusted rates showed the opposite, 7.0 compared with 6.3 visits). In addition, the adjusted rates for Asians, Mexican Americans, Cubans, and Puerto Ricans (4.8 visits per person) were all lower than for non-Hispanic white persons.

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Figure 30. Physician utilization rates for persons 45–64 years of age, according to health status and race/ethnicity: United States, 1985–88
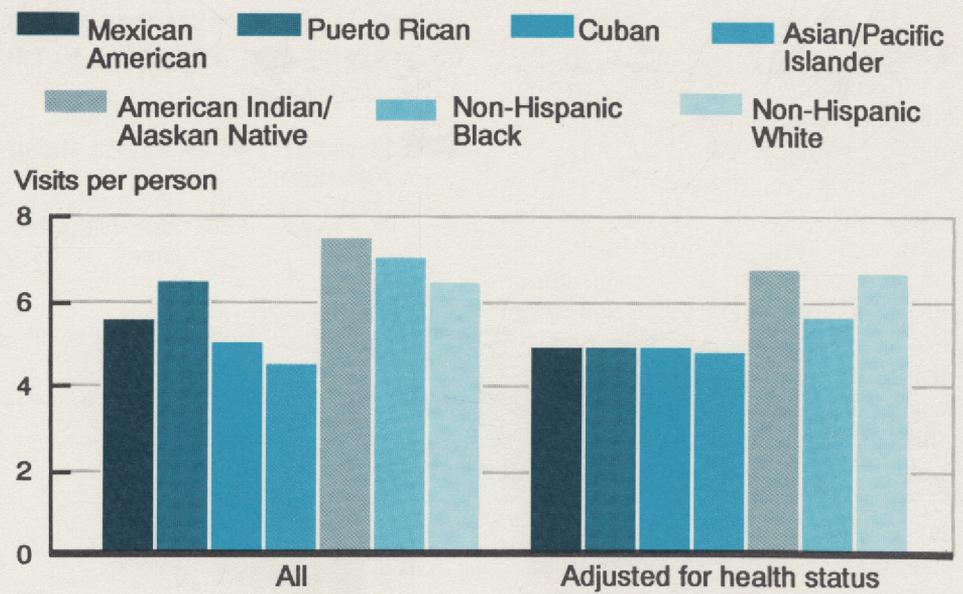
SOURCE: National Center for Health Statistics, National Health Interview Survey.

Health Insurance

Health insurance coverage is associated with age, health, and socioeconomic status. Among persons under 65 years of age, those who are older, have more education, have higher incomes, and are in better health are more likely than others to have some form of private health insurance. Further, for persons under 65 years, health care utilization rates are lower for those who have no insurance than for persons with coverage (1). Health care coverage through Medicare is available to nearly all persons 65 years of age and over.

■ For persons under 65 years of age, the age-adjusted proportion of the population with private health insurance declined slightly between 1980 and 1986 (from 79 percent to 76 percent), with a concomitant increase in the proportion who were uninsured (from 12 percent to 15 percent) (2).

■ Variation in health care coverage among racial and ethnic groups was quite large during 1983–86. Whereas 81 percent of non-Hispanic white, 73 percent of Asian, and 69 percent of Cuban persons under 65 years of age had private health insurance, less than 60 percent of non-Hispanic black (58 percent), Puerto Rican (51 percent), and Mexican American (54 percent) persons had private coverage (figure 31).

■ About 35 percent of the Mexican American population under 65 years of age had no health care coverage during 1983–86. Further, 22 percent of non-Hispanic black, 21 percent of Puerto Rican, and 23 percent of Cuban persons lacked coverage compared with 12 percent and 16 percent of non-Hispanic white and Asian persons.

■ Medicaid was more likely to be the only form of coverage for non-Hispanic black (18 percent) and Puerto Rican (25 percent) persons under 65 years of age than for any other group.

Figure 31. Health insurance coverage among persons under 65 years of age, according to race/ethnicity: United States, 1983, 1984, and 1986
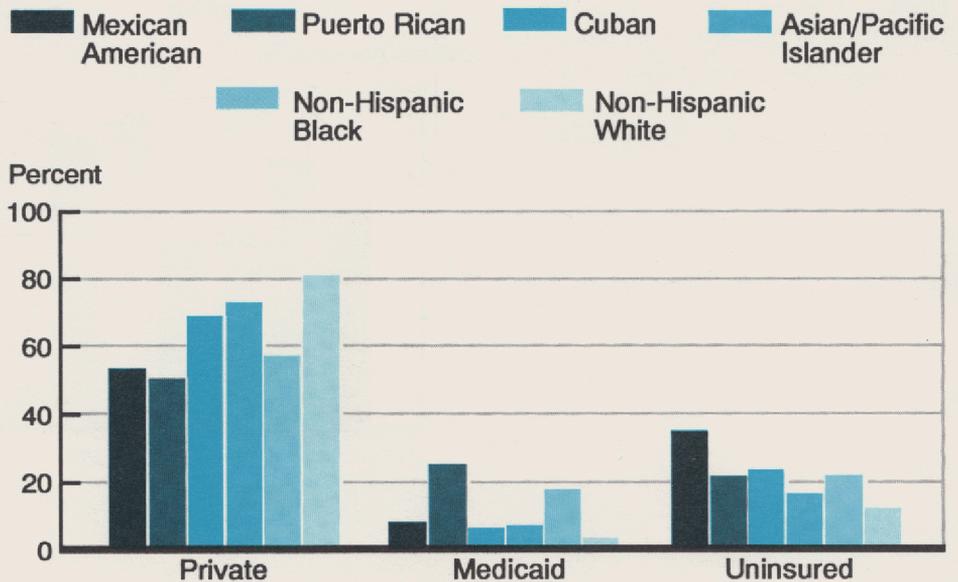
NOTE: Percents are age adjusted annual averages.
SOURCE: National Center for Health Statistics, National Health Interview Survey.

■ For persons 65 years of age and over, having private insurance in addition to Medicare was characteristic of about one-third of non-Hispanic black, Cuban, and Mexican persons compared with about half of Asians during 1983–86 (figure 32). Three-fourths of non-Hispanic white persons had this form of coverage.

■ A combination of Medicaid and Medicare coverage occurred more frequently among elderly Puerto Ricans (43 percent), non-Hispanic black, Cuban, and Mexican persons (20–29 percent) than for non-Hispanic white or Asian elderly persons.

■ Non-Hispanic black, Mexican, and Puerto Rican elderly persons were twice as likely as non-Hispanic white or Cuban persons to have relied solely on Medicare (36 percent compared with about 18 percent).

■ Data from the National Health Interview Survey (NHIS) are not shown for American Indians because they represent a special population with respect to coverage for health care. In 1987, the Indian Health Service (IHS) estimated that about 60 percent of American Indians in the United States resided in the IHS catchment area and as such they were "covered" by the IHS for their health care. Because the IHS catchment areas cannot be identified on the National Health Interview Survey, it is not possible to estimate the health care coverage status for those American Indians who do not reside in the IHS catchment areas. For those in the IHS, estimates from the Survey of American Indians and Alaskan Natives show that 55 percent of the population was covered for health care solely by the IHS, 28 percent had some form of private coverage in addition to the IHS, and 11 percent were also covered by Medicaid (3).

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Figure 32. Health insurance coverage among persons 65 years of age and over, according to race/ethnicity: United States, 1983, 1984, and 1986
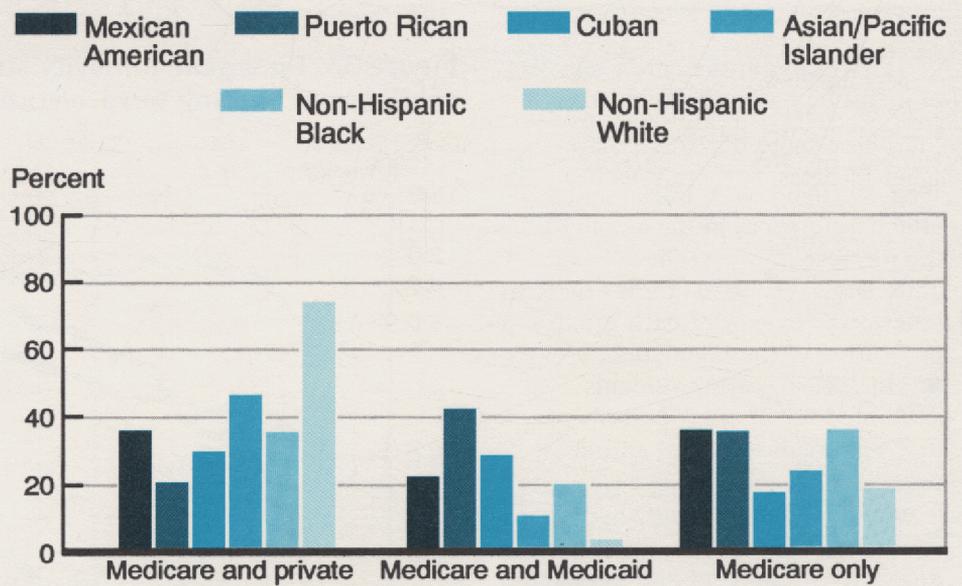
NOTE: Percents are age adjusted annual averages.

SOURCE: National Center for Health Statistics, National Health Interview Survey.

Medical School Enrollment

First-year enrollment in schools of medicine has risen for minority students from 4 percent of all students in 1968–69 to 26 percent in 1988–89 (figure 32). Racial and ethnic differences in the amount of the increase, however, have been quite large. The variation is especially noteworthy in view of each group's proportion of the population.

■ In 1968–69, black students accounted for under 3 percent of first-year medical school enrollees; 2 years later doubling to over 6 percent. After peaking at 7.5 percent in 1974–75, the rate dropped to 7 percent and has been fairly stable since then.

■ In 1968–69, there were only 23 Hispanic students, 0.2 percent of all first-year students, enrolled in medical schools. The proportion increased rapidly to 2.7 percent by 1974–75. Growth continued, albeit at a slower pace, and leveled off during the 1980's at about 5.5 percent, just below the percent for black students.

■ The most dramatic change has been among Asian students. Growth in medical school enrollment began in the mid-1970's, with proportions doubling every few years from 2 percent in 1975–76 to 4 percent in 1981–82 to 9 percent in 1986–87. By 1988–89, 12 percent of first-year medical school enrollees were Asian.

■ American Indian students continue to comprise the lowest proportion in medical schools, increasing from 0.1 percent in the late 1960's to 0.5 percent in 1988–89.

■ The 1988–89 medical school enrollment rate, that is, the number of first-year students per 100,000 persons 15–24 years of age, was nearly five times higher for Asian students than for white students (187 compared with 40). The rates for Hispanic, black, and American Indian students were considerably lower (26, 22, and 20, respectively) than the rate for white students.

Figure 33. First-year minority student enrollment in schools of medicine, according to race/ethnicity: United States, 1968–88
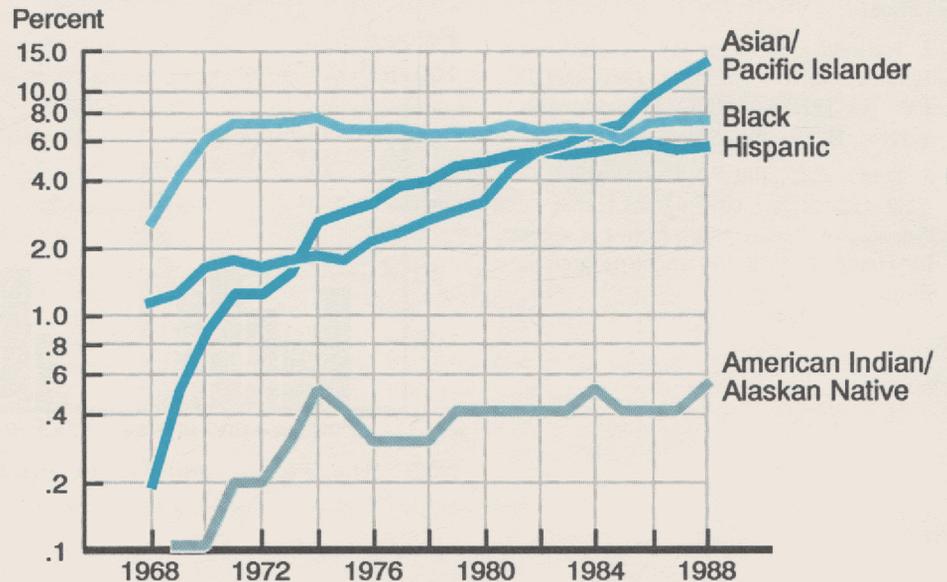
NOTE: Excludes schools of osteopathic medicine.

SOURCE: Association of American Medical Colleges, Section for Student Services, Annual Fall Enrollment Surveys.

■ Enrollment of women has risen dramatically during the past two decades. In 1988–89, 37 percent of all first-year medical students were women, and more than half of black and American Indian students were women (see table 95).

Technical Notes and Data Sources for Figures

Natality and Infant Mortality Data (Figures 2–4)

Natality and infant mortality data are from the National Vital Statistics System. Data for the entire United States are available for the following race groups: Asian and Pacific Islanders including Chinese, Japanese, Filipino, and other Asian, American Indian and Alaskan Natives (including Aleuts and Eskimos), white, and black. Data are not shown for the category "other Asian." In addition, natality data from 30 States and the District of Columbia are available by Hispanic origin of mother. In 1988, about 95 percent of the total U.S. Hispanic population resided in these States (1). The Hispanic categories include: Mexican American, Cuban, Puerto Rican, and Central and South American. The category "other and unknown Hispanic" is excluded from these charts.

Further, because 79 percent of the white and 97 percent of the black births (with origin of mother stated) were to mothers of non-Hispanic origin, natality characteristics of all white and non-Hispanic white births were similar, as were those for all black and non-Hispanic black births. Therefore, data for all white and black births, regardless of origin (based on all 50 States and the District of Columbia) are presented.

Although natality data for Hispanic mothers are from 30 States and the District of Columbia, the births are concentrated in a few States. Two-thirds of the births to Cuban mothers were among residents of Florida; three-fifths of the births to Puerto Rican mothers were among residents of New York or New Jersey; four-fifths of the births to Mexican American mothers were among residents of California or Texas; and two-thirds of the births to Central and South American mothers were to residents of California or New York. See Appendix I for list of States in reporting area.

Infant mortality rates are from the National Linked Files of Births and Infant Deaths and are based on data for births during 1983–85 (the only years available to date). The use of linked files avoids discrepancies in the reporting of race between the birth and infant death certificates. While discrepancies are relatively rare for white and black infants, they are substantial — on the order of 25–40 percent — for other races, especially for American Indians, Chinese, Japanese, Filipinos, and other Asian races. For this reason, the use of annual calendar year vital statistics for monitoring trends and cross-sectional variations in infant mortality can be misleading for many minority groups (2). Thus, the infant mortality rates presented here were calculated using the race and Hispanic origin of the mother from the birth certificate for both the numerator and denominator of the rate. Hispanic infant mortality rates are from the 23 States and the District of Columbia that identified Hispanic origin on the birth certificate in 1983, 1984, and 1985.

Natality statistics by race of mother can differ somewhat from those by race of child as a result of interracial parentage. For example, the proportion of American Indian mothers beginning prenatal care early was 58.1 percent based upon race of mother compared with 60.6 percent based upon race of child. The percent low birth weight among Japanese births was 6.7 percent based upon race of mother compared with 6.2 percent based on race of child. Thus, for consistency with the infant mortality rates, data on prenatal care and low birth weight are also presented by race and ethnicity of mother rather than by race of child.

Beginning with 1989 data, natality statistics from the NCHS will be presented based upon race of mother.

Death Rates for Persons 1 Year of Age and Over (Figures 6–10)

The annual number of deaths according to age for black, white, Asian and Pacific Islander (including Chinese, Japanese, Filipino, and other Asians), American Indian and Alaskan Natives (including Aleuts and Eskimos), and persons of Hispanic origin are available from the NCHS vital statistics system. For denominators of the rates, age-specific population estimates for black and white persons are routinely provided by the U.S. Bureau of the Census to the NCHS, and thus, age-specific death rates for the white and black populations are published annually.

To estimate death rates for the Asian, American Indian, and Hispanic populations, the Office of Analysis and Epidemiology (OAE), NCHS, produced age-specific resident population estimates for those three population groups. The Hispanic population was estimated for those who resided in the 26 States and the District of Columbia that reported Hispanic deaths in 1988.

To estimate the 1988 age-specific Asian and American Indian populations, the OAE used the following data, published by the U.S. Bureau of the Census: (a) the 1988 resident population estimates for the Asian and American Indian populations (3); (b) the age-specific population estimates for the all other races group (Asians and American Indians) (3); and (c) the 1980 Census population estimates of Asians and American Indians by detailed age (4). The age- and race-specific estimates for 1988 were calculated by the method of iterative proportional

fittings (5) to reflect the 1980 distributions of age by race and are consistent with the 1988 all other races (Asians and American Indians) estimates by age and with the 1988 Asian and American Indian total populations.

The data used to calculate the 1988 age-specific population estimates for the Hispanic resident population for the mortality reporting area including 26 States and the District of Columbia (estimated to include 82 percent of the Hispanic population of the United States) are: (a) age-specific estimates of the Hispanic population in each State for 1980 (latest data available) (4); (b) age-specific Hispanic population estimates for the United States for 1980 (3); and (c) age-specific Hispanic population estimates for the United States for 1988 (3). Assuming that the 1980 age-specific proportions of persons in the 26 States reporting Hispanic deaths were the same in 1988, the 1988 Hispanic origin age-specific population estimates for the United States were reduced by those age-specific proportions. For example, the 1988 population estimate for Hispanic persons 15–24 years of age in the 26 reporting States was calculated as the total 1988 U.S. Hispanic population ages 15–24 years multiplied by the proportion of Hispanics ages 15–24 years who, in 1980, resided in the 26 reporting States.

Death rates are presented for all Hispanic persons, rather than separately for Mexican Americans, Cubans, and Puerto Ricans because of the lack of population data. In addition, the Hispanic death rates shown in the figures reflect an adjustment for origin "not stated." Depending upon age and cause of death, 3–6 percent of the deaths had origin not stated on the death certificates.

Death rates are asterisked for those causes of death that are based on fewer than 50 deaths.

Weapons in Homicides (Figure 11)

Data are from the Federal Bureau of Investigation's (FBI) Supplemental Homicide Reporting System, a voluntary reporting system, that in 1988 provided data on about 94 percent of the homicides committed in the United States. Homicides include cases of murder and nonnegligent manslaughter (6).

As defined by the FBI, handguns include pistols, revolvers, etc. Other firearms include rifles, shotguns, others, and type of firearm not stated. (The proportion of firearms with type not stated ranged from 3 percent among Asian and Pacific Islanders to 7 percent among black persons.) Knives or cutting instruments include icepicks, screwdrivers, axes, etc. Personal weapons include beating by hands, feet, and/or other body parts or use of teeth, as well as pushing out of a window. Other includes poison, explosives, fires, narcotics and drugs, drowning, strangulation, and asphyxiation.

