# Health, United States, 1999

## Health and Aging Chartbook

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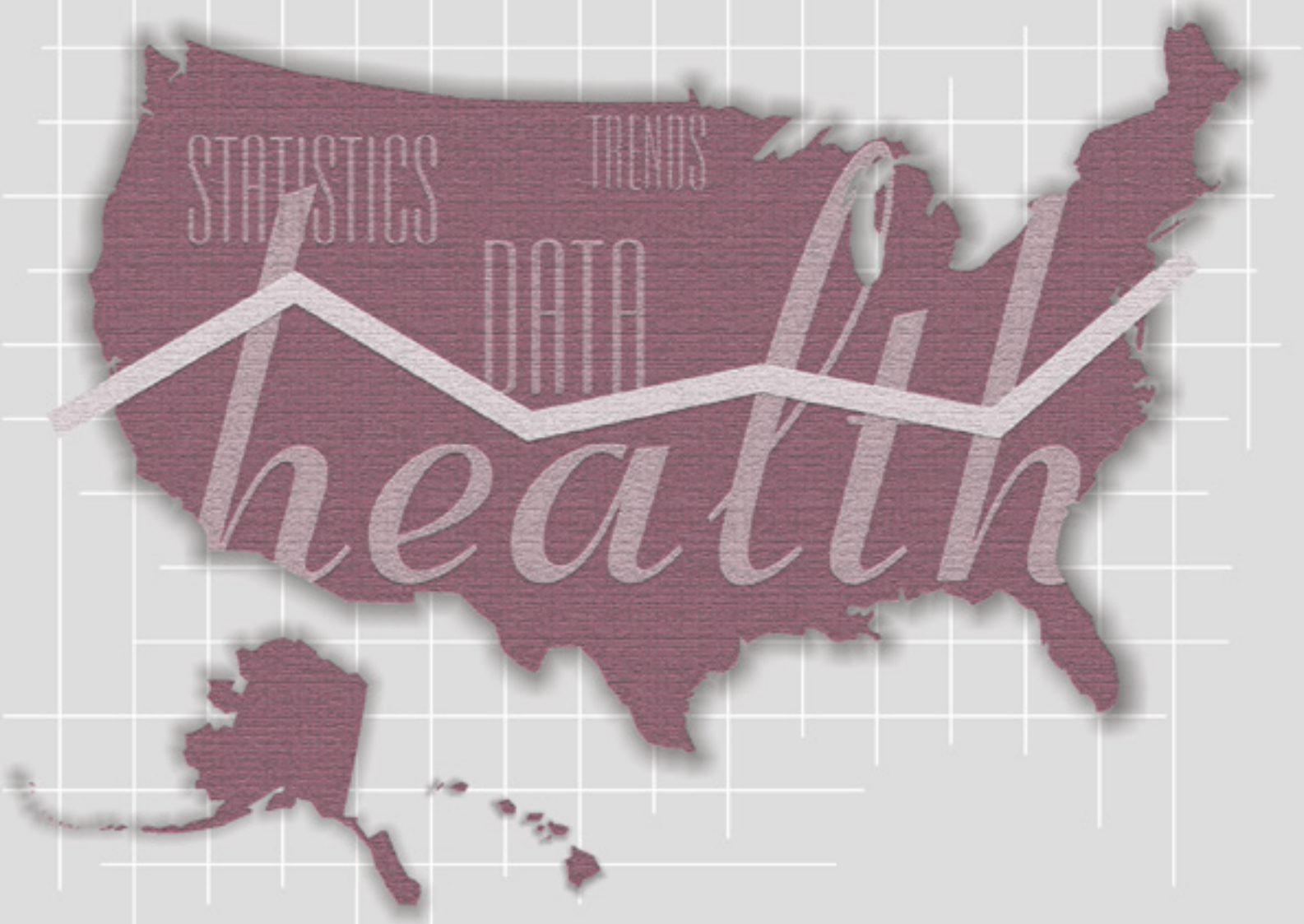


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# Health, United States, 1999
## Health and Aging Chartbook

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Centers for Disease Control and Prevention
National Center for Health Statistics
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*Health, United States, 1999* is the 23d report on the health status of the Nation submitted by the Secretary of the Department 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 Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS). The National Committee on Vital and Health Statistics served in a review capacity.

*Health, United States* presents national trends in health statistics. Major findings are presented in the highlights. The report includes a chartbook on health and aging and detailed tables on trends.

## Health and Aging Chartbook

In each edition of *Health, United States*, a chartbook focuses on a major health topic. This year health and aging was selected as the subject of the chartbook because older people are major consumers of health care and their numbers are increasing. The United Nations' General Assembly proclaimed 1999 the ''International Year of Older Persons.'' The health and aging chartbook consists of 34 figures and accompanying text.

## Detailed Tables

The chartbook is followed by 146 detailed tables on trends organized around four major subject areas: health status and determinants, utilization of health resources, health care resources, and health care expenditures. A major criterion used in selecting the detailed tables is the availability of comparable national data over a period of several years. The detailed tables report data for selected years to highlight major trends in health statistics. Earlier editions of *Health, United States* may present data for additional years that are not included in the current printed report. Where possible, these additional data are available in Lotus 1–2–3 spreadsheet files as listed in Appendix III.

## Racial and Ethnic Data

Several tables in *Health, United States* present data according to race and Hispanic origin consistent with Department-wide emphasis on expanding racial and ethnic detail in presenting health data. The presentation of data on race and ethnicity in the detailed tables is usually in the greatest detail possible, after taking into account the quality of data, the amount of missing data, and the number of observations. The large differences in health status by race and Hispanic origin that are documented in this report may be explained by several factors including socioeconomic status, health practices, psychosocial stress and resources, environmental exposures, discrimination, and access to health care.

## Changes in This Edition

Similar tables appear in each volume of *Health, United States* to enhance the use of this publication as a standard reference source. However, some changes in the content of the tables are made each year to enhance their usefulness and to reflect emerging topics in public health. New to *Health, United States, 1999* are data on death rates for selected causes of death by educational attainment (table 35); additional notifiable diseases (table 53); the percent of children with untreated dental caries (table 72); the percent of adults with no usual source of care (table 81); student enrollment and number of schools of public health (table 107); and the percent of persons with private health insurance through health maintenance organizations (table 131).

Data for racial and ethnic groups have been expanded in tables showing the percent low-birthweight live births by State (tables 13 and 14), the percent of persons with fair or poor health (table 60), the percent of persons who currently smoke cigarettes (table 63), and the percent of children without a physician contact in the past year (table 79) and without a usual source of care (table 80). In addition new tables 72, 81, and 131 also present data for racial and ethnic groups.

# Preface

Trends in overweight among adults, presented in table 70, have been revised to reflect current definitions and to include the proportion of persons with healthy weight and those with obesity. Data on procedures presented in tables 94 and 95 now include ambulatory procedures from the National Survey of Ambulatory Surgery and inpatient procedures from the National Hospital Discharge Survey. Some of the tables in the health care expenditures section (tables 116, 117, 120, and 127) were reformatted to simplify presentation of the data.

## Appendixes

Appendix I describes each data source used in the report and the limitations of the data and provides references for further information about the sources. Appendix II is an alphabetical listing of terms used in the report. It also contains standard populations used for age adjustment and *International Classification of Diseases* codes for cause of death and diagnostic and procedure categories. Appendix III lists tables with additional years of trend data that are available electronically in Lotus 1–2–3 spreadsheet files on the NCHS homepage and CD-ROM.

## Electronic Access

*Health, United States* can be accessed electronically in four formats. First, the entire *Health, United States, 1999* is available, along with other NCHS reports, on a CD-ROM entitled ''Publications from the National Center for Health Statistics,'' featuring *Health, United States, 1999,* vol 1 no 4, 1999. These publications can be viewed, searched, printed, and saved using Adobe Acrobat software on the CD-ROM. The CD-ROM may be purchased from the Government Printing Office or the National Technical Information Service.

Second, the complete *Health, United States, 1999* is available as an Acrobat .pdf file on the Internet through the NCHS home page on the World Wide Web. The direct Uniform Resource Locator (URL) address is:

www.cdc.gov/nchswww/products/pubs/pubd/hus/hus.htm.

Third, the 146 detailed tables in *Health, United States, 1999* are available on the FTP server as Lotus 1–2–3 spreadsheet files and can be downloaded. The URL address for the FTP server is:

www.cdc.gov/nchswww/datawh/ftpserv/ftpserv.htm.

The detailed tables are also included as Lotus 1–2–3 spreadsheet files on the CD-ROM mentioned above.

Fourth, for users who do not have access to the Internet or to a CD-ROM reader, the 146 detailed tables can be made available on diskette as Lotus 1–2–3 spreadsheet files for use with IBM compatible personal computers. To obtain a copy of the diskette, contact the NCHS Data Dissemination Branch.

## Questions

For answers to questions about this report, contact:
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The *Health and Aging Chartbook* is reprinted from *Health, United States, 1999* and includes highlights of the detailed tables and the appendixes from the complete report.

# Acknowledgments

The **chartbook** was prepared by Ellen A. Kramarow, Harold R. Lentzner, Ronica N. Rooks, Julie D. Weeks, and Sharon H. Saydah. Data and analysis for specific charts were provided by Christine S. Cox, Mayur M. Desai, Thomas A. Hodgson, Nadine R. Sahyoun, and Clemencia M. Vargas.

The Office of the Demography of Aging, Behavioral and Social Research Program, National Institute on Aging, under the direction of Richard Suzman, provided support for the chartbook. Advice on the content of the chartbook was provided by Donna L. Hoyert, Raynard S. Kington, and Harry M. Rosenberg of NCHS; Suzanne M. Smith of the National Center for Chronic Disease Prevention and Health Promotion, CDC; and Robert Clark of the Office of Assistant Secretary for Planning and Evaluation, Department of Health and Human Services (DHHS).

Overall responsibility for planning and coordinating the content of this volume rested with the Office of Analysis, Epidemiology, and Health Promotion, National Center for Health Statistics (NCHS), under the general direction of Diane M. Makuc and Jennifer H. Madans.

***Health, United States, 1999*** highlights, detailed tables, and appendixes were prepared under the supervision of Kate Prager. Detailed tables were prepared by Alan J. Cohen, Margaret A. Cooke, Virginia M. Freid, Andrea P. MacKay, Michael E. Mussolino, Mitchell B. Pierre, Jr., Rebecca A. Placek, Anita L. Powell, and Kate Prager with assistance from La-Tonya Curl, Patricia A. Knapp, Mark F. Pioli, Sharon H. Saydah, and Catherine Duran of TRW, Information Services Division and Henry Xia of NOVA Research Company. The appendixes, index to detailed tables, and pocket edition were prepared by Anita L. Powell. Production planning and coordination were managed by Rebecca A. Placek with assistance from Carole J. Hunt and Camille Miller.

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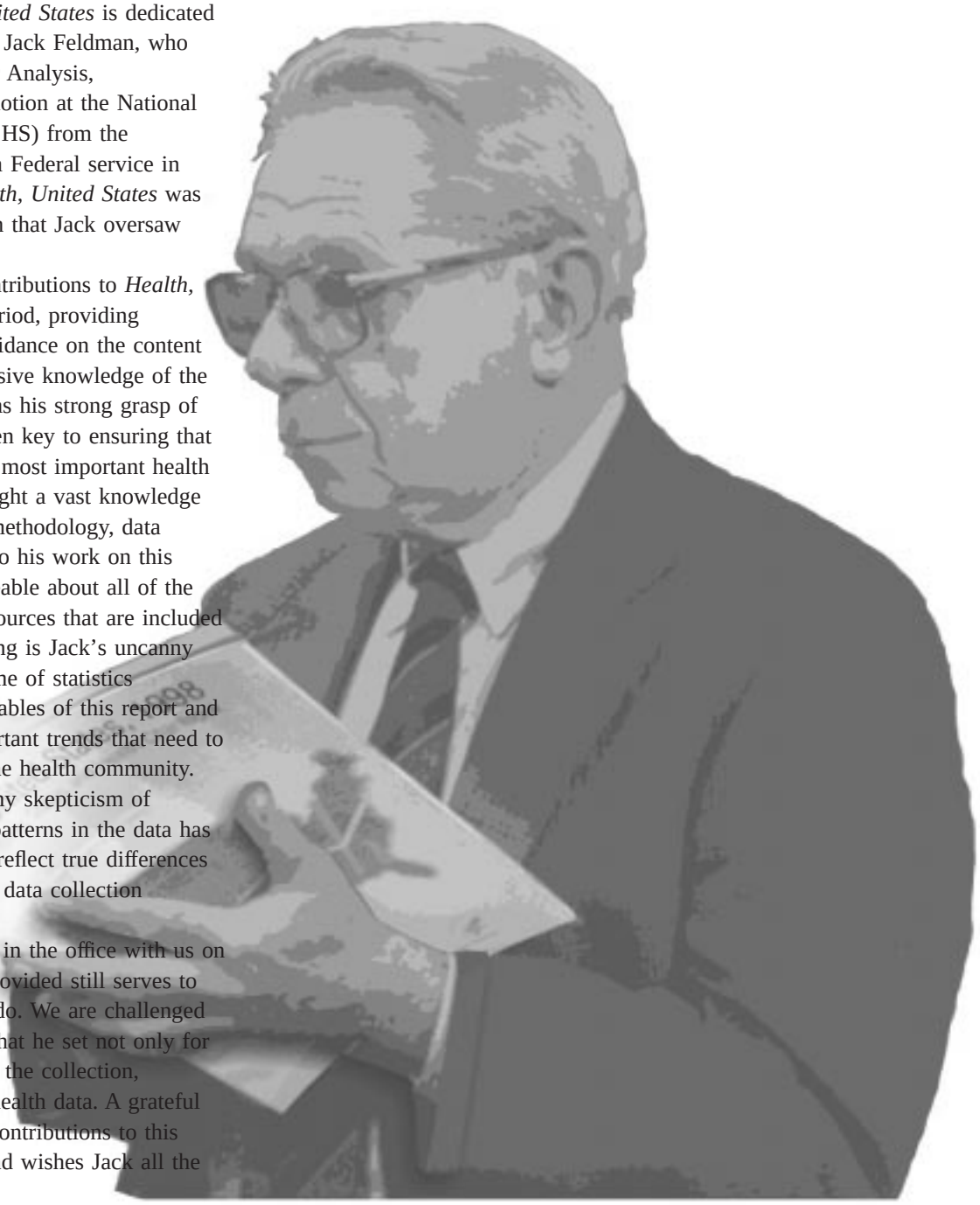
## Jacob J. Feldman, Ph.D.

This volume of *Health, United States* is dedicated to our colleague and friend, Dr. Jack Feldman, who served as Associate Director for Analysis, Epidemiology, and Health Promotion at the National Center for Health Statistics (NCHS) from the mid-1970's until he retired from Federal service in 1998. The development of *Health, United States* was one part of the analytic program that Jack oversaw during his tenure at NCHS.



Jack made innumerable contributions to *Health, United States* over a 23-year period, providing insightful direction and wise guidance on the content of the report. Jack's comprehensive knowledge of the public health literature as well as his strong grasp of emerging health issues have been key to ensuring that this report provides data on the most important health topics each year. Jack also brought a vast knowledge of and keen interest in survey methodology, data quality, and statistical analysis to his work on this report. He is equally knowledgeable about all of the wide range of topics and data sources that are included in this publication. More amazing is Jack's uncanny ability to absorb the large volume of statistics presented in the detailed trend tables of this report and to identify interesting and important trends that need to be brought to the attention of the health community. On the other hand, Jack's healthy skepticism of changes in trends and unusual patterns in the data has ensured that highlighted trends reflect true differences in health rather than changes in data collection methods or other data artifacts.

Although Jack is no longer in the office with us on a daily basis, the example he provided still serves to guide and inspire the work we do. We are challenged to continue the high standards that he set not only for this report but for all aspects of the collection, analysis, and dissemination of health data. A grateful staff acknowledges his unique contributions to this profile of the Nation's health and wishes Jack all the best in his new endeavors.

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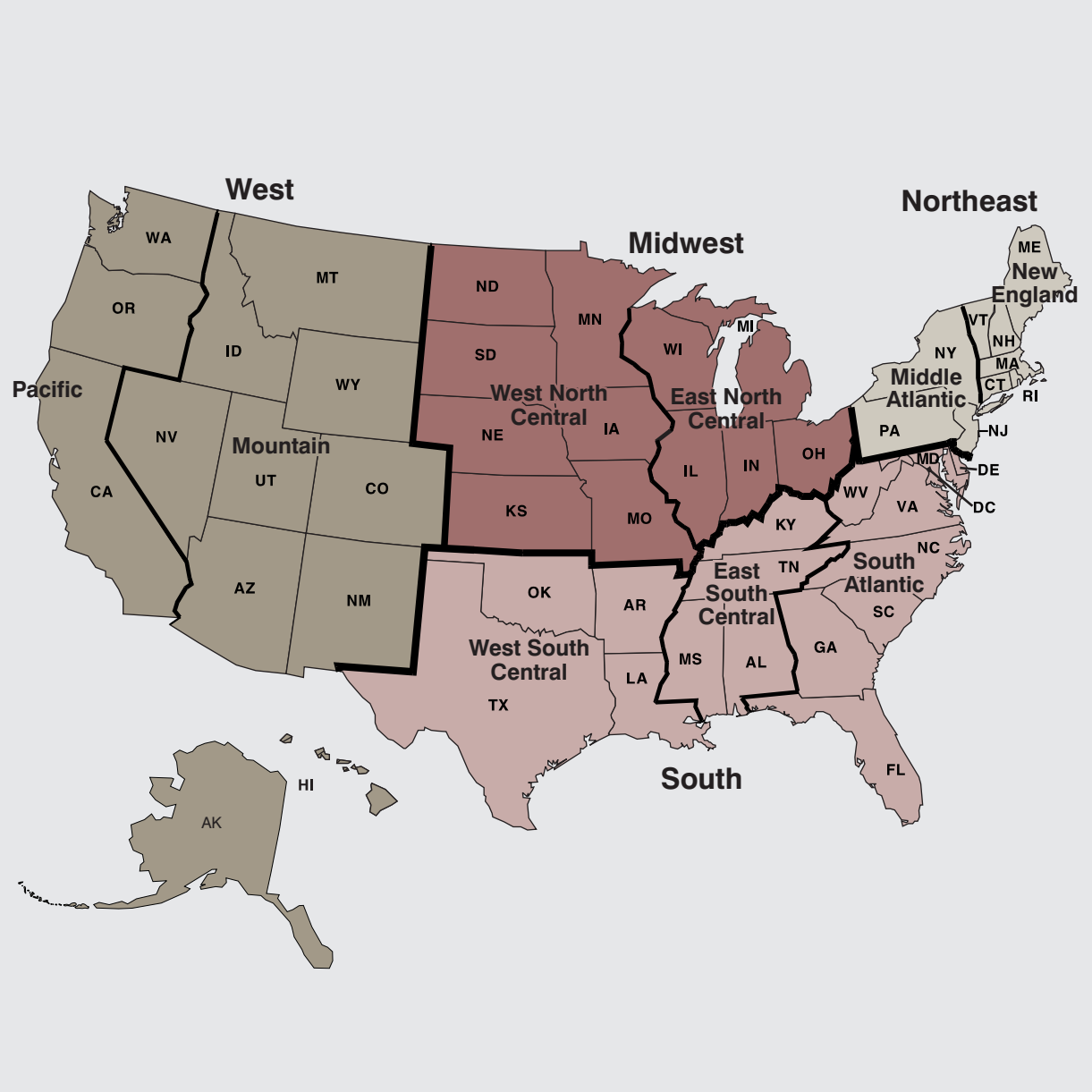

# Highlights

## Population

*The older population of the United States is large and growing and will be more diverse in the twenty-first century. Women constitute the majority of the older population. Only a small proportion of older persons reside in institutions, and a significant proportion of community-dwelling elderly persons (particularly women) live alone.*

■ In 1997, 13 percent of the U.S. **population** was 65 years of age and over. It is estimated that in 2030, 20 percent of Americans will be 65 years of age and over. In 1997 older persons made up a larger proportion of the non-Hispanic white population compared with other racial and ethnic groups. However, the older non-Hispanic white population is growing more slowly compared with other groups (figure 1).

■ The **living arrangements** of older persons vary greatly by age, sex, race, and marital status. While a majority of noninstitutionalized persons 65 years of age and over lived with family members in 1997, nearly one-third lived alone. Women in every age group were more likely than men to live alone (figure 2).

■ In 1997 approximately 4 percent of the older population lived in nursing homes. The rate of **nursing home residence** rises sharply with age. Approximately 1 percent of persons 65–74 years of age lived in nursing homes compared with almost 20 percent of persons 85 years of age and over. Women at all ages had higher rates of nursing home residence than men (figure 3).

■ Although **poverty** rates among the elderly have declined significantly since the 1960's, 1 out of 10 persons 65 years of age and over in 1997 was living in a family with income below the Federal poverty threshold. The poverty rate was higher among older black and Hispanic persons compared with older white persons (figure 4).

## Health Status

*Americans have longer lives than ever before. Persons who survive to age 65 today can expect to live on average nearly 18 more years. The health of the older population varies greatly. Rates of illness and disability increase sharply among the "oldest-old," persons 85 years of age and over, compared with younger persons. Nearly all measures reflect this variation by age.*

■ **Life expectancy** at age 65 and age 85 increased over the past 50 years. Women have on average longer lives than men. In 1997 life expectancy at age 65 was higher for white persons than for black persons. However, at age 85 life expectancy for black persons was slightly higher than for white persons (figures 5 and 6).

■ Chronic diseases such as heart disease, cancer, stroke, and chronic obstructive pulmonary diseases are the **leading causes of death** among the older population, although pneumonia and influenza were responsible for approximately 7 percent of deaths among persons 85 years of age and over in 1997 (figure 9).

■ **Chronic conditions** are prevalent among older persons. In 1995 among noninstitutionalized persons 70 years of age and over, 79 percent reported at least one of seven chronic conditions common among the elderly. The majority of persons 70 years of age and over reported arthritis, and approximately one-third reported hypertension. Diabetes was reported by 11 percent (figure 11).

■ **Visual and hearing impairments** among older persons increase sharply with age. In 1995, 13 percent of persons 70–74 years of age were visually impaired compared with 31 percent of persons 85 years of age and over. For hearing impairments, the prevalence rose from 26 percent of persons 70–74 years of age to 49 percent of persons 85 years of age and over (figures 12 and 13).

■ **Osteoporosis** is common among older persons and is a strong predictor of subsequent fractures. In 1988–94 just over one-half of noninstitutionalized persons 65 years of age and over had reduced hip bone density, either osteoporosis or osteopenia (a less severe form of bone loss than osteoporosis). The proportion of older persons with osteoporosis was higher among women than men and rose with age for both women and men (figure 14).

■ **Physical functioning and disability** rates among the older population vary by age and sex. Nearly 9 percent of noninstitutionalized persons 70 years of age and over were unable to perform one or more activities of daily living such as bathing, dressing, using the toilet, and getting in and out of bed or chairs. Women in every age group were more likely to be disabled than men, and the proportion disabled rose with age (figure 15).

■ **Oral health** indicators among the older population are improving over time. Yet, 30 percent of persons 65 years of age and over in 1993 were edentulous, that is, they had no natural teeth. Non-Hispanic white persons had lower levels of total tooth loss compared with non-Hispanic black persons and Hispanic persons (figure 20). In 1988–94 nearly one-third of persons 65 years of age and over with natural teeth had untreated dental caries in the crown or the root of their teeth (figure 19).

■ In 1995 nearly all noninstitutionalized persons 70 years of age and over participated in some **social activities** in a 2-week period. The most common activity was contact with family, either in person or by telephone. Persons who were disabled were less likely than nondisabled persons to participate in activities outside of their house (figure 21).

■ In 1995, 71 percent of nondisabled persons 65 years of age and over participated in some form of **exercise** at least once in a recent two-week period. Most older persons who exercise engage in light and moderate activities such as walking, gardening, and stretching. However, only about one-third of persons who exercised achieved recommended levels of 30 minutes each time on most days of the week (figure 22).

## Health Care Access and Utilization

*Changes in the health care system have affected the older population. Use of in-home contacts with medical providers has increased, and length of hospital stays has decreased. Approximately 12 percent of Medicare beneficiaries 65 years of age and over were enrolled in a managed care plan in 1997, although the percent varies widely by region. In general, persons 85 years of age and over use health care services more than those 65–84 years of age.*

■ In 1995 approximately one-third of noninstitutionalized persons 70 years of age and over received help from a **caregiver** with daily activities such as dressing, bathing, shopping, housework, and managing money. The number of caregivers providing help to an older person increased with age (figure 23).

■ Thirty-nine percent of noninstitutionalized persons 70 years of age and over in 1995 used **assistive devices** such as hearing aids, diabetic and respiratory equipment, and canes and walkers during the previous 12 months. Rates of device use were twice as high among persons 85 years of age and over compared with persons 70–74 years of age (figure 25).

■ In 1994–96 the mean number of **ambulatory physician contacts** among persons 65 years of age and over was 11.4 per year. The number of contacts with physicians or with other personnel working under a physician's supervision increased with age. From 1990 to 1996 the proportion of contacts in the home increased by 63 percent (figure 26).

■ Older persons are major consumers of **inpatient health care.** Older men had higher rates of hospitalization than older women. Heart disease was the most common cause for hospitalization. The average length of hospital stay in 1996 was 6.5 days for persons 65 years of age and over, about two days less than in 1986 (figure 27).

■ **Influenza and pneumococcal vaccinations** are recommended for older adults. During 1993–95 an average of 55 percent of noninstitutionalized persons 65 years of age and over reported receiving a flu shot within the previous 12 months. Twenty-nine percent reported ever having received a pneumonia vaccination. Vaccination coverage for both influenza and pneumococcal disease was higher among non-Hispanic white persons than non-Hispanic black persons or Hispanic persons (figure 28).

■ On an average day in 1996, approximately 1.7 million persons 65 years of age and over, roughly 51 per 1,000 population, were **home health care** patients. In every age group women had higher rates of home health care usage than men, and the rate increased with age for both women and men (figures 29 and 30).

■ In 1994–96 persons 85 years of age and over were more likely to rely on Medicare alone or on Medicare combined with Medicaid for their **health insurance** coverage than persons under 85 years of age. Non-Hispanic black and Hispanic persons were less likely than non-Hispanic white persons to have private insurance to supplement their Medicare coverage (figure 31).

■ Participation in **Medicare health maintenance organizations (HMO's)** is increasing among the older population. In 1997 over 4 million persons 65 years of age and over who received Medicare were enrolled in a managed care plan, a four-fold increase since 1985. The highest levels of Medicare HMO participation are in the West. Several states had no Medicare managed care plans in 1997 (figure 32).

■ In 1995 the overall **cost of heart disease** among persons 65 years of age and over was estimated to be more than 58 billion dollars. Hospital care and nursing home care accounted for over three-fourths of the total personal health care expenditures for heart disease among the older population (figure 33).

■ In 1995 the **cost of diabetes** among persons 65 years of age and over was estimated to be 26 billion dollars. The largest personal health care expenditure attributed to diabetes, including chronic complications and comorbidities asssociated with diabetes, was for hospital care. Nursing home care accounted for one-fifth of expenditures (figure 34).

## Detailed Tables

### Health Status and Determinants

#### Mortality

*In 1997 life expectancy at birth increased to an all-time high and infant mortality fell to a record low. Life expectancy for black males increased for the fourth consecutive year.*

■ In 1997 **life expectancy** at birth reached an all-time high of 76.5 years and **infant mortality** fell to a record low of 7.2 deaths per 1,000 live births (tables 22 and 28).

■ Between 1995 and 1997 **life expectancy** at birth for black males increased 2 years to a record high of 67.2 years, due in large part to declines in mortality from HIV infection and homicide. However, life expectancy was still 7.1 years shorter for black males than for white males in 1997 (table 28).

*The death rate for HIV infection declined by almost one-half. Death rates for heart disease, cancer, unintentional injuries, and homicide also decreased. Although death rates for two leading causes of death, stroke and suicide, were lower in 1997 than in 1996, the longer-term trend shows little change.*

■ Mortality from **heart disease**, the leading cause of death, declined 3 percent in 1997, continuing a long-term downward trend in mortality. The 1997 age-adjusted death rate for heart disease was almost one-half the rate in 1970 (tables 30 and 32).

■ Mortality from **cancer,** the second leading cause of death, decreased 2 percent in 1997, continuing the decline that began in 1990. Over the preceding 20-year period, 1970 to 1990, age-adjusted cancer death rates had steadily increased (tables 30 and 32).

■ Mortality from **HIV infection** declined 48 percent in 1997 following a 29-percent decline in 1996. This 2-year decline contrasts sharply with the period 1987–94, when HIV mortality increased at an average rate of 16 percent per year. In 1997 HIV infection fell from 8th to 14th in the ranking of leading causes of death (table 43).

■ Mortality from **unintentional injuries**, the fifth leading cause of death, declined 1 percent in 1997, continuing the generally downward trend in injury mortality since the 1980's (tables 30 and 32).

■ The age-adjusted **homicide** rate declined 6 percent in 1997. This decline continued a trend that began in the early 1990's (table 46).

■ Mortality from **stroke**, the third leading cause of death, was fairly stable between 1992 and 1997. Between 1980 and 1992 stroke mortality declined at an average rate of 3.6 percent per year (tables 30, 32, and 38).

■ The age-adjusted death rate for **suicide**, the eighth leading cause of death, fell 2 percent between 1996 and 1997, to 10.6 deaths per 100,000 population. Between 1980 and 1997 age-adjusted suicide rates ranged between 11 and 12 per 100,000 (tables 30, 32, and 47).

*Despite overall declines in mortality, disparities among racial and ethnic groups in mortality for many causes of death are substantial. Disparities among persons of different education levels continue. Persons with less than a high school education have death rates at least double those with education beyond high school.*

■ In 1996 **infant mortality** rates were highest among infants of non-Hispanic black and American Indian mothers (14.2 and 10.0 deaths per 1,000 live births). Infant mortality was lowest for infants of Chinese American mothers (3.2). Mortality rates for infants of Hispanic mothers and non-Hispanic white mothers were virtually the same (6.1 and 6.0) (table 19).

■ **Infant mortality** decreases as the mother's level of education increases. In 1996 mortality for infants of black, white, and Asian American mothers with less than 12 years of education was 42–60 percent higher than for infants whose mothers had 13 or more years of education. The disparity in infant mortality by mother's education was smaller for Hispanic mothers, ranging from 6 percent for Mexican American mothers to 32 percent for Puerto Rican mothers (table 20).

■ The **firearm-related death rate for young black males** 15–24 years of age declined 10 percent per year on average between 1993 and 1997. The rate for 1997

(119.9 deaths per 100,000) was still nearly 5 times the rate for young white males (table 48).

■ In 1997 the **homicide rate for young Hispanic males** 15–24 years of age was almost 7 times the rate for non-Hispanic white males. Among those 25–44 years of age the homicide rate for Hispanic males was more than 3 times as high, and the **HIV infection** death rate for Hispanic males was more than twice as high as for non-Hispanic white males (tables 43 and 46).

■ In 1997 among **American Indians** the age-adjusted death rates for **unintentional injuries** (58.5 deaths per 100,000 population) and **diabetes** (30.4) were at least double the rates for white persons and the death rate for **cirrhosis** (20.6) was nearly 3 times the rate for white persons. Death rates for the American Indian population are known to be underestimated (table 30).

■ In 1997 overall mortality was 55 percent higher for **black Americans** than for white Americans. In 1997 the age-adjusted death rates for the black population exceeded those for the white population by 77 percent for **stroke**, 47 percent for **heart disease**, 34 percent for **cancer**, and 655 percent for HIV infection (table 30).

■ In 1997 the overall age-adjusted death rate for **Asian-American** males was 39 percent lower than the rate for white males. However the **homicide** rate for Asian males was only 6 percent lower than for white males and the death rate for **stroke** was 10 percent higher for Asian males than for white males. Death rates for Asian Americans are known to be underestimated somewhat (tables 36, 38, and 46).

■ In 1997 the age-adjusted death rate for **chronic obstructive pulmonary diseases (COPD)**, the fourth leading cause of death, was 47 percent higher for **males than females**. Between 1990 and 1997 age-adjusted death rates for males were relatively stable while death rates for females increased at an average annual rate of nearly 3 percent (tables 32 and 42).

■ Death rates increase as **educational attainment** decreases. In 1997 the age-adjusted death rate for chronic diseases was more than twice as high among adults with fewer than 12 years of education as among those with more than 12 years of education. The death rate for injuries was 3 times as high for the least educated as for the most educated adults (table 35).

### Natality

*The overall fertility rate declined to a record low in 1997, continuing the decline that began in 1990. Birth rates for teens, especially younger teens, and birth rates for unmarried women also continued to decline in 1997. The proportion of babies born with low birthweight continued to edge upward.*

■ In 1997 the **birth rate for teenagers** declined for the sixth consecutive year, to 52.3 births per 1,000 women aged 15–19 years. Between 1991 and 1997 the teen birth rate declined more for 15–17 year olds than for 18–19 year olds (17 percent compared with 11 percent) (table 3).

■ Between 1994 and 1997 the **birth rate for unmarried women** declined almost 11 percent for black mothers, to 73.4 births per 1,000 unmarried black women aged 15–44 years. The birth rate declined almost 10 percent for unmarried Hispanic mothers, to 91.4 per 1,000 (table 8).

■ **Low birthweight** is associated with elevated risk of death and disability in infants. In 1997 the rate of low birthweight (infants weighing less than 2,500 grams at birth) increased to 7.5 percent overall, up from 7.0 percent in 1990. Since 1990 the low birthweight rate increased for most racial and ethnic groups. However among black infants low birthweight declined slightly from 13.3 percent in 1990 to 13.0 percent in 1997 (table 11).

■ **Cigarette smoking during pregnancy** is a risk factor for poor birth outcomes such as low birthweight and infant death. In 1997 the proportion of mothers who smoked cigarettes during pregnancy declined to a record low of 13.2 percent, down from 19.5 percent in 1989. However the percent of teenage mothers who smoked increased between 1994 and 1997 (table 10).

### Morbidity

*The two overall measures of morbidity presented in this report show little change over time. The percent of persons with activity limitation due to a chronic condition has remained stable from 1990 to 1996 as has the percent of persons who report fair or poor health status. As family income decreases the percent of persons reporting fair or poor health or reporting an activity limitation increases. Better summary measures of health for assessment of trends are needed and are under development. Trends in the incidence of specific diseases are additional measures of morbidity trends.*

■ In 1996 the percent of persons reporting **fair or poor health** was four times as high for persons living below the poverty level as for those with family income at least twice the poverty level (22.2 percent and 5.5 percent, age adjusted) (table 60).

■ The number of **AIDS cases** newly reported in 1997 was 12 percent lower than in 1996. The number of newly reported AIDS cases decreased 14 percent for males and 5 percent for females in 1997. AIDS incidence continues to be more common among males than females. The incidence rate for males 13 years of age and over (38.5 cases per 100,000 population) was nearly 4 times the rate for females during July 1997–June 1998 (table 54).