Distributions are based on homicides involving single rather than multiple victims. Three percent of homicide records had type of weapon not stated; they were excluded from the percent distributions.

Cancer Incidence and Survival (Figures 12–19)

The Special Populations Studies Branch of the Division of Cancer Prevention and Control, National Cancer Institute, produced estimates from the Surveillance, Epidemiology and End Results (SEER) program of cancer incidence and survival for minority populations residing in specific SEER registry areas for years centering around 1980 (7). The incidence data are for 1977–83 and have been age adjusted by the direct method to the 1970 U.S. total population. The 5-year relative survival rates are based on cases diagnosed between 1975 and 1984.

Racial and ethnic comparisons of cancer incidence and survival data are made within specific registry areas in order to reduce geographic confounding of the data. Thus, the data are not national estimates. Specifically,

(a) Data for black males and females are from four registry areas: metropolitan areas of San Francisco-Oakland, Atlanta, Detroit, and the State of Connecticut. Comparable data for white males and females are shown for these same areas.
(b) Data for Asian males and females, namely Chinese, Japanese, and Filipino are from the registries in San Francisco-Oakland and Hawaii. Comparable data for white persons are also from these two areas.
(c) Data for Hispanic persons are from the New Mexico registry only and as such are referred to as Mexican American. Data for American Indians are from New Mexico and Arizona. Comparable data for the non-Hispanic white population are from the New Mexico registry.

The following terminology is used interchangeably: malignant neoplasms of the respiratory system, lung cancer and cancer of the lung and bronchus. See Appendix II for ICD codes.

Lung and colorectal cancer data are not shown for American Indians because the number of sex-specific cases for the 10-year period 1975–84 (upon which the survival rates are based) was fewer than 100. Data are asterisked when the number of cases was between 101 and 125.

Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) (Figures 20–22)

Reported cases of AIDS are from the Division of HIV/AIDS, Center for Infectious Diseases, Centers for Disease Control. The data are for reported cases and may reflect reporting delays. Data refer to cases reported as of September 30, 1990. While the median delay in reporting was about 3 months in 1988, recent analyses suggest that the reporting delay may be increasing.

AIDS cases are counted once in a hierarchy of exposure categories (8). Data are not shown when based on fewer than 50 cases. See Appendixes I and II for additional information on AIDS reporting.

Examination Statistics (Figures 23–26)

Diabetes, overweight, hypertension, and serum cholesterol data for the three Hispanic populations—Mexican Americans, Puerto Ricans, and Cubans—are from the Hispanic Health and Nutrition Examination Survey (HHANES) for 1982–84, and the comparable data for non-Hispanic white and non-Hispanic black populations are from the National Health and Nutrition Examination Survey (NHANES II) for 1976–80.

The HHANES population includes a sample of the civilian noninstitutionalized Mexican Americans in five Southwestern States— California, Arizona, New Mexico, Colorado, and Texas; Cuban Americans in Dade County, Florida; and Puerto Ricans in the New York city area, including parts of New Jersey and Connecticut. The Hispanic population covered in HHANES is estimated to have included 76 percent of the total 1980 U.S. Hispanic civilian noninstitutionalized population ages 6 months to 74 years; it is not a representative sample of all Hispanic persons in the United States.

Hypertension, overweight, and serum cholesterol data were age adjusted by the direct method to the 1980 census population 20–74 years of age (9,10). Diabetes data are from Flegal, et al. (11). Data are asterisked if the relative standard error is above 30 percent.

American Indian Data for Diabetes, Hypertension, and Health Insurance

The Survey of American Indians and Alaskan Natives (SAIAN) was conducted by the Agency for Health Care Policy and Research in 1987 as a separate component of the 1987 National Medical Expenditure Survey. The SAIAN consisted of a stratified area probability sample of approximately 2,000 households located on or near an Indian reservation with at least one person eligible for medical care from the Indian Health Service (12). The overall response rate for the SAIAN was 83 percent. The primary purpose of the SAIAN is to provide a data base on the utilization of medical services in the American Indian and Alaskan Native populations who are eligible for health care through the Indian Health Service (IHS). In addition, the survey was designed to provide measures of health status, estimates of insurance coverage, expenditures, and sources of payment for the period January 1 to December 31, 1987. Chronic disease estimates were obtained by respondent or proxy reports to questions phrased, "Did a doctor ever tell you, you had _____ ?".

Cigarette Smoking (Figure 27)

Data from the National Health Interview Survey (NHIS) were combined for 1985 and 1987, the 2 most recent years with available data on cigarette smoking, to increase the reliability of the data among each of the minority populations. See Appendix I for a detailed description of the NHIS.

Cocaine-related Emergency Room Episodes (Figure 28)

Data are from the National Institute on Drug Abuse's Drug Abuse Warning Network (DAWN). The estimates from this program are from 431 consistently reporting emergency rooms based in 21 metropolitan areas. Thus, these are not national estimates. See Appendix I for a description of DAWN.

Health Status and Physician Utilization (Figures 29–30)

Data from the National Health Interview Survey (NHIS) were combined for 4 years to increase the reliability of the data among each of the minority populations. Physician utilization rates were adjusted for differences in health status by the direct method using the percentages of the total population in fair or poor health and in good to excellent health as the standards. See Appendix I for a detailed description of the NHIS.

Health Insurance (Figures 31–32)

The data from the National Health Interview Survey were combined for 1983, 1984, and 1986 to produce a cross-sectional estimate of health care coverage. Data for 3 years were combined to increase the reliability of the estimates. The insurance categories were defined as follows: Medicaid includes persons receiving Aid to Families with Dependent Children (AFDC) or Supplemental Security Income (SSI) or those with current Medicaid cards. Uninsured includes persons not covered by private insurance, Medicaid, Medicare, or military plans. Medicare includes persons not covered by private insurance or Medicaid. See Appendix I for a description of the National Health Interview Survey.

Percentages were age adjusted by the direct method to the U.S. civilian noninstitutionalized population in 1970, using three age groups for those under 65 years of age—under 15, 15–44, and 45–64 years; and two age groups for those 65 years of age and over—65–74 and 75 years and over.

Medical School Enrollment (Figure 33)

Data are from the Association of American Medical Colleges, Division of Educational Measurement and Research, American Medical Association. Data for schools of osteopathic medicine are included in table 94. See Appendix I for a description of this data system.

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Data Table for Figures 1–33

	Hispanic	Asian	American Indian	Black
Figure 1				
1980	14,782	3,834	1,429	26,784
1981	15,452	4,198	1,458	27,207
1982	16,051	4,549	1,490	27,636
1983	16,649	4,855	1,524	28,056
1984	17,251	5,172	1,559	28,457
1985	17,865	5,504	1,594	28,870
1986	18,521	5,849	1,629	29,303
1987	19,173	6,181	1,664	29,748
1988	19,831	6,529	1,699	30,202

	Mexican American	Puerto Rican	Cuban	Central and South American	Chinese	Japanese	Filipino	American Indian	Black	White
Figure 2										
First trimester care	58.3	63.3	83.4	63.1	82.4	86.3	78.4	58.1	60.7	79.3
Figure 3										
Very Low	0.9	1.6	1.2	1.0	0.6	0.9	0.9	1.0	2.9	0.9
Moderately Low	4.7	7.8	4.8	4.6	4.1	5.8	6.2	5.0	10.4	4.7
Low	5.6	9.4	5.9	5.6	4.6	6.7	7.1	6.0	13.3	5.7
Figure 4										
Neonatal	5.7	8.3	5.9	5.7	4.3	3.4	5.3	6.7	12.2	5.9
Postneonatal	3.2	4.0	2.2	2.5	3.1	2.6	2.9	7.2	6.4	3.1
Infant mortality	8.8	12.3	8.0	8.2	7.4	6.0	8.2	13.9	18.7	9.0

	Black Male	Black Female	White Male	White Female
Figure 5				
1960	60.7	65.9	67.4	74.1
1970	60.0	68.3	68.0	75.6
1971	60.5	68.9	68.3	75.8
1972	60.4	69.1	68.3	75.9
1973	60.9	69.3	68.5	76.1
1974	61.7	70.3	69.0	76.7
1975	62.4	71.3	69.5	77.3
1976	62.9	71.6	69.9	77.5
1977	63.4	72.0	70.2	77.9
1978	63.7	72.4	70.4	78.0
1979	64.0	72.9	70.8	78.4
1980	63.8	72.5	70.7	78.1
1981	64.5	73.2	71.1	78.4
1982	65.1	73.7	71.5	78.7
1983	65.4	73.6	71.7	78.7
1984	65.6	73.7	71.8	78.7
1985	65.3	73.5	71.9	78.7
1986	65.2	73.5	72.0	78.8
1987	65.2	73.6	72.2	78.9
1988	64.9	73.4	72.3	78.9

	Hispanic	Asian	American Indian	Black	White
Figure 6					
Total	30	24	44	49	30
Injuries	12	10	24	20	13
Homicide	2	*1	*2	5	1
Malignant neoplasms	3	3	*2	3	3
Other	14	10	16	21	13
Figure 7					
Total	113	57	162	145	95
Injuries	49	29	89	37	52
Homicide	28	7	22	59	8
Suicide	10	6	26	8	14
Other	25	15	24	41	21

See note at end of table.

	Hispanic	Asian	American Indian	Black	White
Figure 8					
Total	185	77	271	367	149
Injuries	40	15	97	49	34
Homicide.	25	7	25	56	8
Diseases of heart	12	7	20	44	17
HIV infection	28	3	*4	43	12
Other	81	43	125	175	77
Figure 9					
Total	609	402	856	1,380	790
Injuries	36	18	77	52	31
Diseases of heart	166	99	224	426	244
Malignant neoplasms	152	159	183	401	289
Cerebrovascular diseases	31	29	31	86	29
Other	224	97	341	415	198
Figure 10					
Total	3,482	2,430	3,292	5,650	5,106
Diseases of heart	1,336	870	1,128	2,181	2,079
Malignant neoplasms	665	549	606	1,241	1,062
Cerebrovascular diseases	272	260	248	526	425
Other	1,209	752	1,309	1,702	1,540

	Asian	American Indian	Black	White
Figure 11				
Handgun	51	29	57	47
Other firearm	12	16	15	17
Knife, other stabbing	21	32	20	22
Personal weapons	7	9	3	5
Other	9	14	5	9

	Mexican American	American Indian	Non-Hispanic White	Chinese	Japanese	Filipino	White	Black	White
Figure 12									
Male	29.1	*	53.5	57.4	45.0	35.5	77.5	110.9	80.0
Female	11.9	*	20.5	24.8	12.6	16.1	36.2	28.3	30.9
Figure 13									
Male	8.7	*	11.0	15.0	13.4	14.3	13.8	10.3	12.5
Female	14.6	*	14.7	15.4	16.8	*10.1	18.9	15.7	17.5
Figure 14									
Male	27.8	*	37.9	48.8	62.3	36.7	59.7	53.2	61.8
Female	22.3	*	29.6	33.0	37.5	18.3	41.9	43.0	42.8
Figure 15									
Male	40.8	*	46.2	48.7	60.8	42.5	54.2	44.1	53.2
Female	49.4	*	50.0	58.8	62.8	51.4	54.6	48.8	55.1
Figure 16									
Female	50.8	21.3	71.6	57.8	55.0	41.3	96.8	72.7	91.1
Figure 17									
Female	70.6	46.2	74.6	80.8	85.4	73.7	78.3	63.2	75.5
Figure 18									
Male	70.7	31.0	75.2	29.6	43.8	44.0	70.7	118.9	69.5
Figure 19									
Male	72.4	54.2	76.0	72.5	80.5	71.7	73.0	63.4	70.3

See note at end of table.

	Hispanic	Asian	American Indian	Non-Hispanic Black	Non-Hispanic White
Figure 20					
1984	594	16	3	1,091	2,682
1985	1,065	50	9	1,999	4,939
1986	1,753	87	20	3,287	7,797
1987	2,486	135	26	5,222	12,887
1988	4,150	189	33	8,805	17,057
1989	4,208	229	61	9,978	18,523
Figure 21					
Homosexual/bisexual	52.5	78.6	53.8	44.3	78.7
IV drug use	32.4	2.9	11.5	35.7	7.5
Homosexual/bisexual-IV drug use	5.4	2.4	19.2	7.8	7.2
Other	9.7	16.2	15.4	12.2	6.6
Figure 22					
IV drug use	50.8	*	*	57.6	41.4
Heterosexual-IV drug use	29.9	*	*	19.3	16.0
Heterosexual-other	7.2	*	*	13.3	14.9
Other	12.0	*	*	9.8	27.7

	Mexican American	Puerto Rican	Cuban	Non-Hispanic Black	Non-Hispanic White
Figure 23					
Undiagnosed	9.6	11.8	*9.9	9.3	6.1
Previously diagnosed	14.3	14.3	5.9	10.1	5.9
Total prevalence	23.9	26.1	15.8	19.3	12.0
Figure 24					
Male	30.9	25.6	27.6	26.0	24.2
Female	41.6	40.2	31.6	44.4	23.9
Figure 25					
Male	23.9	21.4	20.7	41.6	33.8
Female	20.3	19.2	14.4	43.8	25.1
Figure 26					
Male	18.8	17.7	16.1	24.1	24.7
Female	20.0	22.7	16.9	25.0	28.3

	Mexican American	Puerto Rican	Cuban	Asian	American Indian	Non-Hispanic Black	Non-Hispanic White
Figure 27							
Male	30.3	36.7	24.0	24.9	36.5	39.4	30.9
Female	15.5	23.4	20.2	11.9	30.6	29.1	28.6

	Hispanic	Black	White
Figure 28			
1985	1,163	5,003	3,362
1986	2,065	9,459	5,721
1987	2,902	17,517	8,817
1988	3,699	23,971	11,290
1989	3,580	24,017	10,410

	Mexican American	Puerto Rican	Cuban	Asian	American Indian	Non-Hispanic Black	Non-Hispanic White
Figure 29							
All	24.9	31.6	17.8	12.3	28.6	32.5	15.6
Less than 12 years	31.0	41.4	23.1	23.2	39.6	44.4	31.1
12 years or more	14.4	17.3	13.1	8.9	18.7	21.6	10.8
Figure 30							
All	5.4	6.3	4.9	4.5	7.3	7.0	6.3
Adjusted	4.8	4.8	4.8	4.8	6.6	5.6	6.5

See note at end of table.

| | Mexican American | Puerto Rican | Cuban | Asian | American Indian | Non-Hispanic | |
						Black	White
Figure 31							
Private	53.8	50.5	68.7	73.3	- - -	57.6	81.4
Medicaid	8.5	25.2	6.3	7.0	- - -	17.9	3.4
Uninsured	34.9	21.4	23.3	16.3	- - -	21.7	12.3
Figure 32							
Medicare and Private	35.7	20.4	29.8	46.9	- - -	35.5	74.9
Medicare and Medicaid.	22.4	42.7	28.9	10.1	- - -	19.9	3.6
Medicare only	36.0	35.6	17.2	23.6	- - -	36.3	17.9

	Hispanic	Asian	American Indian	Black
Figure 33				
1968	0.2	1.2	0.0	2.7
1969	0.5	1.3	0.1	4.2
1970	0.9	1.7	0.1	6.1
1971	1.3	1.8	0.2	7.1
1972	1.3	1.7	0.2	7.1
1973	1.6	1.8	0.3	7.2
1974	2.7	1.9	0.5	7.5
1975	3.0	1.8	0.4	6.8
1976	3.3	2.2	0.3	6.7
1977	3.8	2.4	0.3	6.8
1978	4.0	2.7	0.3	6.4
1979	4.7	3.0	0.4	6.5
1980	4.8	3.3	0.4	6.6
1981	5.2	4.4	0.4	6.9
1982	5.4	5.4	0.4	6.6
1983	5.2	5.7	0.4	6.8
1984	5.4	6.6	0.5	6.7
1985	5.6	6.9	0.4	6.1
1986	5.7	9.0	0.4	7.0
1987	5.5	10.9	0.4	7.3
1988	5.6	12.4	0.5	7.2

See technical notes for criteria used for inidcating unreliable data (*).

Appendixes

Appendix
Contents

Appendix I
Sources and
Limitations of Data

Introduction

This report consolidates the most current data on the health of the population of the United States, the availability and use of health resources, and health care expenditures. The information was obtained from the data files and/or published reports of many governmental and nongovernmental agencies and organizations. In each case, the sponsoring agency or organization collected data using its own methods and procedures. Therefore, the data in this report vary considerably with respect to source, method of collection, definitions, and reference period.

Much of the data presented in the detailed tables are from the ongoing data collection systems of the National Center for Health Statistics. For an overview of these systems, see National Center for Health Statistics, M. G. Kovar: Data systems of the National Center for Health Statistics. *Vital and Health Statistics.* Series 1, No. 23. DHHS Pub. No. (PHS) 89-1325. Public Health Service. Hyattsville, Md. 1989. However, health care personnel data come primarily from the Bureau of Health Professions, Health Resources and Services Administration, and the American Medical Association. National health expenditures data were compiled by the Office of the Actuary, Health Care Financing Administration.

Although a detailed description and comprehensive evaluation of each data source is beyond the scope of this appendix, users should be aware of the general strengths and weaknesses of the different data collection systems. For example, population-based surveys obtain socioeconomic data, data on family characteristics, and information on the impact of an illness, such as days lost from work or limitation of activity. They are limited by the amount of information a respondent remembers or is willing to report. Detailed medical information, such as precise diagnoses or the types of operations performed, may not be known and so will not be reported. Conversely, health care providers, such as physicians and hospitals, usually have good diagnostic information but little or no information about the socioeconomic characteristics of individuals or the impact of illnesses on individuals.

The population covered by different data collection systems may not be the same, and understanding the differences is critical to interpreting the data. Data on vital statistics and national expenditures cover the entire population. Most data on morbidity and utilization of health resources cover only the civilian noninstitutionalized population. Thus, statistics are not included for military personnel, who are usually young; for institutionalized people, who may be any age; or for nursing home residents, who are usually old.

All data collection systems are subject to error, and records may be incomplete or contain inaccurate information. People may not remember essential information, a question may not mean the same thing to different respondents, and some institutions or individuals may not respond at all. It is not always possible to measure the magnitude of these errors or their impact on the data. Where possible, the tables have notes describing the universe and the method of data collection to enable the user to place his or her own evaluation on the data. In many instances, data do not add to totals because of rounding.

Overall estimates generally have relatively small sampling errors, but estimates for certain population subgroups may be based on small numbers and have relatively large sampling errors. Numbers of births and deaths from the vital statistics system represent complete counts (except for births in those States where data are based on a 50-percent sample for certain years). Therefore, they are not subject to sampling error. However, when the figures are used for analytical purposes, such as the comparison of rates over a time period, the number of events that actually occurred may be considered as one of a large series of possible results that could have arisen under the same circumstances. When the number of events is small and the probability of such an event is small, considerable caution must be observed in interpreting the conditions described by the figures. Estimates that are unreliable because of large sampling errors or small numbers of events have been noted with asterisks in selected tables. The criteria used to designate unreliable estimates are indicated as notes to the applicable tables.

The descriptive summaries that follow provide a general overview of study design, methods of data collection, and reliability and validity of the data. More complete and detailed discussions are found in the publications referenced at the end of each summary. The data set or source is listed under the agency or organization that sponsored the data collection.

Department of Health and Human Services

Public Health Service

Centers for Disease Control

National Center for Health Statistics

National Vital Statistics System

Through the National Vital Statistics System, the National Center

for Health Statistics (NCHS) collects and publishes data on births, deaths, marriages, and divorces in the United States. Fetal deaths are classified and tabulated separately from other deaths. The Division of Vital Statistics obtains information on births and deaths from the registration offices of all States, New York City, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam. Geographic coverage for births and deaths has been complete since 1933.

Until 1972, microfilm copies of all death certificates and a 50-percent sample of birth certificates were received from all registration areas and processed by NCHS. Beginning in 1972, some States began sending their data to NCHS through the Cooperative Health Statistics System (CHSS). States that participated in the CHSS program processed 100 percent of their death and birth records and sent the entire data file to NCHS on computer tape. Currently, the data are sent to NCHS through the Vital Statistics Cooperative Program (VSCP), following the same procedures as the CHSS. The number of participating States grew from 6 in 1972 to 46 in 1984. All 50 States and the District of Columbia participated in the VSCP in 1985.

The standard certificates of birth, death, and fetal death recommended by NCHS are modified in each registration area to serve the area's needs. However, most certificates conform closely in content and arrangement to the standard certificate, and all certificates contain a minimum data set specified by NCHS.

Information on births of Hispanic parentage was available for 22 States in 1980 and 1981. The 22 States that included items on their birth certificates on the ethnic or Hispanic origin of the mother and father were Arizona, Arkansas, California, Colorado, Florida, Georgia, Hawaii, Illinois, Indiana, Kansas, Maine, Mississippi, Nebraska, Nevada, New Jersey, New Mexico, New York, North Dakota, Ohio, Texas, Utah,

and Wyoming. In 1982, these data also became available in Tennessee, and in 1983 the District of Columbia began reporting information on births of Hispanic parentage. In 1983–87 information on births of Hispanic parentage was available for 23 States and the District of Columbia. In 1988 these data became available for Alabama, Connecticut, Kentucky, Massachusetts, Montana, North Carolina, and Washington; so that since 1988 information on births of Hispanic parentage is available for 30 States and the District of Columbia. In 1988 about 95 percent of the total U.S. Hispanic population resided in these States.

In most areas, practically all births and deaths are registered. The most recent test of the completeness of birth registration, conducted on a sample of births from 1964 to 1968, showed that 99.3 percent of all births in the United States during that period were registered. No comparable information is available for deaths, but it is generally believed that death registration in the United States is at least as complete as birth registration. Provisional death rates by cause, age, race, and sex are estimated from the Current Mortality Sample. The Current Mortality Sample is a 10-percent systematic sample of death certificates received each month in the vital statistics offices in the 50 States, the District of Columbia, and the independent registration area of New York City. All death certificates received during the 1-month period are sampled regardless of the month or year in which the death occurred.

For more information, see: National Center for Health Statistics, *Vital Statistics of the United States, 1987*, Vol. I, DHHS Pub. No. (PHS) 89–1100 and Vol. II, Part A, DHHS Pub. No. (PHS) 90–1101, Public Health Service, Washington, U.S. Government Printing Office, 1989.

National Survey of Family Growth

Data from the National Survey of Family Growth (NSFG) are based on samples of women ages 15–44 years

in the civilian noninstitutionalized population living in the coterminous United States. The first and second cycles excluded women who had never been married, except those with offspring in the household. The third and fourth cycles include all women ages 15–44 years, regardless of whether they have ever been married.

The purpose of the survey is to provide national data on the demographic and social factors associated with childbearing, adoption, and maternal and child health. These factors include sexual activity, marriage, unmarried cohabitation, divorce and remarriage, contraception and sterilization, infertility, breastfeeding, pregnancy loss, low-birth weight, and use of medical care for family planning, infertility, and prenatal care. Interviews are conducted in person by professional female interviewers using a standardized, printed questionnaire. The average interview length is about 1 hour.

Cycle I of the NSFG was conducted from June 1973 through February 1974. The counties and independent cities of the United States were combined to form a frame of primary sampling units (PSU's), and 101 PSU's were selected as the first-stage sample. The next three stages produced a clustered sample of 28,998 households within the 101 PSU's. At 26,028 of these households (89.8 percent), household screener interviews were completed. These screeners produced a fifth-stage sample of 10,879 women of whom 9,797 were interviewed. Never-married women (except those with offspring in the household) were excluded from Cycle I.

Cycle II of NSFG was conducted from January to September 1976. The sample consisted of 27,162 households in 79 PSU's. Household screener interviews were completed at 25,479 of these households (93.8 percent). Of the 10,202 women in the sample, 8,611 were interviewed. Again, never-married women (except those with offspring in the household) were excluded from the sample for Cycle II.

Interviewing for Cycle III of the NSFG was conducted from August 1982 through February 1983. The sample design was similar to that in Cycle II: 31,027 households were selected in 79 PSU's. Household screener interviews were completed in 29,511 households (95.1 percent). Of the 9,964 eligible women identified, 7,969 were interviewed. The sample for Cycle III included black women and women 15-19 years of age at higher rates than other women. Women of all marital statuses were interviewed in Cycle III.

Cycle IV was conducted between January and August 1988. The sample was obtained from households that had been interviewed in the 1985, 1986, or 1987 National Health Interview Surveys. Women living in Alaska and Hawaii were included, so that the survey covered women from the noninstitutionalized population of the entire United States. Interviews were completed with 8,450 women. As in previous cycles, black women were oversampled.

In order to produce estimates for the entire population of eligible women in the United States, data for the interviewed sample women were inflated by the reciprocal of the probability of selection at each stage of sampling and adjusted for both screener and interview nonresponse. Cycles I and II estimates for ever-married women were poststratified to benchmark population values for 12 age-race categories based on data from the Current Population Survey of the U.S. Bureau of the Census. Cycle III estimates were poststratified within 24 categories of age, race, and marital status. In Cycle IV, the poststratification was done within categories of age, race, marital status, and parity.

Quality control procedures for interviewer selection, interviewer training, field listing, and data processing were built into the NSFG to minimize nonsampling error and bias. In addition, the nonresponse adjustments in the estimator were designed to minimize the effect of nonresponse bias by assigning to nonrespondents the characteristics of similar respondents. Sampling errors for NSFG were estimated by balanced half-sample replication.

Detailed information on the NSFG sample design are available in the following reports: National Center for Health Statistics, D. K. French: National Survey of Family Growth, Cycle I, sample design, estimation procedures, and variance estimation. *Vital and Health Statistics*. Series 2, No. 76. DHEW Pub. No. (PHS) 78-1350. Public Health Service. Washington. U.S. Government Printing Office, Jan. 1979; National Center for Health Statistics, W. R. Grady: National Survey of Family Growth, Cycle II: sample design, estimation procedures, and variance estimation. *Vital and Health Statistics*. Series 2, No. 87. DHHS Pub. No. (PHS) 81-1361. Public Health Service. Washington. U.S. Government Printing Office, Feb. 1981; and National Center for Health Statistics, C. Bachrach, M. Horn, W. Mosher, and I. Shimizu: National Survey of Family Growth, Cycle III: Estimation procedures, weighting, and variance estimation. *Vital and Health Statistics*. Series 2, No. 98. DHHS Pub. No. (PHS) 85-1372. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1985.

National Health Interview Survey

The National Health Interview Survey (NHIS) is a continuing nationwide sample survey in which data are collected through personal household interviews. Information is obtained on personal and demographic characteristics, illnesses, injuries, impairments, chronic conditions, utilization of health resources, and other health topics. The household questionnaire is reviewed each year, with special health topics being added or deleted. For most health topics, data are collected over an entire calendar year.

The sample design plan of the NHIS follows a multistage probability design that permits a continuous sampling of the civilian noninstitutionalized population residing in the United States. The survey is designed in such a way that the sample scheduled for each week is representative of the target population and the weekly samples are additive over time. The response rate for the survey has been between 95 and 98 percent over the years.

In 1985, the NHIS adopted several new sample design features although, conceptually, the sampling plan remained the same as the previous design. Two major changes included reducing the number of primary sampling locations from 376 to 198 for sampling efficiency and oversampling the black population to improve the precision of the statistics.

The sample was designed so that a typical NHIS sample for the data collection years 1985-94 will consist of approximately 7,500 segments containing about 59,000 assigned households. Of these households, an expected 10,000 will be vacant, demolished, or occupied by persons not in the target population of the survey. The expected sample of 49,000 occupied households will yield a probability sample of about 127,000 persons. In 1988, there was a sample of about 122,000 persons and in 1989, a sample of about 117,000 persons.

A description of the survey design, the methods used in estimation, and general qualifications of the data obtained from the survey are presented in: National Center for Health Statistics, P. F. Adams and V. Benson: Current estimates from the National Health Interview Survey, United States, 1989. *Vital and Health Statistics*. Series 10, No. 176. DHHS Pub. No. (PHS) 90-1504. Public Health Service. Washington. U.S. Government Printing Office, Oct. 1990.

National Health and Nutrition Examination Survey

For the first program or cycle of the National Health Examination Survey (NHES I), 1960-62, data were collected on the total prevalence of certain chronic diseases as well as the

distributions of various physical and physiological measures, including blood pressure and serum cholesterol levels. For that program, a highly stratified, multistage probability sample of 7,710 adults, of whom 86.5 percent were examined, was selected to represent the 111 million civilian noninstitutionalized adults 18–79 years of age in the United States at that time. The sample areas consisted of 42 primary sampling units from the 1,900 geographic units. In 1971, a nutrition surveillance component was added and the survey name was changed to the National Health and Nutrition Examination Survey.

For more information on NHES I, see: National Center for Health Statistics: Cycle I of the National Health Examination Survey, sample and response, United States, 1960–62. T. Gordon and H. W. Miller. *Vital and Health Statistics*. Series 11, No. 1. PHS Pub. No. 1000. Public Health Service. Washington. U.S. Government Printing Office, May 1964.

In the first National Health and Nutrition Examination Survey (NHANES I), conducted from 1971 through 1974, a major purpose was to measure and monitor indicators of the nutritional status of the American people through dietary intake data, biochemical tests, physical measurements, and clinical assessments for evidence of nutritional deficiency. Detailed examinations were given by dentists, ophthalmologists, and dermatologists with an assessment of need for treatment. In addition, data were obtained for a subsample of adults on overall health care needs and behavior, and more detailed examination data were collected on cardiovascular, respiratory, arthritic, and hearing conditions.

The NHANES I target population was the civilian noninstitutionalized population 1–74 years of age residing in the coterminous United States, except for people residing on any of the reservation lands set aside for the use of American Indians. The sample design was a multistage, stratified

probability sample of clusters of persons in land-based segments. The sample areas consisted of 65 primary sampling units (PSU's) selected from the 1,900 PSU's in the coterminous United States. A subsample of persons 25–74 years of age was selected to receive the more detailed health examination. Groups at high risk of malnutrition were oversampled at known rates throughout the process.

Household interviews were completed for more than 96 percent of the 28,043 persons selected for the NHANES I sample, and about 75 percent (20,749) were examined.

For NHANES II, conducted from 1976 through 1980, the nutrition component was expanded from the one fielded for NHANES I. In the medical area, primary emphasis was placed on diabetes, kidney and liver functions, allergy, and speech pathology.

The NHANES II target population was the civilian noninstitutionalized population 6 months–74 years of age residing in the United States, including Alaska and Hawaii. NHANES II utilized a multistage probability design that involved selection of PSU's, segments (clusters of households) within PSU's, households, eligible persons, and finally sample persons. The sample design provided for oversampling among those persons 6 months–5 years of age, those 60–74 years of age, and those living in poverty areas.

A sample of 27,801 persons was selected for NHANES II. Of this sample, 20,322 (73.1 percent) were examined.

The estimation procedure used to produce national statistics for NHANES I and NHANES II involved inflation by the reciprocal of the probability of selection, adjustment for nonresponse, and poststratified ratio adjustment to population totals. Sampling errors also were estimated to measure the reliability of the statistics.

For more information on NHANES I, see: National Center for Health Statistics, H. W. Miller: Plan and operation of the National Health

and Nutrition Examination Survey, United States, 1971–73. *Vital and Health Statistics*. Series 1, Nos. 10a and 10b. DHEW Pub. No. (HSM) 73–1310. Health Services and Mental Health Administration. Washington. U.S. Government Printing Office, Feb. 1973; and National Center for Health Statistics, A. Engel, R. S. Murphy, K. Maurer, and E. Collins: Plan and operation of the NHANES I Augmentation Survey of Adults 25–74 Years, United States, 1974–75. *Vital and Health Statistics*. Series 1, No. 14. DHEW Pub. No. (PHS) 78–1314. Public Health Service. Washington. U.S. Government Printing Office, June 1978.

For more information on NHANES II, see: National Center for Health Statistics, A. McDowell, A. Engel, J. T. Massey, and K. Maurer: Plan and operation of the Second National Health and Nutrition Examination Survey, 1976–80. *Vital and Health Statistics*. Series 1, No. 15. DHHS Pub. No. (PHS) 81–1317. Public Health Service. Washington. U.S. Government Printing Office, July 1981. For information on nutritional applications of these surveys, see: Yetley, E., and C. Johnson, 1987. Nutritional applications of the Health and Nutrition Examination Surveys (HANES). *Ann Rev Nutr* 7:441–63.

The Hispanic Health and Nutrition Examination Survey (HHANES), conducted during 1982–84, was similar in content and design to the previous National Health and Nutrition Examination Surveys. The major difference between HHANES and the previous national surveys is that HHANES employed a probability sample of three special subgroups of the population living in selected areas of the United States rather than a national probability sample. The three HHANES universes included approximately 84, 57, and 59 percent of the respective 1980 Mexican, Cuban, and Puerto Rican-origin populations in the continental United States.

In the HHANES, three geographically and ethnically distinct

populations were studied: Mexican Americans in Texas, New Mexico, Arizona, Colorado, and California; Cuban Americans living in Dade County, Florida; and Puerto Ricans living in parts of New York, New Jersey, and Connecticut. In the Southwest 9,894 persons were selected (75 percent or 7,462 were examined), in Dade County 2,244 persons were selected (60 percent or 1,357 were examined), and in the Northeast 3,786 persons were selected (75 percent or 2,834 were examined).

For more information on HHANES, see: National Center for Health Statistics: Plan and operation of the Hispanic Health and Nutrition Examination Survey, 1982–84. *Vital and Health Statistics*. Series 1, No. 19. DHHS Pub No. (PHS) 85–1321. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1985.

National Master Facility Inventory

The National Master Facility Inventory (NMFI) is a comprehensive file of inpatient health facilities in the United States. The three broad categories of facilities in NMFI are hospitals, nursing and related care homes, and other custodial or remedial care facilities. To be included in NMFI, hospitals must have at least six inpatient beds; nursing and related care homes and other facilities must have at least three inpatient beds.

NMFI is kept current by the periodic addition of names and addresses obtained from State licensing and other agencies for all newly established inpatient facilities. In addition, annual surveys of hospitals and periodic surveys of nursing homes and other facilities are conducted to update name and location, type of business, number of beds, and number of residents or patients in the facilities, and to identify those facilities that have gone out of business.

From 1968 through 1975, the hospital survey was conducted in conjunction with the American Hospital Association (AHA) Annual

Survey of Hospitals. AHA performed the data collection for its member hospitals, while the National Center for Health Statistics (NCHS) collected the data for the approximately 400 non-AHA registered hospitals. Since 1976, however, all of the data collection has been performed by AHA.

Hospitals are requested to report data for the full year ending September 30. More than half of the responding hospitals used this reporting period for the 1982 survey. The remaining hospitals used various other reporting periods. The response rate for the 1982 hospital survey was about 90 percent and 96 percent for the 1986 survey.

The nursing home and other facilities survey was conducted by NCHS in 1963, 1967, 1969, 1971, 1973, 1976, 1978, 1980, 1982, and 1986. In the 1980 and 1982 NMFI surveys, only nursing and related care homes were covered. In 1986, nursing and related care homes and facilities for the mentally retarded were covered and called the Inventory of Long-Term Care Places. In 1982, arrangements were made with 35 States for obtaining their data on nursing and related care homes. NCHS surveyed certain types of homes that were excluded from the State surveys.

Statistics derived from the hospital and nursing home and other facilities surveys were adjusted for both facility and item nonresponse. Missing items on the questionnaire were imputed, when possible, by using information reported by the same facility in a previous survey. When data were not available from a previous census for a responding facility, the data were imputed by using data from similar responding facilities. Similar facilities are defined as those with the same types of business, ownership, service, and approximately the same bed size.

For more detailed information on NMFI, see: National Center for Health Statistics, D. A. Roper: Nursing and related care homes as reported from the 1982 NMFI survey.

Vital and Health Statistics. Series 14, No. 32. DHHS Pub. No. (PHS) 86–1827. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1986; and National Center for Health Statistics, A. Sirrocco. The 1986 Inventory of Long-Term Care Places: An overview of facilities for the mentally retarded. *Advance Data From Vital and Health Statistics*. No. 143. DHHS Pub. No. (PHS) 87–1250. Public Health Service. Hyattsville, Md. 1987.

National Hospital Discharge Survey

The National Hospital Discharge Survey (NHDS) is a continuing nationwide sample survey of short-stay hospitals in the United States. Prior to 1988 the scope of NHDS encompassed patients discharged from noninstitutional hospitals, exclusive of military and Veterans Administration hospitals, located in the 50 States and the District of Columbia. Only hospitals having six or more beds for patient use and those in which the average length of stay for all patients is less than 30 days are included in the survey. Beginning in 1988 the scope was altered slightly to include all general and children's general hospitals regardless of the length of stay. Although all discharges of patients from these hospitals are within the scope of the survey, discharges of newborn infants from all hospitals are excluded from this report as well as discharges of all patients from Federal hospitals.

The original sample was selected in 1964 from a frame of short-stay hospitals listed in the National Master Facility Inventory. A two-stage stratified sample design was used, and hospitals were stratified according to bed size and geographic region. Sample hospitals were selected with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals. Within each sample hospital, a systematic random sample of discharges was selected from the daily listing sheet. Initially, the within-hospital sampling rates for selecting discharges varied inversely

with the probability of hospital selection so that the overall probability of selecting a discharge was approximately the same across the sample. Those rates were adjusted for individual hospitals in subsequent years to control the reporting burden of those hospitals.