■ Between 1995 and 1997 the number of hospital inpatient discharges with a diagnosis of **human immunodeficiency virus (HIV)** decreased 29 percent to 178,000 discharges, and average length of stay declined by 1.2 days to 8.1 days (table 91).

■ In 1997 **tuberculosis (TB)** incidence declined for the fifth consecutive year to 7.4 cases per 100,000 population. In 1997, 39 percent of TB cases occurred among foreign-born persons in the United States. This proportion has been increasing since the mid-1980's, in part attributable to changes in immigration patterns (table 53).

■ Between 1990 and 1997 the incidence of primary and secondary **syphilis** declined 84 percent to 3.2 cases per 100,000. The incidence of **gonorrhea** declined 56 percent to 122.5 per 100,000 (table 53).

■ Overall **cancer incidence** has been declining in the 1990's, more so for males than for females. Between 1991 and 1995 overall cancer incidence rates declined 13 percent for white males, 6 percent for black males, 4 percent for black females, and 2 percent for white females (table 57).

■ **Prostate cancer and lung cancer** are the two most frequently diagnosed cancers among men. Between 1991 and 1995 the age-adjusted incidence rate for prostate cancer declined 23 percent for white males and 5 percent for black males. During this period lung cancer incidence declined by 9–11 percent for white and black males (table 57).

■ In 1995 **breast cancer** incidence was 12 percent lower for black females than for white females. However the 5-year relative survival rate for black females with breast cancer diagnosed in 1989–94 was 16 percentage points lower than for white females (71 and 87 percent). In 1997 breast cancer mortality was 41 percent higher for black women than white women (tables 41, 57, and 58).

■ Between 1990 and 1997 the **injuries with lost workdays** rate decreased 21 percent to 3.1 per 100 full-time equivalents (FTE's) in the private sector (table 74).

### Health Risk Factors

*Elevated blood pressure, high levels of serum cholesterol, and overweight are important risk factors for cardiovascular and other chronic diseases. Recent trends show improvements in the prevalence of hypertension and high cholesterol. However, the prevalence of overweight has increased. Overweight among children and adolescents has doubled since the early 1970's, raising concerns for long-term health effects.*

■ Between 1976–80 and 1988–94 the age-adjusted prevalence of **hypertension** among adults 20–74 years of age declined sharply from 39 percent to 23 percent,

after remaining relatively stable over the previous 20 years (table 68).

■ Between 1960–62 and 1988–94 the age-adjusted mean **serum total cholesterol** level for adults 20–74 years of age declined from 220 to 203 mg/dL. The age-adjusted percent of adults with cholesterol greater than or equal to 240 mg/dL declined from 32 percent to 19 percent (table 69).

■ Between 1960–62 and 1988–94, the prevalence of **overweight** (body mass index (BMI) greater than or equal to 25) among adults 20–74 years of age increased by one- quarter, from 44 to 55 percent. Almost one-half of overweight adults are obese (BMI greater than or equal to 30), and **obesity** increased by more than three-quarters from 13 to 23 percent during this time period (percents are age adjusted) (table 70).

■ Between 1971–74 and 1988–94 the prevalence of **overweight** among 6–11 year-old children increased from 6 to 14 percent. Among adolescents 12–17 years of age, overweight increased from 6 to 11 percent during the same period (percents are age adjusted) (table 71).

*Cigarette smoking is the single leading preventable cause of death in the United States. It increases the risk of lung cancer, heart disease, emphysema, and other respiratory diseases. Cigarette smoking by adults has remained stable at about 25 percent since 1990. Heavy and chronic use of alcohol and use of illicit drugs increase the risk of disease and injuries.*

■ **Cigarette smoking** is more prevalent among the American Indian population than among other groups. In 1993–95, 40 percent of American Indian males and 33 percent of American Indian females were current smokers compared with 27 percent of white males and 24 percent of white females (percents are age adjusted and are for persons 18 years of age and over) (table 63).

■ In 1998 **cigarette smoking** in the past month by high school seniors declined slightly, following 5 consecutive years of increase. In 1998 the proportion of white seniors who smoked cigarettes, 41 percent, was nearly three times the proportion of black seniors who smoked, 15 percent (table 65).

■ In 1998, 23 percent of high school seniors reported using **marijuana** in the past month, nearly double the prevalence in 1992. Use among eighth graders nearly tripled to 10 percent during that time period (table 65).

■ Between 1993 and 1998 the proportion of high school seniors reporting **alcohol** use in the past month increased from 49 to 52 percent after declining from 72 percent in 1980 (table 65).

■ **Heavy alcohol use**, having five or more drinks on at least one occasion in the past month, is more common among young people 18–25 years of age than among younger or older persons. In 1997 among 18–25 year olds, heavy drinking was 1.5–2.5 times as likely for non-Hispanic white persons (33 percent) as for Hispanic and non-Hispanic black persons (22 and 13 percent) (table 64).

■ In 1996 there were more than 152,000 **cocaine-related emergency room visits**, almost twice as many as in 1990. The greatest increases occurred for persons 35 years and over, reflecting an aging population of drug abusers being treated in emergency departments. However, the proportion of adults age 35 years and over who reported using cocaine in the past month has remained stable during this period at less than 1 percent (tables 64 and 66).

*Environmental factors are important determinants of health and disease. An environmental health objective for the year 2000 is that at least 85 percent of the U.S. population should be living in counties that meet the Environmental Protection Agency's National Ambient Air Quality Standards.*

■ In 1996, 81 percent of Americans lived in counties that met standards for all pollutants. However, there were disparities among racial and ethnic groups. In 1996, 56–64 percent of the Hispanic and Asian American population lived in counties that met **air quality standards** for all pollutants compared with 81–83 percent of the white, black and American Indian populations (table 73).

## Health Care Utilization and Resources

### Ambulatory Care

*Use of preventive health services has substantial positive effects on the long-term health status of those who receive the services. The use of several different types of preventive services has been increasing. However, disparities in use of preventive health care by family income and by race and ethnicity remain in evidence.*

■ Between 1990 and 1997 the percent of mothers receiving **prenatal care** in the first trimester of pregnancy increased from 76 to 83 percent. The largest increases in receipt of early prenatal care have occurred for racial and ethnic groups with the lowest levels of use, thereby reducing disparities in use of early care. However in 1997 the percent of mothers with early prenatal care still varied substantially among racial and ethnic groups from 68 percent for American Indian mothers to 90 percent for Cuban mothers (table 6).

■ In 1997, 76 percent of children 19–35 months of age received the combined **vaccination** series of 4 doses of DTP (diphtheria-tetanus-pertussis) vaccine, 3 doses of polio vaccine, 1 dose of measles-containing vaccine, and 3 doses of Hib (Haemophilus influenzae type b) vaccine, up from 69 percent in 1994. Children living below the poverty threshold were less likely to have received the combined vaccination series than were children living at or above poverty (71 compared with 79 percent) (table 51).

■ In 1997 only 138 cases of **measles** were reported, down from 28,000 cases in 1990, providing evidence of the success of vaccination efforts to increase population immunity to measles (table 53).

■ Regular **mammography** screening for women aged 50 years and over has been shown to be effective in reducing deaths from breast cancer. In 1994, 61 percent of women aged 50 years and over reported mammography screening in the previous 2-year period, up from 27 percent in 1987. Women living below the poverty threshold were one-third less likely than their nonpoor counterparts to report recent screening in 1994 (table 82).

*Some indicators of children's access to health care services include having health insurance coverage, having a usual source of health care, having a recent physician contact, and treatment of health problems such as dental caries. Access to health care among children varies by family income, race, and ethnicity.*

■ In 1997, 14 percent of children under 18 years of age had no **health insurance coverage**. More than one-quarter of children with family income just above the poverty level were without coverage compared with only 6 percent of those with income above twice the poverty level (table 129).

■ In 1995–96, 9.2 percent of children under 6 years of age did not have a **physician contact** within the previous 12-month period. Uninsured children were 2.5 times as likely as those with health insurance to be without a recent visit (18.5 percent compared with 7.3 percent) (table 79).

■ In 1995–96, 7.2 percent of children 6–17 years of age and 4.3 percent of children under age 6 had **no usual source of health care**. About one-quarter of older children without health insurance coverage had no usual source of health care (table 80).

■ In 1988–94, 23.1 percent of children 6–17 years of age had at least one untreated **dental cavity**, down from 55.0 percent in 1971–74. Although substantial declines in untreated dental cavities have occurred for children at all income levels, poor children were 2.5 times as likely as nonpoor children to have an untreated cavity in 1988–94 (36.3 percent compared with 14.5 percent) (table 72).

### Inpatient Care

*Major changes are occurring in the delivery of health care in the United States, driven in large part by the need to rein in rising costs. One important change has been a decline in use of inpatient services and an increase in outpatient services. About 60 percent of surgical operations in community hospitals were performed on an outpatient basis in 1997.*

■ Between 1985 and 1996 the **inpatient discharge rate** declined by one-quarter from 138 discharges per 1,000 population to 102 per 1,000, while **average length of stay** declined by more than a full day, from 6.3 to 5.1 days (data are age adjusted) (table 90).

■ Use of **inpatient hospital care** increases as family income declines. In 1996 the age-adjusted hospital discharge rate for persons with low family income (less than $16,000) was almost 3 times the rate for those with high family income ($50,000 or more) and the average length of hospital stay was nearly 2 days longer (6.6 days and 4.8 days) (table 89).

■ In 1997, 61 percent of all **surgical operations** in community hospitals were performed on outpatients, up from 51 percent in 1990, 35 percent in 1985, and 16 percent in 1980 (table 96).

■ Between 1985 and 1997 the number of **community hospital beds** declined from 1 million to 853,000 and during the same period occupancy rates in community hospitals declined from 65 to 62 percent (table 110).

■ Between 1984 and 1994 the supply of beds in inpatient and residential **mental health organizations** declined 14 percent to 98 beds per 100,000 population. The decline was greatest for state and county mental hospitals with a reduction of 45 percent to 31 beds per 100,000 population (table 111).

■ In 1997 there were almost 1.5 million elderly **nursing home residents** 65 years of age and over. One-half of elderly nursing home residents were 85 years of age and over and three-quarters were women. (table 97)

■ In 1997 there were 1.7 million **nursing home beds** in facilities certified for use by medicare and medicaid beneficiaries. Nursing home bed occupancy in those facilities was estimated at 82 percent (table 114).

## Health Care Expenditures

### National Health Expenditures

*After 25 years of double-digit annual growth in national health expenditures, the rate of growth has slowed during the 1990's. However the United States continues to spend more on health than any other industrialized country.*

■ In 1997 **national health care expenditures** in the United States totaled almost $1.1 trillion, increasing less than 5 percent from the previous year and continuing the slowdown in growth of the 1990's. During the 1980's national health expenditures had grown at an average annual rate of 11 percent (table 116).

■ This slowdown in growth is also reflected in the **Consumer Price Index (CPI)**. The rate of increase in the medical care component of the CPI declined from 7.5 percent in 1985–90 to 3.0 percent in 1996–98 (table 117).

■ The combination of strong economic growth and the slowdown in the rate of increase in health spending over the last few years has stabilized **health expenditures as a percent of the gross domestic product** at 13.5–13.7 percent from 1993 to 1997, after increasing steadily from 8.9 percent in 1980 (table 116).

■ Despite the slowdown in the growth of health spending, the United States continues to spend a larger **share of gross domestic product (GDP)** on health than any other major industrialized country. The United States devoted 13.5 percent of GDP to health in 1997 compared with about 10 percent each in Germany, Switzerland, and France, the countries with the next highest shares. (table 115).

### Expenditures by Type of Care and Source of Funds

*Expenditures for hospital care as a percent of national health expenditures continue to decline. The sources of funds for medical care differ substantially according to the type of medical care being provided.*

■ **Expenditures for hospital care** continued to decline as a percent of national health expenditures from 42 percent in 1980 to 34 percent in 1997. Physician services accounted for 20 percent of the total in 1997 and nursing home care and drugs for 8 and 10 percent each (table 119).

■ Between 1993 and 1997 the average annual increase in **total expenses in community hospitals** was 3.5 percent, following a period of higher growth that averaged 9.3 percent per year from 1985 to 1993 (table 123).

■ In 1997, 35 percent of **personal health care expenditures** were paid by the Federal Government and 10 percent by State and local government; private health insurance paid 32 percent, and 19 percent was paid out-of-pocket. Between 1990 and 1997 the share paid by the Federal Government increased 6 percentage points, while the share paid out-of-pocket decreased 4 percentage points (table 120).

■ In 1997 the major **sources of funds** for hospital care were Medicare (33 percent) and private health insurance (31 percent). Physician services were also primarily funded by private health insurance (50 percent) and Medicare (21 percent). In contrast, nursing home care was financed primarily by Medicaid (48 percent) and out-of-pocket payments (31 percent) (table 120).

■ In 1995 **funding for health research and development** increased by 7 percent to $36 billion. Between 1990 and 1995 industry's share of funding for health research increased from 46 to 52 percent while the Federal Government's share decreased from 42 to 37 percent (table 127).

■ **The National Institutes of Health (NIH)** account for about 80 percent of Federal funding for research and development. In 1997 the National Cancer Institute accounted for 20 percent of NIH's research and development budget, the National Heart, Lung and Blood Institute for 12 percent, and the National Institute of Allergy and Infectious Diseases for 10 percent (table 127).

■ In 1998 **Federal expenditures for HIV-related activities** increased 7 percent to $8.9 billion, a slowdown from an average annual increase of 11 percent between 1995 and 1997. Of the total Federal spending in 1998, 57 percent was for medical care, 21 percent for research, and 8 percent for education and prevention (table 128).

### Publicly Funded Health Programs

*The two major publicly-funded health programs are Medicare and Medicaid. Medicare is funded by the Federal government and reimburses the elderly for their health care. Medicaid is funded jointly by the Federal and State governments to provide health care for the poor. Medicaid benefits and eligibility vary by State. Medicare and Medicaid health care utilization and costs vary considerably by State.*

■ In 1997 the **Medicare** program had 38.4 million enrollees and expenditures of $214 billion. The total number of enrollees increased less than 1 percent over the previous year while expenditures increased by 7 percent (table 134).

■ In 1997 **hospital insurance (HI)** accounted for 65 percent of Medicare expenditures. Expenditures for home health agency care increased to 14.4 percent of HI expenditures in 1997 up from 5.5 percent in 1990. Expenditures for skilled nursing facilities more than doubled to 9.0 percent of the HI expenditures over the same period (table 134).

■ In 1997 **supplementary medical insurance (SMI)** accounted for 35 percent of Medicare expenditures. Group practice prepayment increased from 6.4 percent of the SMI expenditures in 1990 to 14.8 percent in 1997 (table 134).

■ Of the 33.4 million elderly **Medicare** enrollees in 1996, 12 percent were 85 years of age and over and 11 percent were 65–66 years of age. Medicare payments increase with age from an average of $2,574

per Medicare enrollee for those aged 65–66 years to $6,666 for those 85 years and over (table 135).

■ In 1996 **Medicare payments per enrollee** averaged $5,048 in the United States, ranging from $3,500 in Nebraska, South Dakota, and Montana to more than $6,200 in Massachusetts, Louisiana, and the District of Columbia (table 143).

■ In 1997 **Medicaid** vendor payments totaled $124 billion, a 2-percent increase from the previous year. Recipients declined from 36.1 million in 1996 to 33.6 million in 1997, a 7-percent decrease (table 136).

■ In 1997 children under the age of 21 years comprised 46 percent of **Medicaid** recipients but accounted for only 13 percent of expenditures. The aged, blind, and disabled accounted for 30 percent of recipients and 74 percent of expenditures (table 136).

■ In 1997 one-quarter of **Medicaid** payments went to nursing facilities and 19 percent to general hospitals. Home health care accounted for 10 percent of Medicaid payments in 1997, up from 5 percent in 1990 (table 137).

■ In 1997 almost 6 percent of **Medicaid** recipients received home health care at a cost averaging $6,575 per recipient. Early and periodic screening, rural health clinics, and family planning services combined received less than 2 percent of Medicaid funds in 1997, with the cost per recipient averaging between $200 and $251 for each service (table 137).

■ In 1997, 48 percent of **Medicaid recipients were enrolled in managed care**, up from 40 percent the previous year. In 1997 the percent of Medicaid recipients enrolled in managed care varied substantially among the States from 0 in Alaska and Wyoming to 100 percent in Washington and Tennessee (table 144).

■ Between 1996 and 1997 spending on health care by the **Department of Veterans Affairs** increased by less than 5 percent to $17.1 billion. In 1997, 43 percent of the total was for inpatient hospital care, down from 58 percent in 1990, 37 percent for outpatient care, up from 25 percent in 1990, and 10 percent for nursing home care, unchanged since 1990 (table 138).

### Privately Funded Health Care

*About 70 percent of the population has private health insurance, most of which is obtained through the workplace. The share of employees' total compensation devoted to health insurance has declined in recent years. The health insurance market is changing rapidly as new types of managed care products are introduced. The use of traditional fee-for-service medical care continues to decline.*

■ Between 1993 and 1997 the age-adjusted proportion of the population under 65 years of age with **private health insurance** has remained stable at 70–71 percent after declining from 76 percent in 1989. Some 92 percent of private coverage was obtained through the workplace (a current or former employer or union) in 1997 (table 129).

■ Nearly all persons 65 years of age and over are eligible for Medicare and most have additional health care coverage. However the percent with additional coverage has been declining. Between 1994 and 1997 the age-adjusted percent of the elderly with **private health insurance** declined from 78 to 70 percent while the percent with only Medicare coverage increased from 13 to 21 percent (table 130).

■ Between 1994 and 1998 **private employers' health insurance costs** per employee-hour worked declined from $1.14 to $1.00 per hour after increasing by 24 percent between 1991 and 1994. Among private employers the share of total compensation devoted to health insurance declined from 6.7 percent in 1994 to 5.4 percent in 1998 (table 122).

■ The average monthly contribution by full-time employees for family **medical care benefits** was more than 50 percent higher in small companies ($182 in 1996) than in medium and large companies ($118 in 1995) (table 133).

■ During the 1990's the use of **traditional fee-for-service** medical care benefits by full-time employees in private companies declined sharply. In 1996 in small companies, 36 percent of full-time employees who participated in medical care benefits were in fee-for-service plans, down from 74 percent in

1990. In 1995 in medium and large companies, 37 percent of participating full-time employees were in fee-for-service plans, down from 67 percent in 1991 (table 133).

■ In 1998, 29 percent of the U.S. population was enrolled in **health maintenance organizations (HMO's)**, ranging from 21–23 percent in the South and Midwest to 38–39 percent in the Northeast and West. HMO enrollment has been steadily increasing. Enrollment in 1998 was 77 million persons, double the enrollment in 1993 (table 132).

■ In 1997 non-Hispanic black and Hispanic persons were less likely to have private health insurance than non-Hispanic white persons. However among those with private health insurance coverage, non-Hispanic black and Hispanic persons were more likely than their non-Hispanic white counterparts to enroll in **HMO's**. The elderly were less likely to be enrolled in private HMO's than younger adults and children (table 131).

■ In 1998 the percent of the population enrolled in **HMO's** varied among the States from 0 in Alaska and Vermont to 54 percent in Massachusetts. Other States with more than 40 percent of the population enrolled in HMO's in 1998 include Connecticut, Delaware, Maryland, Oregon, and California (table 145).

■ In 1997 the proportion of the population without **health care coverage** (either public or private) was 16.1 percent, compared with 15.6 percent the previous year and 12.9 percent in 1987. In 1997 the proportion of the population without health care coverage varied from less than 10 percent in Hawaii, Wisconsin, Minnesota, and Vermont to more than 20 percent in Arkansas, Mississippi, Texas, New Mexico, Arizona, and California (table 146).

# Health and Aging Chartbook

The older population in the United States is large and growing. The post-World War II baby boom generation is entering middle age, and in the early part of the twenty-first century, this group will swell the ranks of the older population both in the United States and in other Western industrialized countries.

The year 1999 has been proclaimed the International Year of Older Persons by the United Nations to draw attention to the aging of societies and to the contributions and needs of older persons. This chartbook on health and aging describes the health of older persons in the United States at the end of the twentieth century.

The health of older Americans affects everyone, either directly or indirectly. For older persons, quality of life in later years is directly influenced by their health and functional status. Persons who are disabled by chronic conditions or by injuries such as falls have difficulty living independently and managing their personal affairs. Young and middle-aged persons who care for aging parents, grandparents, relatives, and friends know first hand the challenges, both financial and emotional, of declining health in old age. For society as a whole, the financing of health care services for the elderly, particularly through Medicare, the Federal health insurance program for elderly and disabled persons, is a significant outlay of resources (1).

A long and healthy life is a universal goal. In the twentieth century great progress has been made toward increasing the years of life for most Americans. In the United States today, most persons can look forward to a significant number of years spent in old age. Whether these will be healthy years, with high levels of physical and cognitive functioning, the ability to live independently in the community, and access to affordable health care, is of concern to all.

## Organization of the Chartbook

This chartbook focuses on the group that has traditionally been defined as elderly in the United States, persons 65 years of age and over. The definition of old age is social as well as biological. Certain roles (for example, being retired or being a grandparent) usually characterize old age, although these life events may occur at many different chronological ages. Within the population 65 years of age and over, there is much variation in health and levels of activity.

Age and sex differences are emphasized in this chartbook. Many of the health status and utilization measures are shown by three or four age groups to draw attention to the heterogeneity in health among the older population and to highlight the ''oldest-old,'' persons 85 years of age and over, the fastest growing segment of the elderly population. Data for women are presented first, as they are the majority of the older population and represent 7 out of 10 persons 85 years of age and over. Race and ethnic variation in health among the older population, a topic of increasing interest among researchers, is discussed when the data sources allow for such analysis (2).

Characterizing the health of older persons requires not only measuring mortality and morbidity but also describing their living arrangements, their levels of activity, who assists them, and how they utilize the health care system.

This chartbook is divided into sections on population, health status, and health care access and utilization. The emphasis is on current measures of health and health care utilization among the older population. Important trends in health and health care are mentioned in the bullets accompanying the figures, and references are made to related tables in *Health, United States*. Highlights are presented first. The 34 figures and accompanying text are then followed by technical notes and data tables for each figure.

Here is a summary of each section:

## Population

The first section of the chartbook describes some sociodemographic characteristics of older persons. The most notable characteristic is the increasing size of the older population (figure 1). Today, approximately 13 out of every 100 Americans are 65 years of age and over. It is estimated that in 2030, 20 out of 100 persons will be 65 years of age and over, and 2 out of 100 will be 85 years of age and over. There are more

women than men at every age among the elderly population.

In 1997 approximately one-third of all noninstitutionalized older persons lived alone. Among women 85 years of age and over, 60 percent lived alone (figure 2). The proportion of all persons 85 years of age and over living alone rose from 39 percent in 1980 to 49 percent in 1997. Approximately 4 percent of persons 65 years of age and over were in nursing homes in 1997, and women had higher rates of nursing home residence than men (figure 3).

While poverty rates among the older population have declined since the 1960's, 1 out of 10 persons 65 years of age and over in 1997 lived in families with income below the poverty line (figure 4).

## Health Status

The second section of the chartbook presents measures of health status. Figures on life expectancy (figures 5 and 6) show gains in years of life from 1950 to the present and differentials in life expectancy by race and sex. In 1997 life expectancy in the United States was 79.4 years for women and 73.6 years for men. Life expectancy at birth, as well as life expectancy at ages 65 and 85 years of age, has increased over time as death rates for many causes of death have declined.

The biggest decreases in mortality have been in death rates for heart disease and stroke. However, death rates for some causes of death among the elderly, for example pneumonia and influenza, have increased in the last two decades.

Many factors have contributed to mortality declines in the last 50 years: changes in health behaviors, for example, declines in smoking and improvements in nutrition, increases in the overall educational level of the older population, and innovations in medical technology.

Will life expectancy continue to increase? The above factors will likely also influence life expectancy in the future. For example, the percent of elderly persons who have completed high school will increase from almost 66 percent in 1997 to an estimated 83 percent in 2030. Nearly one-fourth of the elderly in 2030 will be college graduates (3). Government projections suggest that life expectancy in the United States will reach 84.3 years for women and 79.7 years for men by 2050 (4). Japan currently has the longest life expectancy in the world, 82.9 years for women and 76.4 years for men in 1995. At age 65 Japanese women have a life expectancy of 20.9 years. Considerable research is underway to determine what maximum life span is, how life expectancy may be enhanced, and what are the characteristics of long-lived families.

Next the chartbook presents measures of health and disability, including the prevalence of chronic conditions (figure 11), visual and hearing impairments (figures 12 and 13), osteoporosis (figure 14), physical functioning and disability (figure 15), conditions associated with disability (figure 16), overweight (figures 17 and 18), oral health (figures 19 and 20), and social activity and exercise (figures 21–22).

The wide differences by age in the health of the older population are clearly seen in nearly all measures. Rates of illness and disability increase sharply among persons 85 years of age and over compared with persons 65–74 years or 75–84 years of age. For example, 35 percent of white men 70–74 years of age in 1995 were hearing impaired compared with 56 percent of white men 85 years of age and over (figure 13). Nineteen percent of women 65–74 years of age had osteoporosis compared with 51 percent of women 85 years of age and over (figure 14). Five percent of women 70–74 years of age were unable to do one or more activities of daily living compared with 23 percent of women 85 years of age and over (figure 15). Increases in illness and disability are accompanied by decreases in social activity. Among women 70–74 years of age, 65 percent participated in at least five different social activities in a 2-week period compared with 39 percent of women 85 years of age and over (figure 21).

## Health Care Access and Utilization

The last section of the chartbook focuses on health care access and utilization. These measures show that, in general, persons 85 years of age and over have

higher rates of health care utilization than younger persons. Women 85 years of age and over were twice as likely to use assistive devices such as canes, walkers, and hearing aids as women 70–74 years of age (figure 25). Hospitalizations for fractures were 5 times as high among women 85 years of age and over as for women 65–74 years of age (figure 27). Rates of home health care use were over 4 times as high for the oldest women as for women 65–74 years of age (figure 29).

At the same time, persons 85 years of age and over were less likely than younger persons to be covered by private insurance in addition to Medicare. Less than one-half of non-Hispanic black persons and Hispanic persons 85 years of age and over had private insurance to supplement their Medicare coverage (figure 31). While the total costs of heart disease and diabetes were lower among the population 85 years of age and over compared with the population 75–84 years of age, per capita costs of health care for these illnesses were highest among the oldest members of the population (figures 33 and 34).

## Data

The data presented in the charts are from nationally representative health surveys or vital statistics. One of the data sources (the Second Supplement on Aging to the 1994 National Health Interview Survey) is a survey of persons 70 years of age and over. Consequently, some figures present data for the population 70 years of age and over instead of the population 65 years of age and over. For data from the National Health Interview Survey (except for the Second Supplement on Aging and supplements on oral health in 1983 and 1993 and exercise in 1995), survey years are combined (1994–96 or 1993–95) to create a large enough sample for analysis.

Measures of health are based on the noninstitutionalized population that excludes residents of nursing homes, except where noted, for example rates of nursing home residence (figure 3), life expectancy and mortality (figures 5–9), or hospital discharge rates (figure 27). Consequently, the measures of health in the chartbook in general are biased slightly upward; that is, the noninstitutionalized older population is healthier than the older population as a whole.

In national surveys that are not specifically designed to study the elderly, the number of observations may not be large enough to analyze differences among all age, sex, and race/ethnicity groups. For certain topics, data are presented for all races combined in the chart, and significant race differences (if they exist) are discussed in the accompanying text.

## Data Gaps

Although the chartbook focuses on the elderly, the health of persons in old age is related to their health status and health behaviors throughout life. Those in their middle ages are of particular interest to researchers today in planning for the health care needs of the elderly of the twenty-first century. The large size of the baby boom cohorts ensures that their health, health care utilization, and financial status will have a large impact on society. The figures in this chartbook do not cover the population 50–64 years of age. However, many of the data sources used, for example the National Health Interview Survey, the National Health and Nutrition Examination Survey, the National Hospital Discharge Survey, and vital statistics, contain information on these age groups. In addition, many tables in *Health, United States* present data for middle aged persons.

This chartbook does not include measures of health by socioeconomic status. Although differences in health status and health care utilization by socioeconomic status exist, they are generally smaller for older persons compared with younger persons.

Most surveys have only income-based measures of socioeconomic status and do not capture the accumulated wealth and assets on which many older persons rely. In addition, many older survey respondents do not know their incomes or are not willing to share this information, resulting in large proportions of respondents with missing data. For example, in the Second Supplement on Aging,

approximately one-fourth of the sample are missing data on the family income question.

Important work is in progress in this area to collect better information on the socioeconomic status of older adults. Two surveys conducted by the Institute for Social Research of the University of Michigan have collected wealth and asset information: the Health and Retirement Study that focuses on persons 51–61 years of age and a survey called Asset and Health Dynamics Among the Oldest Old, which studies persons 70 years of age and over (5).

Cognitive and emotional functioning are crucial to good health but are difficult to measure in surveys using traditional data collection tools. There is debate regarding the prevalence of Alzheimer's disease in the older population, and estimates of the number of older Americans suffering from the disease range from about 2 million to 4 million persons (6).

The prevalence of major depression among the noninstitutionalized elderly is estimated by some studies to be less than 3 percent, although the prevalence of depressive symptoms is higher. In addition, community-dwelling older persons have lower rates of depression than persons in nursing homes or care facilities (7). New approaches are being developed to provide better national, population-based estimates of cognitive functioning and mental health among the elderly.

Nutritional status is another area important to the health of older persons but difficult to measure in national surveys. What people eat and how well the food is absorbed, digested, and utilized are crucial in determining the health status of individuals.

Although the topic of nutrition is not presented directly in the chartbook, many of the risk factors that contribute singly or interactively to nutritional problems are covered here. For example, poverty and economic uncertainties are important contributors to malnutrition. Limited income decreases the variety and quantity of food purchased and consumed. Living alone and eating alone contribute to reduced food intake, while sadness and depression may exacerbate this situation and lead to social isolation with its potential for changes in appetite, energy level, weight and well-being.

The suppressing effect of certain medications on taste, smell, and appetite can also lead to reduced food intake. Physical disabilities such as difficulty walking, grocery shopping, and preparing food further restrict access to adequate amounts and types of food. Inability to carry heavy things during shopping can limit the selection of food products such as fresh fruits and vegetables, and, therefore, limit variety and complete nutrient intake. Similarly, missing, loose, or decayed teeth or ill-fitting dentures make it hard for elders to eat well.

In addition, altered mental status such as confusion and memory loss make it hard to remember what, when, and if one has eaten and limit the ability to modify diets in response to chronic diseases. To the extent that one has these risk factors, food insufficiency and/or malnutrition may be a problem.

The prevalence of food insufficiency in 1988–94 has been estimated from the Third National Health and Nutrition Examination Survey to be 1.7 percent among all persons 60 years of age and over and 5.9 percent among low-income persons in that age group (8). Forthcoming analyses from this survey will provide new data on the nutritional status of the older population.

## Conclusion

The older population throughout the world is growing. The International Year of Older Persons proclaimed by the United Nations provides an opportunity to evaluate the health of older persons at the end of a century of remarkable advances in health and longevity.

Americans live longer than ever before. Persons who survive to age 65 in the United States today can expect to live on average nearly 18 more years.

This chartbook examines a variety of current measures of health and health care utilization from national data sources. The health of individuals in old age reflects the cumulative effect of health behaviors and health care over a lifetime as well as advances in medical technology and the biological process of aging. These factors cannot be disentangled by measuring health status at one point in time.

The health of the older population varies greatly. The largest differences are age related. Persons 85 years of age and over, the majority of whom (71 percent) are women, have noticeably higher rates of illness, disability, and utilization of health care services than older persons who are less than 85 years of age. Ensuring good health and quality of life in old age requires attention to differences in the population by race and ethnicity, sex, and age.

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Population

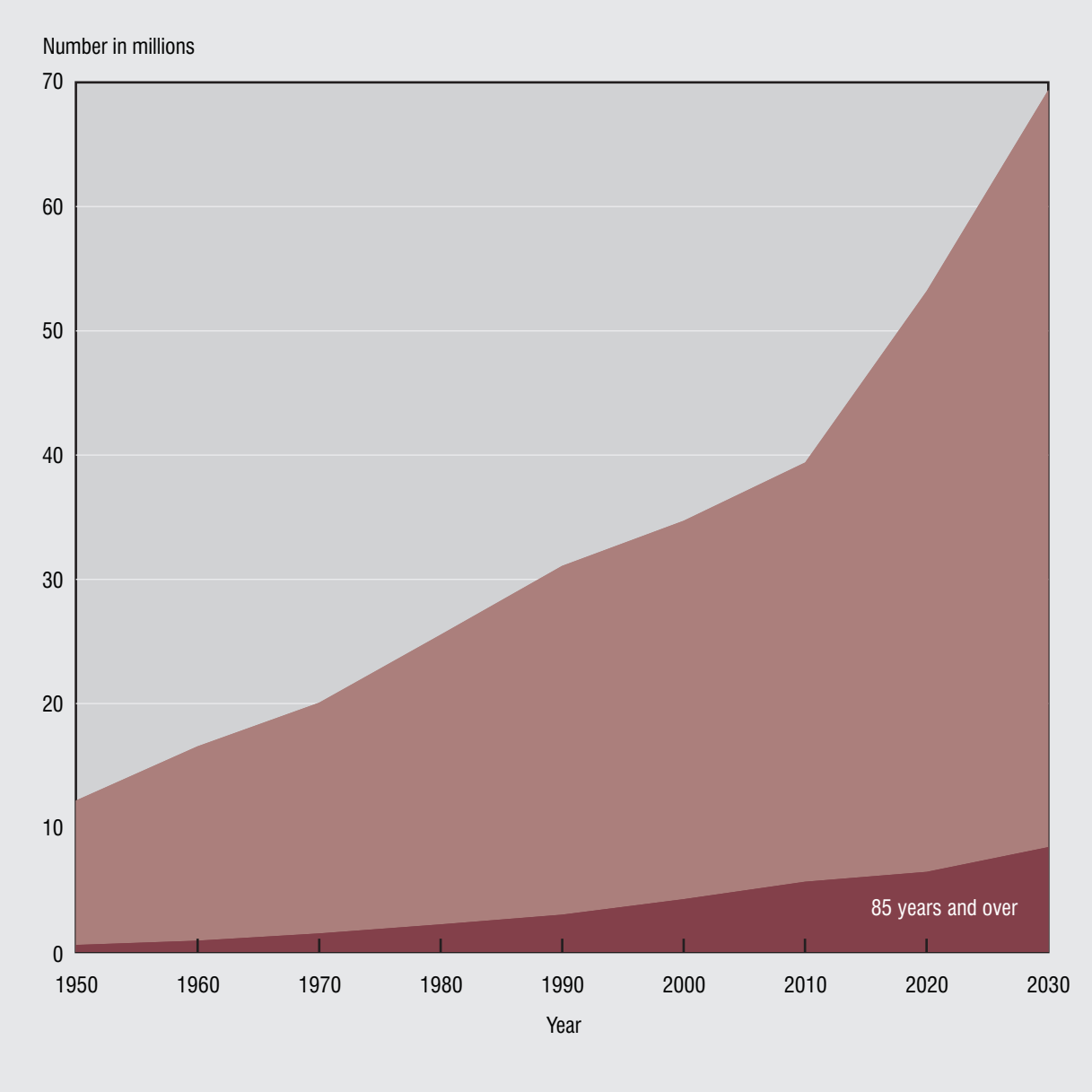
## Demographic Characteristics

■ In 1997, 13 percent of the U.S. population was 65 years of age and over. Among these 34 million persons, nearly 4 million were 85 years of age and over. The population of the United States is aging; the elderly population is growing at a faster rate than the population as a whole. In addition, the proportion of the population 85 years of age and over is growing faster than the elderly population as a whole. Projections of the population indicate that 70 million persons will be 65 years of age and over in the year 2030, representing 20 percent of the total U.S. population. It is estimated that the population 85 years of age and over will more than double to approximately 8.5 million persons.