In 1985, for the first time, two data collection procedures were used for the survey. The first was the traditional manual system of sample selection and data abstraction. In the manual system, sample selection and transcription of information from the hospital records to abstract forms were performed by either the hospital staff or representatives of the National Center for Health Statistics (NCHS) or both. The second was an automated method, used in approximately 17 percent of the sample hospitals in 1985, involving the purchase of data tapes from commercial abstracting services. Upon receipt of these tapes they were subject to NCHS sampling, editing, and weighting procedures.

In 1988, the NHDS was redesigned. The hospitals with the most beds and/or discharges annually were selected with certainty, but the remaining sample was selected using a three-stage stratified design. The first stage is a sample of the primary sampling units (PSU's) used by the National Health Interview Survey. Within PSU's, hospitals were stratified or arrayed by abstracting status (whether subscribing to a commercial abstracting service) and within abstracting status arrayed by type of service and bed size. Within these strata and arrays, a systematic sampling scheme with probability proportional to the number of discharges annually was used to select hospitals. The rates for systematic sampling of discharges within hospitals vary inversely with probability of hospital selection within PSU. Discharge records from hospitals submitting data via commercial abstracting services (approximately 37 percent of sample hospitals) were arrayed by primary diagnoses, patient sex and age group, and date of discharge prior to

sampling. Otherwise, the procedures for sampling discharges within hospitals is the same as that used in the prior design.

The basic unit of estimation for NHDS is the sample patient abstract. The estimation procedure involves inflation by the reciprocal of the probability of selection, adjustment for nonresponding hospitals and missing abstracts, and ratio adjustments to fixed totals. Of the 542 hospitals selected for the survey, 526 were within the scope of the survey, and 408 participated in the survey in 1989. Data were abstracted from about 233,000 medical records.

For more detailed information on the design of NHDS and the magnitude of sampling errors associated with NHDS estimates, see: National Center for Health Statistics, E. J. Graves: National Hospital Discharge Survey: Annual Summary, 1988. *Vital and Health Statistics*. Series 13, No. 106. DHHS Pub. No. (PHS) 91–1767. Public Health Service. Washington. U.S. Government Printing Office, Forthcoming.

National Nursing Home Survey

The National Center for Health Statistics (NCHS) has conducted three National Nursing Home Surveys. The first survey was conducted from August 1973 through April 1974; the second survey from May through December 1977; and the third from August 1985 through January 1986.

Much of the background information and experience used to develop the first National Nursing Home Survey was obtained from a series of three ad hoc sample surveys of nursing and personal care homes called the Resident Places Surveys (RPS–1, –2, –3). The three surveys were conducted by the National Center for Health Statistics during April–June 1963, May–June 1964, and June–August 1969, respectively. During the first survey, RPS–1, data were collected on nursing homes, chronic disease and geriatric hospitals, nursing home units, and chronic disease wards of general and

mental hospitals. RPS–2 concentrated mainly on nursing homes and geriatric hospitals. During the third survey, RPS–3, nursing and personal care homes in the coterminous United States were sampled.

For the initial National Nursing Home Survey (NNHS) conducted in 1973–74, the universe included only those nursing homes that provided some level of nursing care. Thus, homes providing only personal or domiciliary care were excluded. The sample of 2,118 homes was selected from the 17,685 homes that provided some level of nursing care and were listed in the 1971 National Master Facility Inventory (NMFI) or those that opened for business in 1972. Data were obtained from about 20,600 staff and 19,000 residents. Response rates were 97 percent for facilities, 88 percent for expenditures, 98 percent for residents, and 82 percent for staff.

The scope of the 1977 NNHS encompassed all types of nursing homes, including personal care and domiciliary care homes. The sample of about 1,700 facilities was selected from 23,105 nursing homes in the sampling frame, which consisted of all homes listed in the 1973 NMFI and those opening for business between 1973 and December 1976. Data were obtained from about 13,600 staff, 7,000 residents, and 5,100 discharged residents. Response rates were 95 percent for facilities, 85 percent for expenses, 81 percent for staff, 99 percent for residents, and 97 percent for discharges.

The scope of the 1985 NNHS was similar to the 1977 survey in that it included all types of nursing homes. The sample of 1,220 homes was selected from a sampling frame of 20,479 nursing and related care homes. The frame consisted of all homes in the 1982 NMFI; homes identified in the 1982 Complement Survey of the NMFI as "missing" from the 1982 NMFI; facilities that opened for business between 1982 and June 1984; and hospital-based nursing homes obtained from the Health Care Financing Administration. Information on the

facility was collected through a personal interview with the administrator. Accountants were asked to either complete a questionnaire on expenditures or provide a financial statement. Resident data were provided by a nurse familiar with the care provided to the resident. The nurse relied on the medical record and personal knowledge of the resident. In addition to employee data that were collected during the interview with the administrator, a sample of registered nurses completed a self-administered questionnaire. Discharge data were based on information recorded in the medical record. Additional data about the current and discharged residents were obtained in telephone interviews with next of kin. Data were obtained from 1,079 facilities, 2,763 registered nurses, 5,243 current residents, and 6,023 discharges. Response rates were 93 percent for facilities, 68 percent for expenses, 80 percent for registered nurses, 97 percent for residents, 95 percent for discharges, and 90 percent for next of kin.

Statistics for all three surveys were derived by a ratio-estimation procedure. Statistics were adjusted for failure of a home to respond, failure to fill out one of the questionnaires, and failure to complete an item on a questionnaire.

For more information on the 1973–74 NNHS, see: National Center for Health Statistics, M. R. Meiners: Selected operating and financial characteristics of nursing homes, United States, 1973–74 National Nursing Home Survey. *Vital and Health Statistics*. Series 13, No. 22. DHEW Pub. No. (HRA) 76–1773. Health Resources Administration. Washington. U.S. Government Printing Office, Dec. 1975. For more information on the 1977 NNHS, see: National Center for Health Statistics, J. F. Van Nostrand, A. Zappolo, E. Hing, et al.: The National Nursing Home Survey, 1977 Summary for the United States. *Vital and Health Statistics*. Series 13, No. 43. DHHS Pub. No. (PHS) 79–1794. Public Health Service. Washington. U.S.

Government Printing Office, July 1979. For more information on the 1985 NNHS, see: National Center for Health Statistics, E. Hing, E. Sekscenski, G. Strahan: The National Nursing Home Survey, 1985 Summary for the United States. *Vital and Health Statistics*. Series 13, No. 97. DHHS Pub. No. (PHS) 89–1758. Public Health Service. Washington. U.S. Government Printing Office, Jan. 1989.

National Ambulatory Medical Care Survey

The National Ambulatory Medical Care Survey (NAMCS) is a continuing national probability sample of ambulatory medical encounters. The scope of the survey covers physician-patient encounters in the offices of non-Federally employed physicians classified by the American Medical Association or American Osteopathic Association as "office-based, patient care" physicians. Excluded are visits to hospital-based physicians, visits to specialists in anesthesiology, pathology, and radiology and visits to physicians who are principally engaged in teaching, research, or administration. Telephone contacts and nonoffice visits are also excluded.

A multistage probability design is employed. The first-stage sample consists of 84 primary sampling units (PSU's) selected from about 1,900 such units into which the United States has been divided. In each sample PSU, a sample of practicing physicians is selected. The final stage involves the selection of samples of patient visits during randomly assigned 7-day reporting periods.

For the 1985 survey, a sample of 5,032 non-Federal, office-based physicians was selected from masterfiles maintained by the American Medical Association and the American Osteopathic Association. The physician response rate for 1985 was 70.2 percent, providing data concerning a sample of about 71,594 patient visits.

The estimation procedure used in NAMCS basically has three

components: inflation by the reciprocal of the probability of selection, adjustment for nonresponse, and ratio adjustment to fixed totals.

For more detailed information on the design of NAMCS and the magnitude of sampling errors associated with NAMCS estimates, see: National Center for Health Statistics, T. McLemore and J. DeLozier. 1985 Summary: National Ambulatory Medical Care Survey. *Advance Data From Vital and Health Statistics*. No. 128. DHHS Pub. No. (PHS) 87–1250. Public Health Service. Hyattsville, Md. 1987.

Center for Infectious Diseases

AIDS Surveillance

Acquired immunodeficiency syndrome (AIDS) surveillance is conducted by health departments in each State, territory, and the District of Columbia. Although surveillance activities range from passive to active, most areas employ multifaceted active surveillance programs, which include four major reporting sources of AIDS information: hospitals and hospital-based physicians, physicians in nonhospital practice, public and private clinics, and medical record systems (death certificates, tumor registries, hospital discharge abstracts, and communicable disease reports). Using a standard confidential case report form, the health departments collect information without personal identifiers, which is coded and computerized either at the Centers for Disease Control (CDC) or at health departments from which it is then transmitted electronically to CDC.

AIDS surveillance data are used to detect epidemiologic trends, to identify unusual cases requiring followup, and for publication in the *HIV/AIDS Surveillance Report*. Studies to determine the completeness of reporting of AIDS cases meeting the national surveillance definition suggest reporting at greater than or equal to 90 percent.

For more information on AIDS surveillance, contact: Chief, Surveillance Section, Surveillance and Evaluation Branch, AIDS Program, Center for Infectious Diseases, Centers for Disease Control, Atlanta, Ga. 30333.

Epidemiology Program Office

National Notifiable Diseases Surveillance System

The Epidemiology Program Office (EPO) of the Centers for Disease Control (CDC), in partnership with the Council of State and Territorial Epidemiologists (CSTE), operates the National Notifiable Diseases Surveillance System. The purpose of this system is primarily to provide weekly provisional information on the occurrence of diseases defined as notifiable by CSTE. In addition, the system also provides summary data on an annual basis. State epidemiologists report cases of notifiable diseases to EPO, and EPO tabulates and publishes these data in the *Morbidity and Mortality Weekly Report (MMWR)* and the *Summary of Notifiable Diseases, United States* (entitled *Annual Summary* before 1985). Notifiable disease surveillance is used by public health practitioners at local, State, and national levels as part of disease prevention and control activities.

Notifiable disease reports are received from 52 areas in the United States and 5 territories. To calculate U.S. rates, data reported by 50 States, New York City, and the District of Columbia are used. (New York State is reported as Upstate New York, which excludes New York City.)

Completeness of reporting varies because not all cases receive medical care and not all treated conditions are reported. Although State laws and regulations mandate disease reporting, reporting to CDC by States and territories is voluntary. Reporting of varicella (chickenpox) and mumps to CDC is not done by some States in which these diseases are not notifiable to local or State authorities.

The number of areas reporting varicella was 31 in 1985, 33 in 1987 and 1988, and 30 in 1989. The number of areas reporting mumps was 48 in 1985, 49 in 1987, 48 in 1988, and 50 in 1989.

Estimates of underreporting of some diseases have been made. For example, it is estimated that only 10 percent of cases of congenital rubella syndrome are reported. Only 10–15 percent of all measles cases were reported prior to the institution of the Measles Elimination Program in 1978; but now it is estimated that all cases are reported in most areas of the country. Data from a study of tetanus deaths suggest that only 40 percent of tetanus cases are reported to CDC.

For more information, see: Centers for Disease Control, Final 1989 reports of notifiable diseases, *Morbidity and Mortality Weekly Report*, 38(54), Public Health Service, DHHS, Atlanta, Ga., Oct. 1990, or write to Centers for Disease Control, Director, Division of Surveillance and Epidemiology, Atlanta, Ga. 30333.

Center for Chronic Disease Prevention and Health Promotion

Abortion Surveillance

The Centers for Disease Control (CDC) acquires abortion service statistics by State of occurrence from three sources—central health agencies, hospitals and other medical facilities, and the National Center for Health Statistics. Most of the central health agencies have established direct reporting systems, although a few collected data by surveying abortion facilities. Epidemiologic surveillance of abortion was initiated in eight States in 1969, and now statewide abortion data are also reported by the remaining States.

The total number of abortions reported to CDC is about 16 percent less than the total estimated independently by the Alan Guttmacher Institute, the research and development division of the Planned Parenthood Federation of America, Inc.

For more information, contact: Director, Division of Reproductive Health, Center for Health Promotion and Education, Centers for Disease Control, Atlanta, Ga. 30333.

Center for Prevention Services

U.S. Immunization Survey

This system is the result of a contractual agreement between the Centers for Disease Control and the U.S. Bureau of the Census. Estimates from the Immunization Survey are based on data obtained during the third week of September in certain years for a subsample of households interviewed for the Current Population Survey, which is described separately in this appendix.

The reporting system contains demographic variables and vaccine history along with disease history when relevant to vaccine history. The system is used to estimate the immunization level of the Nation's child population against the vaccine-preventable diseases; from time to time, immunization level data on the adult population are collected.

The scope of the U.S. Immunization Survey covers the 50 States and the District of Columbia. For example, the 1981 sample included approximately 45,000 household units. Six thousand sample units were found to be vacant or otherwise not to be interviewed. Of the approximately 39,000 occupied households eligible for interview, about 1,500 were not interviewed because the occupants either were not at home after repeated calls or were unavailable for some other reason.

The estimating procedure that was used involves the inflation of weighted sample results to independent estimates of the civilian noninstitutionalized population of the United States by age and race.

Starting in 1979, the questionnaire was modified to solicit information regarding the source of immunization responses given by the interviewee. This change was made to measure the percent of responses for

which a family immunization record was the source of the information.

For more information about the survey methodology, contact: Director, Division of Immunization, Center for Preventive Services, Centers for Disease Control, Atlanta, Ga. 30333.

National Institute for Occupational Safety and Health

National Occupational Hazard Survey

The National Occupational Hazard Survey (NOHS) was conducted by the National Institute for Occupational Safety and Health (NIOSH) to obtain data on employee exposure to particular chemicals and physical agents in various industries.

A random sample of 4,636 urban workplaces was selected by the U.S. Department of Labor, Bureau of Labor Statistics. Because mining and government activities are not within the coverage of the Occupational Safety and Health Act and agricultural and rural areas were beyond the logistical capacity of the survey, the sample excluded those types of facilities. Included were facilities in 66 different two-digit Standard Industrial Classifications (SIC's), located in 67 standard metropolitan statistical areas. Field work was performed by 20 industrial hygiene surveyors who collected data from February 1972 through June 1974.

Information in Part I, elicited during a questionnaire interview of management, profiled the SIC and size of facility, along with its medical, safety, and industrial hygiene programs. Part II, the greatest part of the NOHS data, contained the recorded observations of the surveyor's management-escorted "walk-through" of all facility work areas. Part II listed, by job title, the number of employees who were potentially exposed to the same chemicals and physical agents. The surveyor recorded all materials and physical agents each employee group encountered, regardless of toxicity; hazardous nature; conditions of use;

and the presence, absence, or effectiveness of any exposure control measures. For each potential exposure listed within an occupational group, the surveyor also recorded the duration, intensity, form, and the control utilized and whether it functioned.

For more information on NOHS, see: National Institute for Occupational Safety and Health, National Occupational Hazard Survey, Vol. I, Survey manual, DHEW Pub. No. (NIOSH) 74–127; Vol. II, Data editing and data base development, DHEW Pub. No. (NIOSH) 77–213; Vol. III, Survey analysis and supplemental tables, DHEW Pub. No. (NIOSH) 78–114.

National Occupational Exposure Survey

During 1981–83, NIOSH conducted a second national survey of worksites, patterned after the NOHS. In this second survey, known as the National Occupational Exposure Survey (NOES), information was collected essentially identical to the NOHS in a sample of 4,490 facilities over a 30-month period.

For further information on NOES, see: National Institute for Occupational Safety and Health, National Occupational Exposure Survey, Field Guidelines, DHHS Pub. No. (NIOSH) 86–116.

Health Resources and Services Administration

Bureau of Health Professions

Physician Supply Projections

Physician supply projections in this report are based on a model developed by the Bureau of Health Professions to forecast the supply of physicians by specialty, activity, and by State of practice. The 1981 supply of active physicians (M.D.'s) was used as the starting point for the most recent projections of active physicians. The major source of data used to obtain 1981 figures was the American Medical Association (AMA) Physician Masterfile.

In the first stage of the projections, graduates from U.S. schools of allopathic (M.D.) and osteopathic (D.O.) medicine and foreign-trained additions were estimated on a year-by-year basis. Estimates of first-year enrollments, student attrition, other medical school-related trends, and a model of net foreign medical graduate immigration were used in deriving these annual additions. These year-by-year additions were then combined with the already existing active supply in a given year to produce a preliminary estimate of the active work force in each succeeding year. These estimates were then reduced to account for mortality and retirement. Gender-specific mortality and retirement losses were computed by 5-year age cohorts on an annual basis, using age distributions and mortality and retirement rates based on AMA data.

For more information, see: Bureau of Health Professions, *Seventh Report to the President and Congress on the Status of Health Personnel in the United States*, DHHS Pub. No. HRS-P-OD-90-1, Health Resources and Services Administration, Rockville, Md.

Nurse Supply Estimates

Nursing estimates in this report are based on a model developed by the Bureau of Health Professions to meet the requirements of Section 951, P.L. 94–63. The model estimates the following for each State:

1. Nurse population—those with current licenses to practice.

2. Nurse supply—all practicing nurses either full or part time (or all of those available to practice at that time).

3. Full-time equivalent supply— nurses practicing full time plus one-half of those practicing part time (or available on that basis).

Each of the three estimates are divided into three levels of highest educational preparation: associate degree or diploma; baccalaureate; master's and doctorate.

Among the factors considered are new graduates, changes in educational status, nursing employment rates, age, migration patterns, death rates, and licensure phenomena. Data sources include data on nursing education from the National League for Nursing and data on licensure from the National Council of State Boards of Nursing. Data on the number and characteristics of registered nurses are based on data from the National Sample Survey of Registered Nurses conducted by the Division of Nursing, Bureau of Health Professions in March 1988.

Alcohol, Drug Abuse, and Mental Health Administration

National Institute on Alcohol Abuse and Alcoholism

National Survey of Drinking

Data on trends in alcohol consumption were drawn from national surveys funded by the National Institute on Alcohol Abuse and Alcoholism and the National Institute on Drug Abuse. The 1979 survey was based on self-reported consumption and was designed to represent adults 18 years of age and over living in households in the coterminous United States. A total of 1,772 interviews were conducted, representing a response rate of 66 percent.

For more information on the National Survey of Drinking, write: Laboratory for Epidemiology and Population Studies, National Institute on Alcohol Abuse and Alcoholism, 5600 Fishers Lane, Rockville, Md. 20857. For further information on alcoholism services, see: National Institute on Alcohol Abuse and Alcoholism, Characteristics of alcoholism services in the United States—1984. Data from the September 1984 National Alcoholism and Drug Abuse Program Inventory. P. G. Reed and D. S. Sanchez. Division of Biometry and Epidemiology. June 1986.

National Institute on Drug Abuse

National Household Surveys on Drug Abuse

Data on trends in use of marijuana, cigarettes, and alcohol among youths 12–17 years of age and young adults 18–25 years of age are from the National Household Survey on Drug Abuse. The 1988 survey is the ninth in a series that began in 1971 under the auspices of the National Commission on Marijuana and Drug Abuse. Since 1974, the survey has been sponsored by the National Institute on Drug Abuse.

The survey covers the population 12 years of age and over living in households in the coterminous United States. Youths (12–17 years) and young adults (18–25 years of age) are oversampled as are blacks and Hispanics.

The most recent survey (1988) is based on home personal interviews of 8,814 randomly selected Americans 12 years of age and over. The interview response rate in this survey was 82 percent for the youth sample (12–17 years).

For more information on the National Household Survey on Drug Abuse, see: Population Estimates, 1988. For further information on drug abuse treatment units, see: National Institute on Drug Abuse, *National Drug and Alcoholism Treatment Unit Survey (NDATUS), Final Report, 1987.* DHHS Pub. No. (ADM) 89–1626, U.S. Government Printing Office, 1989.

The Drug Abuse Warning Network

The Drug Abuse Warning Network (DAWN) is a large-scale, ongoing drug abuse data collection system based on information from a nonrandom sample of emergency room and medical examiner facilities. DAWN collects information only about those drug abuse occurrences which have resulted in a medical crisis or death. The major objectives of the DAWN data system include: the monitoring of drug abuse patterns and trends, identification of

substances associated with drug abuse episodes, and the assessment of drug-related consequences and other health hazards. Emergency room data in DAWN are from facilities located primarily in 21 metropolitan areas throughout the continental United States and a national panel of emergency rooms. Medical examiner data are collected from 27 metropolitan areas. Within each participating facility, a designated DAWN reporter is responsible for identifying drug abuse episodes by reviewing official records and transcribing and submitting data on each case. A number of quality control procedures are used to assure that DAWN data are as accurate and methodologically consistent as possible. Trend tables using DAWN data include the same group of facilities for all of the time periods shown. Each of the facilities included must meet the criteria of reporting at least 90 percent of the days in any given year. This group of facilities is referred to as a "consistent panel."

National Institute of Mental Health

Surveys of Mental Health Organizations

The Survey and Reports Branch of the Division of Biometry and Applied Sciences conducts several inventories of mental health organizations. Some of the data in this report are derived from more than one of these inventories. The response rate to most of the items on these inventories is relatively high (90 percent or better) as is the rate for data presented in this report. However, for some inventory items, the response rate may be somewhat lower.

The Inventories of Mental Health Organizations are the primary source for National Institute of Mental Health (NIMH) data included in this report. This data system is based on questionnaires mailed every other year to mental health organizations in the United States, including psychiatric hospitals, non-Federal

general hospitals with psychiatric services, Veterans Administration psychiatric services, residential treatment centers for emotionally disturbed children, freestanding outpatient psychiatric clinics, partial care organizations, and freestanding and multiservice mental health organizations, not elsewhere classified. Federally funded community mental health centers (CMHC's) were included separately through 1980. In 1981, with the advent of block grants, the changes in definition of CMHC's, and the discontinuation of CMHC monitoring by NIMH, organizations formerly classified as CMHC's have been reclassified as other organization types, primarily "multiservice mental health organizations, not elsewhere classified" and "freestanding psychiatric outpatient clinics."

Beginning in 1983 any organization that provides services in any combination of two or more services (e.g., outpatient plus partial care, residential treatment plus outpatient plus partial care) and is neither a hospital nor a residential treatment center for emotionally disturbed children is classified as a multiservice mental health organization. Prior to 1983 an organization had to have either inpatient or residential treatment services in combination with at least one other service to be a "multiservice mental health organization." The result of this definitional change is to increase sharply the number of multiservice mental health organizations while decreasing the number of freestanding psychiatric outpatient clinics.

Other surveys conducted by the Survey and Reports Branch encompass samples of patients admitted to State, county, and private mental hospitals, outpatient psychiatric services, and Veterans Administration psychiatric services. The purpose of these surveys is to determine the sociodemographic, clinical, and treatment characteristics of patients served by these facilities.

For more information, write: Survey and Reports Branch, Division of Biometry and Applied Sciences, National Institute of Mental Health, Room 18C–07, 5600 Fishers Lane, Rockville, Md. 20857. For further information on mental health, see: National Institute of Mental Health, *Mental Health, United States, 1987.* R. W. Manderscheid and S. A. Barrett, eds. DHHS Pub. No. (ADM) 87–1518, U.S. Government Printing Office, 1987.

National Institutes of Health

National Cancer Institute

Surveillance, Epidemiology, and End Results Program

In the Surveillance, Epidemiology, and End Results (SEER) Program, the National Cancer Institute (NCI) contracts with 11 population-based registries throughout the United States and Puerto Rico to provide data on all residents diagnosed with cancer during the year and to provide current followup information on all previously diagnosed patients.

Data are submitted to the Institute twice a year. Patients included in this report include those diagnosed between 1973 and 1986. Patients diagnosed between 1973 and 1985 have been followed through 1986 and are included in survival calculations using the actuarial method. All patients were residents of one of the following geographic areas at the time of their initial diagnosis of cancer: Atlanta, Georgia; Detroit, Michigan; Seattle-Puget Sound, Washington; San Francisco-Oakland, California; Connecticut; Iowa; New Mexico; Utah; and Hawaii. Data from New Jersey were excluded because those data are available only since 1979. Further, data from Puerto Rico were also excluded because this analysis focuses on trends occurring within the United States exclusive of its territories.

Population estimates used to calculate incidence rates are obtained from the U.S. Bureau of the Census. Currently, the Bureau has provided population projections through 1985. Population projections for 1986 have been made by NCI. Rates presented in this report may differ somewhat from previous reports due to revised population estimates and the addition and deletion of small numbers of incidence cases.

Life tables used to determine normal life expectancy when calculating relative survival rates were obtained from the National Center for Health Statistics. Separate life tables are used for each race-sex-specific group included in the SEER Program.

For further information, see: National Cancer Institute, *Cancer Statistics Review, 1973–86* by E. Sondik et al., NIH Pub. No. 89–2789. Public Health Service, Bethesda, Md., May 1989.

Health Care Financing Administration

Office of the Actuary

Estimates of National Health Expenditures

Estimates of expenditures for health (National Health Accounts) are compiled annually by type of expenditure and source of funds. Health expenditure estimates presented in this volume include extensive revisions back to 1960. These revisions include the addition of new categories of service, such as home health and new categories of sources of funds, such as nonpatient revenues as well as changes in concepts, data sources, and methodology. Therefore, data in this volume will differ from those appearing in earlier volumes of *Health, United States.*

Estimates of expenditures for health services come from an array of sources. The American Hospital Association data on hospital finances are the primary source for estimates relating to hospital care. The salaries of physicians and dentists on the

staffs of hospitals, hospital outpatient clinics, hospital-based home health agencies, and nursing home care provided in the hospital setting are considered to be components of hospital care. Expenditures for services of health professionals (doctors, dentists, chiropractors, private duty nurses, therapists, podiatrists, etc.) are estimated using data from the Internal Revenue Service and from tabulations on the operations of health maintenance organizations. Since 1977, data from the U.S. Bureau of the Census' Services Annual Survey and the quinquenniel Census of Service Industries have been used to augment the IRS data. Expenditures for drugs and other medical nondurables and vision products and other medical durables purchased in retail outlets are based on estimates of personal consumption expenditures prepared by the U.S. Department of Commerce's Bureau of Economic Analysis and on industry data on prescription drug transactions. Those durable and nondurable products provided to inpatients in hospitals, nursing homes, those provided by licensed professionals, or through home health agencies are excluded here, but are included with the expenditure estimates for those provider service categories. Nursing home expenditures cover care rendered in establishments providing inpatient nursing and health-related personal care through active treatment programs for medical and health-related conditions. These establishments cover skilled nursing and intermediate care facilities, including those for the mentally retarded. Spending estimates are based upon revenue data from the National Nursing Home Survey conducted by the National Center for Health Statistics. Expenditures for construction include the erection or renovation of hospitals, nursing homes, medical clinics, and medical research facilities, but not for private office building providing office space for private practitioners. Expenditures for noncommercial research (the cost

of commercial research by drug companies are assumed to be imbedded in the price charged for the product; to include this item again would result in double counting) are developed from information gathered by the National Institutes of Health.

Source of funding estimates likewise come from a multiplicity of sources. Data on the Federal health programs are taken from administrative records maintained by the servicing agencies. Among the sources used to estimate State and local government spending for health are the U.S. Bureau of the Census' *Government Finances* and Social Security Administration reports on State-operated Workers' Compensation programs. Federal and State-local expenditures for education and training of medical personnel are excluded from these measures where they are separable. For the private financing of health care, data on the financial experience of health insurance organizations come from special Health Care Financing Administration analyses of private health insurers. Information on out-of-pocket spending from the U.S. Bureau of Labor Statistics' Consumer Expenditure Survey, from the 1977 National Medical Care Expenditure Survey conducted by the National Center for Health Services Research and from private surveys conducted by the American Hospital Association, American Medical Association, and the American Dental Association is used to develop estimates of direct spending by consumers.

For more specific information on definitions, sources, and methods used in the National Health Accounts, see: National Health Expenditures, 1988, by the Office of National Cost Estimates, *Health Care Financing Review,* Vol. 11, No. 4, HCFA Pub. No. 03298, Health Care Financing Administration, Washington, U.S. Government Printing Office, Summer 1990.

Medicare Statistical System

The Medicare Statistical System (MSS) provides data for examining the program's effectiveness and for tracking the eligibility of enrollees and the benefits they use, the certification status of institutional providers and the payments made for covered services. Records are maintained on about 33 million enrollees and 24,000 participating institutional providers; and about 420 million bills for services are processed annually.

The MSS contains four major computer files: the health insurance master file, the service provider file, the Hospital Insurance (HI) claims file, and the Supplementary Medical Insurance (SMI) payment records file.

The health insurance master file contains records for each aged and disabled enrollee and includes data on type of entitlement, deductible status, benefit period status and benefits used, as well as demographic information such as age, sex, race, and residence.

The service provider file contains information on hospitals, home health agencies, skilled nursing facilities, independent clinical laboratories, and suppliers of portable x ray or outpatient physical therapy services that participate in Medicare. For hospitals, data on number of beds, type of ownership and other characteristics are included.

The HI claims file contains information on the beneficiaries' entitlement and their use of benefits during the benefit period for hospital, skilled nursing facility, and home health agency services.

The SMI payment record file provides information on whether the enrollee has met the deductible and on amounts paid for physicians' services and other SMI-covered services and supplies.

Data from the Medicare statistical system provide information about enrollee use of benefits for a point in time or over an extended period. Statistical reports are

produced on enrollment, characteristics of participating providers, reimbursements, and services used.

For further information on the Medicare statistical system, see: Health Care Financing Administration, Medicare Statistical File Manual, HCFA Pub. No. 03272, Baltimore, Md., July 1988.

Medicaid Data System

The majority of Medicaid data are compiled from forms submitted annually by State Medicaid agencies to the Health Care Financing Administration (HCFA) for Federal fiscal years ending September 30 on the Form HCFA-2082, *Statistical Report on Medical Care: Eligibles, Recipients, Payments, and Services*.

When using the data keep the following caveats in mind:

■ Counts of recipients and eligibles categorized by basis of eligibility generally count each person only once—based on the person's basis of eligibility as of first appearance on the Medicaid rolls during the Federal fiscal year covered by the report. Note, however, that some States report duplicated counts of recipients; that is, they report an individual in as many categories as the individual had different eligibility statuses during the year. In such cases, the sum of all basis-of-eligibility cells will be greater than the "total recipients" number.

■ Expenditure data include payments for all claims adjudicated or paid during the fiscal year covered by the report. Note that this is not the same as summing payments for services that were rendered during the reporting period.

■ Some States fail to submit the HCFA-2082 for a particular year. When this happens, HCFA estimates the current year's HCFA-2082 data for missing States based upon prior year's submissions and information the State entered on Form HCFA-64 (the form States use to claim reimbursement for Federal matching funds for Medicaid).

■ HFCA-2082's submitted by States frequently contain obvious errors in one or more cells in the form. For cells obviously in error, HCFA estimates values that appear to be more reasonable.

For further information on Medicaid data, see: *Health Care Financing Program Statistics: Analysis of State Medicaid Program Characteristics, 1986,* by C. Howe and R. Terrell, HCFA Pub. No. 03249, Health Care Financing Administration, Baltimore, Md., U.S. Government Printing Office, Aug. 1987.

Department of Commerce

Bureau of the Census

U.S. Census of Population

The census of population has been taken in the United States every 10 years since 1790. In the 1980 census, data were collected on sex, race, age, and marital status from 100 percent of the enumerated population. More detailed information such as income, education, housing, occupation, and industry were collected from a 20-percent sample. The 20-percent sample was dichotomized by size of place of residence, with 50 percent of households in places of less than 2,500 population and 1 out of 6 households in places of 2,500 or more population receiving the more detailed questionnaire.

For more information on the 1980 census, see: U.S. Bureau of the Census, *1980 Census of Population and Housing, Users Guide*, Part A Text, PHC 80–R1–A.

Current Population Survey

The Current Population Survey (CPS) is a household sample survey of the civilian noninstitutionalized population conducted monthly by the U.S. Bureau of the Census to provide estimates of employment, unemployment, and other characteristics of the general labor force, the population as a whole, and various other subgroups of the population.

A list of housing units from the 1980 census, supplemented by newly constructed units and households known to be missed in the 1980 census, provides the sampling frame in most areas for the present CPS. In some rural locations, current household listings of selected land areas serve as the frame.

The present CPS sample is located in 729 sample areas, with coverage in every State and the District of Columbia. In an average month during 1989, the number of housing units or living quarters eligible for the national sample was about 70,000, of which about 55,800 were interviewed households, and 2,600 were households at which the members were not available for interview. About 11,500 households were visited but were not eligible for interview.

The estimation procedure used involves inflation by the reciprocal of the probability of selection, adjustment for nonresponse, and ratio adjustment.

For more information, see: U.S. Bureau of the Census, *The Current Population Survey, Design and Methodology*, Technical Paper 40, Washington, U.S. Government Printing Office, Jan. 1978.

Population Estimates

National estimates are derived by use of decennial census data as benchmarks and of data available from various agencies as follows: births and deaths (Public Health Service); immigrants (Immigration and Naturalization Service); the Armed Forces (Department of Defense); net movement between Puerto Rico and the U.S. mainland (Puerto Rico Planning Board); and Federal employees abroad (Office of Personnel Management and Department of Defense). State estimates are based on similar data and also on a variety of data series, including school statistics from State departments of education and parochial school systems.

Current estimates are generally consistent with official decennial

census figures and do not reflect the amount of estimated decennial census under enumeration.

For more information, see: U.S. Bureau of the Census, Estimates of the population of the United States, by age, sex, and race: 1980–87, *Current Population Reports*, Series P–25, No. 1022, Washington, U.S. Government Printing Office, 1988.

Department of Labor

Bureau of Labor Statistics

Consumer Price Index

The Consumer Price Index is a monthly measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The all-urban index (CPI–U) introduced in 1978 is representative of the buying habits of about 80 percent of the noninstitutionalized population of the United States.

In calculating the index, price changes for the various items in each location were averaged together with weights that represent their importance in the spending of all urban consumers. Local data were then combined to obtain a U.S. city average.

The index measures price changes from a designated reference date—1982 to 1984—which equals 100. An increase of 22 percent, for example, is shown as 122. This change can also be expressed in dollars as follows: The price of a base period "market basket" of goods and services bought by all urban consumers has risen from $10 in 1982 to 1984 to $11.83 in 1988.

The most recent revision of the CPI, completed in 1987, reflected spending patterns based on the Survey of Consumer Expenditures from 1982 to 1984, the 1980 Census of Population, and the ongoing Point-of-Purchase Survey. Using this improved sample design, prices for the goods and services required to calculate the index are collected in 85 urban areas throughout the country and from about 21,000 retail and service establishments. In addition,

data on rents are collected from about 40,000 tenants and 20,000 owner-occupied housing units. Food, fuels, and a few other items are priced monthly in all 85 locations. Prices of most other goods and services are collected bimonthly in the remaining areas. All price information is obtained through visits or calls by trained Bureau of Labor Statistics field representatives.

The 1987 revision changed the treatment of health insurance in the cost-weight definitions for medical care items. This change has no effect on the final index result but provides a clearer picture of the role of health insurance in the CPI. As part of the revision, three new indexes have been created by separating previously combined items, for example, eye care from other professional services, and inpatient and outpatient treatment from other hospital and medical care services.

For more information, see: Bureau of Labor Statistics, *Handbook of Methods,* BLS Bulletin 2285, U.S. Department of Labor, Washington, April 1988; I. K. Ford and P. Sturm. CPI revision provides more accuracy in the medical care services component, *Monthly Labor Review*, U.S. Department of Labor, Bureau of Labor Statistics, Washington, April 1988.

Employment and Earnings

The Division of Monthly Industry Employment Statistics and the Division of Employment and Unemployment Analysis of the Bureau of Labor Statistics (BLS) publish data on employment and earnings. The data are collected by the Bureau of the Census, State Employment Security Agencies, and State Departments of Labor in cooperation with BLS.

The major data source is the Current Population Survey (CPS), a household interview survey conducted monthly by the Bureau of the Census to collect labor force data for BLS. CPS is described separately in this appendix. Data based on establishment records are also

compiled each month from mail questionnaires by BLS, in cooperation with State agencies.

For more information, see: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings, January 1989*, Vol. 36, No. 1, Washington, U.S. Government Printing Office, Jan. 1989.

Environmental Protection Agency

National Aerometric Surveillance Network

The Environmental Protection Agency (EPA), through extensive monitoring of activities conducted by Federal, State, and local air pollution control agencies, collects data on the six pollutants for which National Ambient Air Quality Standards have been set. These pollution control agencies submit data quarterly to EPA's National Aerometric Data Bank (NADB). There are about 3,400 total stations reporting. Data from some short-term or sporadic monitoring for such purposes as special studies and complaint investigations are usually not included in NADB because the data are not extensive enough to provide equitable comparisons with routine data from permanent monitoring sites.

For more information, see: Environmental Protection Agency, *National Air Pollutant Emission Estimates, 1940–88*, EPA–450/4–90–001, Research Triangle Park, N.C., Mar. 1990, or write to Office of Air Quality Planning and Standards, Environmental Protection Agency, Research Triangle Park, N.C. 27711.

United Nations

Demographic Yearbook

The Statistical Office of the United Nations prepares the *Demographic Yearbook*, a comprehensive collection of international demographic statistics.

Questionnaires are sent annually and monthly to more than 220

national statistical services and other appropriate government offices. Data forwarded on these questionnaires are supplemented, to the extent possible, by data taken from official national publications and by correspondence with the national statistical services. To insure comparability, rates, ratios, and percentages have been calculated in the Statistical Office of the United Nations.

Lack of international comparability between estimates arises from differences in concepts, definitions, and time of data collection. The comparability of population data is affected by several factors, including (1) the definitions of the total population, (2) the definitions used to classify the population into its urban and rural components, (3) difficulties relating to age reporting, (4) the extent of over- or underenumeration, and (5) the quality of population estimates. The completeness and accuracy of vital statistics data also vary from one country to another. Differences in statistical definitions of vital events may also influence comparability.