■ There are more women than men among the older population. Among persons 65 years of age and over in 1997, 59 percent were women. At the oldest ages, the sex ratio is even higher; 71 percent of persons 85 years of age and over were women.

■ In 1997 a larger proportion of the non-Hispanic white population was over the age of 65 compared with other racial and ethnic groups. Fifteen percent of the non-Hispanic white population was 65 years of age and over compared with 8 percent of the black population, 7 percent of the Asian or Pacific Islander population, and 7 percent of the American Indian or Alaska Native population. Among persons of Hispanic origin, 6 percent were 65 years of age and over. However, the older non-Hispanic white population is growing more slowly compared with other groups. From 1990 to 1997, the proportion of the population 65 years of age and over grew more than five times as fast among Hispanic persons as among non-Hispanic white persons.

**Figure 1. Population 65 years of age and over: United States, 1950–2030**




NOTES: Figures for 1950–90 are based on decennial censuses. Figures for 2000–30 are middle series population projections of the U.S. Bureau of the Census.

SOURCES: See *Health,United States, 1999*, table 1 for data years 1950–90. For data years 2000–30, see U.S. Bureau of the Census. Day JC. Population projections of the United States by age, sex, race, and Hispanic origin: 1995 to 2050. Current population reports; P25–1130. Washington: U.S. Department of Commerce. 1996.

## Living Arrangements

■ The living arrangements of elderly persons reflect their health status as well as family and cultural ties. Older nonmarried persons who live alone (the majority of whom are widowed) in general are in better health than nonmarried persons who do not live alone.

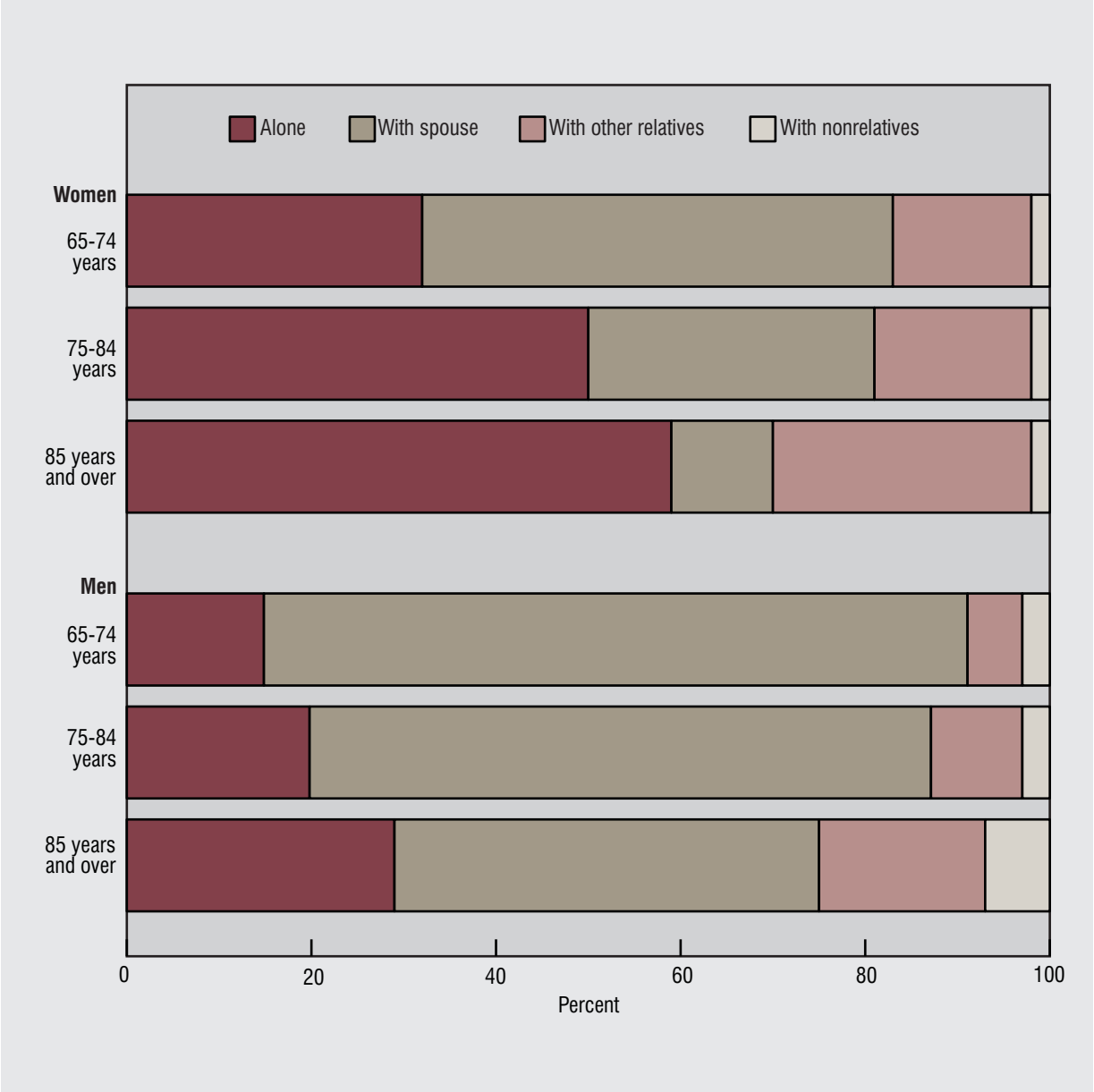
■ The majority of noninstitutionalized older persons live with family members; however, the living arrangements of the elderly vary greatly by age, sex, race, and marital status. In 1997 nearly one-third of noninstitutionalized persons 65 years of age and over lived alone. The proportion living alone was higher among persons 85 years of age and over compared with persons 65–74 and 75–84 years of age. In each age group, women were at least twice as likely as men to live alone. Six out of ten women 85 years of age and over lived alone.

■ Older men are more likely to be married than older women, in large part because women outlive men. Among persons 75–84 years of age, men were more than twice as likely as women to live with a spouse. Among persons 85 years of age and over, men were more than 4 times as likely as women to live with a spouse.

■ In every age group, black and Hispanic women were more likely to live with other relatives compared with non-Hispanic white women. At ages 75 years and over, non-Hispanic white women were 1.2 times as likely as black women and 1.7 times as likely as Hispanic women to live alone. Compared with non-Hispanic white or Hispanic men, older black men were more likely to live alone and less likely to live with a spouse.

■ Only a small proportion of the noninstitutionalized older population lived with nonrelatives. Among women 65 years of age and over, 2 percent lived with nonrelatives. Among men, the percent living with nonrelatives was 3 percent among persons 65–84 years of age and 7 percent among persons 85 years of age and over.

**Figure 2. Living arrangements of persons 65 years of age and over by age and sex: United States, 1997**




NOTES: Figures are based on the noninstitutionalized population. See Technical Notes for definitions of categories of living arrangements.
SOURCE: Lugaila TA. U.S. Bureau of the Census. Marital Status and Living Arrangements: March 1997 (Update), Series P20–506.

## Nursing Home Residence

■ Older persons live in nursing homes when disability, chronic illness, or mental incapacity prevent them from living on their own or being cared for in the community. In 1997, 1.5 million persons 65 years of age and over were in nursing homes, representing 4 percent of the older population.

■ The rates of nursing home residence vary by age, sex, and race. In 1997, 11 in 1,000 persons 65–74 years of age were nursing home residents compared with 46 out of 1,000 persons 75–84 years of age and 192 out of 1,000 persons 85 years of age and over. Women had higher rates of nursing home residence than men, and the sex difference increased with age. Black persons 65–74 years of age and black men 75–84 years of age were more likely than their white counterparts to be nursing home residents.

■ One-half of the current elderly residents of nursing homes were 85 years of age and over, and three-fourths were women. Research has shown that unmarried elderly persons have a higher risk of nursing home admission than married persons (1). Nearly two-thirds of all current nursing home residents were widowed, with female residents twice as likely to be widowed as male residents.

■ There is variation in the health of nursing home residents. Among nursing home residents 65 years of age and over in 1997, 48 percent were receiving full-time skilled nursing care under a physician's supervision. Twenty-nine percent had difficulty seeing, and 26 percent had difficulty hearing. Nearly all (96 percent) required help with bathing or showering, while 45 percent needed assistance with eating. Seventy-nine percent of nursing home residents could not use the telephone on their own, and 65 percent could not care for their personal possessions without help. The levels of disability and functional status were similar among women and men.

### Reference

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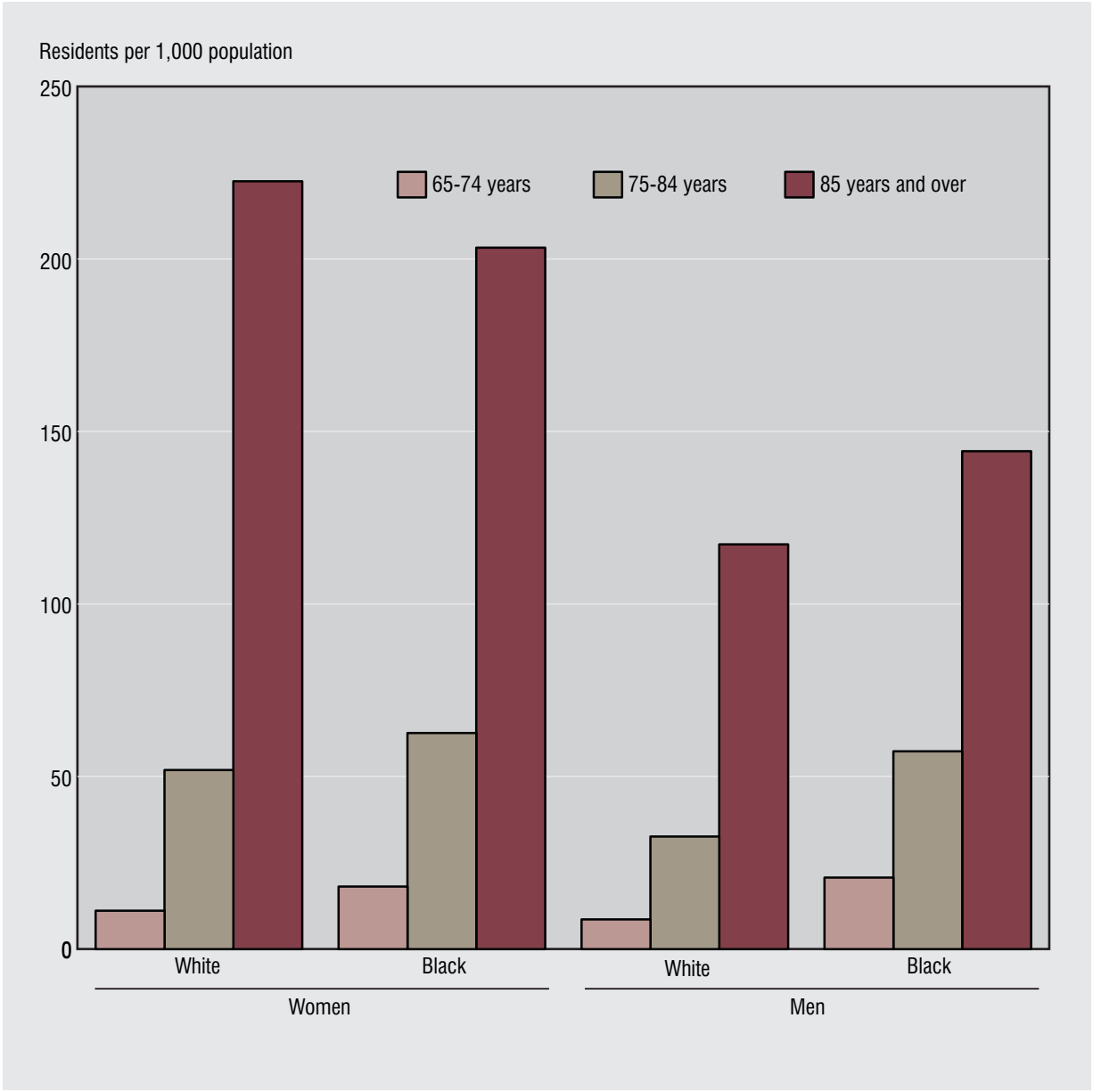
**Figure 3. Nursing home residents among persons 65 years of age and over by age, sex, and race: United States, 1997**




NOTES: Nursing home residents exclude residents in personal care or domiciliary care homes. Age refers to age at time of interview. Rates are based on the resident population as of July 1, 1997, adjusted for net underenumeration using the 1990 National Population Adjustment Matrix from the U.S. Bureau of the Census.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Nursing Home Survey. See related *Health, United States, 1999*, tables 97 and 98.

## Poverty

■ Socioeconomic status affects the health of people of all ages (1). Differences in health by socioeconomic status are smaller among older persons compared with younger adults, yet they are still notable. While poverty rates among the elderly have declined significantly since the 1960's, 1 out of 10 persons 65 years of age and over in 1997 was living in a family with income below the Federal poverty threshold.

■ The poverty rate was higher among older black and Hispanic persons compared with older white persons. In 1997 among persons 65 years of age and over, black persons were 2.9 times as likely and Hispanic persons were 2.7 times as likely to live in poverty as white persons.

■ More older women than men live in poverty. The poverty rate among persons 65 years of age and over was higher for women than for men (13 percent compared with 7 percent), although sex differences varied among racial and ethnic groups. Among black and Hispanic older persons, women were 1.3 times as likely to be in poverty as men. Among older white persons, women were twice as likely to live in poverty. Part of the sex difference in poverty rates is due to the effects of widowhood. Older women are particularly vulnerable to declines in economic status after the death of their spouse (2).

■ Poverty rates among the elderly have been declining as older persons have benefitted from Social Security payments and health insurance through Medicare and Medicaid. In 1959, 35 percent of persons 65 years of age and over lived in poverty compared with nearly 11 percent in 1997. In 1959 older persons had higher poverty rates than children (under 18 years of age) or younger adults (18–64 years of age) (27 percent and 17 percent, respectively). In 1997 levels of poverty were highest among children (19 percent) while poverty rates among persons 65 years of age and over and persons 18–64 years of age were not significantly different from each other (3).

■ Poverty measures based on income do not fully capture the accumulated wealth and assets on which many older persons rely. One study has shown large disparities in wealth by race among elderly Americans. Among persons 70 years of age and over, the mean net worth of households of white persons was estimated to be nearly 4 times the net worth of black households and 3 times that of Hispanic households (4).

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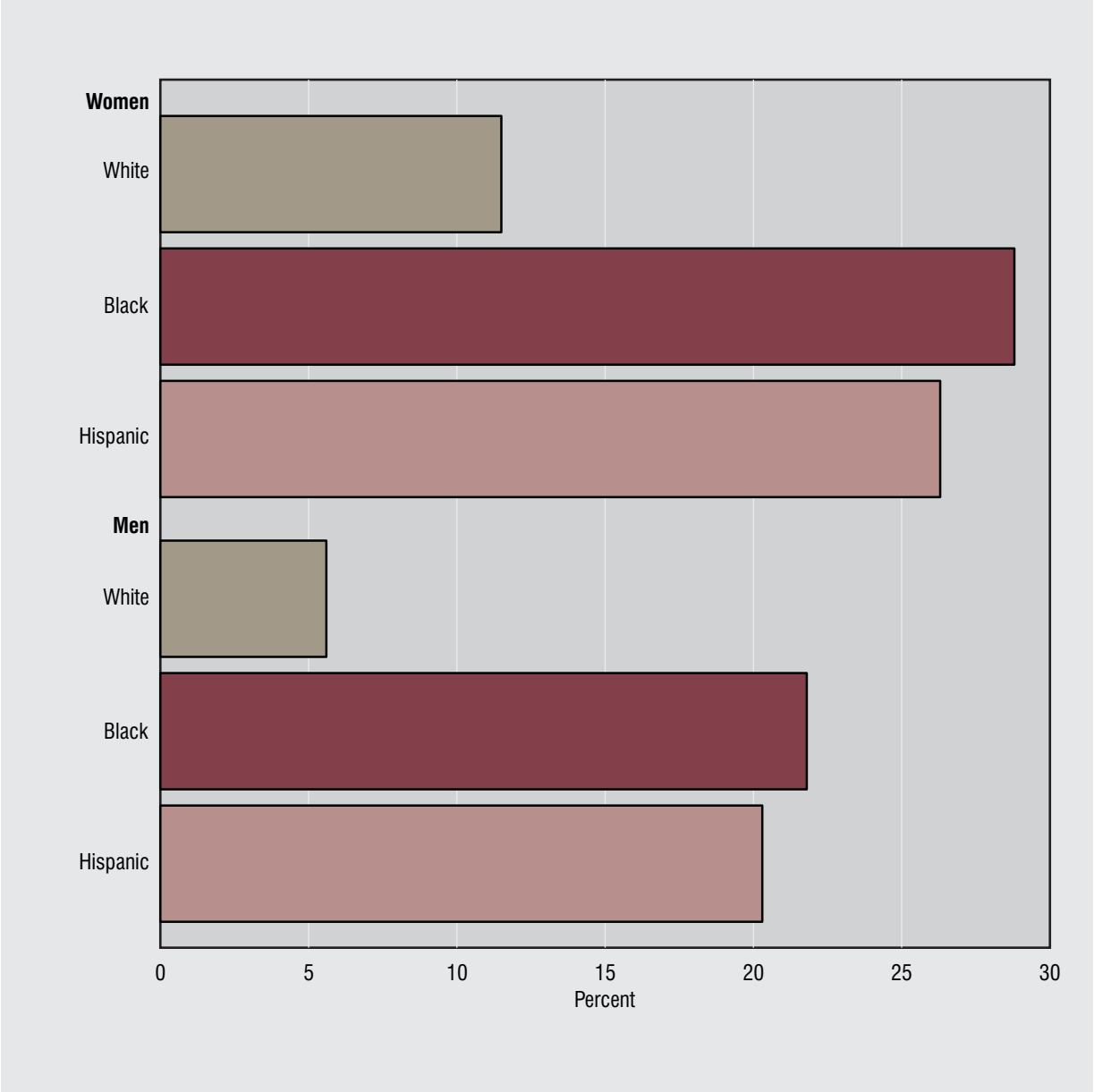
**Figure 4. Percent in poverty among persons 65 years of age and over by sex, race, and Hispanic origin: United States, 1997**




NOTES: Figures are based on the civilian noninstitutionalized population. The race groups white and black include persons of both Hispanic and non-Hispanic origin. Persons of Hispanic origin may be of any race. See Appendix II for poverty level definition.

SOURCE: Dalaker J, Naifeh M. U. S. Bureau of the Census. Poverty in the United States: 1997. Current population reports; Series P60–201. Washington: U.S. Government Printing Office. 1998.

Health Status

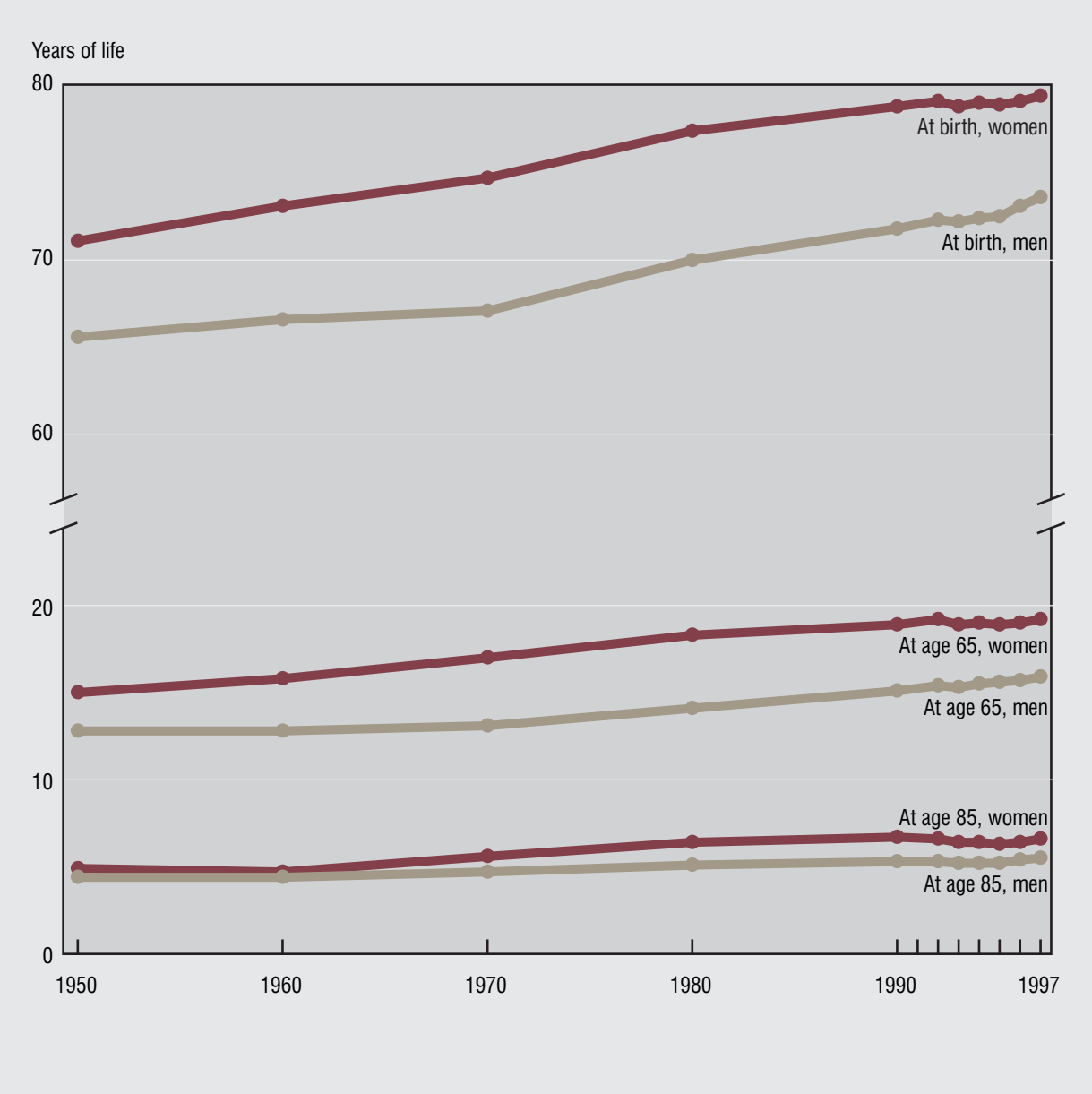
## Life Expectancy

■ Life expectancy at birth increased in the United States by approximately 8 years in the second half of the twentieth century. In 1997 life expectancy was 79.4 years for women and 73.6 years for men. Taking into account the tremendous growth in life expectancy (nearly 20 years) that occurred in the first half of the century, the expected number of years of life increased by approximately 60 percent since 1900. Less than one-half of all children born at the turn of the century could expect to live to age 65. About 80 percent born today can expect to survive to age 65 and roughly one-third to age 85.

■ Life expectancy at ages 65 and 85 also increased over the past 50 years. Under current mortality conditions, women who survive to age 65 can on average expect to live to age 84, and women who survive to age 85 can on average anticipate living almost to age 92. Men can expect to have shorter lives on average.

■ Life expectancy has increased over time as death rates have declined. In 1997 the death rate for persons 65–74 years of age was 16 percent lower than the rate in 1980. Among persons 85 years of age and over, the death rate declined by 4 percent in the same time period. However, not all causes of death have contributed to this downward trend. The major reductions in mortality during the past two decades have occurred for heart disease and stroke. By contrast, pneumonia and influenza mortality increased among elderly women and men.

**Figure 5. Life expectancy at birth, age 65, and age 85 by sex: United States, 1950–97**




NOTE: See Technical Notes on life expectancy estimation.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. See related *Health, United States, 1999*, table 28.

## Life Expectancy by Race

■ Life expectancy varies by race at older ages as well as at birth. In 1997 life expectancy at birth was approximately 5 years longer for white women than for black women and 7 years longer for white men than for black men. At age 65, differences by race narrowed and life expectancy was 1.7 years longer for white women than for black women and 1.8 years longer for white men than for black men. However, at age 85 life expectancy for black persons was slightly higher than for white persons.

■ The declining race differences in life expectancy at older ages are a subject of debate. Some research shows that age misreporting may have artificially increased life expectancy for black persons, particularly when birth certificates were not available (1). However, other research has suggested that black persons who survive to the oldest ages may be healthier on average than white persons and have lower mortality rates (2).

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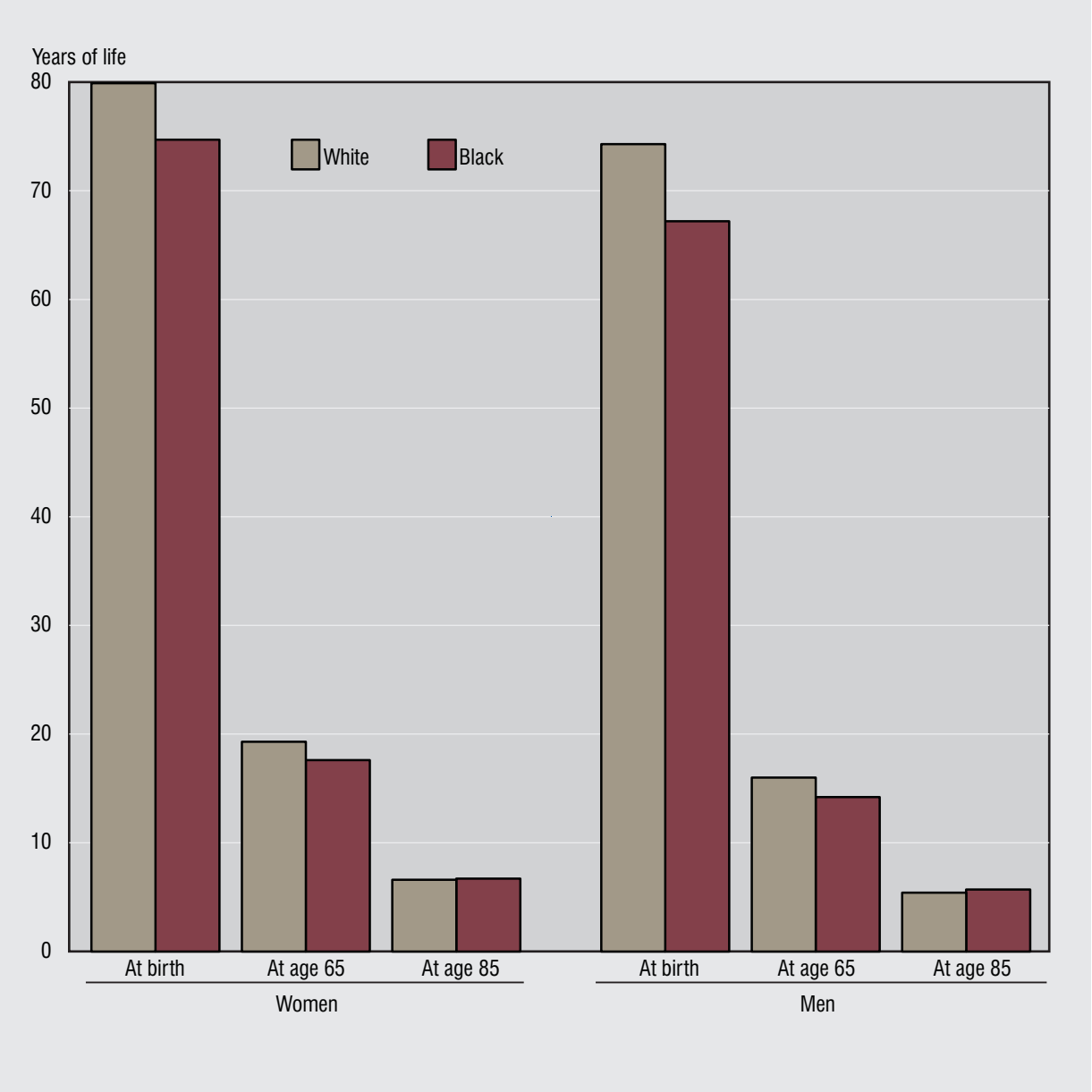
**Figure 6. Life expectancy at birth, age 65, and age 85 by sex and race: United States, 1997**




NOTE: See Technical Notes on life expectancy estimation.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. See related *Health, United States, 1999*, table 28.

Health Status

## Deaths From All Causes

- In 1997 the overall death rate among the older population was higher for men than women in each age group; however, death rates converged at the oldest ages. Men 65–69 years of age had a death rate 1.7 times the rate for women of the same age. For persons 95 years of age and over, the death rates for men and women were nearly equal.

- Among persons 65–74 years of age and 75–84 years of age, death rates were highest among black men and women compared with other racial and ethnic groups. However, among persons 85 years of age and over, white men and women had the highest recorded death rates compared with other groups. Among all persons 65 years of age and over, Asians or Pacific Islanders and Hispanics had lower death rates than white and black persons.

- Care must be taken in comparing mortality levels among older persons for different racial and ethnic groups. The accuracy of death rates for black persons at the oldest ages is a subject of debate. Death rates for American Indians or Alaska Natives, Asians or Pacific Islanders, and Hispanics are regarded as understated. The Asian or Pacific Islander and Hispanic populations grew dramatically over the past two decades, largely due to immigration. These broad racial and ethnic categories include native-born persons and immigrants from many different countries and diverse backgrounds. The overall death rate may obscure differences in health and mortality between subgroups of these populations. See the Technical Notes on race and ethnicity for a discussion of data quality issues.

**Figure 7. Death rates for all causes among persons 65 years of age and over by age and sex: United States, 1997**

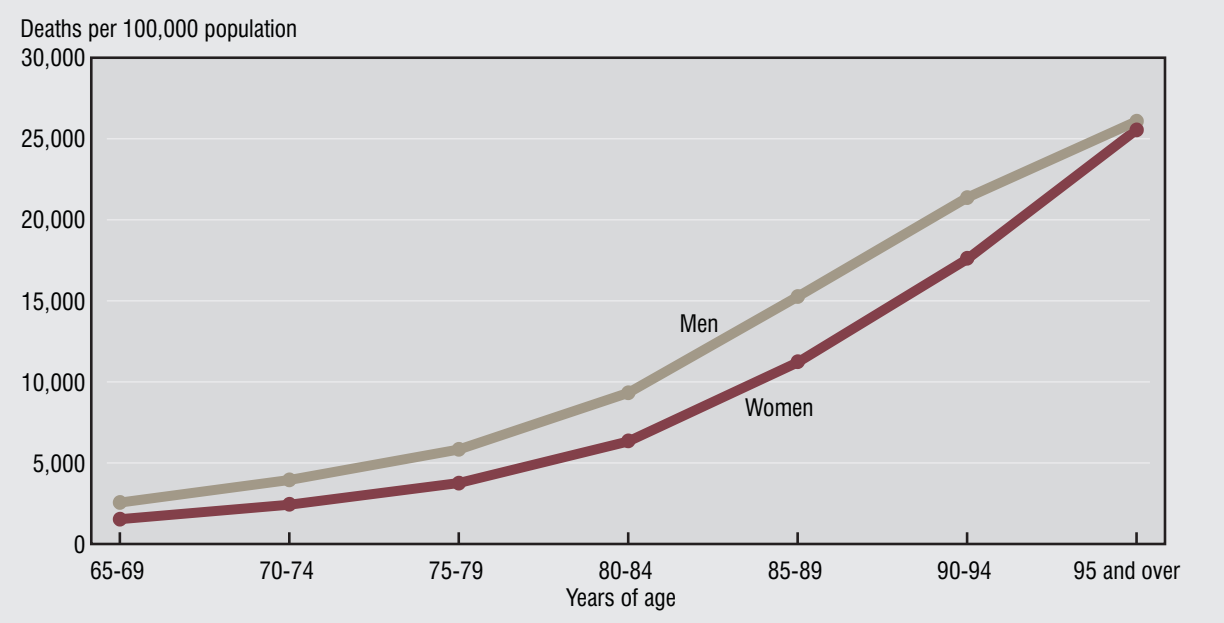
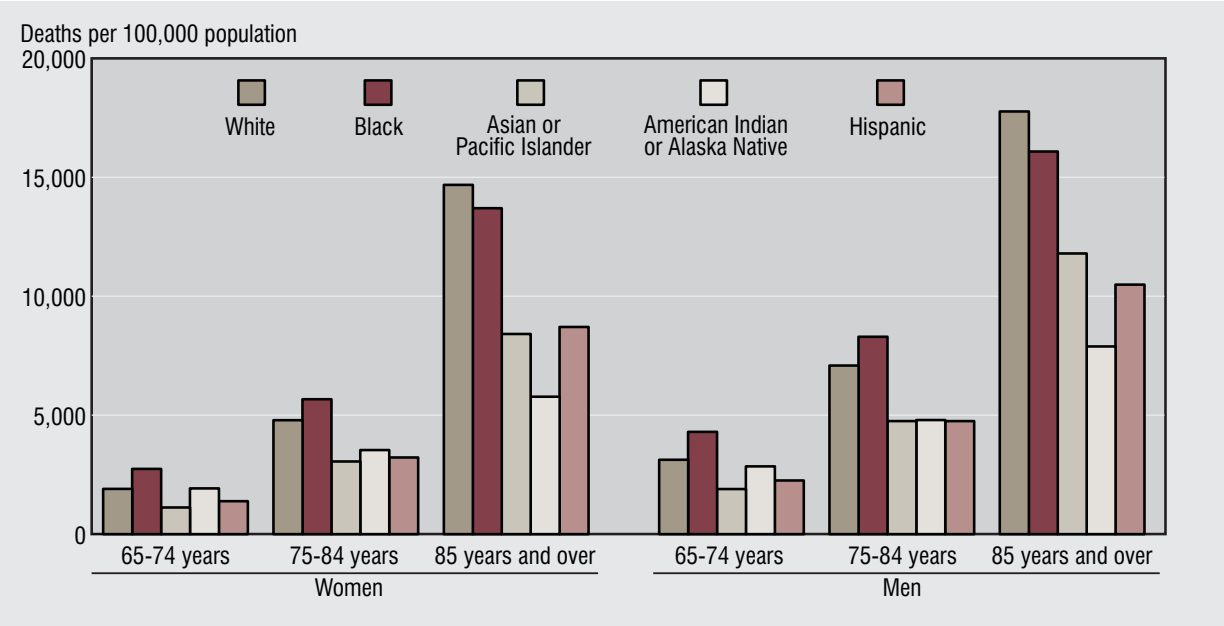



**Figure 8. Death rates for all causes among persons 65 years of age and over by age, sex, race, and Hispanic origin: United States, 1997**




NOTE: Persons of Hispanic origin may be of any race.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. See related *Health, United States, 1999,* table 36.