For more information, see: United Nations, *Demographic Yearbook 1988*, Pub. No. ST/ESA/STAT/SER.R/16, United Nations, New York, N.Y., 1988.

World Health Statistics Annual

The World Health Organization (WHO) prepares the *World Health Statistics Annual*, an annual volume of information on vital statistics and causes of death designed for use by the medical and public health professions. Each volume is the result of a joint effort by the national health and statistical administrations of many countries, the United Nations, and WHO.

United Nations' estimates of vital rates and population size and composition, where available, are reprinted directly in the *Statistics Annual*. For those countries for which the United Nations does not prepare demographic estimates, primarily smaller populations, the latest

available data reported to the United Nations and based on reasonably complete coverage of events are used.

Information published on late fetal and infant mortality is based entirely on official national data either reported directly or made available to the World Health Organization.

Selected life-table functions are calculated from the application of a uniform methodology to national mortality data provided to WHO, in order to enhance their value for international comparisons. The life-table procedure used by WHO may often lead to discrepancies with national figures published by countries, due to differences in methodology or degree of age detail maintained in calculations.

The international comparability of estimates published in the *World Health Statistics Annual* is affected by the same problems discussed above for the *Demographic Yearbook.* Cross-national differences in statistical definitions of vital events, in the completeness and accuracy of vital statistics data, and in the comparability of population data are the primary factors affecting comparability.

For more information, see: World Health Organization, *World Health Statistics Annual 1989*, World Health Organization, Geneva, Switzerland, 1989.

Alan Guttmacher Institute

Abortion Survey

The Alan Guttmacher Institute (AGI) conducts an annual survey of abortion providers. Data are collected from hospitals, nonhospital clinics, and physicians identified as providers of abortion services. A survey universe of 3,092 hospitals, nonhospital clinics, and individual physicians was compiled. To assess the completeness of the provider and abortion counts, supplemental surveys were conducted of a sample of obstetrician-gynecologists and a sample of hospitals (not in original universe) that were identified as

providing abortion services through the American Hospital Association survey.

The number of abortions estimated by AGI is about 20 percent more than the number reported to the Centers for Disease Control.

For more information, write to: The Alan Guttmacher Institute, 111 5th Avenue, 11th Floor, New York, N.Y. 10003–1089.

American Association of Colleges of Osteopathic Medicine

The American Association of Colleges of Osteopathic Medicine compiles data on various aspects of osteopathic medical education for distribution to the profession, the government, and the public. Questionnaires are sent annually to all schools of osteopathic medicine requesting information on characteristics of applicants and students, curricula, faculty, grants, contracts, revenues, and expenditures. The response rate is 100 percent.

For more information, see: *Annual Statistical Report 1989*, American Association of Colleges of Osteopathic Medicine, Rockville, Md., 1989.

American Dental Association

The Division of Educational Measurement of the American Dental Association conducts annual surveys of predoctoral dental educational institutions. The questionnaire, mailed to all dental schools, collects information on student characteristics, financial management, and curricula.

For more information, see: American Dental Association, *Annual Report on Dental Education 1988/89.* Chicago, Ill.

American Hospital Association

Annual Survey of Hospitals

Data from this survey are based on questionnaires that are sent to all

hospitals in the United States and its associated areas accepted for registration by the American Hospital Association (AHA). In 1988, questionnaires were mailed to all hospitals on AHA files. Overall, 6,322 hospitals reported data, a response rate of 92 percent. For nonreporting hospitals and for the survey questionnaires of reporting hospitals on which some information was missing, estimates were made for all data except those on beds, bassinets, and facilities. Data for beds and bassinets of nonreporting hospitals were based on the most recent information available from those hospitals. Facilities and services and inpatient service area data include only reporting hospitals and, therefore, do not include estimates.

Estimates of other types of missing data were based on data reported the previous year, if available. When unavailable, the estimates were based on data furnished by reporting hospitals similar in size, control, major service provided, length of stay, and geographic and demographic characteristics.

Hospitals are requested to report data for the full year ending September 30; 38.9 percent of the responding hospitals used this reporting period. In the 1988 survey, the remaining hospitals used various reporting periods.

For more information on the AHA Annual Survey of Hospitals, see: American Hospital Association, *Hospital Statistics, 1989–90 Edition, Data from the American Hospital Association 1988 Annual Survey*, Chicago, 1989.

American Medical Association

Physician Masterfile

A masterfile of physicians has been maintained by the American Medical Association (AMA) since 1906. Today, the Physician Masterfile contains data on almost every physician in the United States, both members and nonmembers of AMA, and on those graduates of American medical schools temporarily practicing overseas. The file also includes graduates of foreign medical schools who are in the United States and meet education standards for primary recognition as physicians.

Masterfile data are obtained from over 2,100 organizations and institutions. These data are collected and processed on an ongoing basis for the maintenance and updating of over 550,000 individual physician records.

A file is initiated on each individual upon entry into medical school or, in the case of foreign graduates, upon entry into the United States. A census of physicians is conducted every 4 years to update the file information on professional activities, specialization, and present employment status. Between censuses, AMA keeps the file current by continuous checks of professional publications and State licensure notices for changes in any physician's activities. When a change is noted, the physician may be sent a questionnaire to verify the change.

For more information on the AMA Physician Masterfile, see: Division of Survey and Data Resources, American Medical Association, *Physician Characteristics and Distribution in the U.S.*, 1987 edition, Chicago, 1987.

Annual Census of Hospitals

From 1920 to 1953 the Council on Medical Education and Hospitals of the American Medical Association (AMA) conducted annual censuses of all hospitals registered by AMA.

In each annual census, questionnaires were sent to hospitals asking for the number of beds, bassinets, births, patients admitted, average census of patients, lists of staff doctors and interns, and other information of importance at the particular time. Response rates were always nearly 100 percent.

The community hospital data from 1940 and 1950 presented in this report were calculated using published figures from the AMA Annual Census of Hospitals. Although the hospital classification scheme used by AMA in published reports is not strictly comparable with the definition of community hospitals, methods were employed to achieve the greatest comparability possible.

For more information on the AMA Annual Census of Hospitals, see: American Medical Association, Hospital service in the United States, *Journal of the American Medical Association*, 116(11):1055–1144, 1941.

Association of American Medical Colleges

The Association of American Medical Colleges collects information on student enrollment in medical schools through the annual Liaison Committee on Medical Education questionnaire, the fall enrollment questionnaire, and the American Medical College Application Service data system. Other data sources are the institutional profile system, the premedical students questionnaire, the graduation questionnaire, the minority student opportunities in medicine questionnaire, the faculty roster system, data from the Medical College Admission Test, and one-time surveys developed for special projects.

For more information, see: Association of American Medical Colleges, Minority Students in Medical Education Facts and Figures V, June 1989.

InterStudy

National Health Maintenance Organization Census

From 1976 to 1980 the Office of Health Maintenance Organizations conducted a census of health maintenance organizations (HMO). Since 1981, InterStudy has conducted the census. A questionnaire is sent to all HMO's in the United States asking for updated enrollment, profit status, and Federal qualification status. New HMO's are also asked to provide information on model type. When necessary, information is obtained, supplemented, or clarified by telephone. For nonresponding

HMO's State-supplied information or the most current available data are used.

In 1985 a large increase in the number of HMO's and enrollment was partly attributable to a change in the categories of HMO's included in the census: Both Medicaid-only and Medicare-only HMO's have been added. Also component HMO's, which have their own discrete management, can be listed separately; whereas previously the oldest HMO reported for all of its component or expansion sites, even when the components had different operational dates or were different model types.

For further information, see: InterStudy, *National HMO Census: Annual Report on the Growth of HMO's in the U.S., 1982–1986 Editions; The InterStudy Edge*, Spring 1987 and 1988 editions and 1989, 1990, volume 2. Excelsior, Minn., 1983–90.

National League of Nursing

The division of research of the National League of Nursing conducts The Annual Survey of Schools of Nursing in October of each year. Questionnaires are sent to all graduate nursing programs (master's and doctoral), baccalaureate programs designed exclusively for RNs, basic RN programs (baccalaureate, associate degree, and diploma), and licensed practical nursing programs. A 100-percent response rate has been achieved for many years on questionnaire items on enrollments, first-time admissions, and graduates. Response rates of approximately 80 percent are achieved for other areas of inquiry.

For more information, see: National League of Nursing, Nursing Student Census 1989, N.Y.

Public Health Foundation

Association of State and Territorial Health Officials Reporting System

The Association of State and Territorial Health Officials (ASTHO) Reporting System, operated by the Public Health Foundation, is a statistical system that provides comprehensive information about the public health programs of State and local health departments. The Reporting System was established in 1970 by ASTHO in response to congressional requests for information about State health agency uses of block grant funds (i.e., PHS Act, Section 314(d) grant monies). Today, the Reporting System maintains a data base and publishes annual reports on State health agency personnel, expenditures, funding sources, programs, and services.

The Foundation's ASTHO Reporting System conducts an annual survey of the official State health agency (SHA) in each of the 50 States, the District of Columbia, and four U.S. territories. The survey includes extensive detail on the agencies' expenditures and funding sources, and the services and activities in two program areas: personal health and environmental health. Supplementary data on clients, services, and selected health outcomes are collected in the areas of maternal and child health, handicapped children's services, dental health, and tuberculosis control. In addition, special studies are undertaken periodically to gather information on public health topics of high national priority.

For more information, contact: Public Health Foundation, 1220 L Street, N.W., Suite 350, Washington, D.C. 20005.

Appendix II
Glossary

General Terms

Social and Demographic Terms

Age — Age is reported as age at last birthday, that is, age in completed years, often calculated by subtracting date of birth from the reference date, with the reference date being the date of the examination, interview, or other contact with an individual.

Age adjustment — Age adjustment, using the direct method, is the application of the age-specific rates in a population of interest to a standardized age distribution in order to eliminate the differences in observed rates that result from age differences in population composition. This adjustment is usually done when comparing two or more populations at one point in time or one population at two or more points in time.

In this report, the death rates are age adjusted to the U.S. population enumerated in 1940. Computations may be simplified by expressing the 1940 U.S. population on a per million basis (table I). Adjustment is based on 11 age groups with two exceptions. First, age-adjusted death rates for black males and black females in 1950 are based on nine age groups, with under 1 and 1–4 years of age combined as one group and 75–84 and 85 years of age and over combined as one group. Second,

Table I. Standard million age distribution used to adjust death rates to the U.S. population in 1940

Age	Standard million
All ages.	1,000,000
Under 1 year	15,343
1–4 years.	64,718
5–14 years.	170,355
15–24 years	181,677
25–34 years	162,066
35–44 years	139,237
45–54 years	117,811
55–64 years	80,294
65–74 years	48,426
75–84 years	17,303
85 years and over	2,770

Table II. Numbers of live births and mother's age groups used to adjust maternal mortality rates to live births in the United States in 1970

Mother's age	Number
All ages.	3,731,386
Under 20 years	656,460
20–24 years	1,418,874
25–29 years	994,904
30–34 years	427,806
35 years and over	233,342

cause-specific provisional death rates, which are based on 10 age groups with 1–4 and 5–14 years of age combined as one group. Maternal mortality rates for complications of pregnancy, childbirth, and the puerperium are calculated as the number of deaths per 100,000 live births. These rates are age adjusted to the live births in the United States in 1970 using the intervals for mother's age in table II.

The data from the National Health Interview Survey (NHIS), National Health Examination Survey (NHES), National Health and Nutrition Examination Survey (NHANES), National Ambulatory Medical Care Survey (NAMCS), and the National Hospital Discharge Survey (NHDS) are age adjusted to the 1970 civilian noninstitutionalized population. Most of the data from the NHIS, NAMCS, and NHDS are age adjusted using the following four age groups: under 15 years, 15–44 years, 45–64 years, and 65 years and over. The NHES and NHANES data are age adjusted using the following six age groups: 20–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years, and 65–74 years. The 1970 civilian noninstitutionalized population used to age adjust data from each survey are shown in table III and derived as follows: Institutionalized population = (1 – proportion of total population not institutionalized on April 1, 1970) x total population on July 1, 1970. Civilian noninstitutionalized population = civilian population on

Table III. Population and age groups used to adjust data to the U.S. civilian noninstitutionalized population in 1970: Selected surveys

Survey and age	Number in thousands
NHIS, NAMCS, and NHDS	
All ages.	199,584
Under 15 years	57,745
15–44 years	81,189
45–64 years	41,537
65 years and over	19,113
NHIS health care coverage	
65 years and over	19,113
65–74 years	12,224
75 years and over	6,889
NHIS smoking data	
18 years and over	130,158
18–24 years	22,464
25–34 years	24,430
35–44 years	22,614
45–64 years	41,537
65 years and over	19,113
NHES and NHANES	
20–74 years	116,182
20–24 years	15,378
25–34 years	24,430
35–44 years	22,614
45–54 years	23,070
55–64 years	18,467
65–74 years	12,223

Source: Calculated from Bureau of Census: Estimates of the Population of the United States by Age, Sex, and Race: 1970 to 1977. Population Estimates and Projections. *Current Population Reports.* Series P-25, No. 721, Washington. U.S. Government Printing Office, April 1978.

July 1, 1970 – institutionalized population.

Average annual rate of change (percent change) — In this report, average annual rates of change or growth rates are calculated as follows:

$$((P_n / P_o)^{1/N} - 1) \times 100$$

where P_n = later time period
P_o = earlier time period
N = number of years in interval

This geometric rate of change assumes that a variable increases or decreases at the same rate during each year between the two time periods.

Race — Beginning in 1976, the Federal Government's data systems classified individuals into the following racial groups: American Indian or Alaskan Native, Asian or Pacific Islander, black, and white. In this report, three racial categories are generally used: "white," "all other," and "black." The "all other" category includes all races other than white.

Depending on the data source, the classification by race may be based on self-classification or on observation by an interviewer or other persons filling out the questionnaire. In the National Vital Statistics System, newborn infants are assigned the race of their parents. If the parents are of different races and one is white, the child is assigned the other parent's race. If either parent is Hawaiian, the child is classified as Hawaiian. In all other cases the child is assigned the father's race. Prior to 1964, the National Vital Statistics System classified all births for which race was unknown as "white." Beginning in 1964 these births are classified according to information on the previous record. The National Health Interview Survey assigns children whose parents are of different races to the race of the mother.

Family income — For purposes of the National Health Interview Survey and National Health and Nutrition Examination Survey, all people within a household related to each other by blood, marriage, or adoption constitute a family. Each member of a family is classified according to the total income of the family. Unrelated individuals are classified according to their own income. Family income, then, is the total income received by the members of a family (or by an unrelated individual) in the 12 months prior to interview, including wages, salaries, rents from property, interest, dividends, profits and fees from their own businesses, pensions, and help from relatives. Family income has generally been categorized into approximate quintiles in the tables.

Marital status — The population is classified through self-reporting into the categories married and unmarried. Married includes all married people including those separated from their spouses. Unmarried includes those who are single (never married), divorced, or widowed. The Abortion Surveillance Reports of the Centers for Disease Control classify separated people as unmarried for all States except Rhode Island.

Population — The U.S. Bureau of the Census collects and publishes data on several different types of population in the United States. Various statistical systems then use the appropriate population in calculating rates.

Total population is the population of the United States, including all members of the Armed Forces living in foreign countries, Puerto Rico, Guam, and the U.S. Virgin Islands. Other Americans abroad (e.g., civilian Federal employees and dependents of members of the Armed Forces or other Federal employees) are not included.

Resident population is the population living in the United States. This includes members of the Armed Forces stationed in the United States and their families as well as foreigners working or studying here; it excludes foreign military, naval, and diplomatic personnel and their families located here and residing in embassies or similar quarters as well as Americans living abroad. The resident population is often the denominator when calculating birth and death rates and incidence of disease.

Civilian population is the resident population excluding members of the Armed Forces. Families of members of the Armed Forces are included, however. This population is the denominator in rates calculated for the NCHS National Hospital Discharge Survey.

Civilian noninstitutionalized population is the civilian population not residing in institutions. Institutions include correctional institutions, detention homes, and training schools for juvenile delinquents; homes for the aged and dependent (e.g., nursing homes and convalescent homes); homes for dependent and neglected children; homes and schools for the mentally or physically handicapped; homes for unwed mothers; psychiatric, tuberculosis, and chronic disease hospitals; and residential treatment centers. This population is the denominator in rates calculated for the National Center for Health Statistics, National Health Interview Survey, National Health and Nutrition Examination Survey, and National Ambulatory Medical Care Survey.

Geographic Terms

Division and region — The 50 States and the District of Columbia are grouped for statistical purposes by the U.S. Bureau of the Census into nine divisions within four regions. The groupings are as follows:

- Northeast
  New England
     Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
  Middle Atlantic
     New York, New Jersey, Pennsylvania
- Midwest
  East North Central
     Ohio, Indiana, Illinois, Michigan, Wisconsin
  West North Central
     Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
- South
  South Atlantic
     Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida
  East South Central
     Kentucky, Tennessee, Alabama, Mississippi
  West South Central
     Arkansas, Louisiana, Oklahoma, Texas

■ West
  Mountain
    Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada
  Pacific
    Washington, Oregon, California, Alaska, Hawaii

Registration area — The United States has separate registration areas for birth, death, marriage, and divorce statistics which collect data annually from States whose registration data are at least 90-percent complete.

The *death registration area* was established in 1900 with 10 States and the District of Columbia, and the *birth registration area* was established in 1915, also with 10 States and the District of Columbia. Both areas have covered the entire United States since 1933. Currently, Puerto Rico, the U.S. Virgin Islands, and Guam are also included, although in statistical tabulations they are not part of the U.S. total.

Reporting area — In the National Vital Statistics System, reporting requirements on birth certificates vary according to State. Thus, different numbers of States report various characteristics. For example, in 1986, the educational attainment of mother was reported in 47 States and the District of Columbia.

Metropolitan statistical area (MSA) — The definitions and titles of MSA's are established by the U.S. Office of Management and Budget with the advice of the Federal Committee on Metropolitan Statistical Areas. Generally speaking, an MSA consists of a county or group of counties containing at least one city (or twin cities) having a population of 50,000 or more plus adjacent counties that are metropolitan in character and are economically and socially integrated with the central city. In New England, towns and cities rather than counties are the units used in defining MSA's. There is no limit to the number of adjacent counties included in the MSA as long as they are integrated with the central city, nor is an MSA limited to a single State; boundaries may cross State lines. The metropolitan population in this report is based on MSA's as defined in the 1980 census and does not include any subsequent additions or changes.

Health Status and Determinants

Fertility

Abortion — The Centers for Disease Control's surveillance program counts *legal abortions* only. For surveillance purposes, legal abortion is defined as a procedure performed by a licensed physician or someone acting under the supervision of a licensed physician.

Birth rate — This measure divides the number of live births in a population in a given period by the resident population at the middle of that period. It is expressed as the number of live births per 1,000 population. The rate may be restricted to births to women of a specific age, race, marital status, or geographic location, or it may be related to the entire population.

Completed fertility rate — Sum of the central birth rates over all ages (14–49 years) of childbearing for a given birth cohort.

Gestation — For both the National Vital Statistics System and the Centers for Disease Control's Abortion Surveillance, the period of gestation is defined as beginning with the first day of the last normal menstrual period and ending with the day of birth.

Live birth — In the World Health Organization's definition, also adopted by the United Nations and the National Center for Health Statistics, a live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life such as heartbeat, umbilical cord pulsation, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered live born.

Live-birth order — In the National Vital Statistics System, this item from the birth certificate indicates the number of live births a woman has had, counting the birth being recorded.

Low birth weight — Prior to 1979 low birth weight was defined as 2,500 grams or less. Beginning in 1979, low birth weight is defined as less than 2,500 grams.

Mortality

Cause of death — For the purpose of national mortality statistics, every death is attributed to one underlying condition, based on information reported on the death certificate and utilizing the international rules for selecting the underlying cause of death from the reported conditions.

Table IV. Revision of the *International Classification of Diseases*, according to year of conference by which adopted and years in use in United States

Revision of the International Classification of Diseases	Year of conference by which adopted	Years in use in United States
First	1900	1900–1909
Second	1909	1910–1920
Third	1920	1921–1929
Fourth	1929	1930–1938
Fifth	1938	1939–1948
Sixth	1948	1949–1957
Seventh	1955	1958–1967
Eighth	1965	1968–1978
Ninth	1975	1979–present

Table V. Cause-of-death codes, according to applicable revision of *International Classification of Diseases*

Cause of death	Code numbers			
	Sixth Revision	Seventh Revision	Eighth Revision	Ninth Revision
Diseases of heart	400–402, 410–443	400–402, 410–443	390–398, 402, 404, 410–429	390–398, 402, 404–429
Ischemic heart disease	. . .	. . .	. . .	410–414
Cerebrovascular diseases.	330–334	330–334	430–438	430–438
Malignant neoplasms	140–205	140–205	140–209	140–208
Respiratory system	160–164	160–164	160–163	160–165
Colorectal	153–154	153–154	153–154	153, 154
Breast	170	170	174	174, 175
Prostate	177	177	185	185
Chronic obstructive pulmonary diseases. . . .	241, 501, 502, 527.1	241, 501, 502, 527.1	490–493, 519.3	490–496
Pneumonia and influenza	480–483, 490–493	480–483, 490–493	470–474, 480–486	480–487
Tuberculosis	001–019	001–019	010–019	010–018
Chronic liver disease and cirrhosis	581	581	571	571
Diabetes mellitus	260	260	250	250
Accidents and adverse effects	E800–E962	E800–E962	E800–E949	E800–E949
Motor vehicle accidents	E810–E835	E810–E835	E810–E823	E810–E825
Suicide	E963, E970–E979	E963, E970–E979	E950–E959	E950–E959
Homicide and legal intervention	E964, E980–E985	E964, E980–E985	E960–E978	E960–E978
Complications of pregnancy, childbirth, and the puerperium	640–689	640–689	630–678	630–676
Human immunodeficiency virus infection . . .	. . .	. . .	. . .	*042–*044
Malignant neoplasm of peritoneum and pleura	. . .	. . .	158, 163.0	158, 163
Coalworkers' pneumoconiosis	. . .	. . .	515.1	500
Asbestosis	. . .	. . .	515.2	501
Silicosis	. . .	. . .	515.0	502

For data years 1979–89 the *International Classification of Diseases, Ninth Revision* is used for coding. Earlier data used the then current revision of the *International Classification of Diseases* (tables IV and V).

Use of successive revisions for classification of diseases may introduce discontinuities in the comparability of cause-of-death statistics over time. For further discussion, see National Center for Health Statistics: *Vital Statistics of the United States, 1987*, Volume II, Mortality, Part A. DHHS Pub. No. (PHS) 90–1101, Public Health Service, Washington, U.S. Government Printing Office, 1989.

Codes for HIV infection — Beginning with data for 1987, NCHS introduced category numbers *042–*044 for classifying and coding human immunodeficiency virus (HIV) infection, formerly referred to as human T-cell lymphotropic virus-III/lymphadenopathy-associated virus (HTLV-III/LAV) infection. The asterisk before the category numbers indicates that these codes are not part of the Ninth Revision of the International Classification of Diseases (ICD-9). For 1986 and previous years, deaths involving HIV infection were classified to Deficiency

of cell-mediated immunity (ICD-9 No. 279.1), contained in the title All other diseases; to Pneumocystosis (ICD-9 No. 136.3), contained in the title All other infectious and parasitic diseases; to Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues; and to a number of other causes. Therefore, beginning with 1987, cause-of-death data are not strictly comparable with data for earlier years.

Death rate — This measure is derived by dividing the number of deaths in a population in a given period by the resident population at the middle of that period. It is expressed as the number of deaths per 1,000 or 100,000 population. It may be restricted to deaths in specific age, race, sex, or geographic groups or it may be related to the entire population.

Cause-of-death ranking — Cause-of-death ranking is based on the List of 72 Selected Causes of Death and the category human immunodeficiency virus infection (*042–*044). The List of 72 Selected Causes of Death was adapted from one of the special lists for mortality tabulations recommended by the World Health Organization for use with the Ninth Revision of the International Classification of

Diseases. Two group titles — major cardiovascular diseases and symptoms, signs, and ill-defined conditions — are not ranked. In addition, category titles that begin with the words "other" and "all other" are not ranked. The remaining category titles are ranked according to the number of deaths to determine the leading causes of death. When one of the titles that represents a subtotal is ranked (for example, accidents and adverse effects), its component parts (in this case, motor vehicle accidents and all other accidents and adverse effects) are not ranked.

Infant mortality — Infant mortality is the death of live-born children who have not reached their first birthday and is usually expressed as a rate (i.e., the number of infant deaths during a year per 1,000 live births reported in the year).

International Classification of Diseases, Ninth Revision — The *International Classification of Diseases* (ICD) classifies mortality information for statistical purposes. ICD was first used in 1900 and has been revised about every 10 years since then. The *Ninth Revision*, published in 1977, is used to code U.S. mortality data beginning with data for 1979. The clinical modification of the *Ninth*

Revision is used to code U.S. morbidity data.

Both are arranged in 17 main chapters. Most of the diseases are arranged according to their principal anatomical site, with special chapters for infective and parasitic diseases; neoplasms; endocrine, metabolic, and nutritional diseases; mental diseases; complications of pregnancy and childbirth; certain diseases peculiar to the perinatal period; and ill-defined conditions. In addition, two supplemental classifications are provided: the classification of factors influencing health status and contact with health service and the classification of external causes of injury and poisoning.

Neonatal mortality rate — The neonatal mortality rate is the number of deaths under 28 days of age per 1,000 live births.

Postneonatal mortality rate — The postneonatal mortality rate is the number of deaths that occur from 28 days to 365 days after birth per 1,000 live births.

Fetal death rate — The fetal death rate is the number of fetal deaths with stated or presumed gestation of 20 weeks or more per 1,000 live births plus fetal deaths.

Late fetal death rate — The late fetal death rate is the number of fetal deaths with stated or presumed gestation of 28 weeks or more per 1,000 live births plus late fetal deaths.

Perinatal mortality rate — The perinatal mortality rate is the number of late fetal deaths plus infant deaths within 7 days of birth per 1,000 live births plus late fetal deaths.

Perinatal mortality ratio — The perinatal mortality ratio is the number of late fetal deaths plus infant deaths within 7 days of birth per 1,000 live births.

Feto-infant mortality rate — The feto-infant mortality rate is the number of fetal deaths with stated or presumed gestation of 28 weeks or more plus the number of infant deaths per 1,000 live births plus late fetal deaths.

Life expectancy — Life expectancy is the average number of years of life remaining to a person at a particular age and is based on a given set of age-specific death rates, generally the mortality conditions existing in the period mentioned. Life expectancy may be determined by race, sex, or other characteristics using age-specific death rates for the population with that characteristic.

Years of potential life lost — Years of potential life lost are calculated over the age range from birth to 65 years. The number of deaths for each age group is multiplied by the years of life lost (the difference between 65 and the midpoint of the age group). For example, the death of a person age 15–24 years counts as 45 years of life lost. Then years of potential life lost are summed over all age groups. (Centers for Disease Control. *MMWR.* Dec. 19, 1986. Vol. 35, Supp. No. 2S.)

Determinants and Measures of Health

AIDS — Acquired immunodeficiency syndrome (AIDS) is an illness characterized by:

■   One or more specified indicator diseases (listed in the complete case definition) and

■   Either a positive test for human immunodeficiency virus (HIV) infection or absence of specified causes of underlying immunodeficiency.

The AIDS case definition was changed in September 1987 to allow for the presumptive diagnosis of AIDS-associated diseases and conditions and to expand the spectrum of HIV-associated diseases reportable as AIDS. The list of expanded diseases includes HIV encephalopathy, HIV wasting syndrome, and others.

For more information, see: Centers for Disease Control. Revision of the CDC Surveillance Case definition for acquired immunodeficiency syndrome. *MMWR* 1987; 36 (supp. no. 1S): 1S–15S.

Condition — A health condition is a departure from a state of physical or mental well-being. Conditions, except impairments, are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM).

Based on duration, there are two categories of conditions, acute and chronic. In the National Health Interview Survey, an *acute condition* is a condition that has lasted less than 3 months and has involved either a physician visit (medical attention) or restricted activity, and a *chronic condition* is any condition lasting 3 months or more or is one of certain conditions classified as chronic regardless of their time of onset. The National Nursing Home Survey uses a specific list of conditions classified as chronic, also disregarding time of onset.

Disability — Disability is any temporary or long-term reduction of a person's activity as a result of an acute or chronic condition. It is often measured in terms of the number of days that a person's activity has been reduced.

Disability day — The National Health Interview Survey identifies several types of days on which a person's usual activity is reduced because of illness or injury (reported for the 2-week period preceding the week of the interview). These short-term disability days are not mutually exclusive categories but are defined as follows:

A *restricted-activity day* is any day on which a person cuts down on his or her usual activities for more than one half day because of an illness or an injury. Restricted-activity days are unduplicated counts of bed-disability, work-loss, and school-loss days as well as other days during which a person cuts down on his or her usual activities.

A *bed-disability day* is a day on which a person stays in bed for more than half of the daylight hours (or normal waking hours) because of a specific illness or injury. All *hospital days* are bed-disability days. Bed-disability days may also be work-loss or school-loss days.

A *work-loss day* is a day on which a person did not work at his or her job or business for at least half of his or her normal workday because of a specific illness or injury. The number of work-loss days is determined only for currently employed persons.

A *school-loss day* is a day on which a child did not attend school for at least half of his or her normal school day because of a specific illness or injury. School-loss days are determined only for children 5–17 years of age, beginning in 1982.

Incidence — Incidence is the number of cases of disease having their onset during a prescribed period of time and is often expressed as a rate (e.g., the incidence of measles per 1,000 children 5–15 years of age during a year). Incidence is a measure of morbidity or other events that occur within a specified period of time.

Limitation of activity — Each person identified by the National Health Interview Survey as having a chronic condition is classified according to the extent to which his or her activities are limited because of the condition as follows:

■ Persons unable to carry on *major activity*
■ Persons limited in the amount or kind of major activity performed
■ Persons not limited in major activity but otherwise limited
■ Persons not limited in activity

Major activity (or usual activity) — This is the principal activity of a person or of his or her age-sex group. For 1–5 years of age, it refers to ordinary play with other children; for 5–17 years of age, it refers to school attendance; for 18 years of age and over, it usually refers to a job, housework, or school attendance.

Notifiable disease — A notifiable disease is one that health providers are required, usually by law, to report to State or local public health officials when diagnosed. Notifiable diseases are those of public interest by reason of their contagiousness, severity, or frequency.

Particulate matter — Particulate matter is defined as particles of solid or liquid matter in the air, including both nontoxic materials (soot, dust, and dirt) and toxic materials (lead, asbestos, suspended sulfates and nitrates, etc.).

Pollutant — A pollutant is any substance that renders the atmosphere or water foul or noxious to health.

Prevalence — Prevalence is the number of cases of a disease, infected persons, or persons with some other attribute present during a particular interval of time. It is often expressed as a rate (e.g., the prevalence of diabetes per 1,000 persons during a year).

Relative survival rate — The relative survival rate is the ratio of the observed survival rate for the patient group to the expected survival rate for persons in the general population similar to the patient group with respect to age, sex, race, and calendar year of observation. The 5-year relative survival rate is used to estimate the proportion of cancer patients potentially curable. Because over half of all cancers occur in persons 65 years of age and over, many of these individuals die of other causes with no evidence of recurrence of their cancer. Thus, because it is obtained by adjusting observed survival for the normal life expectancy of the general population of the same age, the relative survival rate is an estimate of the chance of surviving the effects of cancer.

Utilization and Resources

Ambulatory Care

Dental visit — The National Health Interview Survey counts visits to a dentist's office for treatment or advice, including services by a technician or hygienist acting under the dentist's supervision, as dental visits. Services provided to hospital inpatients are not included.

Office — In the National Health Interview Survey, an office refers to the office of any physician in private practice, including physicians connected with prepaid group practices. In the National Ambulatory Medical Care Survey, an office is any location for a physician's ambulatory practice other than hospitals, nursing homes, other extended care facilities, patients' homes, industrial clinics, college clinics, and family planning clinics. However, private offices in hospitals are included.

Physician contact — The National Health Interview Survey counts as a physician contact, a visit in person or by telephone to a doctor of medicine or doctor of osteopathy for the purpose of examination, diagnosis, treatment, or advice. The service may be provided directly by the physician or by a nurse or other person acting under the physician's supervision. Contacts involving services provided on a mass basis are not included nor are contacts for hospital inpatients.

Physician contacts are generally classified by the type of place of contact. In the National Health Interview Survey, this includes the *office, hospital outpatient clinic or emergency room, telephone* (advice given by a physician in a telephone call), *home* (any place in which a person was staying at the time a physician was called there), as well as other places.

In the National Ambulatory Medical Care Survey, an *office visit* is any direct personal exchange between an ambulatory patient and a physician or members of his or her staff for the purposes of seeking care and rendering health services.

Inpatient Care

Average daily census or average daily patients — This refers to the average number of inpatients receiving care each day during a reporting period, excluding newborns.

Average length of stay — In the National Hospital Discharge Survey, the average length of stay is the total number of patient days accumulated at the time of discharge, counting the date of admission but not the date of discharge by patients discharged during a reporting period, divided by the number of patients discharged.

As measured in the National Nursing Home Survey, *length of stay for residents* is the time from their admission until the reporting time, and the *length of stay for discharges* is the time between the date of admission and the date of discharge.

Bed—Any bed that is set up and staffed for use for inpatients is counted as a bed in a facility. In the National Master Facility Inventory, the count is of beds at the end of the reporting period; for the American Hospital Association, it is of the average number of beds during the entire period. The World Health Organization defines a hospital bed as one regularly maintained and staffed for the accommodation and full-time care of a succession of inpatients and situated in a part of the hospital where continuous medical care for inpatients is provided.

Day—According to the American Hospital Association and National Master Facility Inventory, days or *inpatient days* are the number of adult and pediatric days of care rendered during a reporting period. Days of care for newborns are excluded.

In the National Health Interview Survey, *hospital days during the year* refer to the total number of hospital days occurring in the 12-month period prior to the interview week. A *hospital day* is a night spent in the hospital for persons admitted as inpatients to a hospital.

In the National Hospital Discharge Survey, *days of care* refer to the total number of patient days accumulated by patients at the time of discharge from non-Federal short-stay hospitals during a reporting period. All days from and including the date of admission but not including the date of discharge are counted. A *patient* is a person who is formally admitted to the inpatient service of the hospital for observation, care, diagnosis, or treatment.

Discharge—The National Health Interview Survey defines a *hospital discharge* as the completion of any continuous period of stay of 1 night or more in a hospital as an inpatient,

excepting the period of stay of a well newborn infant.

According to the National Hospital Discharge Survey, American Hospital Association, and National Master Facility Inventory, this is the formal release of an inpatient by a

hospital, that is, the termination of a period of hospitalization (including stays of 0 nights) by death or by disposition to a place of residence, nursing home, or another hospital. In this report, newborn infants are excluded.

Table VI. Codes for diagnostic categories from the *International Classification of Diseases, 9th Revision, Clinical Modification*

Diagnostic category	Code numbers
Females with delivery	V27
Acquired immunodeficiency syndrome (AIDS)	042.0–042.2, 042.9, 279.19
Malignant neoplasms	140–208, 230–234
Benign neoplasms	210–229, 235–239
Diabetes	250
Psychoses	290–299
Alcohol dependence syndrome	303
Eye diseases and conditions	360–379
Otitis media and eustachian tube disorders	381–382
Diseases of heart	391–392.0, 393–398, 402, 404, 410–416, 420–429
Cerebrovascular diseases	430–438
Acute respiratory infection	460–466
Chronic disease of tonsils and adenoids	474
Pneumonia, all forms	480–486
Bronchitis, emphysema, and asthma	490–493
Inguinal hernia	550
Noninfectious enteritis and colitis	555–556, 558
Cholelithiasis	574
Hyperplasia of prostate	600
Inflammatory disease of female pelvic organs	614–616
Disorders of menstruation	626
Pregnancy with abortive outcome	630–639
Intervertebral disc disorders	722
Congenital anomalies	740–759
Fracture, all sites	800–829
Lacerations and open wounds	870–904

Table VII. Codes for surgical categories from the *International Classification of Diseases, 9th Revision, Clinical Modification*

Surgical category	Code numbers
Extraction of lens	13.1–13.6
Insertion of prosthetic lens (pseudophakos)	13.7
Myringotomy	20.0
Tonsillectomy, with or without adenoidectomy	28.2–28.3
Adenoidectomy without tonsillectomy	28.6
Direct heart revascularization (coronary bypass)	36.1
Cardiac catheterization	37.21–37.23
Pacemaker insertion or replacement	37.7–37.8
Biopsies on the digestive system (Beginning in 1989)	42.24, 44.14, 44.15, 45.14, 45.15, 45.25, 45.27, 48.24, 48.26, 49.22, 49.23, 50.11, 50.12, 51.12–51.14, 52.11, 52.12, 52.14, 54.22, 54.24
Appendectomy, excluding incidental	47.0
Cholecystectomy	51.2
Repair of inguinal hernia	53.0–53.1
Prostatectomy	60.2–60.6
Circumcision	64.0
Oophorectomy and salpingo-oophorectomy	65.3–65.6
Bilateral destruction or occlusion of fallopian tubes	66.2–66.3
Hysterectomy	68.3–68.7
Diagnostic dilation and curettage of uterus	69.09
Procedures to assist delivery (Prior to 1989)	72–73
(Beginning in 1989)	72, 73.0–73.3, 73.6–73.8, 73.93–73.99
Cesarean section	74.0–74.2, 74.4, 74.99
Repair of current obstetrical laceration	75.5–75.6
Reduction of fracture (excluding skull, nose, and jaw)	76.70, 76.78–76.79, 79.0–79.6
Excision or destruction of intervertebral disc and spinal fusion	80.5, 81.0
Excision of semilunar cartilage of knee	80.6
Arthroplasty and replacement of hip	81.5–81.6
Operations on muscles, tendons, fascia, and bursa	82–83.1, 83.3–83.9
Biopsies on the integumentary system (breast, skin, and subcutaneous tissue)	85.11–85.12, 86.11
Debridement of wound, infection, or burn	86.22, 86.28

Table VIII. Codes for diagnostic and other nonsurgical procedure categories from the *International Classification of Diseases, 9th Revision, Clinical Modification*

Procedure category	Code numbers
Spinal tap	03.31
Endoscopy of small intestine	45.11–45.13
Endoscopy of large intestine	45.21–45.24
Laparoscopy (excluding that for ligation and division of fallopian tubes)	54.21
Cystoscopy	57.31–57.32
Arthroscopy of knee	80.26
Computerized axial tomography (CAT scan)	87.03, 87.41, 87.71, 88.01, 88.38
Contrast myelogram	87.21
Biliary tract x ray	87.5
Arteriography using contrast material	88.4
Angiocardiography using contrast material	88.5
Diagnostic ultrasound	88.7
Electroencephalogram	89.14
Radioisotope scan	92.0–92.1
Application of cast or splint	93.51, 93.53–93.54

In the National Nursing Home Survey, this is the formal release of a resident by a nursing home.