## Selected Leading Causes of Death

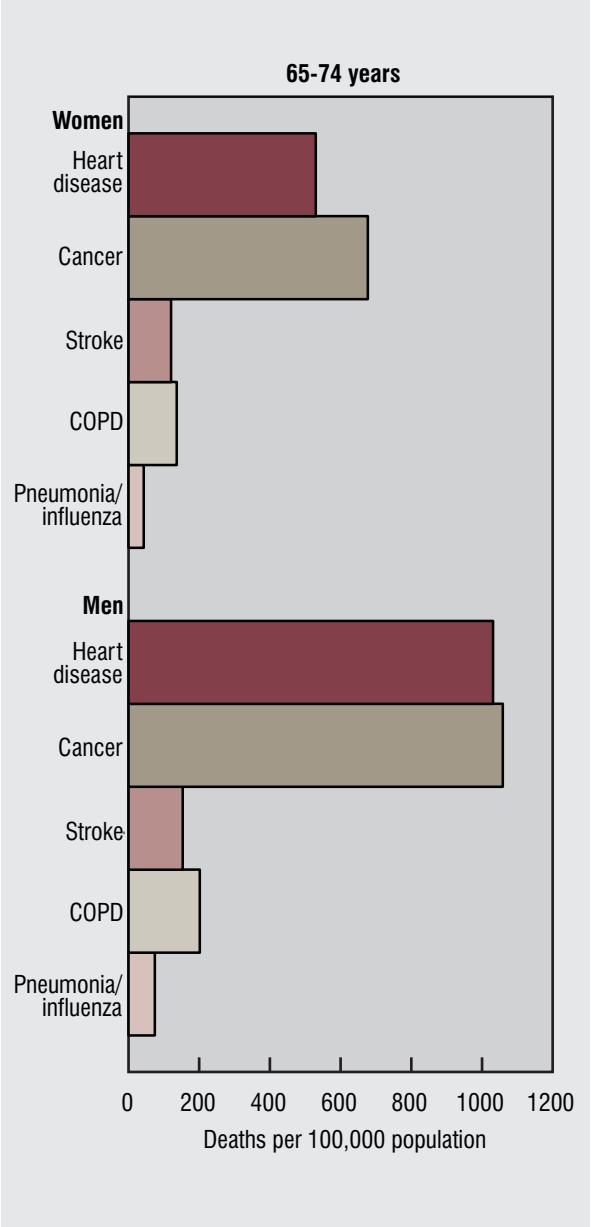
■ Among all persons 65 years of age and over, the five leading causes of death are heart disease, cancer, stroke, chronic obstructive pulmonary diseases, and pneumonia and influenza. In 1997 heart disease alone was the cause of 35 percent of all deaths among men 65 years of age and over and for 40 percent of deaths among women and men 85 years of age and over. The proportion of deaths due to stroke increased with age, accounting for 11 percent of deaths among women and for 9 percent of deaths among men 85 years of age and over.

■ Cancer is also a major cause of death. Among persons 65–74 years of age, cancer was the leading cause of death among women and roughly equal to heart disease among men. Lung cancer, followed by breast cancer, were the leading causes of cancer deaths for women in this age group. The proportion of deaths attributed to cancer declined with age for women and men. Among persons 85 years of age and over, cancer was responsible for 10 percent of deaths among women and for 16 percent of deaths among men.

■ Other major causes of death among the older population include pneumonia and influenza, which were responsible for approximately 7 percent of all deaths for persons 85 years of age and over. Chronic obstructive pulmonary diseases (COPD), bronchitis, emphysema, asthma, and other allied conditions, accounted for about 6–7 percent of deaths for persons 65–84 years of age, and a slightly lower percent for persons 85 years of age and over. Unintentional injuries such as automobile crashes and falls were the seventh leading cause of death for persons 65 years of age and over.

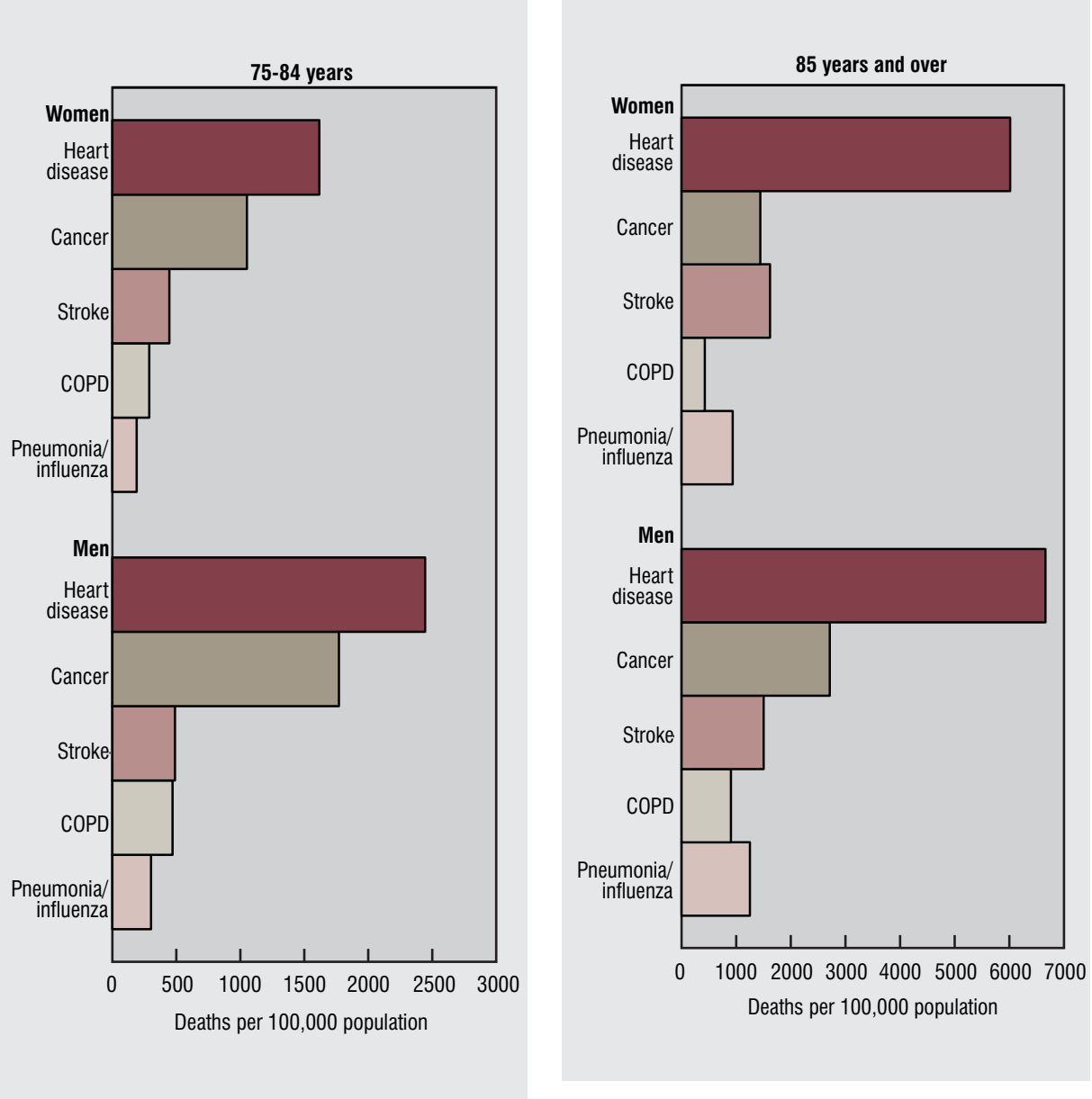
■ The relative importance of certain other causes of death varied according to race, ethnicity, and sex. In 1997 diabetes was the third leading cause of death among American Indians 65 years of age and over, the fourth leading cause of death among older Hispanic persons and black persons, and ranked sixth for older white persons and Asian Americans. Alzheimer's disease was the sixth leading cause of death among white women 85 years of age and over; however, it was less common among black women of the same age or men of either race.

**Figure 9. Death rates for selected leading causes among persons 65 years of age and over by age and sex: United States, 1997**




See notes on page 37.

**Figure 9. Death rates for selected leading causes among persons 65 years of age and over by age and sex: United States, 1997—Continued**




NOTES: COPD is chronic obstructive pulmonary diseases. For a description of *International Classification of Diseases* code numbers for causes of death, see Appendix II.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. See related *Health, United States, 1999*, tables 33, 37–39, and 42.

## Self-Reported Health

■ Self-assessed health, the reporting of health as excellent, very good, good, fair, or poor, is a summary measure that represents physical, emotional, and social aspects of health and well-being. Self-reported health correlates highly with mortality (1). Research has also demonstrated that elderly persons who report their health as poor are at increased risk for declines in physical functioning, independent of the severity of other medical conditions (2).

■ Older adults consider themselves to be in worse health than do young or middle-aged adults. In 1994–96, 28 percent of persons 65 years of age and over reported their health status as fair or poor compared with 17 percent of persons 45–64 years of age. The percent of older adults in fair or poor health increased steadily with age, from one-fourth of persons 65–74 years of age to over one-third of persons 85 years of age and over. The age pattern and levels of fair and poor health were similar among women and men.

■ At every age and for both men and women, non-Hispanic black and Hispanic persons reported worse health than non-Hispanic white persons. Among persons 65–74 years of age, non-Hispanic black persons were 1.7 times as likely and Hispanics were 1.4 times as likely to be in fair or poor health as non-Hispanic white persons. Racial and ethnic differences in self-reported health reflect objective differences in health status and physical functioning as well as cultural and socioeconomic differences in the assessment of health and in the interpretation of health status questions (3,4).

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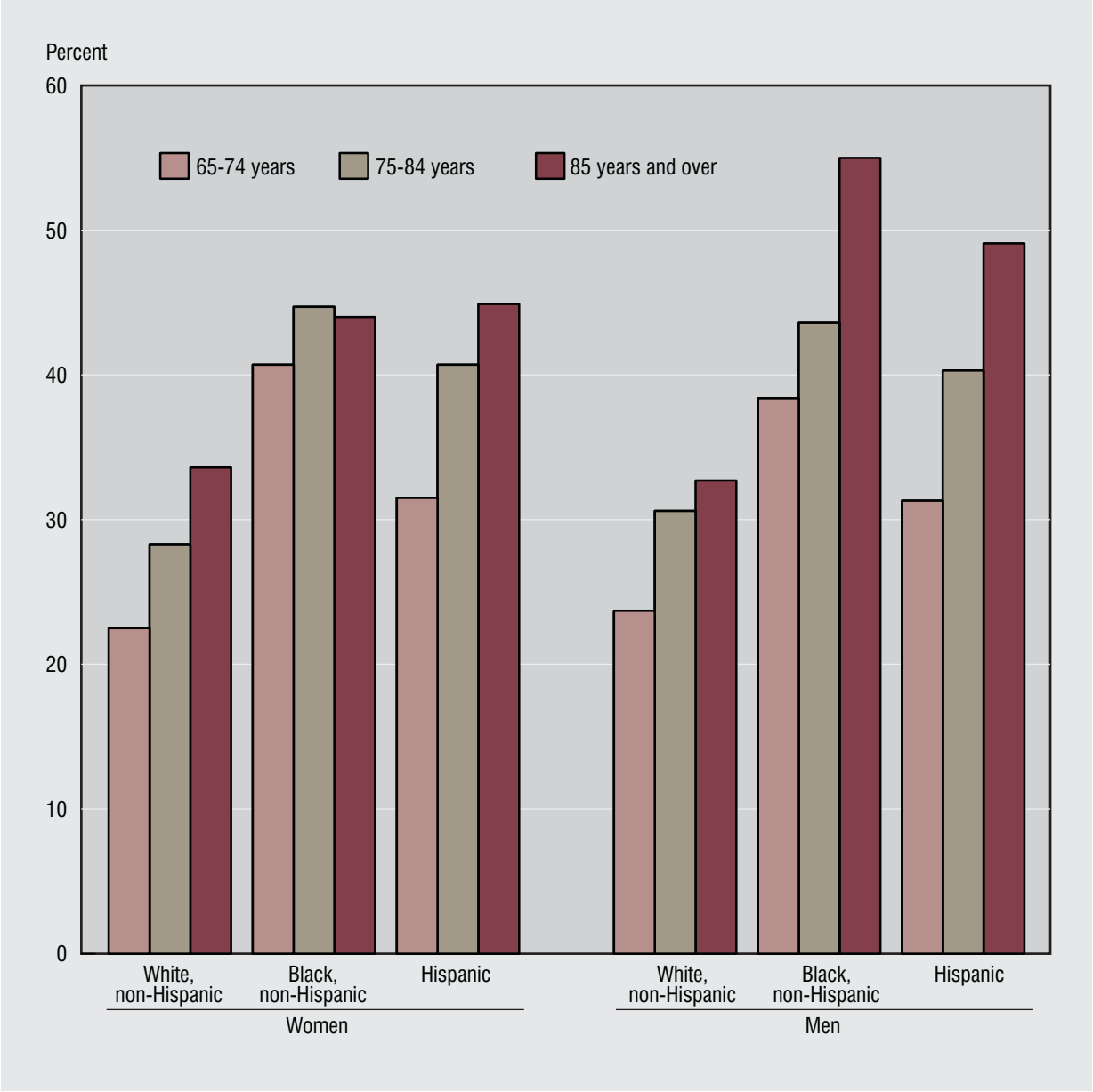
**Figure 10. Fair or poor health among persons 65 years of age and over by age, sex, race, and Hispanic origin: United States, 1994–96**




NOTE: Figures are based on the noninstitutionalized population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1999*, table 60.

## Chronic Conditions

■ Chronic diseases are prolonged illnesses that are rarely cured completely. Some examples are arthritis and hypertension. While not all chronic diseases are life threatening, they are a substantial burden on the health and economic status of individuals, their families, and the nation as a whole. Chronic conditions affect the quality of life of older persons and contribute to disability and the decline of independent living (1). In 1995 among noninstitutionalized persons 70 years of age and over, 79 percent had at least one of seven chronic conditions common among the elderly.

■ In 1995 the majority of persons 70 years of age and over had arthritis. Women reported higher levels of arthritis than men (63 percent compared with 50 percent). Hypertension is also a prominent condition among the elderly, affecting approximately one-third of persons 70 years of age and over. Older women reported more hypertension than men. Respiratory illnesses (asthma, chronic bronchitis, and emphysema) affected 11 percent of the older population in 1995, and levels were similar among women and men.

■ Other chronic diseases suffered by older persons include heart disease, diabetes, stroke, and cancer. In 1995 more than one-fourth of persons 70 years of age and over reported having heart disease. Levels of heart disease were higher among men than women, although these differences declined with age. Eleven percent of persons 70 years of age and over reported that they currently had diabetes, with women and men reporting similar levels. Nine percent of persons 70 years of age and over had ever had a stroke, and 4 percent reported that they currently had some form of cancer. Levels of stroke and cancer were higher among men than women.

■ The prevalence of certain chronic conditions varied by race and ethnicity. Among persons 70 years of age and over, non-Hispanic black and Hispanic persons had higher levels of diabetes than non-Hispanic white persons; for women the prevalence of diabetes was twice as high. Non-Hispanic black older persons were 1.5 times as likely to report hypertension as non-Hispanic white persons. Among women, levels of heart disease did not vary by race; among men, however, non-Hispanic white men reported more heart disease than non-Hispanic black men or Hispanic men. Non-Hispanic black women reported higher levels of stroke than non-Hispanic white women.

### Reference

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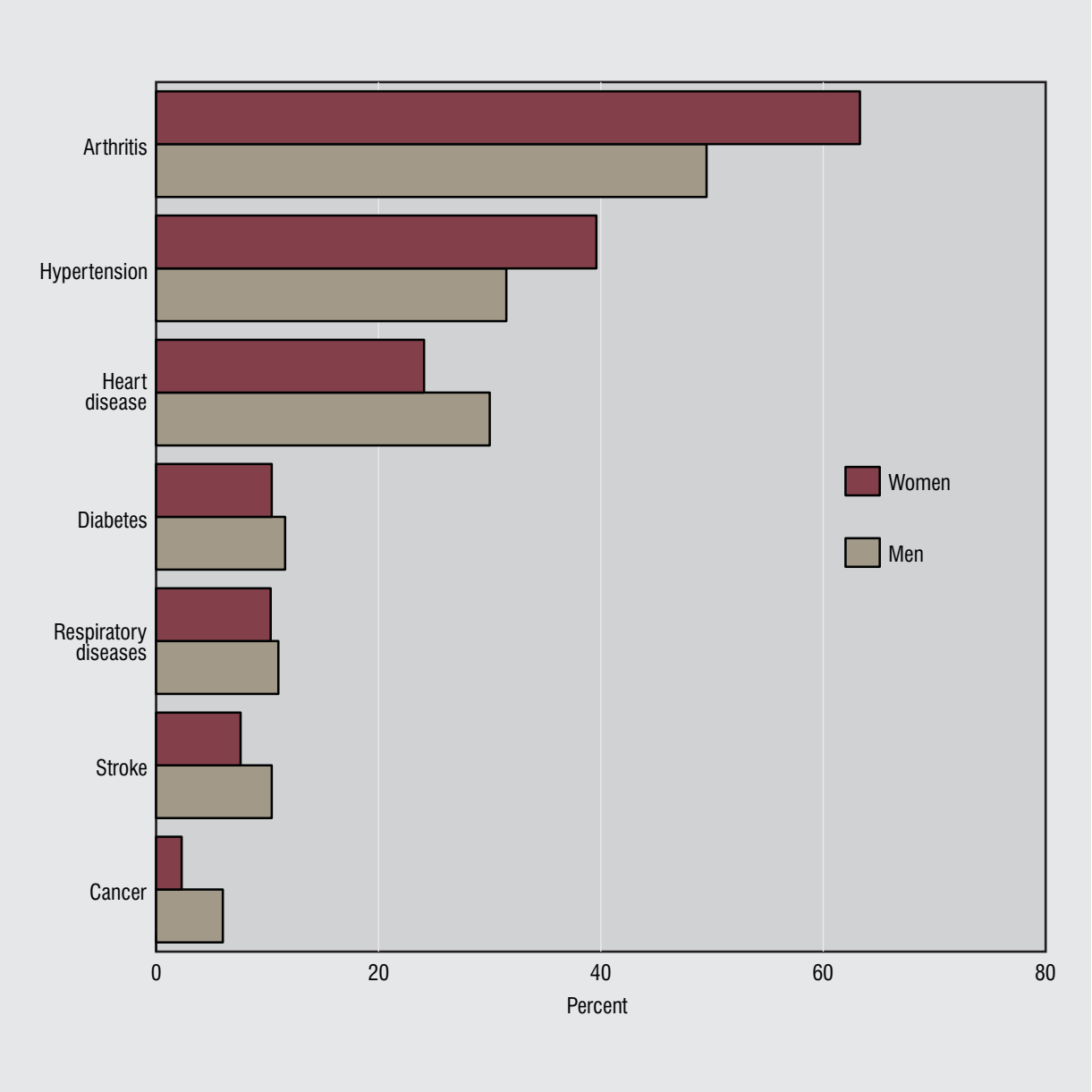
**Figure 11. Percent of persons 70 years of age and over who reported selected chronic conditions by sex: United States, 1995**




NOTES: Based on interviews conducted between October 1994 and March 1996 with noninstitutionalized persons. Percents are age adjusted. See Technical Notes for definitions of conditions and age adjustment procedures.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, 1994 National Health Interview Survey, Second Supplement on Aging. See related figures 33 and 34 on cost of heart disease and cost of diabetes.

## Visual and Hearing Impairments

■ Visual and hearing impairments affect a substantial proportion of the elderly population. Adverse consequences of these sensory impairments include disability, dependency, falls, communication dysfunction, and depression (1). Effective treatments exist for many types of visual and hearing impairments.

■ In 1995, 18 percent of noninstitutionalized persons 70 years of age and over were visually impaired, defined as full or partial blindness or other trouble seeing. The prevalence of visual impairment increased with age from 13 percent of persons 70–74 years of age to 31 percent of persons 85 years of age and over.

■ Cataracts, glaucoma, and macular degeneration are primary causes of visual impairment among the older population. Just over 25 percent of noninstitutionalized persons 70 years of age and over reported having cataracts, and 8 percent reported having glaucoma.

■ Women were 1.2 times as likely to be visually impaired as men, due in part to higher rates of cataracts and glaucoma. The prevalence of visual impairment among persons 70 years of age and over was similar for white persons and black persons.

■ In 1995 one-third of persons 70 years of age and over were hearing impaired. As with visual impairment, the prevalence of hearing impairment increased with age from one-fourth of persons 70–74 years of age to one-half of persons 85 years of age and over. Men were 1.5 times as likely to report hearing impairment as women, although the sex difference decreased with age. The sex difference in hearing impairment may be attributed in part to differences in cumulative occupational exposure to noise (2).

■ Older white persons were 1.8 times as likely to be hearing impaired as older black persons. This finding is consistent with studies that suggest black persons may be less susceptible to noise-induced hearing loss than white persons (3,4).

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**Figure 12. Prevalence of visual impairment among persons 70 years of age and over by age, sex, and race: United States, 1995**

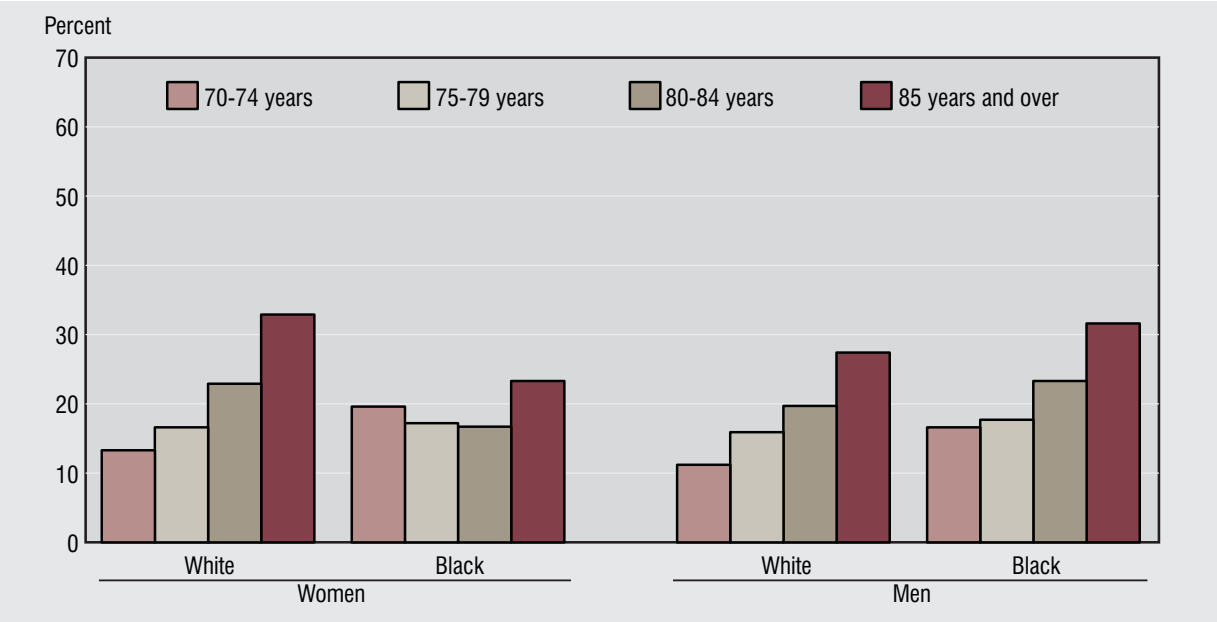
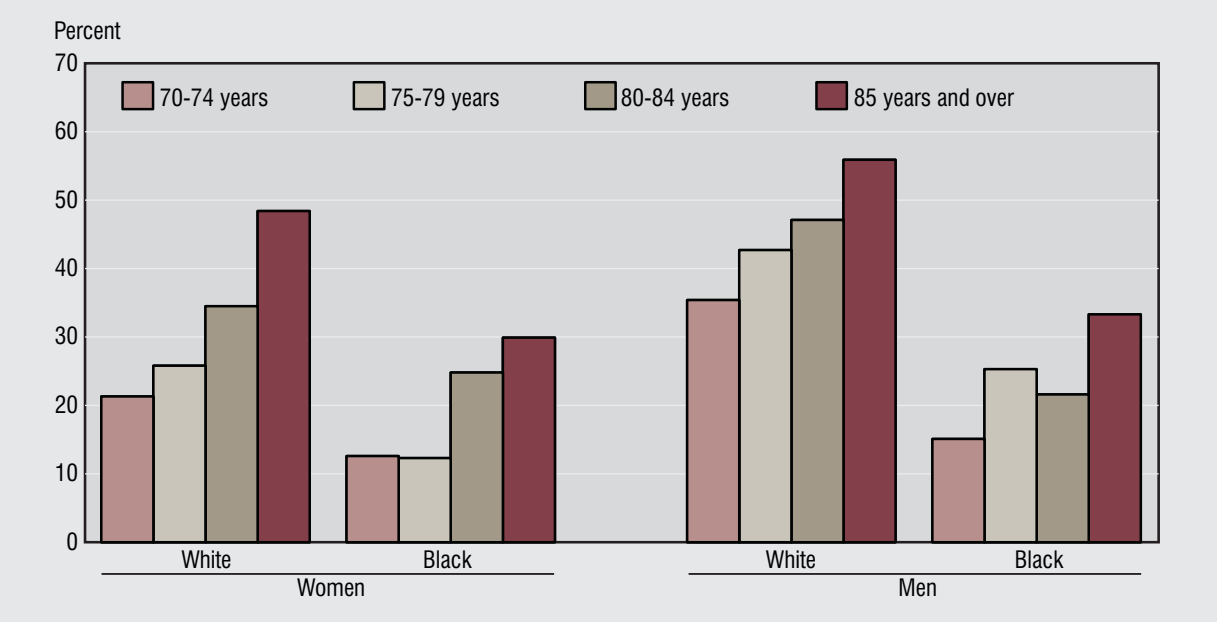



**Figure 13. Prevalence of hearing impairment among persons 70 years of age and over by age, sex, and race: United States, 1995**




NOTES: Based on interviews conducted between October 1994 and March 1996 with noninstitutionalized persons. See Technical Notes for definitions of visual impairment and hearing impairment.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, 1994 National Health Interview Survey, Second Supplement on Aging.

## Osteoporosis

■ Reduced bone density of the hip is a strong predictor of subsequent fractures, particularly hip fractures (1). The physical limitations resulting from osteoporosis and fractures contribute to disability among the older population. Hip fractures alone were responsible for over 300,000 hospitalizations among persons 65 years of age and over in 1996, of which 80 percent were women (2).

■ Loss of bone density (osteopenia and osteoporosis) is common among older persons. In 1988–94 just over one-half of noninstitutionalized persons 65 years of age and over had reduced hip bone density. The proportion with osteoporosis, a more severe form of bone loss than osteopenia, was higher among women than men and rose with age for both women and men. Among persons 85 years of age and over, 90 percent of women and 54 percent of men had measurable reduced hip bone density.

■ The prevalence of osteoporosis in the hip increases with age for both women and men. The percent with osteoporosis increases more steeply with age for men than women, although the overall percent is lower. Women 85 years of age and over were 2.7 times as likely to have osteoporosis as women 65–74 years of age. Men 85 years of age and over were 6.9 times as likely to have osteoporosis as men 65–74 years of age.

■ Among women 65 years of age and over, the prevalence of osteoporosis was twice as high among non-Hispanic white persons compared with non-Hispanic black persons.

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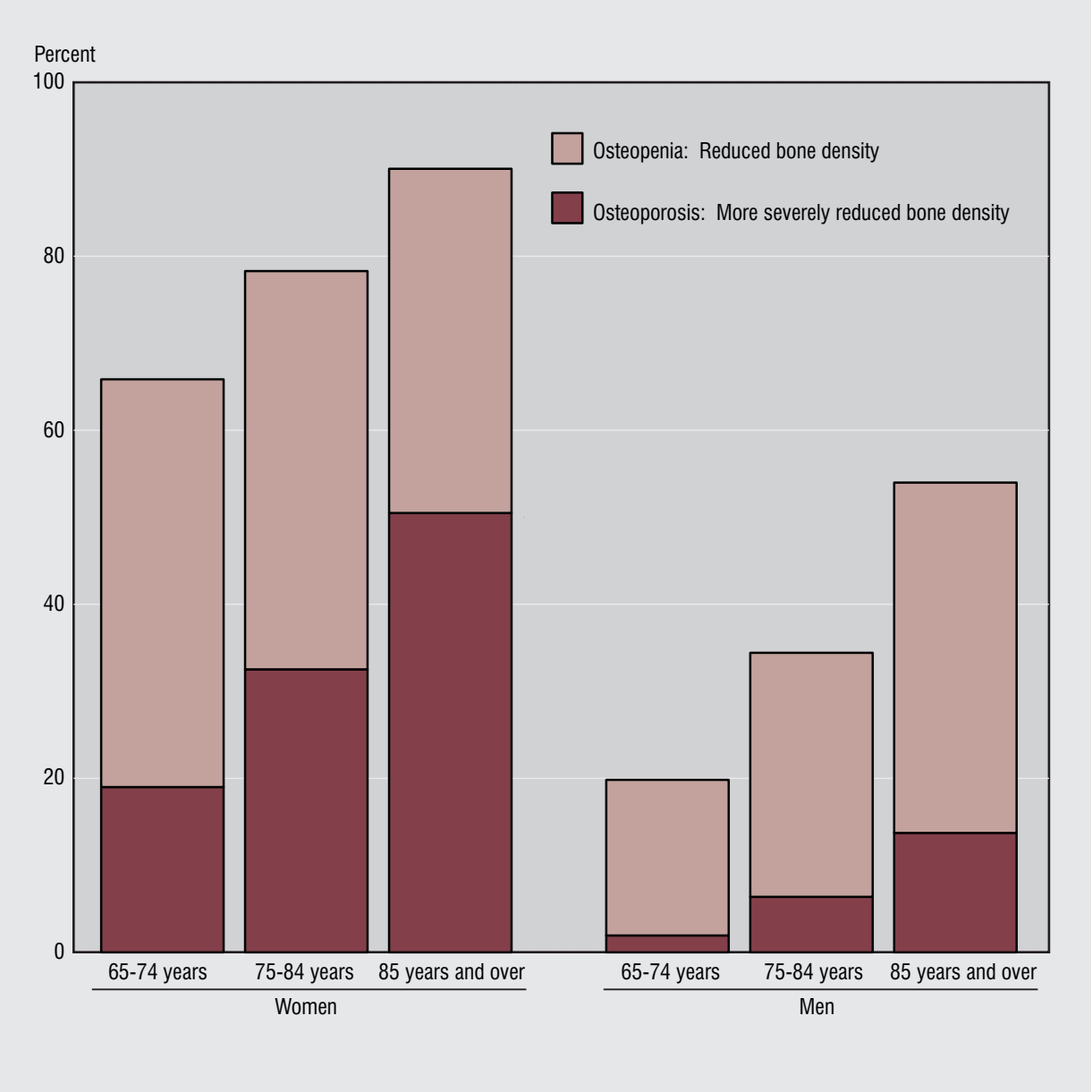
**Figure 14. Prevalence of reduced hip bone density among persons 65 years of age and over by age, sex, and severity: United States, 1988–94**




NOTES: Figures are based on the noninstitutionalized population. Osteopenia is defined as bone mineral density 1–2.5 standard deviations below the mean of non-Hispanic white women 20–29 years of age as measured in NHANES III; osteoporosis is defined as bone mineral density more than 2.5 standard deviations below the mean of non-Hispanic white women 20–29 years of age as measured in NHANES III. See Technical Notes for further discussion.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Third National Health and Nutrition Examination Survey.

## Physical Functioning and Disability

■ Quality of life in later years may be diminished if illness, chronic conditions, or injuries limit the ability to care for oneself without assistance. Older persons maintain their independence and eliminate costly caregiving services by, among other things, shopping on their own, cooking their meals, bathing and dressing themselves, and walking and climbing stairs without assistance.

■ In 1995 among noninstitutionalized persons 70 years of age and over, 32 percent had difficulty performing and 25 percent were unable to perform at least one of nine physical activities. Activity limitations increased with age, and women were more likely than men to have a physical limitation. Persons 85 years of age and over were 2.6 times as likely as persons 70–74 years of age to be unable to perform physical activities. Approximately 18 percent of women and 12 percent of men 70 years of age and over were unable to walk a quarter of a mile without assistance. Similarly for other important physical activities, older women were more likely than older men to be unable to climb a flight of steps (11 percent compared with 6 percent), or stoop, crouch, or kneel (15 percent compared with 8 percent).

■ An indication of functional well-being is the ability to perform certain tasks of daily living. Researchers group these tasks into two categories: essential activities of daily living (ADL), such as bathing, eating, and dressing; and the more complex instrumental activities of daily living (IADL), such as making meals, shopping, or cleaning. In 1995 among the noninstitutionalized population 70 years of age and over, 20 percent had difficulty performing at least one ADL, and 10 percent had difficulty performing at least one IADL. Approximately 10 percent of women and 7 percent of men were unable to do one or more ADL's, and about 23 percent of women and 13 percent of men could not do IADL's without help. Women were more likely than men to be disabled, and older persons had higher levels of disability than younger persons.

■ There are differences in physical functioning and disability by race among the older population. Black persons reported higher levels of disability than white persons. In 1995 among noninstitutionalized persons 70 years of age and over, black persons were 1.3 times as likely as white persons to be unable to do certain physical activities and 1.5 times as likely as white persons to be unable to perform one or more ADL's.

■ Between the mid-1980's and mid-1990's the proportion of noninstitutionalized older women and men who were unable to do one or more physical activities and unable to perform one or more instrumental activities of daily living declined. Moreover, disability appears to be declining more among women than men. This trend may provide important evidence of healthy aging, a result also supported by several other studies (1–3). However, the proportion of older persons unable to perform activities of daily living appears to have increased between 1984 and 1995, although the level remains quite low (4).

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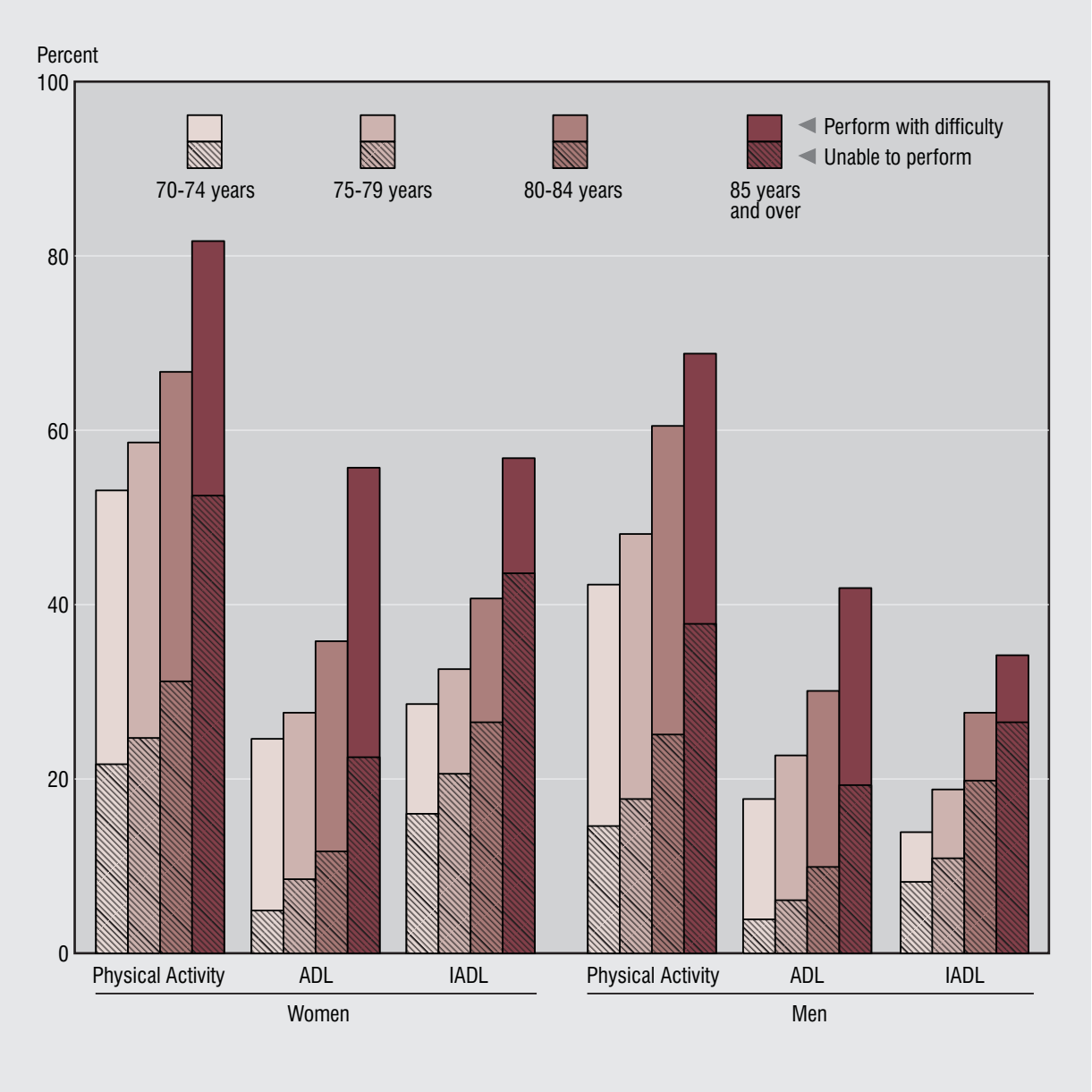
**Figure 15. Percent of persons 70 years of age and over who have difficulty performing 1 or more physical activities, activities of daily living, and instrumental activities of daily living by age and sex: United States, 1995**




NOTES: Based on interviews conducted between October 1994 and March 1996 with noninstitutionalized persons. See Technical Notes for definitions of physical activities, activities of daily living (ADL) and instrumental activities of daily living (IADL).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, 1994 National Health Interview Survey, Second Supplement on Aging.

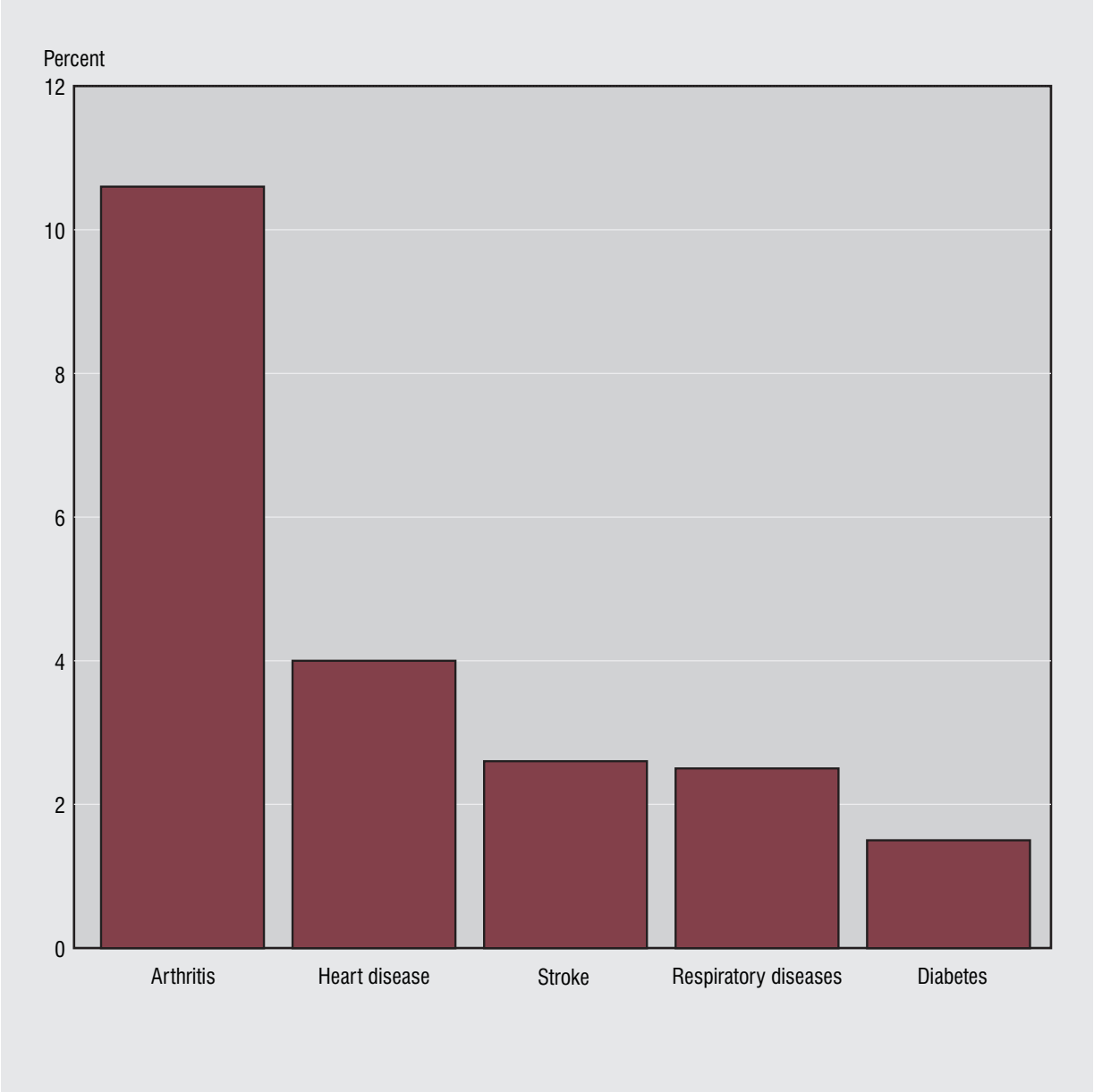
## Conditions Associated With Disability

■ Disability can reduce an older person's independence and quality of life and may lead to the need for formal or informal caregiving services. Chronic conditions are leading causes of disability among the elderly and result in many older persons being limited in their daily activities of life.

■ Arthritis is the most commonly reported chronic condition among older persons and the leading cause of disability. In 1995 among noninstitutionalized persons 70 years of age and over, 11 percent mentioned arthritis as one of the causes of their difficulty in performing activities of daily living (ADL) such as bathing, eating, dressing, and getting around the house. Women were more likely than men to report arthritis. Four percent of older persons listed heart disease as one of the conditions leading to their limitation, and approximately 2.5 percent listed stroke and respiratory diseases.

■ Nonspecific conditions or procedures are sometimes reported as disablers. Nearly 2 percent of older persons mentioned ''old age'' as a cause of their disability. Surgery was also reported by almost 2 percent as a cause of ADL limitations.

**Figure 16. Percent of persons 70 years of age and over who report specific conditions as a cause of limitation in activities of daily living: United States, 1995**




NOTES: Based on interviews conducted between October 1994 and March 1996 with noninstitutionalized persons. Conditions are reported by persons who had any difficulty performing one or more activities of daily living (ADL). Multiple conditions may be reported. See Technical Notes for definitions of respiratory diseases and ADL.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, 1994 National Health Interview Survey, Second Supplement on Aging. See related figure 11 on chronic conditions and figure 15 on physical functioning and disability.

## Overweight

■ There is no consensus regarding optimal weight for the older population. Some studies show little or no association between high body mass index (a measure of weight for height) and mortality (1,2), and some evidence indicates that higher weight may confer beneficial effects such as providing nutritional reserves in case of trauma and protection against osteoporosis (2). Conversely, other studies show higher mortality among older overweight persons (3–5), and evidence indicates that obesity even among the older adult population is associated with higher cardiovascular disease risk factors (6). In addition, it is unknown whether intentional weight loss among overweight older adults is advisable (7). Currently it is believed that a lean body weight throughout life is optimal, but that stability in weight after age 50 is recommended instead of weight gain or loss (6).

■ In 1988–94 among noninstitutionalized persons 65–74 years of age, 60 percent of women and 68 percent of men were considered overweight or obese, with a body mass index greater than or equal to 25. Twice as many women as men in this age group were severely obese.

■ In 1988–94 the prevalence of obesity among non-Hispanic black women 65–74 years of age was 63 percent higher than among non-Hispanic white women. The level of obesity among Mexican-American women was 28 percent higher than the level among non-Hispanic white women. Among men the prevalence of obesity was similar in the three groups.

■ Among women 65–74 years of age, the overall percent overweight has remained fairly constant over time. However, the distribution of weight has shifted to higher levels and increased especially in the severely obese category. Between 1960–62 and 1988–94, the percent of women who were considered obese increased by 16 percent. Among men, however, the increase in overweight was more substantial. The prevalence of overweight among men rose 43 percent, and the prevalence of obesity among men increased by 131 percent.

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**Figure 17. Distribution of weight among persons 65–74 years of age by sex: United States, 1988–94**

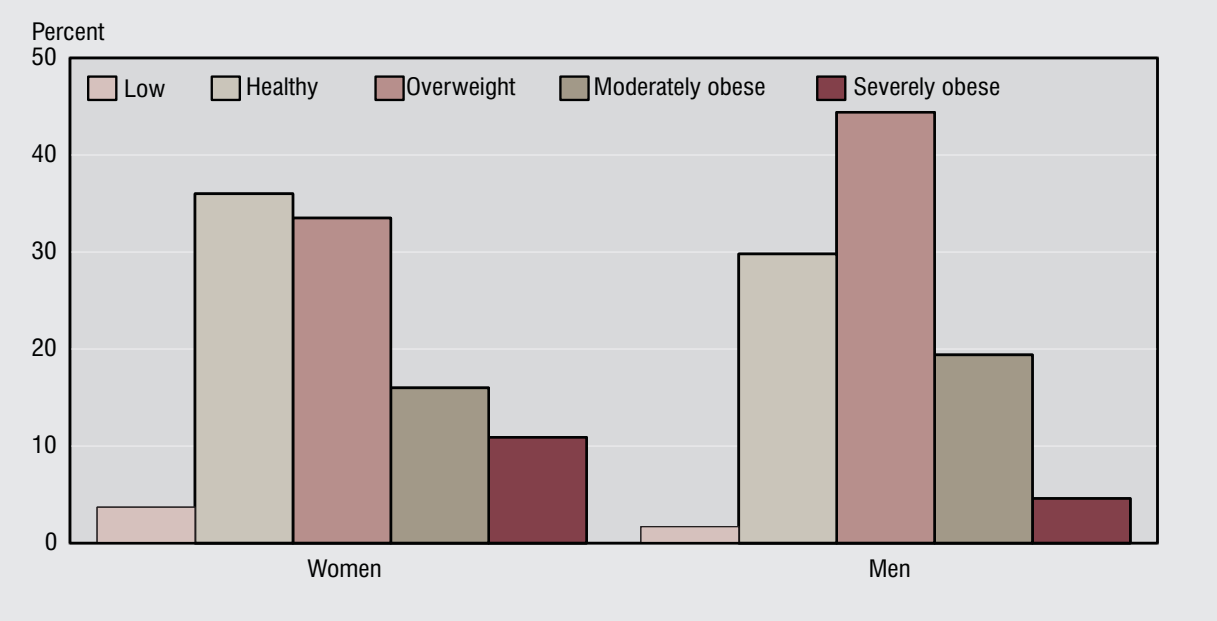
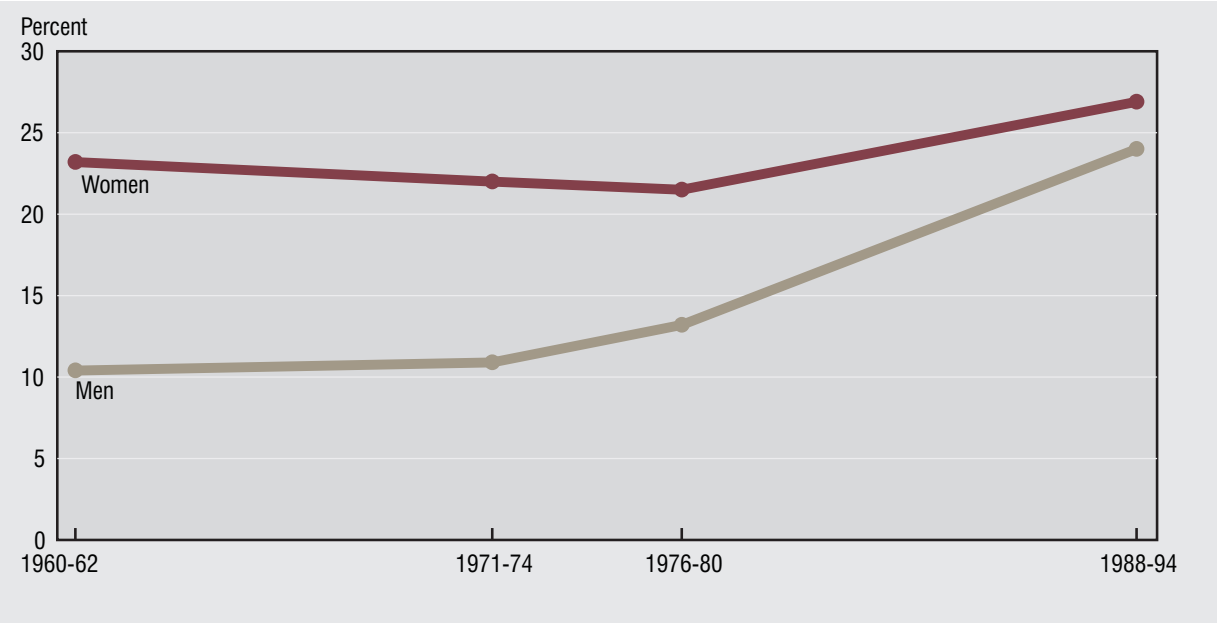



**Figure 18. Prevalence of obesity among persons 65–74 years of age by sex: United States, 1960–94**




NOTES: Figures are based on the noninstitutionalized population. See Technical Notes for definitions of weight categories. Obesity is defined as a body mass index greater than or equal to 30 kilograms per meter squared.

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Examination Survey (1960–62), First National Health and Nutrition Examination Survey (1971–74), Second National Health and Nutrition Examination Survey (1976–80), and Third National Health and Nutrition Examination Survey (1988–94). See related *Health, United States, 1999*, table 70.

## Oral Health

■ Oral health is an important and often overlooked component of an older person's overall health and well-being. Oral health problems may hinder a person's ability to be free of pain and discomfort, to maintain proper nutrition, and to enjoy interpersonal relationships and a positive self-image.

■ In 1988–94 nearly one-third of persons 65 years of age and over with natural teeth had untreated dental caries in the crown or the root of their teeth. A higher percent of older men than older women had at least one untreated dental caries (35 percent compared with 27 percent). Dental caries is one of the main causes of tooth loss among the older population (see figure 19).

■ In 1993, 30 percent of noninstitutionalized persons 65 years of age and over were edentulous, that is, they had no natural teeth. Levels of edentulism were similar among older women and men in each age group. The prevalence of total tooth loss was higher among non-Hispanic black persons than among non-Hispanic white persons and Hispanic persons. In addition, levels of edentulism in the older population were higher among those with lower socioeconomic status.

■ The rates of edentulism have been declining. Total tooth loss among persons 65 years of age and over decreased by 23 percent from 1983 to 1993. Edentulism declined for all racial and socioeconomic groups. However, rates of total tooth loss still exceed the *Healthy People 2000* target that no more than 20 percent of the population 65 years of age and over will be edentulous.

■ As the proportion of older persons keeping their teeth their entire life increases, so has the utilization of dental care. In 1983, 39 percent of persons 65 years of age and over reported at least one dental visit in the previous 12 months, while in 1993 the proportion rose to 52 percent. This proportion is still below the *Healthy People 2000* target of 60 percent. This increase in dental visits occurred even though most persons 65 years of age and over do not have dental insurance (1) and thus most of their dental expenditures are paid out-of-pocket (2).

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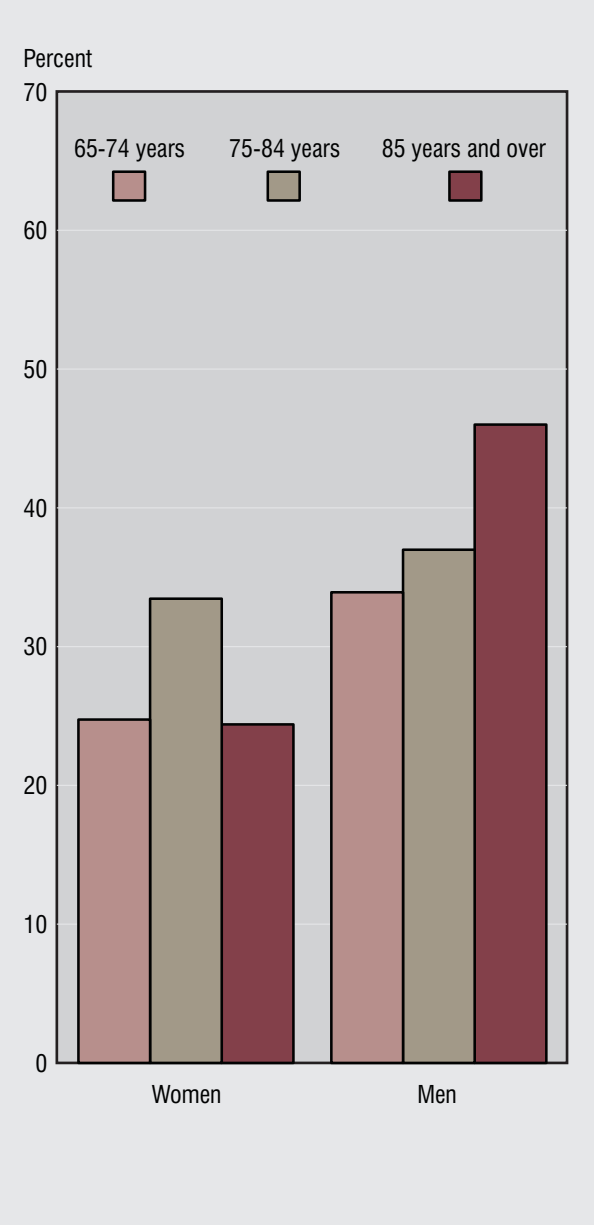
2. Moeller J, Levy H. Dental services: A comparison of use, expenditures, and sources of payment, 1977 and 1987. Research Findings 26. AHCPR Pub. No. 96–0005. 1996.

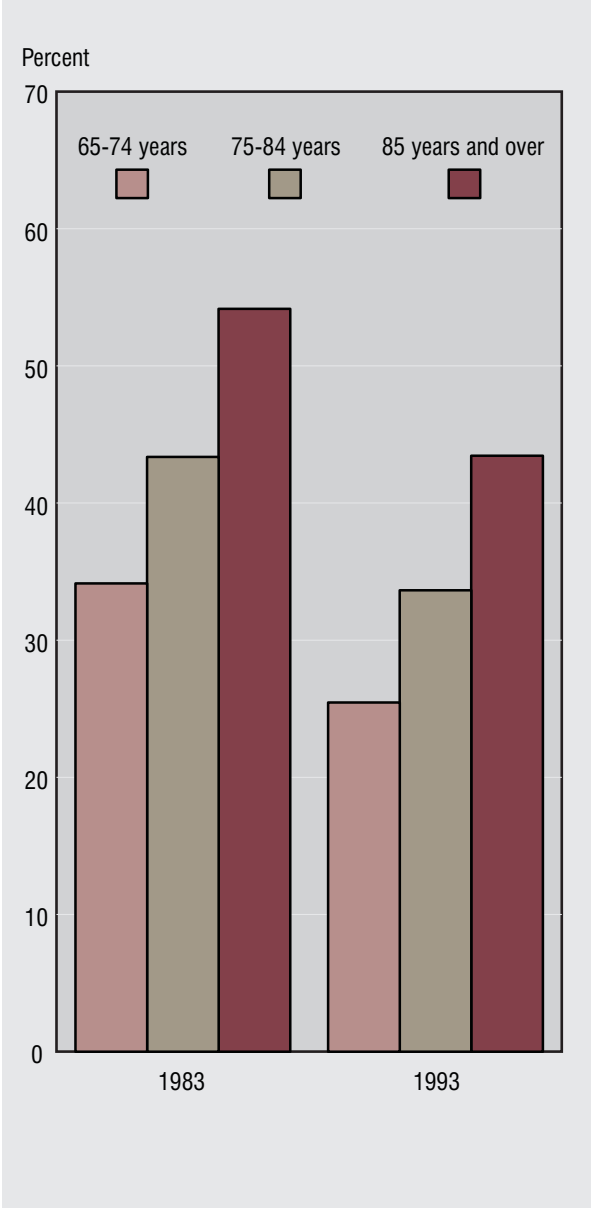
**Figure 19. Percent with untreated dental caries among dentate persons 65 years of age and over by age and sex: United States, 1988–94**




NOTES: Dental caries includes coronal and root caries. Dentate persons have at least one natural tooth. Figures are based on the noninstitutionalized population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Third National Health and Nutrition Examination Survey.

**Figure 20. Prevalence of total tooth loss (edentulism) among persons 65 years of age and over by age: United States, 1983 and 1993**




NOTE: Figures are based on the noninstitutionalized population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey.

## Social Activities

■ Social activity in old age has a positive effect on health. Interaction with friends and family members offers emotional and practical support that increases the ability of an older person to remain in the community and decreases the use of formal health care services.

■ In 1995 nearly all noninstitutionalized persons 70 years of age and over reported some form of social activity in a 2-week period. Older persons were more likely to report no social activities compared with younger persons. Even among persons 85 years of age and over, however, only 4 percent reported engaging in none of seven common social activities.

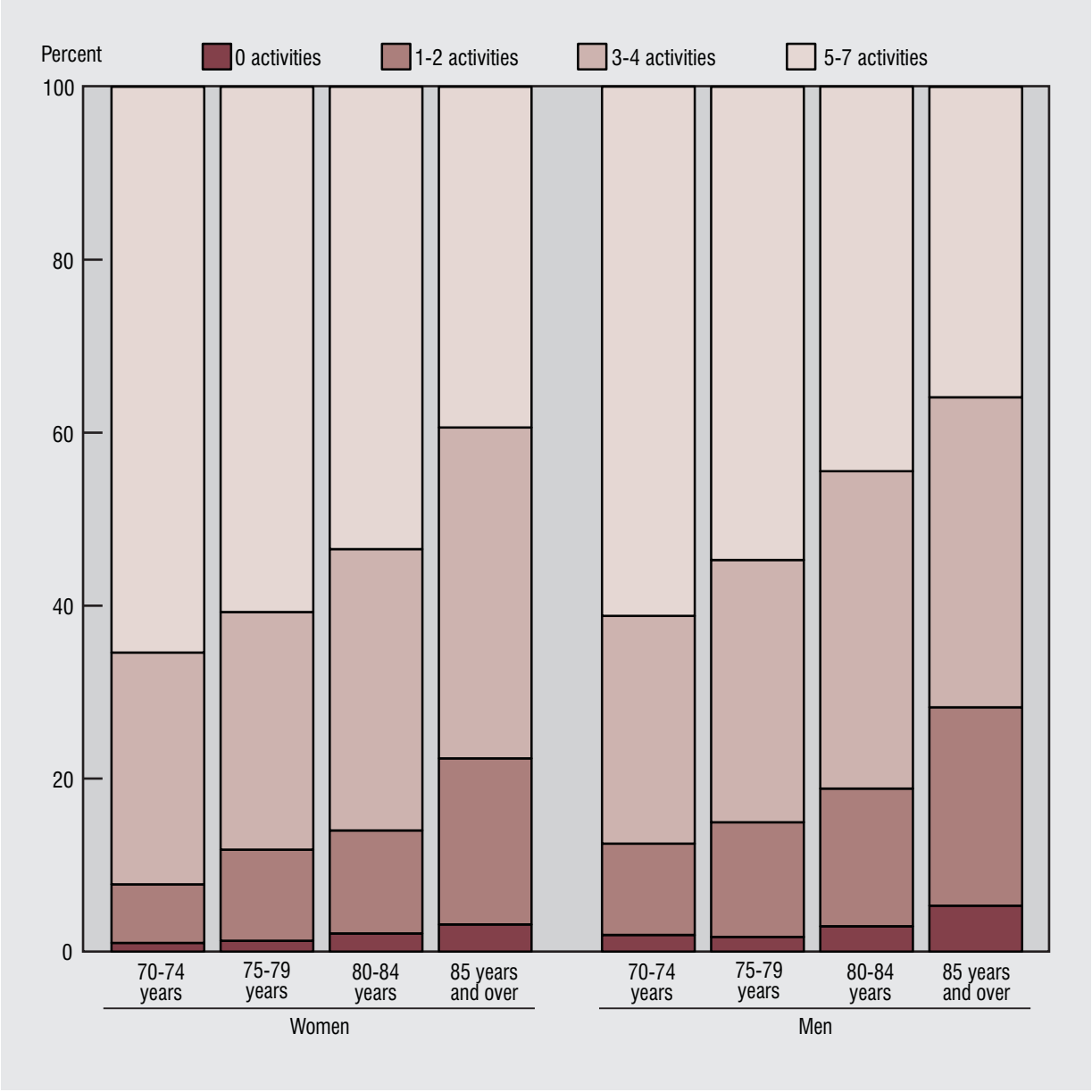
■ Older persons engage in fewer types of social activities as they age. Among persons 70–74 years of age, 64 percent participated in five to seven different social activities in a 2-week period compared with 38 percent among persons 85 years of age and over.

■ Among persons who engaged in at least one social activity in a 2-week period, contact with family was the most common. Eighty-seven percent of persons 70 years of age and over had talked on the telephone at least once with family members who lived outside of their household, and 76 percent had seen noncoresident relatives. Social contact with friends and neighbors was also prevalent: 72 percent got together with friends or neighbors, and 81 percent talked on the telephone with a friend or neighbor. Other common activities included eating at a restaurant (65 percent) and attending a religious service (51 percent).

■ Overall levels of social activity were similar among women and men. Women were more likely than men to talk on the telephone with friends and neighbors, but women and men reported comparable levels of getting together socially.

■ Disability limits social interaction. Persons who had difficulty with at least one of seven activities of daily living (ADL), such as eating, dressing, or bathing, were less likely to participate in social activities than persons who were not limited in their basic daily activities. Contact with family members in person or by phone was only slightly less common among persons with ADL limitations than among persons with no ADL limitations. However, participation in activities outside the house was much less common among persons with ADL limitations. For example, nondisabled persons were 1.7 times as likely to have attended a religious service and 1.5 times as likely to have eaten in a restaurant in the previous 2 weeks as disabled persons.

**Figure 21. Number of social activities in a 2-week period among persons 70 years of age and over by age and sex: United States, 1995**




NOTES: Based on interviews conducted between October 1994 and March 1996 with noninstitutionalized persons. See Technical Notes for definitions of social activities.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, 1994 National Health Interview Survey, Second Supplement on Aging.

## Exercise

■ Research has shown that physical activity has many benefits for health. It can reduce the risk of certain chronic diseases, appears to relieve symptoms of depression, helps to maintain independent living, and enhances overall quality of life (1). The *Healthy People 2000* target is to increase levels of activity among the elderly population so that no more than 22 percent of persons 65 years of age and over engage in no leisure-time physical activity.

■ In 1995, 71 percent of nondisabled persons 65 years of age and over exercised at least once in a recent 2-week period. The proportion of persons who exercised declined with age. Close to 75 percent of persons 65–74 years of age were active compared with 60 percent of persons 85 years of age and over. Men 65 years of age and over were more likely to exercise than women.

■ Less strenuous forms of exercise were most prevalent. Sixty-five percent of those who were not sedentary walked for exercise. Other common light and moderate activities included gardening (54 percent among men and 38 percent among women) and stretching (26 percent among men and 32 percent among women). Activities such as stair climbing, swimming, aerobics, and cycling were less frequently undertaken.

■ Regular exercise is important to obtain substantial health benefits. The recommended level for light to moderate physical activity is 30 minutes each time on most days of the week (1). When all forms of exercise are added together, two-thirds of persons 65 years of age and over who exercised (and who were able to estimate frequency) did not achieve recommended levels. For example, only about 18 percent of older men and women who walked for exercise did so for at least 30 minutes 10 times in a 2-week period. Seven to 10 percent of those who gardened did so regularly. Even lower levels of activity were recorded for more challenging forms of exercise such as jogging and weight lifting.

### Reference

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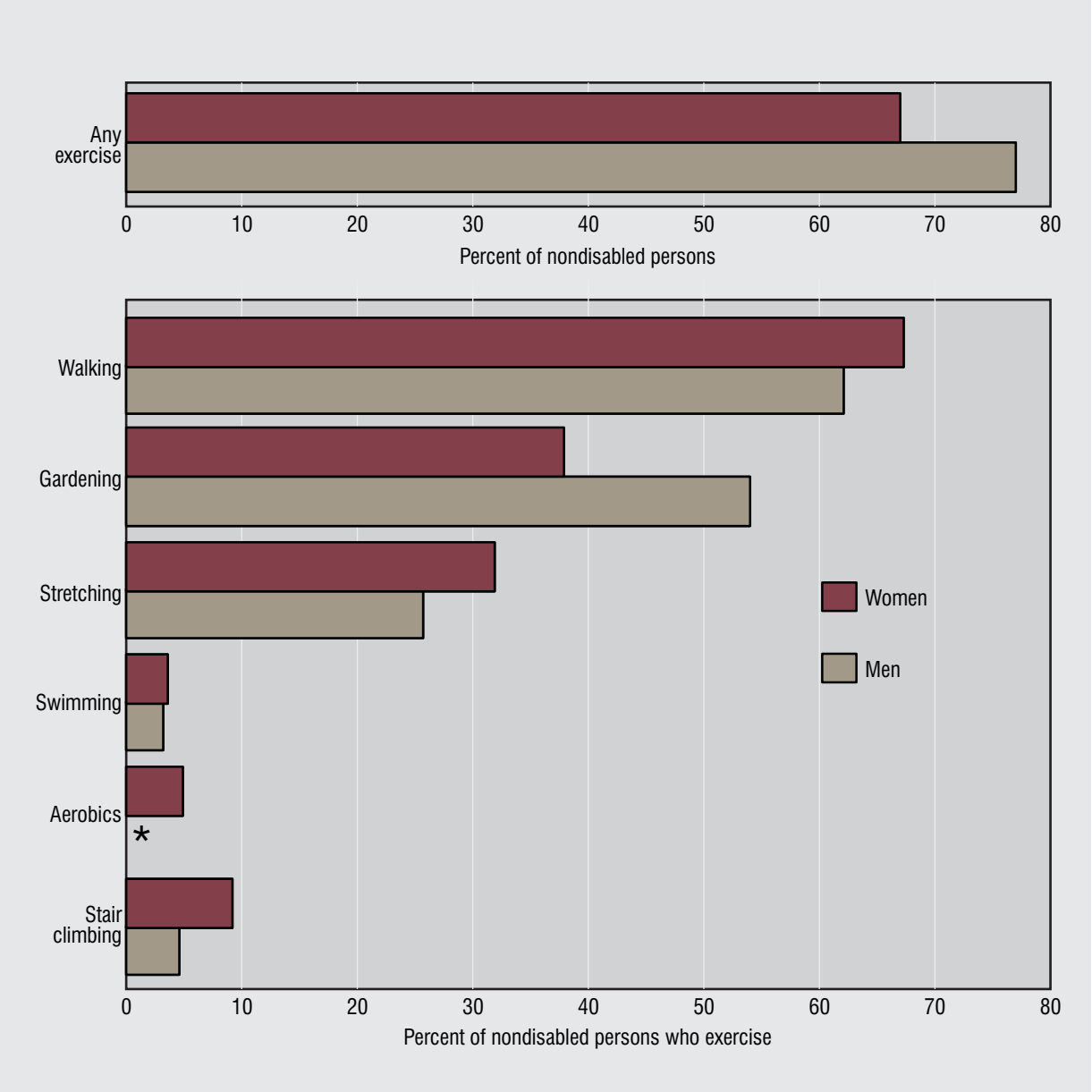
**Figure 22. Percent who exercise and selected type of exercise among persons 65 years of age and over by sex: United States, 1995**




* The number of men 65 years of age and over who participated in aerobic exercise was too small to calculate reliable rates.

NOTES: Figures are based on the noninstitutionalized population. Percents are age adjusted. Exercise is defined as doing at least 1 of 20 exercises, sports, or physically active hobbies at least once within a 2-week period. The percent engaging in a specific activity is calculated among persons who engage in any exercise. See Technical Notes for list of activities.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey.

## Caregivers

■ Older persons often receive help from others to perform routine activities. This help can allow an older person to remain in his or her home and avoid institutionalization. Caregivers who provide help may be family members, friends, or paid employees. Caregivers provide assistance with a variety of activities including basic needs such as dressing and bathing, known as activities of daily living (ADL), and other chores such as shopping, housework, and managing money, known as instrumental activities of daily living (IADL).