First-listed diagnosis—In the National Hospital Discharge Survey, this is the diagnosis listed first on the face sheet of the medical record.

Hospital—According to the American Hospital Association (AHA) and National Master Facility Inventory (NMFI), hospitals are institutions licensed as hospitals whose primary function is to provide diagnostic and therapeutic patient services for medical conditions and that have at least six beds, an organized physician staff, and continuous nursing services under the supervision of registered nurses. AHA data differ slightly from those of NMFI, because data from NMFI reflect osteopathic hospitals as well as hospitals not registered with AHA. Non-AHA hospitals comprise 5–10 percent of all hospitals in the country. The World Health Organization considers an establishment a hospital if it is permanently staffed by at least one physician, can offer inpatient accommodation, and can provide active medical and nursing care.

Hospitals may be classified by type of service, ownership, and length of stay.

General hospitals provide both diagnostic and treatment services for patients with a variety of medical conditions, both surgical and nonsurgical. According to the World Health Organization, these hospitals provide medical and nursing care for more than one category of medical discipline (e.g., general medicine, specialized medicine, general surgery, specialized surgery, and obstetrics); excluded are hospitals, usually ones in rural areas, that provide a more limited range of care.

Psychiatric hospitals are ones whose major type of service is psychiatric care. (See Psychiatric Care section.)

Specialty hospitals, such as psychiatric, tuberculosis, chronic disease, rehabilitation, maternity, and alcoholic or narcotic, provide a particular type of service to the majority of their patients.

Federal hospitals are operated by the Federal Government.

Non-Federal government hospitals are operated by State or local governments.

Nonprofit hospitals are operated by a church or other nonprofit organization.

Proprietary hospitals are operated for profit by individuals, partnerships, or corporations.

Community hospitals include all non-Federal short-stay hospitals classified by the American Hospital Association according to one of the following services: general medical and surgical; obstetrics and gynecology; eye, ear, nose, and throat; rehabilitation; orthopedic; other specialty; children's general; children's eye, ear, nose, and throat; children's rehabilitation; children's orthopedic; and children's other specialty.

Short-stay hospitals in the National Hospital Discharge Survey are those in which the average length of stay is less than 30 days. The American Hospital Association and National Master Facility Inventory define *short-term hospitals* as hospitals in which more than half the patients are admitted to units with an average length of stay of less than 30 days and *long-term hospitals* as ones in which more than half the patients are admitted to units with an average length of stay of 30 days or more. The National Health Interview Survey defines *short-stay hospitals* as any hospital or hospital department in which the type of service provided is general; maternity; eye, ear, nose, and throat; children's; or osteopathic.

Registered hospitals are hospitals registered with the American Hospital Association. About 98 percent of hospitals are registered.

International Classification of Diseases, 9th Revision, Clinical Modification (ICD–9–CM)—The ICD–9–CM is based on and is completely compatible with the *International Classification of Diseases, Ninth Revision*. The *Ninth Revision* is used to code mortality data (Mortality section), and ICD–9–CM is used to code morbidity data.

Diagnostic groupings and code number inclusions are shown in table VI; surgical groupings and code number inclusions are shown in table VII; and diagnostic and other nonsurgical procedure groupings and code number inclusions are shown in table VIII.

Nursing care—Nursing care is the provision of any of the following services: Application of dressings or bandages; bowel and bladder retraining; catheterization; enema; full bed bath; hypodermic, intramuscular, or intravenous injection; irrigation; nasal feeding;

Table IX. Mental illness codes, according to applicable revision of the *Diagnostic and Statistical Manual of Mental Disorders* and *International Classification of Diseases*

Diagnostic category	DSM–II/ICDA–8	DSM–III/ICD–9–CM
Alcohol related	291; 303; 309.13	291; 303; 305.0
Drug related	294.3; 304; 309.14	292; 304; 305.1–305.9; 327; 328
Organic disorders (other than alcoholism and drug)	290; 292; 293; 294 (except 294.3); 309.0; 309.2–309.9	290; 293; 294; 310
Affective disorders	296; 298.0; 300.4	296; 298.0; 300.4; 301.11; 301.13
Schizophrenia	295	295; 299

oxygen therapy; and temperature-pulse-respiration or blood pressure measurement.

Nursing home — A nursing home is an establishment with three or more beds that provides nursing or personal care to the aged, infirm, or chronically ill. Definitions of nursing home types apply to data collected through 1977.

Nursing care homes must employ one or more full-time registered or licensed practical nurses and must provide nursing care to at least half the residents.

Personal care homes with nursing have some but fewer than half the residents receiving nursing care. In addition, such homes must employ one or more registered or licensed practical nurses or must provide administration of medications and treatments in accordance with physicians' orders, supervision of self-administered medications, or three or more personal services.

Personal care homes without nursing have no residents receiving nursing care. These homes provide administration of medications and treatments in accordance with physicians' orders, supervision of self-administered medications, or three or more personal services.

Domiciliary care homes primarily provide supervisory care but also provide one or two personal services.

Certification of nursing homes — Facilities are certified by the Medicare and/or Medicaid program. Definitions of certification levels apply to data collected through 1985.

Skilled nursing facilities provide the most intensive nursing care available outside of a hospital. Facilities certified by Medicare provide posthospital care to eligible Medicare enrollees. Facilities certified by Medicaid as skilled nursing facilities provide skilled nursing services on a daily basis to individuals eligible for Medicaid benefits.

Intermediate care facilities are certified by the Medicaid program to provide health-related services on a regular basis to Medicaid eligibles who do not require hospital or skilled nursing facility care but do require institutional care above the level of room and board.

Not certified facilities are not certified as providers of care by Medicare or Medicaid.

Occupancy rate — The National Master Facility Inventory and American Hospital Association define *hospital occupancy rate* as the average daily census divided by the number of hospital beds during a reporting period. The *occupancy rate for other facilities* is calculated as the number of residents reported at the time of the interview divided by the number of beds reported.

Outpatient visit — According to the American Hospital Association, these are visits by patients not lodged in the hospital for medical, dental, or other services. (See Ambulatory Care section.)

Procedure — The National Hospital Discharge Survey (NHDS) defines a procedure as a surgical or nonsurgical operation, diagnostic procedure, or special treatment assigned by the physician to the medical record of patients discharged from the inpatient service of short-stay hospitals. In NHDS all terms listed on the face sheet of the medical record under captions such as "operation," "operative procedures," and "operations and/or special treatments" are transcribed in the order listed. A maximum of four 4-digit codes are assigned per sample discharge according to ICD–9–CM and NHDS directives.

Diagnostic and other nonsurgical procedures — These are procedures generally not considered to be surgery including diagnostic endoscopy and radiography, radiotherapy and related therapies, physical medicine and rehabilitation, and other nonsurgical procedures. In 1989, the list of nonsurgical procedures was revised to include selected procedures previously classified as surgical procedures. For further discussion, see National Center for Health Statistics: National Hospital Discharge Survey: Annual Summary, 1989 (forthcoming).

Surgical operations — These are all procedures except those listed under "nonsurgical procedures". In 1989, the list of surgical operations was revised, and certain procedures previously classified as surgical are now classified as nonsurgical.

Resident — In the National Nursing Home Survey, a resident is a person who has been formally admitted to but not discharged from an establishment.

Psychiatric Care

The definitions for psychiatric care are those used by the National Institute of Mental Health.

Admission — An individual is classified as an admission to a psychiatric organization by being a new admission, a readmission, a return from leave, or a transfer from another service of the same organization or another organization.

Inpatient care episodes — Episodes are defined as the number of residents in inpatient organizations at the beginning of the year, plus the total additions to these organizations during the year. Total additions during the year include new admissions and readmissions. In counting admissions rather than persons, the same individual may be counted more than once. First, if the same person is admitted more than once to a particular organization during the year, that person is counted as many times as admitted. Second, if the same person is admitted to two or more different organizations during the year, that person is counted as an admission for each organization.

Mental disorder — A mental disorder is any of several disorders listed in the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) or *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (DSM–III). Table IX shows diagnostic categories and code numbers for ICD–9–CM/DSM–III and corresponding codes for the *International Classification of Diseases, Adapted for Use in the United States, 8th Revision* (ICDA–8) and *Diagnostic and Statistical Manual of Mental Disorders, Second Edition* (DSM–II).

Mental health organization — A mental health organization is an administratively distinct public or private agency or institution whose primary concern is the provision of direct mental health services to the mentally ill or emotionally disturbed. Organizations include State and county and private psychiatric hospitals, psychiatric services of general hospitals, residential treatment centers for emotionally disturbed children, federally funded community mental health centers (prior to 1983), freestanding outpatient psychiatric clinics and partial care organizations, and multiservice mental health organizations.

Psychiatric hospitals are hospitals primarily concerned with providing inpatient care and treatment for the mentally ill. *Psychiatric inpatient units of Veterans Administration general hospitals* and *Veterans Administration neuropsychiatric hospitals* are combined into the category *Veterans Administration psychiatric hospitals* because of their similarity in size, operation, and length of stay. Other psychiatric hospitals include State and county mental hospitals and private mental hospitals.

General hospitals providing separate psychiatric services are general hospitals that provide psychiatric services in either a separate psychiatric inpatient, outpatient, or partial hospitalization service with assigned staff and space.

Residential treatment centers for emotionally disturbed children must meet all of the following criteria: (a) not licensed as a psychiatric hospital, and primary purpose is to provide individually planned mental health treatment services in conjunction with residential care; (b) has a clinical program that is directed by a psychiatrist, psychologist, social worker, or psychiatric nurse with a graduate degree; (c) serves children and youth primarily under the age of 18; (d) the primary reason for the majority of admissions is mental illness classified by DSM–II/ICDA–8 or DSM–III/ICD–9–CM codes, other than mental retardation, developmental disability, and substance-related disorders.

Freestanding psychiatric outpatient clinics provide only ambulatory mental health services on either a regular or emergency basis. The medical responsibility for services is generally assumed by a psychiatrist.

Multiservice mental health organizations directly provide two or more of the program elements defined under service type and are not classifiable as a psychiatric or general hospital or as a residential treatment center for emotionally disturbed children. (The classification of a psychiatric or general hospital or a residential treatment center for emotionally disturbed children takes precedence over a multiservice classification, even if two or more services are offered.)

Service type — Service type refers to the kinds of mental health services available: inpatient care, residential treatment care, outpatient care, and partial care.

Inpatient care is the provision of 24-hour mental health care in a mental health hospital setting.

Residential treatment care is the provision of overnight mental health care in conjunction with an intensive treatment program in a setting other than a hospital. For example, residential treatment centers for emotionally disturbed children, as well as residential treatment centers for mentally ill adults are included.

Outpatient care is the provision of ambulatory mental health services for less than 3 hours at a single visit, on an individual, group, or family basis, usually in a clinic or similar organization. Emergency care on a walk-in basis, as well as care provided by mobile teams who visit patients outside these organizations are included while all "Hotline" services are excluded.

Partial care treatment is a planned program of mental health treatment services generally provided in visits of 3 or more hours to groups of patients. Included are: treatment programs

which emphasize intensive short-term therapy and rehabilitation; programs that focus on recreation, and/or occupational program activities, including sheltered workshops; education and training programs including special education classes, therapeutic nursery schools, and vocational training.

Personnel

Full-time equivalent employee (FTE) — The American Hospital Association and National Master Facility Inventory use an estimate of full-time equivalent employees that counts two part-time employees as one full-time employee, a *full-time employee* being someone working 35 hours or more a week. The National Nursing Home Survey uses an estimate of full-time employees that counts 35 hours of part-time employees' work per week as equivalent to one full-time employee.

The National Institute of Mental Health calculates full-time equivalent employees by counting the total hours worked by all full-time employees, part-time employees, and trainees in each staff discipline in 1 week, divided by 40, to indicate the number of person weeks.

Physician — Physicians are licensed doctors of medicine or osteopathy classified by the American Medical Association and others through self-reporting as follows:

Active physicians or *professionally active physicians* are ones currently practicing, regardless of the number of hours worked per week. *Federal physicians* are employed by the Federal Government; *non-Federal* or *civilian physicians* are not.

Office-based physicians are physicians who spend the plurality of their time working in practices based in private offices; *hospital-based physicians* spend the plurality of their time as salaried physicians in hospitals.

Physician specialty — A physician specialty is any specific branch of medicine in which a physician may concentrate. The specialty classification used by the Bureau of Health Professions and National Ambulatory Medical Care Survey (NAMCS) follow these American Medical Association categories:

Primary care specialties include general practice (or family practice), internal medicine, and pediatrics.

Medical specialties include, along with internal medicine and pediatrics, the areas of allergy, cardiovascular disease, dermatology, gastroenterology, pediatric allergy and cardiology, and pulmonary diseases.

Surgical specialties include general surgery, neurological surgery, obstetrics and gynecology, ophthalmology, orthopedic surgery, otolaryngology, plastic surgery, colon and rectal surgery, thoracic surgery, and urology.

Other specialties covered by NAMCS are geriatrics, neurology, preventive medicine, psychiatry, and public health. Other specialties covered by the Bureau of Health Professions are aerospace medicine, anesthesiology, child psychiatry, neurology, occupational medicine, pathology, physical medicine and rehabilitation, psychiatry, public health, and radiology.

Health Expenditures

Consumer Price Index (CPI) — The CPI is prepared by the U.S. Bureau of Labor Statistics. It is a monthly measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The medical care component of the CPI shows trends in medical care prices based on specific indicators of hospital, medical, dental, and drug prices.

A revision of the CPI has been in use since January 1988, and changes are noted where applicable in this report.

Gross national product (GNP)/ gross domestic product (GDP) — These are two broadly comparable measures of a Nation's total output of goods and services. GNP represents the value of all goods and services produced for sale by the nation plus the estimated value of certain imputed outputs (i.e., goods and services that are neither bought nor sold). The GNP is the sum of: (1) consumption expenditures by both individuals and nonprofit organizations plus certain imputed values; (2) business investment in equipment, inventories, and new construction; (3) Federal, State, and local government purchases of goods and services; and (4) the sale of goods and services abroad minus purchases from abroad. GDP equals GNP plus an adjustment (typically small) for the value of productive services performed domestically by foreign subjects minus the value of productive services performed abroad by nationals.

Health maintenance organization (HMO) — A prepaid health plan delivering comprehensive care to members through designated providers, having a fixed monthly payment for health care services, and requiring members to be in plan for a specified period of time (usually 1 year). HMO model types are:

Group — An HMO that delivers health services through a physician group that is controlled by the HMO unit or an HMO that contracts with one or more independent group practices to provide health services.

Individual Practice Association (IPA) — An HMO that contracts directly with physicians in independent practice, and/or contracts with one or more associations of physicians in independent practice, and/or contracts with one or more multispecialty group practices (but the plan is predominantly organized around solo-single specialty practices).

These definitions differ somewhat from those used by the Office of Health Maintenance Organizations for Federal designation.

Medicaid—This program is State operated and administered but has federal financial participation. Within certain broad Federally-determined guidelines, States decide: who is eligible; the amount, duration, and scope of services covered; rates of payment for providers; and methods of administering the program. It provides health care services for certain low-income persons. Medicaid does not provide health services to all poor people in any State. It categorically covers participants in the Aid to Families with Dependent Children program and in the Supplemental Security Income program, as well as certain other people deemed to be medically needy in most States. The program was authorized in 1965 by title XIX of the Social Security Act.

Medicare—This is a nationwide health insurance program providing health insurance protection to people 65 years of age and over, people entitled to social security disability payments for 2 years or more, and people with end-stage renal disease, regardless of income. The program was enacted July 30, 1965, as Title XVIII, *Health Insurance for the Aged*, of the Social Security Act and became effective on July 1, 1966. It consists of two separate but coordinated programs: hospital insurance (Part A) and supplementary medical insurance (Part B).

National health expenditures—This measure estimates the amount spent for all health services and supplies and health-related research and construction activities consumed in the United States during the calendar year. Detailed estimates are available by source of expenditures (e.g., out-of-pocket payments, private health insurance, and government programs) and by type of expenditures (e.g. hospital care, physician services, and drugs). Data are compiled from a variety of sources.

Health services and supplies expenditures are outlays for goods and services relating directly to patient care plus expenses for administering health insurance programs and for government public health activities. This category is equivalent to total national health expenditures minus expenditures for research and construction.

Personal health care expenditures—These are outlays for goods and services relating directly to patient care. The expenditures in this category are total national health expenditures minus expenditures for research and construction, expenses for administering health insurance programs, and government public health activities.

Private expenditures are outlays for services provided or paid for by nongovernmental sources—consumers, insurance companies, private industry, and philanthropic and other nonpatient care sources.

Public expenditures are outlays for services provided or paid for by Federal, State, and local government agencies or expenditures required by governmental mandate (such as workmen's compensation insurance payments).

Nursing home expenditures—These expenditures cover care rendered in skilled nursing and intermediate care facilities, including those for the mentally retarded. The costs of long-term care provided by hospitals are excluded.

Personal health care expenditures—These are outlays for goods and services relating directly to patient care. The expenditures in this category are total national health expenditures minus expenditures for research and construction, expenses for administering health insurance programs, and government public health activities.

State health agency (SHA)—The agency or department headed by the State or territorial health official. Generally, the SHA is responsible for setting State-wide public health priorities, carrying out national and State mandates, responding to public health hazards, and assuring access to health care for underserved State residents.