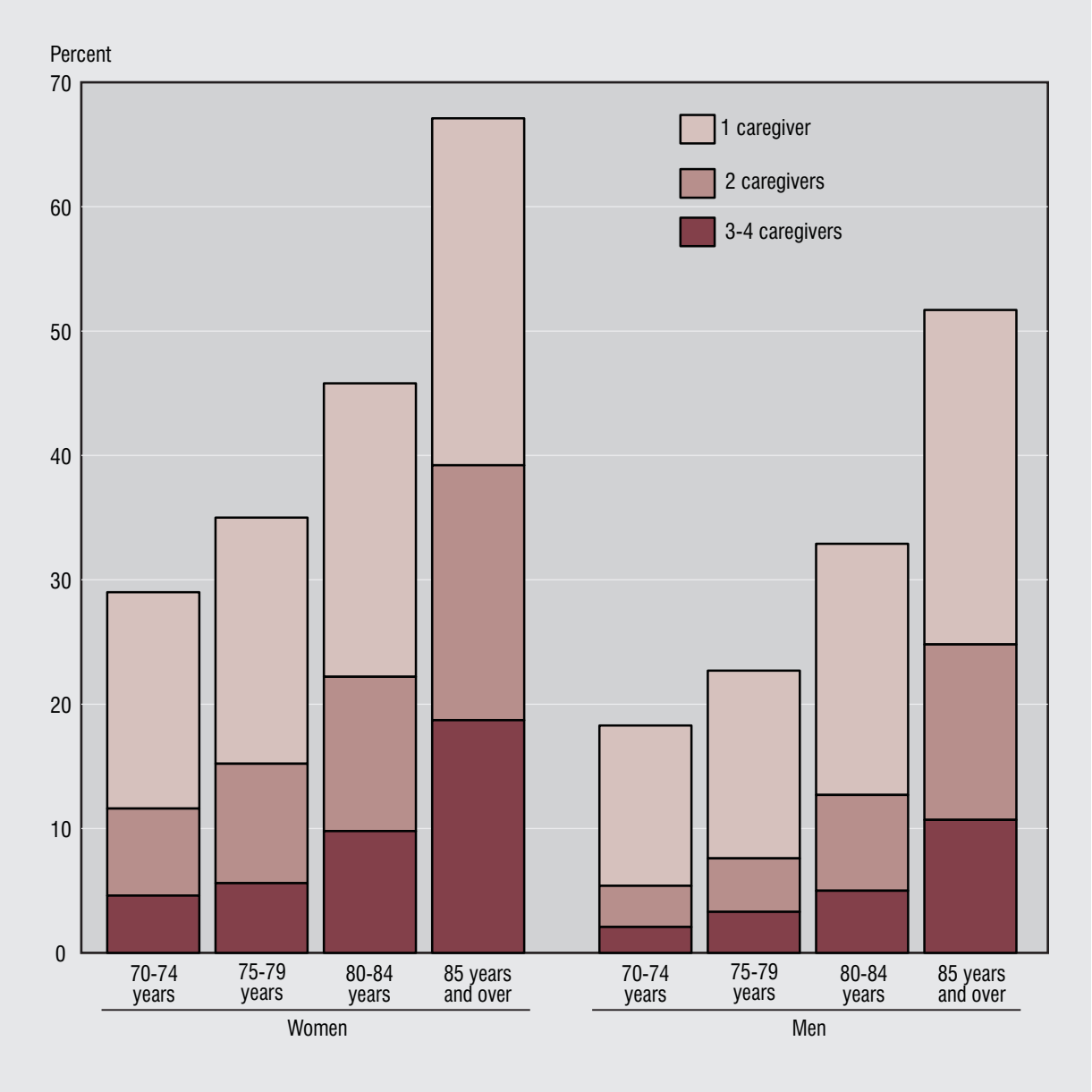
■ In 1995 among noninstitutionalized persons 70 years of age and over, 34 percent received help or supervision with at least one ADL or IADL. Over 12 million caregivers were providing formal and informal care. Seventy percent of caregivers were women, and 73 percent were unpaid or informal helpers. The percent of paid caregivers increased with age: among those receiving help, persons 85 years of age and over were 1.4 times as likely to have paid caregivers as persons 70–74 years of age.

■ The majority of persons receiving help (56 percent) received it from a single caregiver. The number of caregivers rose with age: among persons 70–74 years of age who received help, 63 percent received it from one caregiver. Among persons 85 years of age and over receiving help, only 44 percent had one caregiver. At each age, women had more caregivers than men.

■ Among informal or unpaid caregivers, 91 percent were family members and 51 percent lived in the same household as the recipient of the help. One-fourth of the caregivers were spouses and slightly more than one-half were children. Women were less likely than men to receive care from their spouses, due in large part to the higher proportion of widowhood among women than men. Informal caregivers provided help on an average of 7 days in a 2-week period.

■ Older persons were more likely to receive help from caregivers for IADL's than for ADL's. One-third of persons who received any assistance, had help with bathing or showering and nearly one-fourth had help with walking. However, 58 percent had another person help with shopping, and 56 percent received assistance to get to places outside of walking distance. Eight out of ten older persons who received any help had a caregiver help with heavy housework.

**Figure 23. Number of caregivers providing assistance with activities of daily living or instrumental activities of daily living to persons 70 years of age and over by age and sex: United States, 1995**




NOTES: Based on interviews conducted between October 1994 and March 1996 with noninstitutionalized persons. Caregivers provide help or supervision with at least one activity of daily living (ADL) or instrumental activity of daily living (IADL). See Technical Notes for definitions of ADL and IADL.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, 1994 National Health Interview Survey, Second Supplement on Aging.

## Unmet Needs

■ Frequently, chronic diseases and impairments impose limitations on what older persons can do for themselves. Without personal assistance or the use of devices such as walkers, hand rails, or special breathing equipment, many older persons have unmet needs that reduce quality of life and increase the risk of institutionalization (1).

■ In 1995, 14 percent of noninstitutionalized persons 70 years of age and over had difficulty and needed help with one or more activities of daily living (ADL), such as bathing, dressing, and moving about the house. Twenty-six percent had difficulty and needed help for household activities such as shopping, cleaning, and meal preparation known as instrumental activities of daily living (IADL).

■ The majority of older persons in need received enough personal assistance to carry out these important tasks. However, approximately 44 percent (1.4 million) of those who had difficulty and needed help had ''unmet needs,'' that is they either had no assistance at all or required additional assistance. Roughly one-fifth had unmet ADL needs and another one-fourth did not need assistance with ADL's, but had unmet need for assistance with IADL's. In most cases those with unmet needs required direct hands-on help. Lacking the necessary assistance with ADL's, approximately one-half of those in need experienced a serious negative consequence such as burns from bath water, weight loss, or being chair- or bed-bound.

■ Men and women were equally likely to have unmet ADL needs; however, women and younger persons were more likely than men and older persons to say they went without needed assistance with IADL's.

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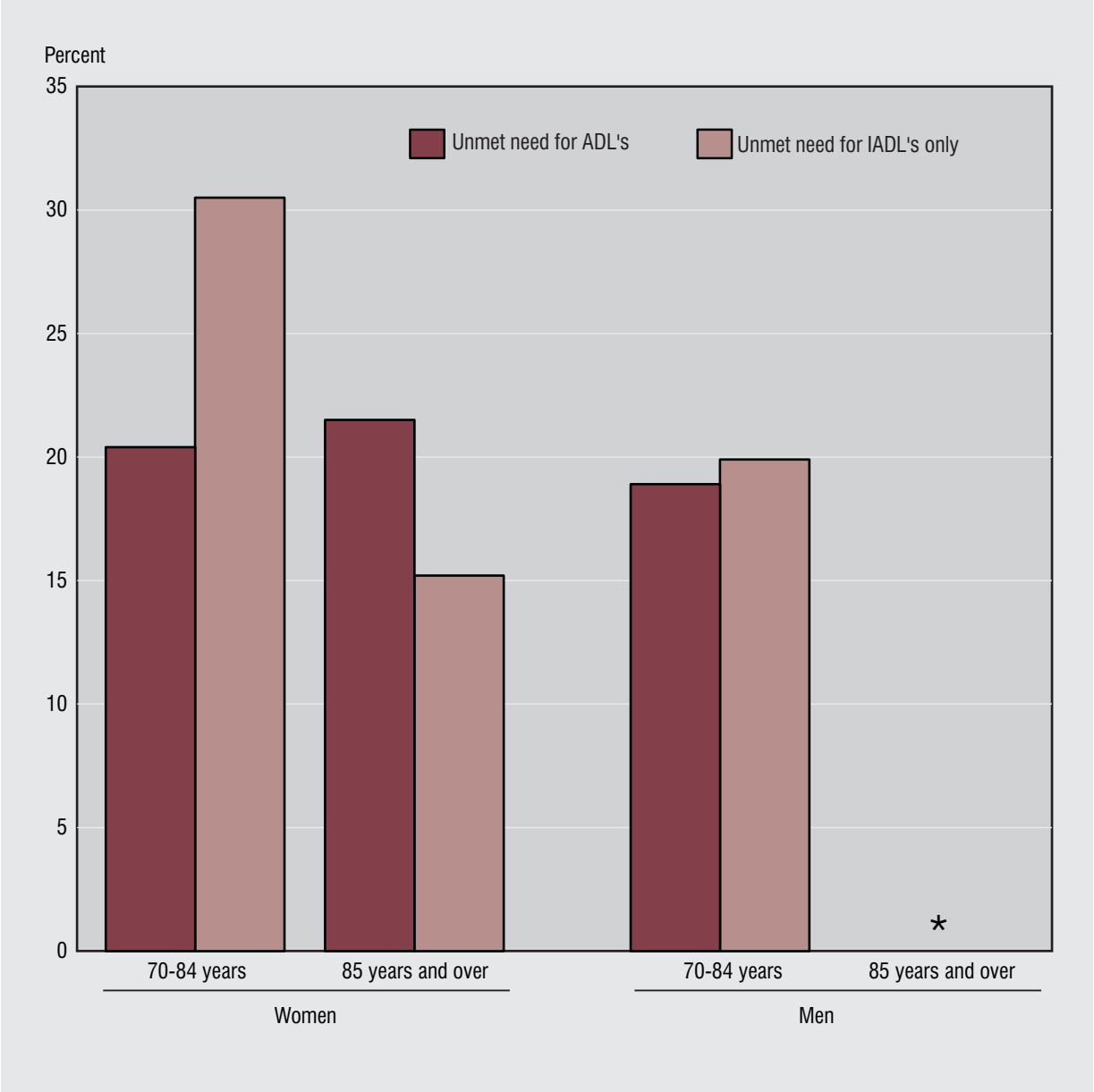
**Figure 24. Percent with unmet needs among persons 70 years of age and over who need help with 1 or more activities of daily living or instrumental activities of daily living by age and sex: United States, 1995**




* The number of men 85 years of age and over with unmet needs was too small to calculate reliable rates.

NOTES: Based on interviews conducted between October 1994 and March 1996 with noninstitutionalized persons. See Technical Notes for definitions of activities of daily living (ADL) and instrumental activities of daily living (IADL). Persons with unmet ADL needs may also have unmet IADL needs.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, 1994 National Health Interview Survey, Second Supplement on Aging.

## Assistive Devices

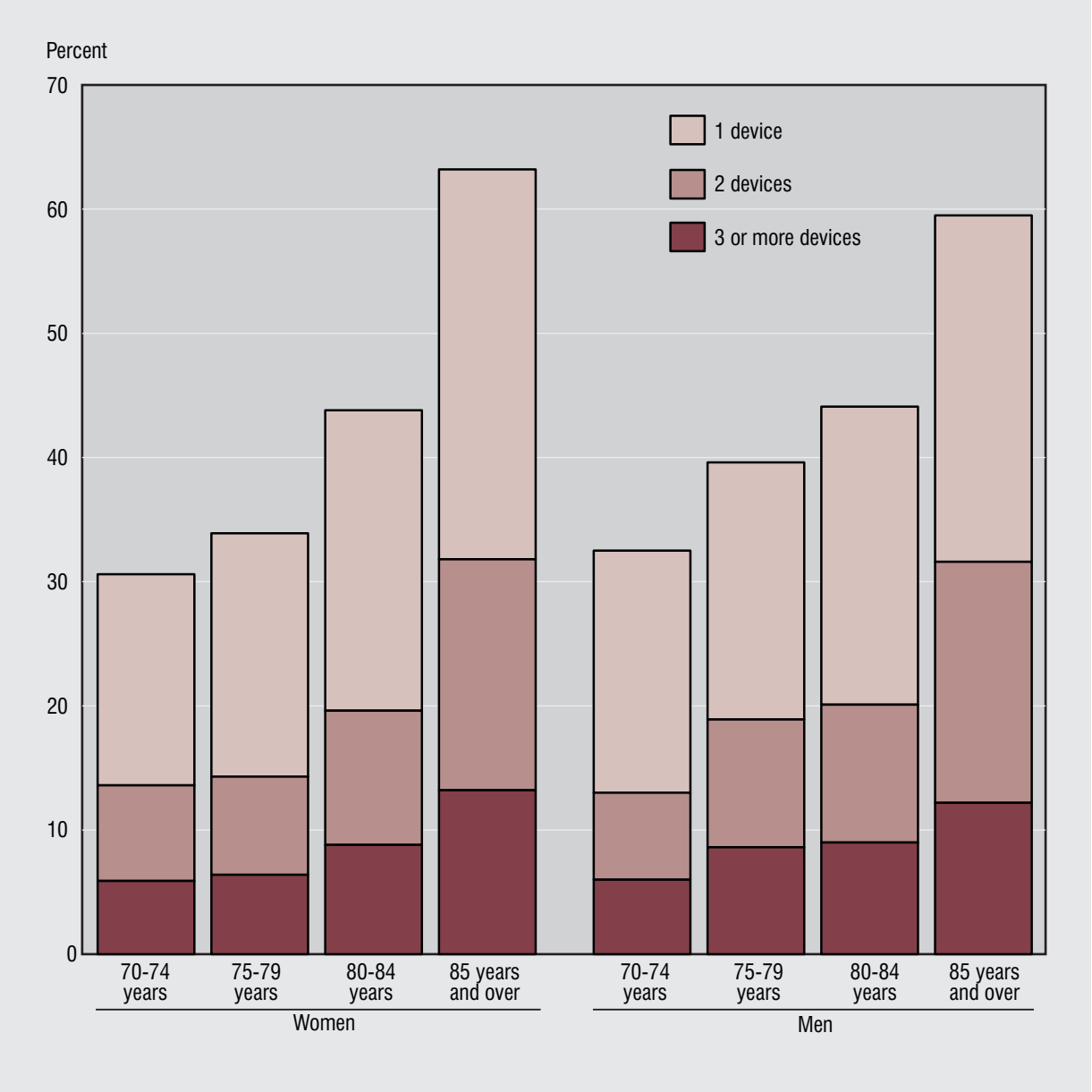
■ Assistive devices are important tools in managing health and prolonging independent living. Devices such as hearing aids, diabetic and respiratory equipment, and mobility aids such as canes and walkers can help older persons to remain in the community and to prevent further progression of a chronic disease or condition.

■ Among noninstitutionalized persons 70 years of age and over in 1995, 39 percent used an assistive device during the previous 12 months. The proportion of older persons using devices increased with age. Persons 85 years of age and over were twice as likely to rely on assistive devices as persons 70–74 years of age. In addition, the number of devices increased with age. Persons 85 years of age and over were twice as likely to use three or more devices as persons 70–74 years of age. The age pattern was similar for women and men.

■ Mobility aids were the most common type of assistive device. Seventeen percent of persons 70 years of age and over used a cane, and 10 percent used a walker. Other common devices include hearing aids (11 percent), respiratory equipment (8 percent), and diabetic equipment (7 percent). The prevalence of mobility aids and hearing aids increased sharply with age. Persons 85 years of age and over were five times as likely to use a walker and over three times as likely to use hearing aids as persons 70–74 years of age.

■ Disability increases reliance on assistive devices. Older persons who were limited in their activities of daily living (ADL) were 2.8 times as likely to use assistive devices as persons without limitations. In 1995 nearly three-fourths of noninstitutionalized persons 70 years of age and over who had difficulty with these activities used at least one assistive device in the previous 12 months. Four out of ten persons with at least one ADL limitation reported using a cane and three out of ten used a walker.

**Figure 25. Assistive devices used among persons 70 years of age and over by age and sex: United States, 1995**




NOTES: Based on interviews conducted between October 1994 and March 1996 with noninstitutionalized persons. See Technical Notes for definitions of assistive devices.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, 1994 National Health Interview Survey, Second Supplement on Aging.

## Physician Contacts

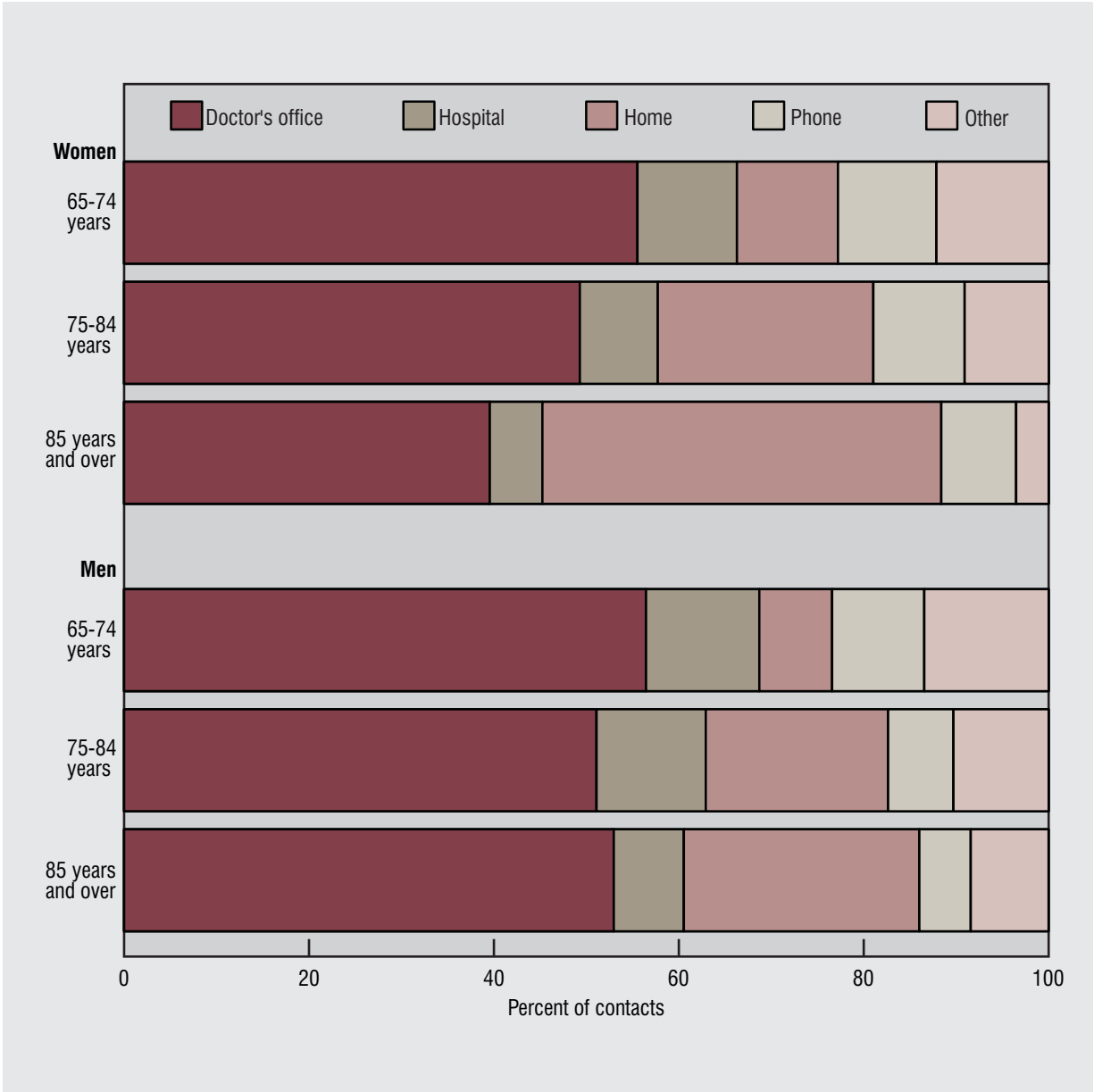
■ Older persons have more contacts with medical providers on average than do younger adults. In 1994–96 persons 65 years of age and over had an average of 11.4 contacts per year with a physician or other personnel working under a physician's supervision for examination, diagnosis, treatment, or advice. Adults 45–64 years of age averaged 7.2 contacts per year. These contacts were by phone or at doctors' offices, hospital outpatient clinics and emergency rooms, clinics, home, or other places.

■ The number of contacts rose with age, from a mean of 10 contacts per year among persons 65–74 years of age to nearly 15 contacts per year among persons 85 years of age and over. Women on average had more contacts than men. Since 1990 the mean number of physician contacts per year among older persons has increased by approximately two visits.

■ Older persons in fair or poor health had more than twice the number of physician contacts per year as persons in good to excellent health. Among persons 85 years of age and over who reported their health as fair or poor, women had nearly 27 contacts with physicians per year compared with 20 contacts among men.

■ One-half of physician contacts among persons 65 years of age and over occurred in doctors' offices; however, this percent declined with age. The proportion of outpatient medical contacts among older persons that occurred in the home increased sharply with age from 10 percent among persons 65–74 years of age to 38 percent among persons 85 years of age and over. The percent of contacts occurring in the home was higher among women than men. From 1990 to 1996 the proportion of contacts in the home increased by 63 percent among persons 65 years of age and over. This trend probably reflects the increased use of home health care services among the elderly.

**Figure 26. Place of ambulatory physician contacts among persons 65 years of age and over by age and sex: United States, 1994–96**




NOTES: Figures are based on the noninstitutionalized population. Physician contacts include contact with other medical personnel working under a physician's supervision and do not include contacts during overnight hospital stays. Persons with unknown place of contact are excluded from calculations. See Appendix II for definitions.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1999*, tables 75–77.

## Inpatient Health Care

- Persons 65 years of age and over are major consumers of inpatient care. Although they represented only 13 percent of the total population in 1996, they accounted for 38 percent of the roughly 31 million patient discharges from non-Federal short-stay hospitals. Moreover, the average length of stay for older persons exceeds that for younger adults.

- Hospitalizations increased with age. Compared with those 65–74 years of age, persons 85 years of age and over had more than twice the rate of hospital discharge. The overall discharge rate for all diagnoses combined was higher for men than for women within each of the three age groups.

- Heart disease was the most common cause for hospitalization as determined by the first-listed discharge diagnosis. The rate of hospitalization for heart disease increased substantially with age, and within each age group men had a higher rate than women. Patient discharges from stroke, the other major circulatory disease, also increased with age. Except at the oldest ages where the rate was nearly the same for men and women, discharges from stroke were higher for men than women. Combined heart disease and stroke accounted for more than one-fourth of all hospital discharges among elderly men and women 85 years of age and over.

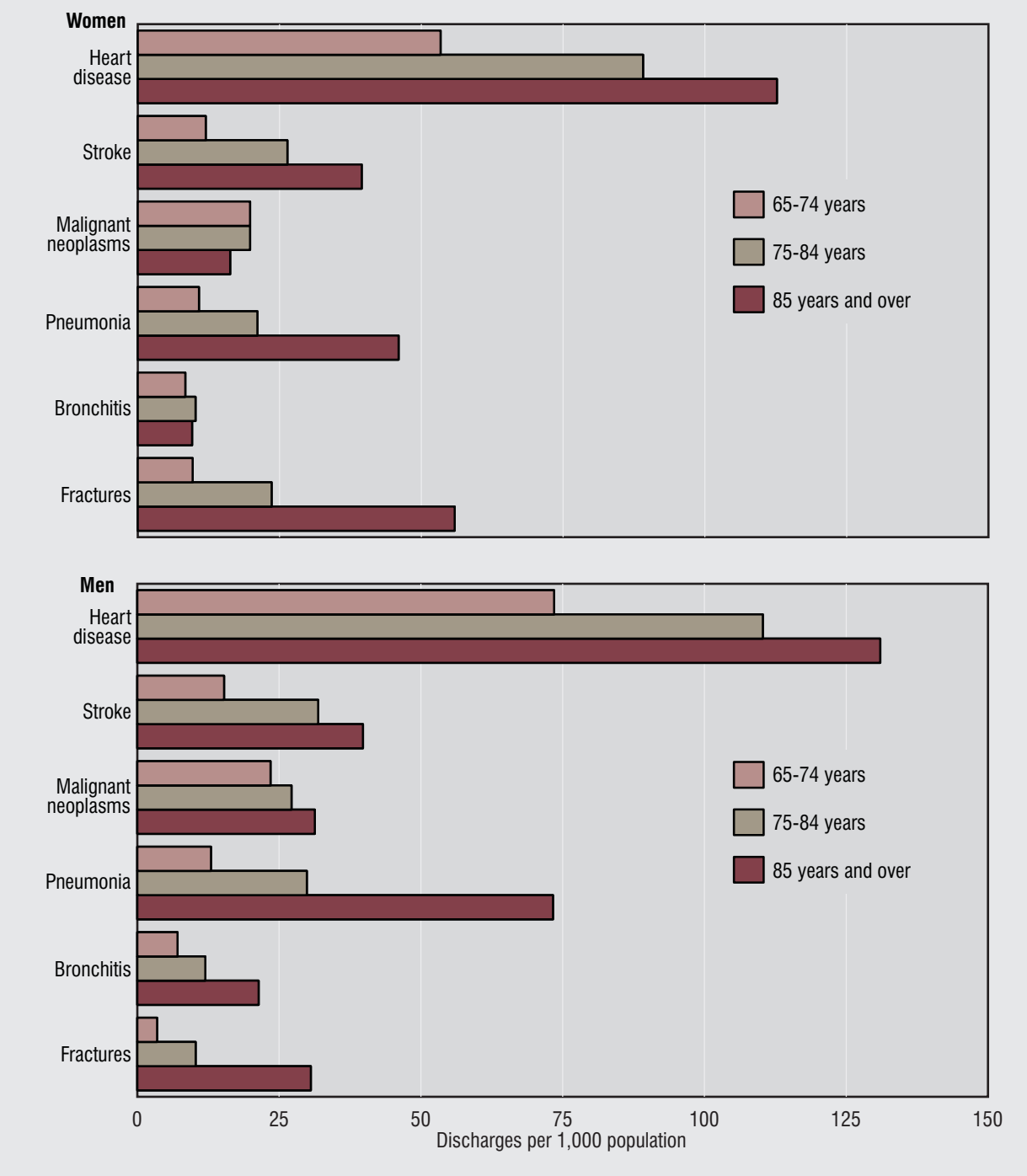
- Malignant neoplasms accounted for approximately 6 percent of all hospital discharges among persons 65 years of age and over, and the rate remained relatively stable across the age groups.

- Pneumonia and bronchitis combined were responsible for slightly less than 10 percent of all hospitalizations for elderly men and women. These rates increased rapidly with age, and the combined rate for these two diseases was about twice as high for men as women among persons 85 years of age and over.

- Hospitalizations for fractures of all types were more common among women than men within all age groups. At the oldest ages, fractures accounted for nearly 10 percent of all discharges among women, the second most important cause of hospitalization among the listed diagnoses.

- Hospital stays for persons 65 years of age and over were shorter in 1996 than a decade earlier. The average length of stay of 6.5 days was 2 days less than in 1986. Similar trends were evident for younger (65–74 years of age) and older (75 years of age and over) persons.

**Figure 27. Hospital discharge rates in non-Federal short-stay hospitals for selected first-listed diagnoses among persons 65 years of age and over by age and sex: United States, 1996**




NOTES: For a description of the *International Classification of Diseases* code numbers for diagnoses, see Appendix II. Rates are based on the civilian population as of July 1, 1996.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey. See related *Health, United States, 1999*, tables 90–93.

## Influenza and Pneumococcal Vaccinations

■ An annual influenza vaccination is recommended for all persons 65 years of age and over; it offers substantial protection against complications from the influenza virus. During 1993–95 an average of 55 percent of noninstitutionalized persons 65 years of age and over reported receiving a flu shot within the previous 12 months. Older women and men had similar levels of vaccination. Persons 75–84 years of age had a slightly higher level of coverage than persons 65–74 years of age.

■ Vaccination coverage varies by race and ethnicity. Approximately 57 percent of non-Hispanic white persons 65 years of age and over received an annual vaccination for influenza. This was significantly higher than the level of coverage for non-Hispanic black (36 percent) or Hispanic (44 percent) older persons.

■ Vaccine coverage has increased in the past decade. Between 1989 and 1995 influenza coverage for persons 65 years of age and over nearly doubled. However, to meet national immunization targets of 60 percent established in *Healthy People 2000*, coverage needs to expand particularly among older black and Hispanic persons (1).

■ A single-dose pneumococcal vaccine is recommended for all adults 65 years of age and over. Overall, in 1993–95 about 29 percent of the older noninstitutionalized population reported ever having received a pneumonia vaccination. Although vaccine coverage was approximately the same for older men and women, coverage was highest among persons 75–84 years of age. Roughly 30 percent of older non-Hispanic white persons were vaccinated for pneumonia, but only an estimated 16 percent of older non-Hispanic black and Hispanic persons were vaccinated.

■ Pneumococcal vaccination coverage more than doubled between 1989 and 1995. However, coverage among older persons, who are at greatest risk for adverse effects, needs to be greatly increased to meet the *Healthy People 2000* target of 60 percent (1).

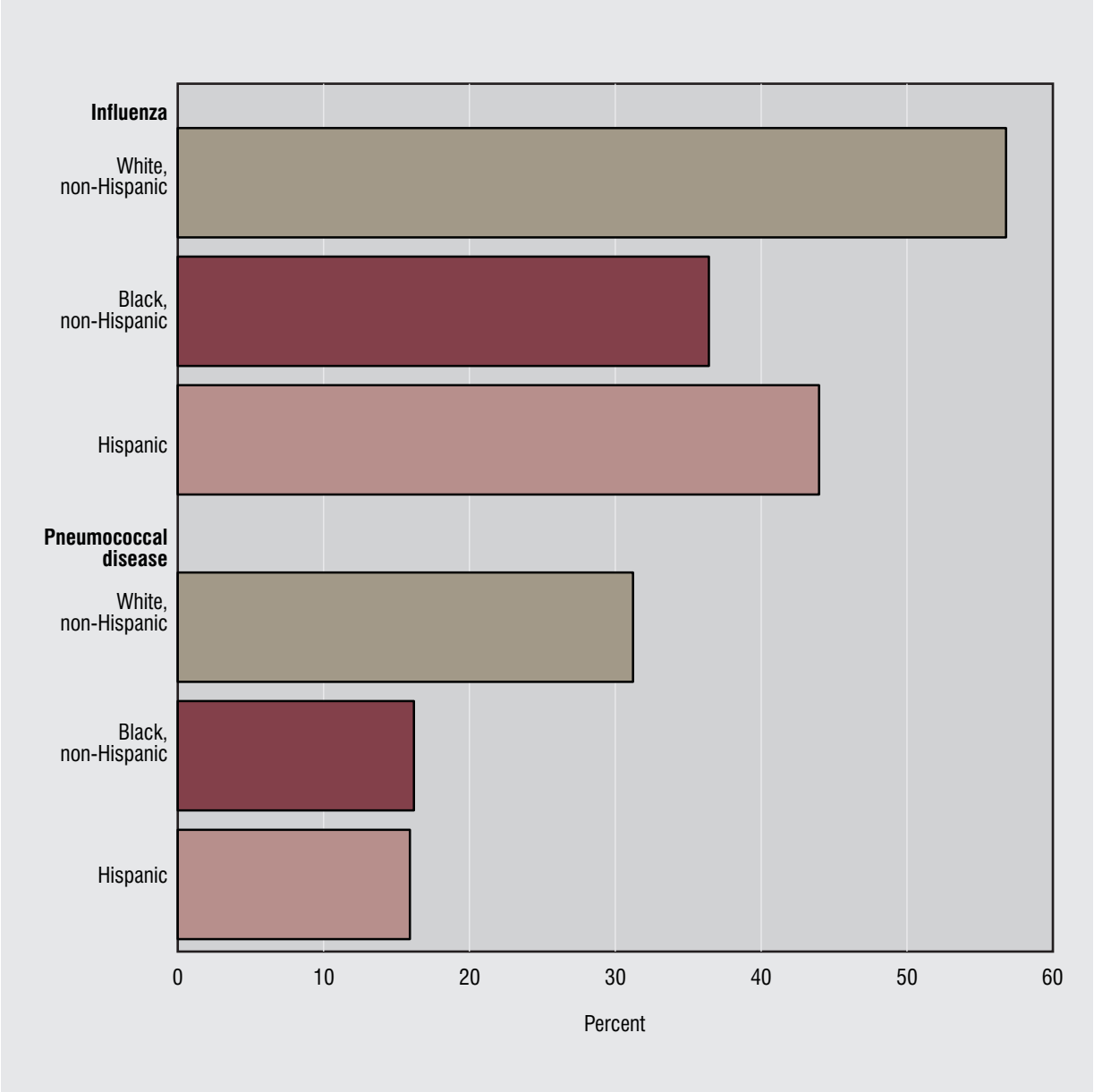
■ Older institutionalized persons are at especially high risk of contracting and suffering adverse consequences of influenza or pneumonia. Results from the 1995 National Nursing Home Survey indicated that among residents with known influenza vaccination status (79 percent), 79 percent received an influenza vaccination in the past 12 months, and 42 percent (among the 57 percent with known vaccination status) received a pneumococcal vaccination (2).

### References

1. National Center for Health Statistics. Healthy People 2000 Review, 1997. Hyattsville, Maryland: Public Health Service. 1997.

2. Greby SM, Singleton JA, Sneller VP, et al. Influenza and pneumococcal vaccination coverage in nursing homes, United States, 1995. Atlanta, Georgia: National Immunization Program, Centers for Disease Control and Prevention. 1998.

**Figure 28. Percent vaccinated against influenza and pneumococcal disease among persons 65 years of age and over by race and Hispanic origin: United States, 1993–95**




NOTES: Figures are based on the noninstitutionalized population. For influenza, the percent vaccinated consists of persons who reported having a flu shot during the past 12 months. For pneumococcal disease, the percent is persons who reported ever having a pneumonia vaccination.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey.

## Home Health Care

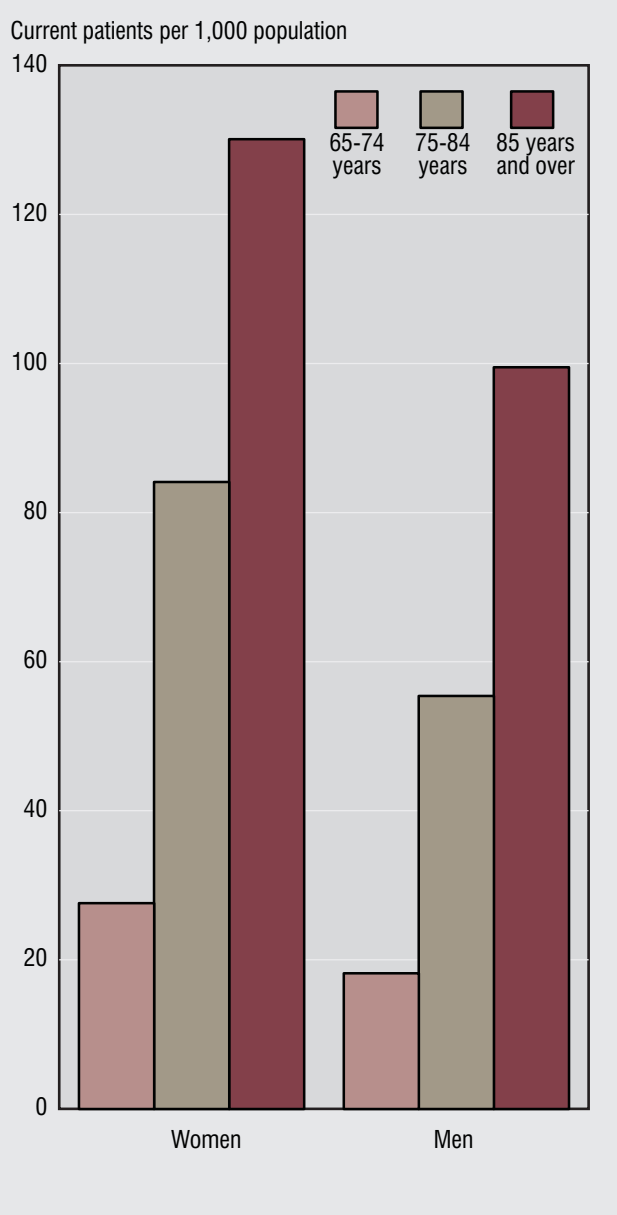
■ Home health care is an important alternative to traditional institutional care. Services such as medical treatment, physical therapy, and homemaker services often allow patients to be cared for at lower cost than a nursing home or hospital and in the familiar surroundings of their home. In 1996 nearly one-half of all home health care expenditures in the United States were paid by Medicare, the Federal health insurance program for the elderly and disabled (1).

■ On an average day in 1996, approximately 1.7 million persons 65 years of age and over, roughly 51 per 1,000 population, were home health care patients. Usage was higher for older women than for men, and the rate increased with age. Women 85 years of age and over had the highest level of current utilization, (130 current patients per 1,000) followed by men in this same age group.

■ Home health care providers offered a variety of services. Nursing care was the most widely used service among older home health care patients; 85 percent were receiving this service in 1996. Twenty-nine percent of the current home health care patients used homemaker services. Older women were slightly more likely than men to use these services, but the level of use was relatively constant across the three age groups. Other services frequently used included physical therapy, social services, and help with medications.

■ Diseases of the circulatory system were the most common conditions leading to the use of home health care services among older persons. Fourteen percent of current home health care patients 65 years of age and over had a primary admission diagnosis of heart disease, and another 9 percent listed cerebrovascular diseases. Respiratory diseases and diabetes, accounting for about 9 percent each, were also common conditions. Fractures were the primary admission diagnosis for approximately 4 percent of elderly home health care patients, with women patients having twice the rate of fractures as men.

**Figure 29. Home health care patients among persons 65 years of age and over by age and sex: United States, 1996**



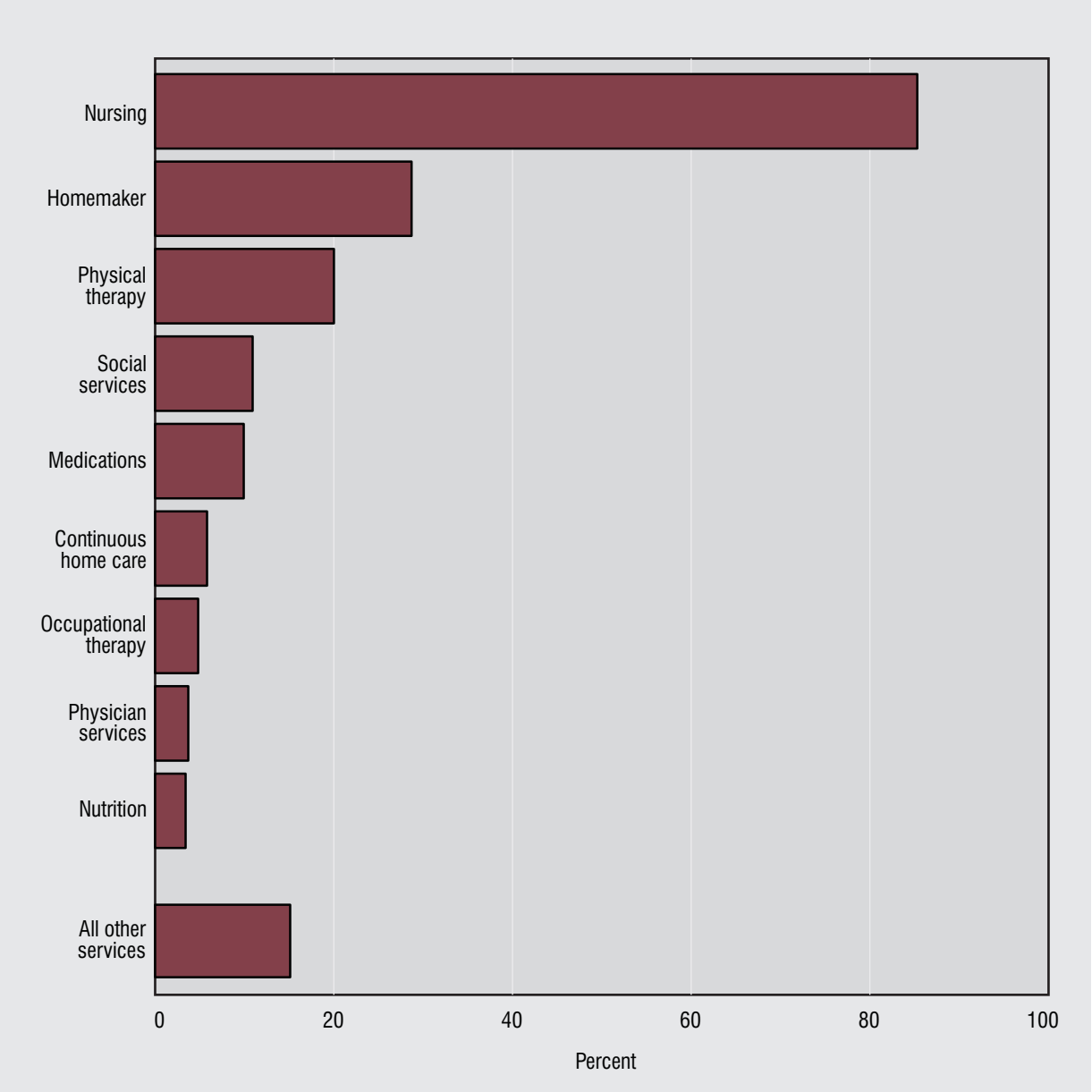

NOTES: Age is defined as age at interview. See Technical Notes for details on calculations. Rates are based on the civilian population as of July 1, 1996. See Appendix II for definition of home health care.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Home and Hospice Care Survey.

### Reference

1. Levit KR, Lazenby HC, Braden BR, et al. National Health Expenditures, 1996. Health Care Financing Rev 19(1):161–200. 1997.

**Figure 30. Home health care services received by current patients 65 years of age and over: United States, 1996**




NOTE: Home health care patients may receive one or more services per visit.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Home and Hospice Care Survey.

## Health Insurance

■ Medicare, the Federal health insurance program for the elderly and disabled, provides health care coverage for over 96 percent of the elderly population. In 1996 more than 33 million older persons in the United States were covered by Medicare.

■ In 1994–96, 16 percent of noninstitutionalized persons 65 years of age and over relied solely on Medicare to cover inpatient care in hospitals and to help pay the cost of doctors' visits and other health care. Most elderly persons supplement Medicare coverage with private or other publicly funded health insurance to pay a portion of the costs not covered by Medicare. A small proportion of persons 65 years of age and over reported that they had only private insurance (3 percent) or no health care coverage at all (less than 1 percent).

■ The distribution of types of health insurance coverage was similar among women and men but varied greatly by age, race, and ethnicity. The proportion of older persons relying solely on Medicare or on Medicare combined with Medicaid (the State and Federal programs that pay for health care for persons in need) increased with age, while the proportion of persons who have private insurance along with their Medicare coverage declined with age.

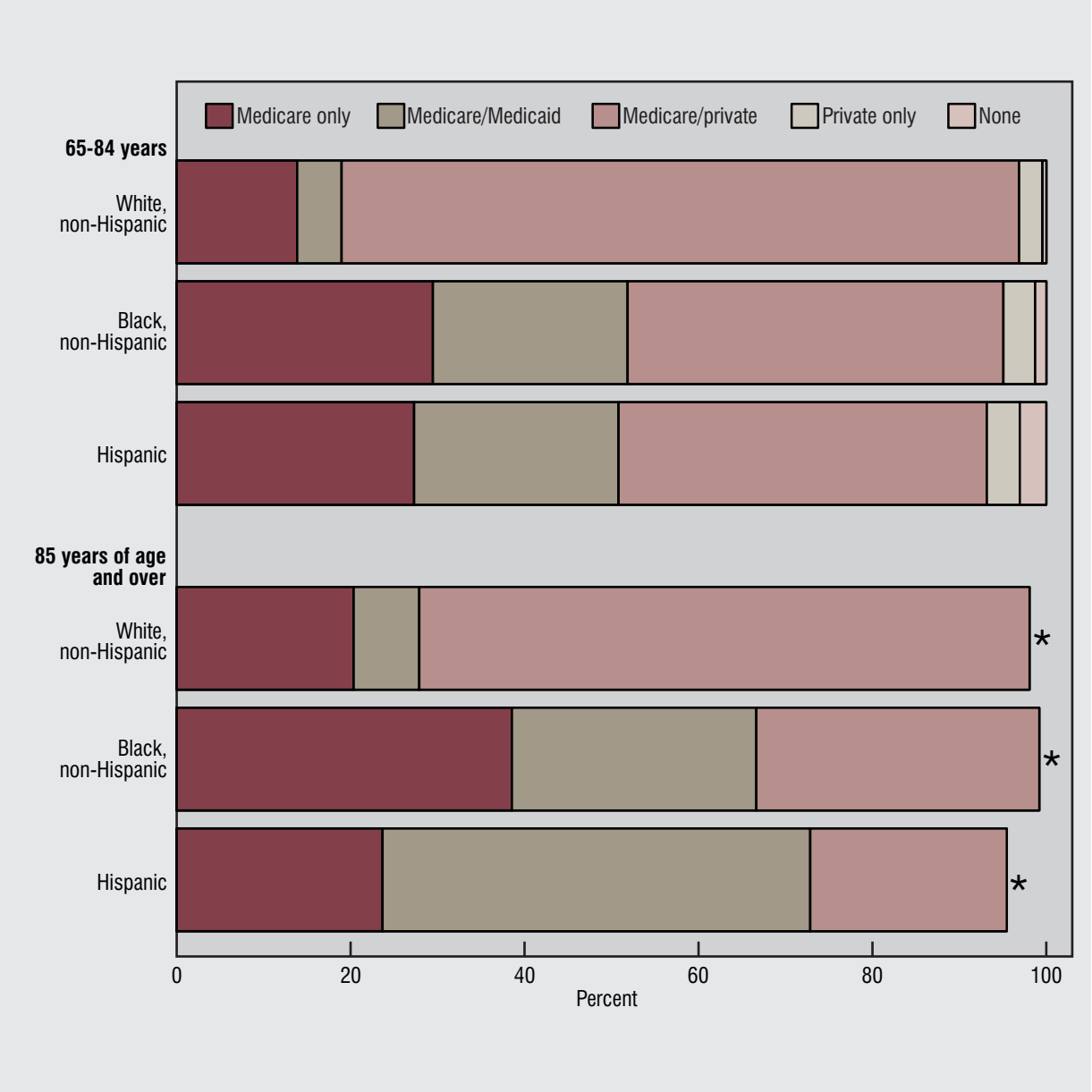
■ Compared with non-Hispanic white persons, non-Hispanic black persons and Hispanics were more likely to have Medicare only or Medicare and Medicaid as their health care coverage. Less than one-half of non-Hispanic black persons and Hispanic persons 65 years of age and over reported that they had private insurance to supplement their Medicare coverage. Nearly one-half of noninstitutionalized Hispanic persons 85 years of age and over had Medicare combined with Medicaid as their health care coverage.

■ The type of insurance affects access to health care. Older persons who had Medicare coverage only or who had no health care coverage were less likely to have a regular source of medical care than persons with Medicare supplemented by private or public insurance. In addition, elderly persons with Medicare only were more likely to delay care or to go without medical care than persons who had Medicare and private insurance (1).

### Reference

1. Cohen RA, Bloom B, Simpson G, Parsons PE. Access to health care part 3: Older adults. National Center for Health Statistics. Vital Health Stat 10(198). 1997.

**Figure 31. Health insurance coverage among persons 65 years of age and over by age, race, Hispanic origin, and type of insurance: United States, 1994–96**




* The number of persons 85 years of age and over with private health insurance only or with no health insurance was too small to calculate reliable rates.

NOTES: Figures are based on the noninstitutionalized population. Figures exclude persons with unknown health insurance coverage. The category Medicare/Medicaid can include other public health insurance programs. The category Medicare/private includes a small number of persons who reported that they had Medicaid in addition to Medicare and private health insurance.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1999*, table 130.

## Medicare Health Maintenance Organization Enrollment

■ A growing number of Medicare beneficiaries receive their health care through health maintenance organizations (HMO's). In 1997 over 4 million persons 65 years of age and over who received Medicare were enrolled in a managed care plan compared with approximately one million in 1985. In 1997 the overall rate of enrollment in Medicare managed care plans was 12 percent among persons 65 years of age and over. Levels of enrollment in managed care plans are lower among Medicare beneficiaries compared with the overall population, but the rate of growth has been faster in the 1990's.

■ Participants in Medicare HMO's usually have lower out-of-pocket costs for services covered by Medicare and often receive additional benefits not covered by traditional fee-for-service Medicare, such as prescription drugs. In turn, Medicare HMO participants are subject to many of the same restrictions of other managed care plans and usually receive their health care through a specific clinic or network of providers. Research has shown that Medicare HMO enrollees are generally healthier, younger, and less likely to be institutionalized or to receive Medicaid than Medicare beneficiaries who are not enrolled in managed care plans (1).

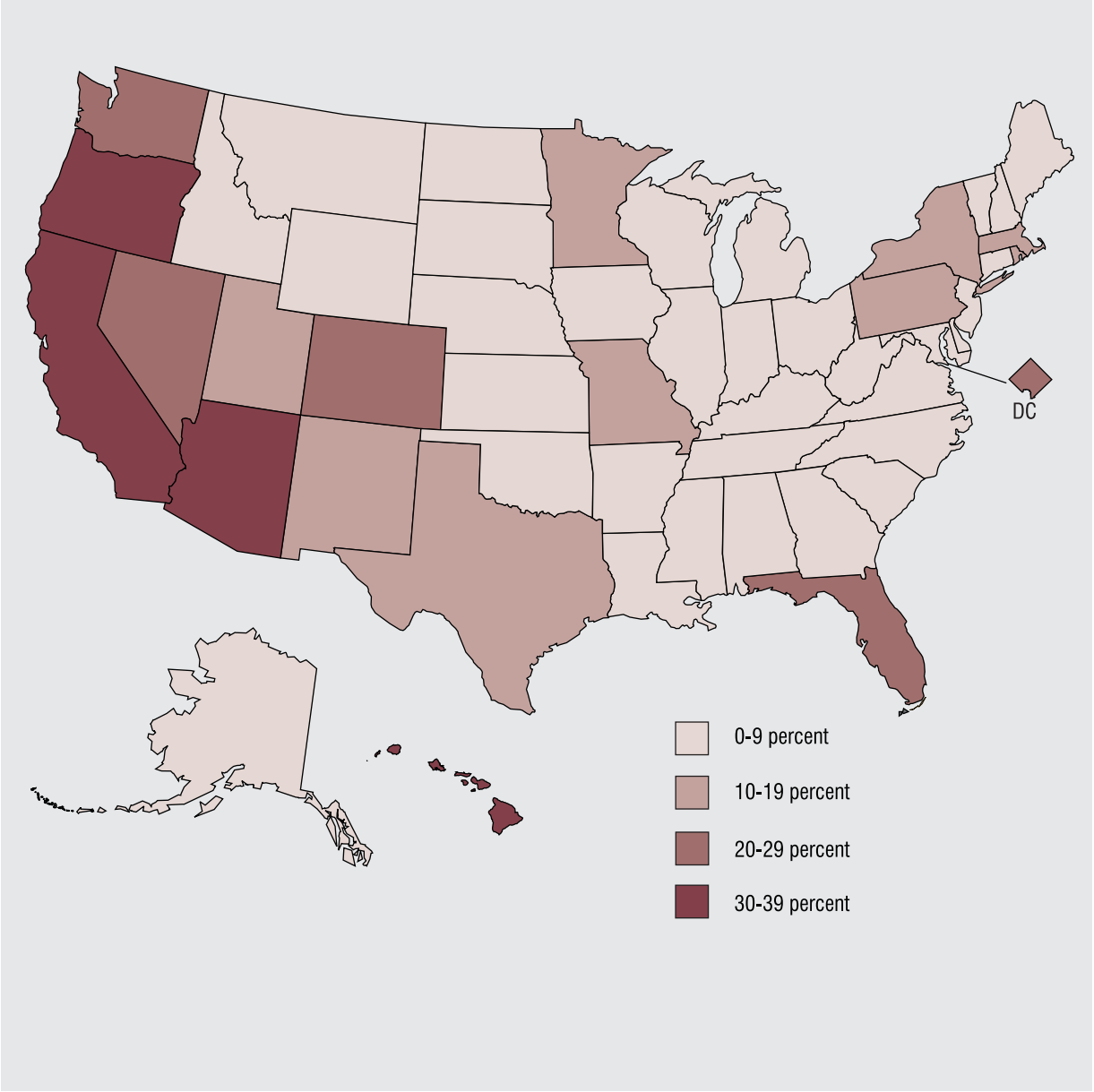
■ Enrollment in Medicare HMO's decreased with age from 13 percent among persons 65–74 years of age to 9 percent among persons 85 years of age and over. Overall levels of enrollment among persons 65 years of age and over were similar among women and men; however, at the oldest ages, women were slightly less likely than men to be enrolled in HMO's. In addition, levels of enrollment were similar among white and black persons, with black persons having slightly lower rates of participation in Medicare HMO's at the oldest ages.

■ Participation in Medicare HMO's is unevenly distributed throughout the country. The highest levels of participation are in the West. In 1997, 38 percent of Medicare beneficiaries in California were enrolled in HMO's compared with 34 percent in Arizona, 22 percent in Florida, 13 percent in New York, and 2 percent in Indiana. The following 10 States had no Medicare managed care plans in 1997: Alaska, Delaware, Idaho, Maine, Mississippi, Montana, New Hampshire, South Dakota, Tennessee, and Wyoming.

### Reference

1. Zarabozo C, Taylor C, Hicks J. Medicare managed care: Numbers and trends. Health Care Financing Rev 17(3):243–61. 1996.

**Figure 32. Percent of Medicare enrollees in health maintenance organizations by State: United States, 1997**




NOTES: Data as of January 1997. Figure includes Medicare beneficiaries less than 65 years of age. Persons 65 years of age and over are 87 percent of all Medicare enrollees and 95 percent of Medicare HMO enrollees.

SOURCE: Health Care Financing Administration/OMC/BDMS. See related *Health, United States, 1999*, table 143.

## Cost of Heart Disease

■ Expenditures on personal health care include the goods and services used to treat disease, such as hospital care, physician's services, prescription drugs, home health care, and nursing home care. In 1995 personal health care expenditures for heart disease among persons 65 years of age and over were estimated to be more than 58 billion dollars. Hospital care and nursing home care accounted for over three-fourths of the total expenditures for heart disease among older persons.

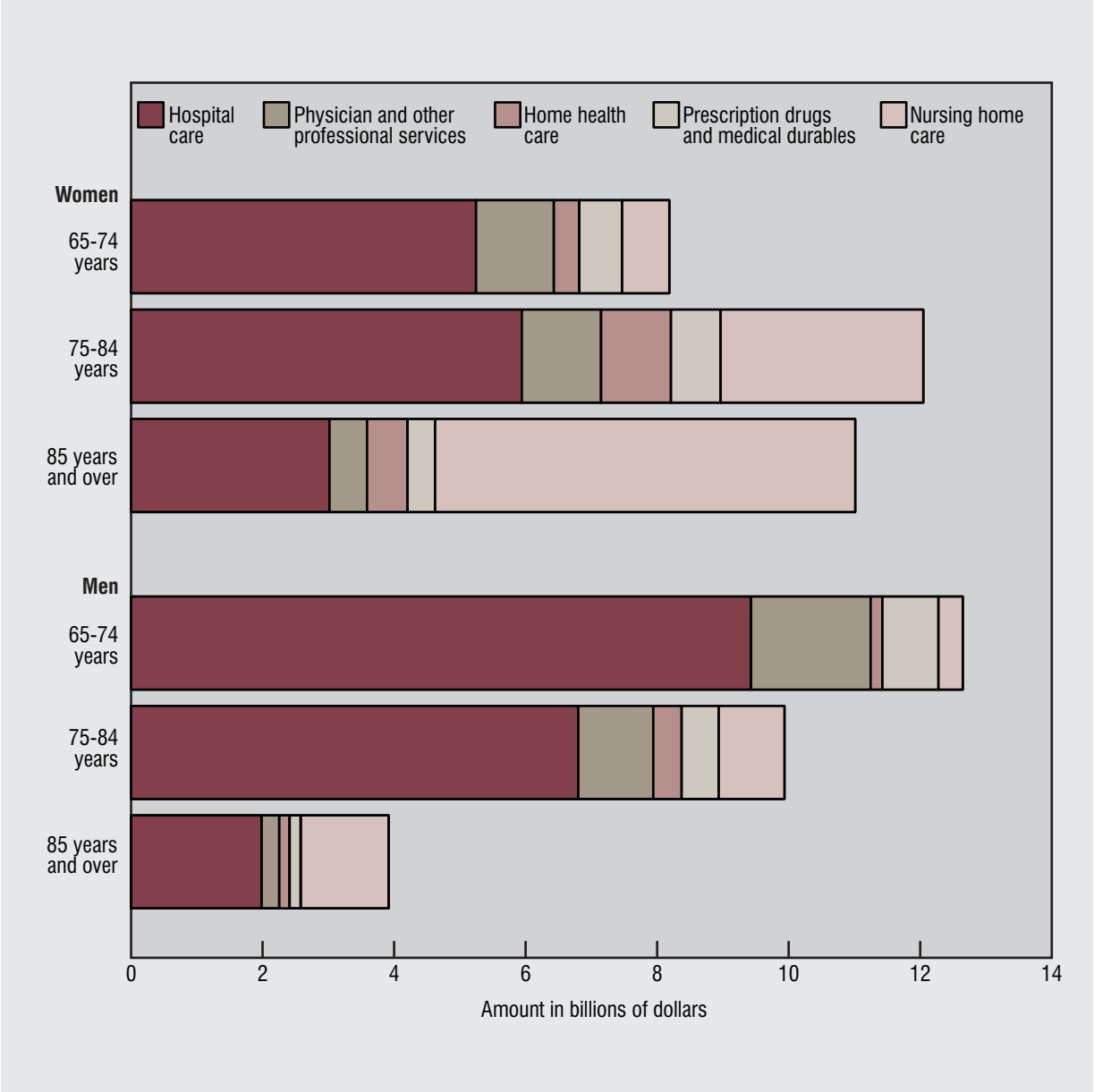
■ Total expenditures for heart disease-related health care decreased with age among men. Expenditures for men 65–74 years of age were 1.3 times as large as expenditures for men 75–84 years of age and 3.2 times as large as expenditures among men 85 years of age and over. However, total expenditures among women were higher among the older ages compared with expenditures for persons 65–74 years of age, even though there were fewer women at older ages. The largest expenditures on personal health care attributed to heart disease for women were among persons 75–84 years of age.

■ For men, 69 percent of all personal health expenditures for heart disease were for hospital care, but the proportion decreased with age, from 75 percent at 65–74 years of age to 51 percent at 85 years of age and over. In contrast to other health services, spending for nursing home care increased with age from 3 percent of total expenditures among men 65–74 years of age to 34 percent of health care for heart disease among men 85 years of age and over.

■ Age-related patterns of spending were somewhat different for women than men. More was spent for hospital care than for any other service at ages less than 85 years, but the proportion of total spending for hospital care was less for women than men. Spending for nursing home care was much higher among women than men and accounted for 58 percent of total health care expenditures attributed to heart disease for women 85 years of age and over.

■ In contrast to total spending, per capita expenditures for heart disease in 1995 increased with age among both women and men and for every type of care. The amount spent per person was higher for men than women at younger ages, but women spent more at 85 years of age and over. Spending by men rose from $1,520 per person at 65–74 years of age to $2,290 at 75–84 years of age and $3,850 at 85 years of age and over. Per capita spending among women increased from $790 at the youngest ages to $1,770 at 75–84 years of age and $4,220 for persons 85 years of age and over.

**Figure 33. Estimated amount of personal health care expenditures attributed to heart disease among persons 65 years of age and over by age, sex, and type of health service: United States, 1995**




NOTE: Cost estimates are calculated from first-listed diagnoses of heart disease only.

SOURCE: Hodgson TA, Cohen AJ. Medical care expenditures for selected circulatory diseases: Opportunities for reducing national health expenditures. Med Care. Forthcoming.

## Cost of Diabetes

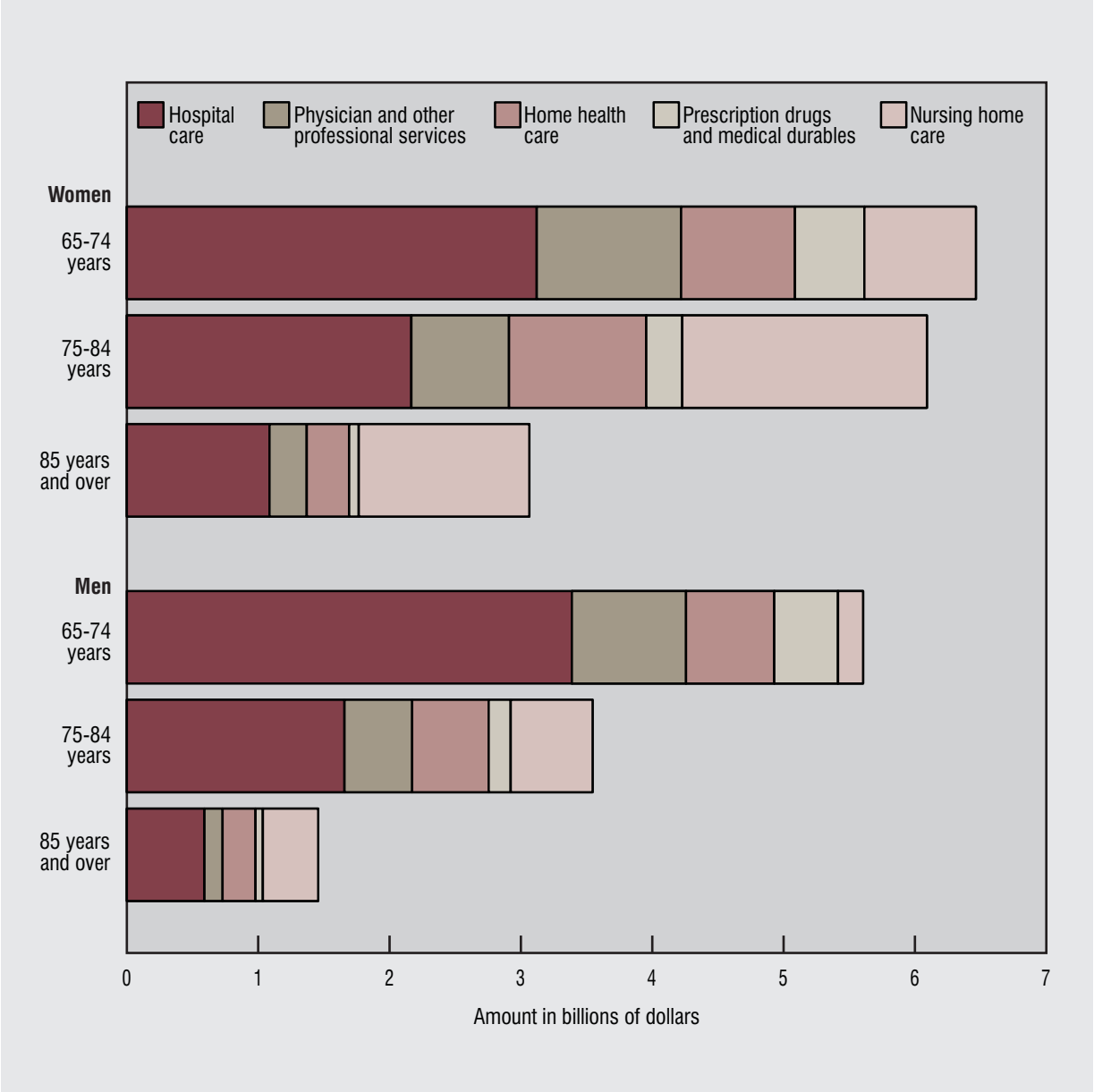
■ Diabetes is a common disease among the older population, affecting approximately 10 percent of persons 65 years of age and over; however, it is more prevalent among women and minority groups. Persons with diabetes are at higher risk for other chronic conditions such as heart disease, visual impairments, and kidney disease. In 1995 total personal health care expenditures for diabetes, including chronic complications and comorbidities associated with diabetes, among persons 65 years of age and over, were estimated to be 26 billion dollars. Nearly one-half of this amount was for hospital care, and one-fifth was for nursing home care.

■ Total spending on diabetes health care was higher for women than men. Spending decreased with age, although the declines were steeper among men than women. Among men, expenditures declined from 5.6 billion dollars among persons 65–74 years of age, to 3.5 billion dollars among those 75–84 years of age, to 1.5 billion dollars among those 85 years of age and over. Among women, total spending was only 6 percent lower among persons 75–84 years of age compared with persons 65–74 years of age (6.1 billion dollars compared with 6.5 billion dollars) even though the population was approximately 35 percent smaller.

■ Hospital care was the largest expenditure for personal health care attributed to diabetes among persons 65 years of age and over, but it was a larger proportion of expenditures for men (53 percent) than for women (41 percent). The proportion of expenditures on nursing home care was more than twice as high among women than men for all older persons; however, for persons 85 years of age and over the differences narrowed, and expenditures for women were 1.5 times as large as those for men. Prescription drugs and other medical durables were approximately 6 percent of total expenditures on diabetes health care among the older population.

■ In contrast to total spending, per capita expenditures for diabetes health care increased with age. The amount spent was similar among women and men 65–84 years of age. Among persons 85 years of age and over, per capita spending was higher for men ($1,430) than for women ($1,170).

**Figure 34. Estimated amount of personal health care expenditures attributed to diabetes among persons 65 years of age and over by age, sex, and type of health service: United States, 1995**




NOTE: Cost estimates are calculated from first-listed diagnoses of diabetes, chronic complications and other unrelated diagnoses attributed to diabetes, and certain comorbidities among persons with diabetes.

SOURCE: Hodgson TA, Cohen AJ. Medical care expenditures for diabetes, its chronic complications and comorbidities. Prev Med. Forthcoming.

# Technical Notes

## Data Sources

Appendix I describes the data sources used in the chartbook except for the Second Supplement on Aging described below.

### Second Supplement on Aging (figures 11–13, 15 and 16, 21, 23–25)

Nine of the figures in the chartbook are based on data from the Second Supplement on Aging to the 1994 National Health Interview Survey (SOA II). The SOA II, conducted by NCHS with the support of the National Institute on Aging, is a survey of 9,447 noninstitutionalized persons 70 years of age and over who were interviewed originally as part of the 1994 National Health Interview Survey (NHIS). The SOA II includes measures of health and functioning, chronic conditions, use of assistive devices, housing and long-term care, and social activities. The SOA II was designed to replicate the Supplement on Aging (SOA) to the 1984 NHIS to examine whether changes have occurred in the health and functioning of the older population between the mid-1980's and the mid-1990's. The SOA served as the baseline for the Longitudinal Study on Aging (LSOA), which followed the original 1984 cohort through subsequent interviews in 1986, 1988, and 1990 and is continuing with passive mortality followup. The SOA II serves as the baseline for the Second Longitudinal Study on Aging (LSOA II).

The SOA II was implemented as part of the National Health Interview Survey on Disability (NHIS-D), which was designed to help researchers understand disability, to estimate the prevalence of certain conditions, and to provide baseline statistics on the effects of disabilities. The NHIS-D was conducted in two phases. Phase 1 collected information from the household respondent at the time of the 1994 NHIS core interview and was used as a screening instrument for Phase 2. The screening criteria were broadly defined, and more than 50 percent of persons 70 years of age and over were included in the Phase 2 NHIS-D interviews. Persons 70 years of age and over who were not included in Phase 2 NHIS-D received the SOA II survey instrument, which was a subset of questions from the NHIS-D.

While the 1994 NHIS core and NHIS-D Phase 1 interviews took place in 1994, Phase 2 was conducted as a followup survey, 7–17 months after the core interviews. In the calculation of weights, therefore, the post-stratification adjustment was based on the population control counts from July 1, 1995, roughly the midpoint of the Phase 2 survey period. As a result, the SOA II sample, based on all 1994 NHIS core participants 70 years of age and over at the time of the Phase 2 NHIS-D interviews, is representative of the 1995 noninstitutionalized population 70 years of age and over. Refer to the documentation for the NHIS-D and the SOA II for more details on the implementation of the surveys (1,2).

## Institutionalized Population

The majority of figures in the chartbook are calculated from data that represent the noninstitutionalized older population in the United States.

However, figures on population (figure 1), nursing home residence (figure 3), life expectancy and mortality (figures 5–9), rates of hospital discharges (figure 27), Medicare HMO enrollment (figure 32), and cost of health care expenditures for heart disease and diabetes (figures 33 and 34) cover the total elderly population, including persons living in institutions. The estimates of home health care patients and services received by home health care patients (figures 29 and 30) are based on the total older population including the institutionalized population. These rates are calculated from the National Home and Hospice Care Survey, which is a sample survey of home health agencies and hospices. A small percent of patients are living in institutions when they receive services from home health care agencies such as physical or occupational therapy.

## Age Adjustment

The age distribution of older women and men is different: among persons 65 years of age and over, the average woman is older than the average man. Consequently, comparing rates for women and men among the total older population may confound

differences in rates with differences in age composition.

In general, the chartbook presents rates by sex and at least three age groups. When data are presented for the total older population (65 years of age and over or 70 years of age and over) and sex differences are highlighted, the rates are age adjusted. Appendix II describes the age adjustment procedures and the source of the standard population. The prevalence of chronic conditions (figure 11) is age adjusted using four age groups (70–74 years, 75–79 years, 80–84 years, and 85 years and over). Rates of exercise (figure 22) are age adjusted using three age groups (65–74 years, 75–84 years, and 85 years and over).

## Race and Ethnicity

The focus of the chartbook is age and sex differences in the health of the older population. Depending on the variable of interest, some data sources did not have sufficient numbers of observations to allow calculation of reliable estimates of the older population by race and ethnicity. When race and ethnicity differences are presented, data are shown for white and black persons or for non-Hispanic white, non-Hispanic black, and Hispanic persons, except for the figure on deaths from all causes (figure 8).

Death rates for all causes (figure 8) are presented for five groups: white persons, black persons, Hispanic persons, Asians or Pacific Islanders, and American Indians or Alaska Natives.

Among persons 65–74 and 75–84 years of age, the death rates for Hispanics, Asians or Pacific Islanders, and American Indians or Alaska Natives were lower than the death rates for white persons; in addition, the death rates for black persons were higher than the rates for white persons. Among persons 85 years of age and over, white persons had higher death rates than other groups.

There are various explanations for the race and ethnicity patterns of mortality among the older population. Inconsistency in the reporting of race and ethnicity in vital statistics (the source of numerators for death rates) and in census data (the source of denominators for death rates) is one explanation. Death rates will be underestimated if persons who are identified as Asian, American Indian, or Hispanic in data from the Census Bureau are reported as white or non-Hispanic on death certificates.

Among Hispanics and Asians or Pacific Islanders, many of whom are foreign born, the ''healthy migrant'' effect may be operating. Immigration is a selective process, and immigrants are usually healthier than people who do not migrate. In addition, if foreign-born persons return to their homeland to die, then death rates will be underestimated because their deaths will not be counted in U.S. vital statistics (3). These broad racial and ethnic categories include native-born persons and immigrants from many different countries and diverse backgrounds. The overall death rate may obscure differences in health and mortality between subgroups of these populations.

Death rates for American Indians and Alaska Natives are regarded as understated because population estimates between 1980 and 1990 increased by 45 percent, in part due to more people identifying themselves as American Indian and because there is evidence that American Indians are underreported on death certificates (4).

The racial ''crossover'' in mortality, with younger black persons having higher death rates than younger white persons, but older black persons having lower death rates, is a subject of debate. Some research shows that age misreporting may have artificially depressed death rates; however, other research has suggested that black persons who survive to the oldest ages may be healthier than white persons and have lower mortality rates (5,6).

## Other Measures and Methods

### Living Arrangements (figure 2)

The categories of living arrangements were computed from data on family status and marital status. Persons living ''with spouse'' may also be living with other relatives or nonrelatives. The category ''with other relatives'' does not include persons living with a spouse. Persons living ''with nonrelatives'' does not include persons living with spouses or other relatives.

Technical Notes

### Life Expectancy (figures 5 and 6)

In figure 5 the estimates of life expectancy at age 85 for the years 1950–90 are based on death rates calculated from 3 years of data. The denominator of the rate is the population from the decennial census (1950, 1960, 1970, 1980, and 1990). The numerator is the deaths occurring in the decennial census year and the 2 surrounding years (1949–51, 1959–61, 1969–71, 1979–81, and 1989–91).

Beginning in 1997 life table methodology was revised to construct complete life tables by single years of age that extend to age 100. Previously, abridged life tables were constructed for 5-year age groups ending with the age group 85 years and over. In the revised methodology, Medicare data are used to adjust estimates of life expectancy at ages 85–100. Some of the increase in life expectancy from 1996 to 1997 may be due to the change in methodology. The race differences in life expectancy at the oldest ages are also affected by this change. See the forthcoming Vital and Health Statistics report for further discussion (7).

### Chronic Conditions (figure 11)

Estimates of the prevalence of chronic conditions are based on self-reports in the Second Supplement on Aging. Respondents were asked whether they ''ever had'' various conditions common among older persons. For certain conditions, the respondents were asked a followup question about whether they ''still had'' the condition. The estimates of heart disease prevalence are based on persons who said they ever had heart disease, including coronary heart disease, angina, heart attack or myocardial infarction, or any other heart disease. The estimates of the prevalence of respiratory diseases are based on persons who said they ''still had'' chronic bronchitis, emphysema, or asthma. Estimates of cancer prevalence are calculated from persons who reported that they ''still had'' cancer of any kind. Arthritis prevalence was estimated from persons who reported they ''ever had'' arthritis. Estimates of hypertension and diabetes were based on persons who reported that they ''still had'' the condition. The prevalence of hypertension in figure 11, based on self-reports in the Second Supplement on Aging, differs from estimates based on NHANES III, which were measured in physical examinations. (See *Health, United States, 1999*, table 68.)

### Visual and Hearing Impairments (figures 12 and 13)

The prevalence of visual and hearing impairment is based on self-reports in the Second Supplement on Aging in response to several questions. Visual impairment is defined as blindness in one or both eyes or any other trouble seeing with one or both eyes even when wearing glasses. Hearing impairment is defined as deafness in one or both ears or any other trouble hearing with one or both ears.

### Osteoporosis (reduced hip bone density) (figure 14)

The definitions of osteoporosis and osteopenia are based on diagnostic criteria proposed by the World Health Organization (8,9). Estimates are based on the total femur region.

There is no consensus at this time concerning the definition of low bone density in men. The estimates of osteopenia and osteoporosis for men in figure 14 are made by comparing their levels of bone mineral density to the values for non-Hispanic white women 20–29 years of age as measured in NHANES III.

Using the bone mineral density values of young white women as the cutoff point for diagnosing osteoporosis in men gives a conservative estimate of the prevalence of this condition in men, since white women have the lowest values of bone mineral density (10).

### Physical Functioning and Disability (figure 15)

Limitation in physical activities, activities of daily living, and instrumental activities of daily living are based on self-reports in the Second Supplement on Aging.

Nine physical activities are measured in figure 15: walking for a quarter of a mile; walking up 10 steps without resting; standing or being on one's feet for about 2 hours; sitting for about 2 hours; stooping, crouching, or kneeling; reaching up over one's head; reaching out (as if to shake someone's hand); using

one's fingers to grasp or handle; and lifting or carrying something as heavy as 10 pounds.
To determine severity of limitations in physical activities, respondents in SOA II were asked a series of questions. The first question was ''By yourself and not using aids, do you have any difficulty (name of activity)?'' Persons who answered ''yes'' to this question were then asked, ''How much difficulty do you have (name of activity), some, a lot, or are you unable to do it?'' The category ''perform with difficulty'' in figure 15 consists of persons who reported that they had ''some'' or ''a lot'' of difficulty.

### ADL and IADL

Researchers group the important tasks of daily living into two categories frequently referred to in this chartbook:

- ADL - activities of daily living. ADL's include seven activities: bathing or showering; dressing; eating; getting in and out of bed or chairs; walking; getting outside; and using the toilet, including getting to the toilet.

- IADL - instrumental activities of daily living. IADL's include six activities: preparing one's own meals; shopping for groceries and personal items such as toilet items or medicines; managing one's money, such as keeping track of expenses or paying bills; using the telephone; doing heavy housework, like scrubbing floors or washing windows; and doing light housework, like doing dishes, straightening up, or light cleaning.

To determine severity of limitations in activities of daily living and instrumental activities of daily living, respondents in SOA II were asked a series of questions. The first question was: ''Because of a health or physical problem, do you have any difficulty (name of activity)? Persons who answered ''yes'' to this question were then asked, ''By yourself (and without using special equipment), how much difficulty do you have (name of activity), some, a lot, or are you unable to do it?'' The category ''perform with difficulty'' in figure 15 consists of persons who reported that they had ''some'' or ''a lot'' of difficulty.

### Conditions Associated with Disability (figure 16)

In SOA II, persons who had any difficulty with one or more activities of daily living were asked, ''What condition causes the trouble in (list of activities previously mentioned)?'' Respondents could name up to five conditions. In figure 16 the percent and rank-order of conditions are computed from all conditions mentioned.

The category of respiratory diseases includes asthma, bronchitis, emphysema, influenza, pneumonia, and other respiratory, lung, or breathing problems.

### Overweight (figures 17 and 18)

The categories of weight distribution reflect current Federal guidelines for overweight and obesity (11). The categories are based on body mass index (BMI), a measure of weight for height (kilograms per meter squared). Low weight is defined as a BMI less than 19. Healthy weight is a BMI of 19–24.99. Overweight is a BMI of 25–29.99. Moderately obese is a BMI of 30–34.99, and severely obese is a BMI greater than or equal to 35.

### Oral Health (figures 19 and 20)

In 1993 estimates of edentulism are based on data from the *1993 Healthy People 2000 Supplement* to the National Health Interview Survey. This supplement was administered to one adult sample person per family in the second half of the year. Respondents were asked two questions concerning loss of natural teeth: if they had lost all of their upper natural teeth and if they had lost all of their lower natural teeth.

Estimates of edentulism in 1983 are based on data from the 1983 NHIS core interview that obtained information on all household members. One question asked respondents if they had lost all of their natural teeth.

Technical Notes

### Social Activity (figure 21)

Social activity, estimated from the Second Supplement on Aging, is defined as doing at least one of the seven following activities at least once in a 2-week period: getting together with friends or neighbors; talking with friends or neighbors on the telephone; getting together with any relatives not including those living with the respondent; talking with any relatives on the telephone not including those living with the respondent; going to church, temple, or another place of worship for services or other activities; going to a show or movie, sports event, club meeting, class, or other group event; and going out to eat at a restaurant.

### Exercise (figure 22)

Estimates of exercise are based on data from the *1995 Healthy People 2000 Supplement* to the National Health Interview Survey. This supplement was administered to one adult sample person per family in one-half of the households in the 1995 NHIS core. Persons who were physically handicapped, as determined by the interviewer, were not asked questions regarding specific types of exercise and were excluded from the calculations.

Exercise is defined as doing at least 1 of the following 20 exercises, sports, or physically active hobbies at least once within a 2-week period: walking for exercise; gardening or yard work; stretching exercises; weightlifting or other exercises to increase muscle strength; jogging or running; aerobics or aerobic dancing; riding a bicycle or exercise bike; stair climbing for exercise; swimming for exercise; playing tennis; playing golf; bowling; playing baseball or softball; playing handball, racquetball, or squash; skiing; playing basketball; playing volleyball; playing soccer; playing football; or other exercises, sports, or physically active hobbies not mentioned above.

### Caregivers (figure 23)

In the Second Supplement on Aging, respondents could name a maximum of four persons who provided help with activities of daily living (ADL) or instrumental activities of daily living (IADL). See notes for figure 15 above for definitions of ADL and IADL.

### Assistive Devices (figure 25)

The use of assistive devices in the Second Supplement on Aging was defined as using any of the following medical devices or supplies in the 12 months before the interview: tracheotomy tube; respirator; ostomy bag; catheterization equipment; glucose monitor; diabetic equipment or supplies; inhaler; nebulizer; hearing aid; crutches; cane; walker; wheelchair; scooter; or feeding tube. Use of respiratory equipment was defined as using a respirator, inhaler, or nebulizer. Use of diabetic equipment was defined as using a glucose monitor or other diabetic equipment and supplies.

### Influenza and Pneumonia (figure 28)

Estimates of influenza and pneumonia vaccinations are based on data from the *Healthy People 2000 Supplement* to the 1993–95 National Health Interview Surveys (NHIS). In 1994–95, this supplement was administered to one adult sample person per family in one-half of the households in the NHIS core. In 1993 the supplement was administered to one adult sample person per family in the second half of the year.

### Home Health Care (figures 29 and 30)

Rates of home health care patients per 1,000 population are based on age at interview, calculated from date of birth and date of interview. Persons with missing date of birth information were excluded from calculations.

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# Data Tables for Figures 1–34

**Figure 1. Population 65 years of age and over**

| Year | 65 years and over | 85 years and over |
|---|---|---|
| | Number in millions | |
| 1950 | 12.2 | 0.6 |
| 1960 | 16.6 | 0.9 |
| 1970 | 20.1 | 1.5 |
| 1980 | 25.5 | 2.2 |
| 1990 | 31.1 | 3.0 |
| 2000 | 34.7 | 4.3 |
| 2010 | 39.4 | 5.7 |
| 2020 | 53.2 | 6.5 |
| 2030 | 69.4 | 8.5 |

**Figure 2. Living arrangements of persons 65 years of age and over**

| Age and type of arrangement | Women | Men |
|---|---|---|
| | Percent | |
| 65–74 years | | |
| Living alone | 32.1 | 14.6 |
| Living with spouse | 51.1 | 76.8 |
| Living with other relatives | 14.8 | 5.7 |
| Living with nonrelatives only | 2.0 | 2.9 |
| 75–84 years | | |
| Living alone | 50.0 | 19.6 |
| Living with spouse | 31.5 | 68.2 |
| Living with other relatives | 16.9 | 9.7 |
| Living with nonrelatives only | 1.7 | 2.5 |
| 85 years and over | | |
| Living alone | 58.6 | 29.2 |
| Living with spouse | 10.7 | 46.0 |
| Living with other relatives | 28.4 | 17.5 |
| Living with nonrelatives only | 2.3 | 7.3 |

**Figure 3. Nursing home residents among persons 65 years of age and over**

| | Residents per 1,000 population | | | |
|---|---|---|---|---|
| | White | | Black | |
| Sex and age | Rate | SE | Rate | SE |
| Women | | | | |
| 65 years and over | 55.5 | 0.7 | 54.7 | 3.3 |
| 65–74 years | 11.1 | 0.5 | 18.1 | 1.9 |
| 75–84 years | 51.9 | 1.3 | 62.6 | 5.8 |
| 85 years and over | 222.5 | 4.3 | 203.3 | 15.9 |
| Men | | | | |
| 65 years and over | 25.3 | 0.7 | 41.1 | 3.1 |
| 65–74 years | 8.6 | 0.5 | 20.7 | 2.4 |
| 75–84 years | 32.6 | 1.3 | 57.3 | 6.5 |
| 85 years and over | 117.3 | 5.1 | 144.3 | 18.4 |

**Figure 4. Percent in poverty among persons 65 years of age and over**

| *Race, Hispanic origin, and sex* | *Percent* |
|---|---|
| White: | |
| Women | 11.5 |
| Men | 5.6 |
| Black: | |
| Women | 28.8 |
| Men | 21.8 |
| Hispanic: | |
| Women | 26.3 |
| Men | 20.3 |

**Figure 5. Life expectancy at birth, age 65, and age 85**

| | *At birth* | | *At age 65* | | *At age 85* | |
|---|---|---|---|---|---|---|
| *Year* | *Women* | *Men* | *Women* | *Men* | *Women* | *Men* |
| 1950 | 71.1 | 65.6 | 15.0 | 12.8 | 4.9 | 4.4 |
| 1960 | 73.1 | 66.6 | 15.8 | 12.8 | 4.7 | 4.4 |
| 1970 | 74.7 | 67.1 | 17.0 | 13.1 | 5.6 | 4.7 |
| 1980 | 77.4 | 70.0 | 18.3 | 14.1 | 6.4 | 5.1 |
| 1990 | 78.8 | 71.8 | 18.9 | 15.1 | 6.7 | 5.3 |
| 1992 | 79.1 | 72.3 | 19.2 | 15.4 | 6.6 | 5.3 |
| 1993 | 78.8 | 72.2 | 18.9 | 15.3 | 6.4 | 5.2 |
| 1994 | 79.0 | 72.4 | 19.0 | 15.5 | 6.4 | 5.2 |
| 1995 | 78.9 | 72.5 | 18.9 | 15.6 | 6.3 | 5.2 |
| 1996 | 79.1 | 73.1 | 19.0 | 15.7 | 6.4 | 5.4 |
| 1997 | 79.4 | 73.6 | 19.2 | 15.9 | 6.6 | 5.5 |

**Figure 6. Life expectancy at birth, age 65, and age 85 by sex and race**

| *Sex and age* | *White* | *Black* |
|---|---|---|
| Women | | |
| At birth | 79.9 | 74.7 |
| At age 65 | 19.3 | 17.6 |
| At age 85 | 6.6 | 6.7 |
| Men | | |
| At birth | 74.3 | 67.2 |
| At age 65 | 16.0 | 14.2 |
| At age 85 | 5.4 | 5.7 |

# Data Tables for Figures 1–34

**Figure 7. Death rates for all causes among persons 65 years of age and over**

| *Age* | *Women* | *Men* |
|---|---|---|
| 65–69 years | 1,530.1 | 2,556.7 |
| 70–74 years | 2,425.5 | 3,948.9 |
| 75–79 years | 3,763.5 | 5,831.3 |
| 80–84 years | 6,325.2 | 9,320.0 |
| 85–89 years | 11,202.6 | 15,261.7 |
| 90–94 years | 17,572.2 | 21,365.9 |
| 95 years and over | 25,556.3 | 26,078.3 |

**Figure 8. Death rates for all causes among persons 65 years of age and over**

| *Sex and age* | *White* | *Black* | *Asian or Pacific Islander* | *American Indian or Alaska Native* | *Hispanic* |
|---|---|---|---|---|---|
| Women | | | | | |
| 65–74 years | 1,900.5 | 2,739.7 | 1,117.3 | 1,920.5 | 1,381.9 |
| 75–84 years | 4,786.3 | 5,669.3 | 3,052.1 | 3,531.6 | 3,220.5 |
| 85 years and over | 14,681.4 | 13,701.7 | 8,414.1 | 5,773.6 | 8,708.6 |
| Men | | | | | |
| 65–74 years | 3,122.7 | 4,298.3 | 1,892.6 | 2,847.2 | 2,251.7 |
| 75–84 years | 7,086.0 | 8,296.3 | 4,749.1 | 4,796.3 | 4,750.3 |
| 85 years and over | 17,767.1 | 16,083.5 | 11,796.3 | 7,888.1 | 10,487.1 |

**Figure 9. Death rates for selected leading causes among persons 65 years of age and over**

| *Age and sex* | *Heart disease* | *Cancer* | *Stroke* | *Chronic obstructive pulmonary disease* | *Pneumonia/ influenza* |
|---|---|---|---|---|---|
| 65–74 years | | | | | |
| Women | 529.4 | 676.8 | 120.1 | 136.1 | 42.9 |
| Men | 1,031.1 | 1,058.4 | 153.1 | 201.3 | 74.3 |
| 75–84 years | | | | | |
| Women | 1,616.6 | 1,050.6 | 444.4 | 287.6 | 189.3 |
| Men | 2,443.6 | 1,770.2 | 488.7 | 469.6 | 301.6 |
| 85 years and over | | | | | |
| Women | 6,013.7 | 1,439.2 | 1,618.4 | 424.5 | 933.7 |
| Men | 6,658.5 | 2,712.5 | 1,500.7 | 902.8 | 1,250.5 |

**Figure 10. Fair or poor health among persons 65 years of age and over**

| Sex, race, and Hispanic origin | 65 years and over | | 65–74 years | | 75–84 years | | 85 years and over | |
|---|---|---|---|---|---|---|---|---|
| | Percent | SE | Percent | SE | Percent | SE | Percent | SE |
| Women | | | | | | | | |
| Non-Hispanic white | 25.7 | 0.4 | 22.5 | 0.5 | 28.3 | 0.7 | 33.6 | 1.3 |
| Non-Hispanic black | 42.2 | 1.3 | 40.7 | 1.6 | 44.7 | 2.1 | 44.0 | 3.8 |
| Hispanic | 35.4 | 1.6 | 31.5 | 1.8 | 40.7 | 3.0 | 44.9 | 4.7 |
| All races | 27.6 | 0.4 | 24.8 | 0.5 | 30.2 | 0.6 | 34.9 | 1.2 |
| Men | | | | | | | | |
| Non-Hispanic white | 26.5 | 0.5 | 23.7 | 0.6 | 30.6 | 0.8 | 32.7 | 1.9 |
| Non-Hispanic black | 40.7 | 1.6 | 38.4 | 1.9 | 43.6 | 2.8 | 55.0 | 6.1 |
| Hispanic | 34.6 | 1.8 | 31.3 | 2.0 | 40.3 | 4.0 | 49.1 | 7.6 |
| All races | 28.0 | 0.4 | 25.4 | 0.5 | 31.7 | 0.8 | 35.0 | 1.8 |

SE Standard error.

**Figure 11. Percent of persons 70 years of age and over who reported selected chronic conditions**

| Chronic condition | Women | | Men | |
|---|---|---|---|---|
| | Percent | SE | Percent | SE |
| Arthritis | 63.3 | 0.8 | 49.5 | 0.9 |
| Hypertension | 39.6 | 0.7 | 31.5 | 0.8 |
| Heart disease | 24.1 | 0.6 | 30.0 | 0.8 |
| Diabetes | 10.4 | 0.4 | 11.6 | 0.5 |
| Respiratory diseases | 10.3 | 0.4 | 11.0 | 0.5 |
| Stroke | 7.6 | 0.4 | 10.4 | 0.6 |
| Cancer | 2.3 | 0.2 | 6.0 | 0.4 |

SE Standard error.

**Figure 12. Prevalence of visual impairment among persons 70 years of age and over**

| Race and age | Women | | Men | |
|---|---|---|---|---|
| | Percent | SE | Percent | SE |
| White: | | | | |
| 70 years and over | 19.0 | 0.7 | 15.6 | 0.7 |
| 70–74 years | 13.3 | 0.8 | 11.2 | 0.9 |
| 75–79 years | 16.6 | 1.1 | 15.9 | 1.3 |
| 80–84 years | 22.9 | 1.4 | 19.7 | 1.7 |
| 85 years and over | 32.9 | 1.9 | 27.4 | 2.4 |
| Black: | | | | |
| 70 years and over | 18.8 | 1.8 | 19.7 | 2.7 |
| 70–74 years | 19.6 | 2.9 | 16.6 | 4.6 |
| 75–79 years | 17.2 | 2.9 | 17.7 | 3.4 |
| 80–84 years | 16.7 | 3.8 | 23.3 | 5.7 |
| 85 years and over | 23.3 | 4.4 | 31.6 | 9.0 |

SE Standard error.

# Data Tables for Figures 1–34

**Figure 13. Prevalence of hearing impairment among persons 70 years of age and over**

| Race and age | Women | | Men | |
|---|---|---|---|---|
| | Percent | SE | Percent | SE |
| White: | | | | |
| 70 years and over | 29.2 | 0.8 | 41.6 | 1.0 |
| 70–74 years | 21.3 | 1.1 | 35.4 | 1.4 |
| 75–79 years | 25.8 | 1.1 | 42.7 | 1.8 |
| 80–84 years | 34.5 | 1.6 | 47.1 | 2.3 |
| 85 years and over | 48.4 | 2.0 | 55.9 | 2.9 |
| Black: | | | | |
| 70 years and over | 17.3 | 1.5 | 21.2 | 2.2 |
| 70–74 years | 12.6 | 2.1 | 15.1 | 3.3 |
| 75–79 years | 12.3 | 2.5 | 25.3 | 4.1 |
| 80–84 years | 24.8 | 3.8 | 21.6 | 6.4 |
| 85 years and over | 29.9 | 4.9 | 33.3 | 7.6 |

SE Standard error.

**Figure 14. Prevalence of reduced hip bone density among persons 65 years of age and over**

| Age | Women | | | | Men | | | |
|---|---|---|---|---|---|---|---|---|
| | Osteoporosis | | Osteopenia | | Osteoporosis | | Osteopenia | |
| | Percent | SE | Percent | SE | Percent | SE | Percent | SE |
| 65 years and over | 26.1 | 1.6 | 45.9 | 1.5 | 3.8 | 0.7 | 21.8 | 1.5 |
| 65–74 years | 19.0 | 2.0 | 46.9 | 2.1 | 2.0 | 0.6 | 17.9 | 1.6 |
| 75–84 years | 32.5 | 2.1 | 45.8 | 2.2 | 6.4 | 1.4 | 28.0 | 2.6 |
| 85 years and over | 50.5 | 3.5 | 39.6 | 3.1 | 13.7 | 3.0 | 40.2 | 4.4 |

SE Standard error.

**Figure 15. Percent of persons 70 years of age and over who have difficulty performing 1 or more physical activities, activities of daily living, and instrumental activities of daily living**

| Sex | 70 years and over | | 70–74 years | | 75–79 years | | 80–84 years | | 85 years and over | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Percent | SE | Percent | SE | Percent | SE | Percent | SE | Percent | SE |
| Women | | | | | Perform with difficulty | | | | | |
| Physical activity | 32.5 | 0.8 | 31.3 | 1.2 | 33.9 | 1.3 | 35.3 | 1.7 | 29.1 | 1.7 |
| ADL | 22.2 | 0.7 | 19.6 | 1.0 | 19.0 | 1.0 | 23.9 | 1.3 | 32.9 | 1.9 |
| IADL | 12.8 | 0.5 | 12.5 | 0.8 | 12.0 | 1.0 | 14.1 | 1.3 | 13.2 | 1.2 |
| Men | | | | | | | | | | |
| Physical activity | 30.1 | 0.7 | 27.7 | 1.1 | 30.3 | 1.4 | 35.3 | 1.8 | 30.9 | 2.4 |
| ADL | 16.6 | 0.7 | 13.8 | 0.9 | 16.6 | 1.1 | 20.2 | 1.6 | 22.6 | 2.2 |
| IADL | 6.9 | 0.5 | 5.6 | 0.6 | 8.0 | 0.9 | 7.9 | 1.1 | 7.6 | 1.4 |
| Women | | | | | Unable to perform | | | | | |
| Physical activity | 28.9 | 0.8 | 21.7 | 1.0 | 24.7 | 1.2 | 31.2 | 1.5 | 52.5 | 2.0 |
| ADL | 9.9 | 0.4 | 4.9 | 0.5 | 8.5 | 0.9 | 11.8 | 1.0 | 22.6 | 1.5 |
| IADL | 23.4 | 0.7 | 16.0 | 0.9 | 20.6 | 1.1 | 26.5 | 1.4 | 43.6 | 2.1 |
| Men | | | | | | | | | | |
| Physical activity | 19.6 | 0.7 | 14.6 | 0.9 | 17.7 | 1.2 | 25.1 | 1.9 | 37.8 | 2.4 |
| ADL | 7.1 | 0.4 | 3.9 | 0.5 | 6.1 | 0.7 | 9.9 | 1.2 | 19.3 | 2.2 |
| IADL | 12.8 | 0.6 | 8.2 | 0.8 | 10.9 | 0.9 | 19.8 | 1.7 | 26.5 | 2.5 |

SE Standard error.

**Figure 16. Percent of persons 70 years of age and over who report specific conditions as a cause of limitation in activities of daily living**

| *Type of condition* | *Percent* |
|---|---|
| Arthritis | 10.6 |
| Heart disease | 4.0 |
| Stroke | 2.6 |
| Respiratory | 2.5 |
| Diabetes | 1.5 |

**Figure 17. Distribution of weight among persons 65–74 years of age**

| *Body mass index* | *Classification* | *Women* | *Men* |
|---|---|---|---|
| Less than 19 | Low | 3.7 | 1.7 |
| 19–24.99 | Healthy | 36.0 | 29.8 |
| 25–29.9 | Overweight | 33.5 | 44.4 |
| 30–34.9 | Moderately obese | 16.0 | 19.4 |
| 35 and over | Severely obese | 10.9 | 4.6 |

**Figure 18. Prevalence of obesity among persons 65–74 years of age**

| *Sex* | *1960–62 NHES* | *1971–74 NHANES I* | *1976–80 NHANES II* | *1988–94 NHANES III* |
|---|---|---|---|---|
| Women | 23.2 | 22.0 | 21.5 | 26.9 |
| Men | 10.4 | 10.9 | 13.2 | 24.1 |

**Figure 19. Percent with untreated dental caries among dentate persons 65 years of age and over**

| | *Women* | | *Men* | |
|---|---|---|---|---|
| *Age* | *Percent* | *SE* | *Percent* | *SE* |
| 65 years and over | 27.5 | 1.8 | 35.2 | 1.9 |
| 65–74 years | 24.7 | 2.0 | 33.9 | 2.3 |
| 75–84 years | 33.5 | 2.5 | 37.0 | 2.8 |
| 85 years and over | 24.4 | 3.8 | 46.0 | 6.0 |

SE Standard error.

**Figure 20. Prevalence of total tooth loss (edentulism) among persons 65 years of age and over**

| | *1983* | | *1993* | |
|---|---|---|---|---|
| *Age* | *Percent* | *SE* | *Percent* | *SE* |
| 65 years and over | 38.4 | 0.6 | 29.5 | 1.0 |
| 65–74 years | 34.1 | 0.7 | 25.5 | 1.1 |
| 75–84 years | 43.4 | 1.0 | 33.6 | 1.6 |
| 85 years and over | 54.2 | 1.8 | 43.5 | 4.2 |

SE Standard error.

**Figure 21. Number of social activities in a 2-week period among persons 70 years of age and over**

| Age and number of activities | Women | | Men | |
|---|---|---|---|---|
| | Percent | SE | Percent | SE |
| 70 years and over | | | | |
| 0 activities | 1.6 | 0.2 | 2.4 | 0.2 |
| 1–2 activities | 10.7 | 0.5 | 13.5 | 0.6 |
| 3–4 activities | 29.8 | 0.7 | 30.3 | 0.9 |
| 5–7 activities | 57.9 | 0.8 | 53.8 | 1.0 |
| 70–74 years | | | | |
| 0 activities | 1.0 | 0.2 | 1.9 | 0.3 |
| 1–2 activities | 6.8 | 0.5 | 10.5 | 1.0 |
| 3–4 activities | 26.8 | 1.1 | 26.3 | 1.2 |
| 5–7 activities | 65.4 | 1.2 | 61.2 | 1.4 |
| 75–79 years | | | | |
| 0 activities | 1.3 | 0.3 | 1.7 | 0.4 |
| 1–2 activities | 10.5 | 0.9 | 13.3 | 1.1 |
| 3–4 activities | 27.5 | 1.2 | 30.3 | 1.4 |
| 5–7 activities | 60.7 | 1.4 | 54.7 | 1.8 |
| 80–84 years | | | | |
| 0 activities | 2.1 | 0.5 | 2.9 | 0.7 |
| 1–2 activities | 11.9 | 1.1 | 15.9 | 1.4 |
| 3–4 activities | 32.5 | 1.5 | 36.7 | 1.7 |
| 5–7 activities | 53.5 | 1.5 | 44.5 | 1.8 |
| 85 years and over | | | | |
| 0 activities | 3.1 | 0.7 | 5.3 | 1.2 |
| 1–2 activities | 19.2 | 1.4 | 23.0 | 2.1 |
| 3–4 activities | 38.3 | 1.9 | 35.9 | 2.5 |
| 5–7 activities | 39.4 | 1.8 | 35.9 | 2.8 |

SE Standard error.

**Figure 22. Percent who exercise and selected type of exercise among persons 65 years of age and over**

| Type of exercise | Women | | Men | |
|---|---|---|---|---|
| | Percent | SE | Percent | SE |
| Any exercise | 67.0 | 1.3 | 77.0 | 1.3 |
| Walking | 67.3 | 1.5 | 62.1 | 1.8 |
| Gardening | 37.9 | 1.7 | 54.0 | 2.0 |
| Stretching | 31.9 | 1.5 | 25.7 | 1.6 |
| Swimming | 3.6 | 0.6 | 3.2 | 0.6 |
| Aerobics | 4.9 | 0.7 | * | * |
| Stair climbing | 9.2 | 1.0 | 4.6 | 0.8 |

SE Standard error.
* Number in this category is too small to calculate reliable rates.

**Figure 23. Number of caregivers providing assistance with activities of daily living or instrumental activities of daily living to persons 70 years of age and over**

| Sex and age | 1 caregiver | | 2 caregivers | | 3–4 caregivers | |
|---|---|---|---|---|---|---|
| | Percent | SE | Percent | SE | Percent | SE |
| Women | | | | | | |
| 70 years and over | 20.8 | 0.6 | 10.8 | 0.5 | 7.9 | 0.5 |
| 70–74 years | 17.4 | 0.9 | 7.0 | 0.6 | 4.6 | 0.5 |
| 75–79 years | 19.8 | 1.0 | 9.6 | 0.8 | 5.6 | 0.7 |
| 80–84 years | 23.6 | 1.4 | 12.4 | 1.0 | 9.8 | 0.9 |
| 85 years and over | 27.9 | 1.7 | 20.5 | 1.6 | 18.7 | 1.6 |
| Men | | | | | | |
| 70 years and over | 16.2 | 0.6 | 5.4 | 0.4 | 3.8 | 0.3 |
| 70–74 years | 12.9 | 0.9 | 3.3 | 0.5 | 2.1 | 0.4 |
| 75–79 years | 15.1 | 1.1 | 4.3 | 0.6 | 3.3 | 0.6 |
| 80–84 years | 20.2 | 1.6 | 7.7 | 1.0 | 5.0 | 0.8 |
| 85 years and over | 26.9 | 2.5 | 14.1 | 1.8 | 10.7 | 1.7 |

SE Standard error.

**Figure 24. Percent with unmet needs among persons 70 years of age and over who need help with 1 or more activities of daily living or instrumental activities of daily living**

| Sex and age | Unmet need ADL's | | Unmet need IADL's only | |
|---|---|---|---|---|
| | Percent | SE | Percent | SE |
| Women | | | | |
| 70–84 years | 20.4 | 1.7 | 30.5 | 1.8 |
| 85 years and over | 21.5 | 2.3 | 15.2 | 2.0 |
| Men | | | | |
| 70–84 years | 18.9 | 2.3 | 19.9 | 2.4 |
| 85 years and over | * | * | * | * |

ADL's Activities of daily living.
IADL's Instrumental activities of daily living.
SE Standard error.
* Number in this category is too small to calculate reliable rates.

# Data Tables for Figures 1–34

**Figure 25. Assistive devices used among persons 70 years of age and over**

| Age and number of devices | Women | | Men | |
|---|---|---|---|---|
| | Percent | SE | Percent | SE |
| 70 years and over | | | | |
| 1 device | 21.2 | 0.6 | 21.5 | 0.7 |
| 2 devices | 10.1 | 0.5 | 10.1 | 0.5 |
| 3 or more devices | 7.8 | 0.3 | 8.3 | 0.5 |
| 70–74 years | | | | |
| 1 device | 17.0 | 0.8 | 19.5 | 1.1 |
| 2 devices | 7.6 | 0.6 | 7.1 | 0.7 |
| 3 or more devices | 6.0 | 0.5 | 6.5 | 0.6 |
| 75–79 years | | | | |
| 1 device | 19.5 | 1.1 | 20.7 | 1.2 |
| 2 devices | 8.0 | 0.7 | 10.9 | 1.0 |
| 3 or more devices | 6.4 | 0.6 | 8.8 | 0.9 |
| 80–84 years | | | | |
| 1 device | 23.8 | 1.4 | 24.4 | 1.7 |
| 2 devices | 11.4 | 1.1 | 10.9 | 1.2 |
| 3 or more devices | 8.9 | 0.8 | 9.1 | 1.2 |
| 85 years and over | | | | |
| 1 device | 31.7 | 1.8 | 27.5 | 2.5 |
| 2 devices | 18.5 | 1.6 | 19.2 | 2.1 |
| 3 or more devices | 13.5 | 1.2 | 13.3 | 1.8 |

SE Standard error.

**Figure 26. Place of ambulatory physician contacts among persons 65 years of age and over**

| Sex and age | Place of contact | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Doctor's office | | Hospital | | Home | | Phone | | Other | |
| | Percent | SE | Percent | SE | Percent | SE | Percent | SE | Percent | SE |
| Women | | | | | | | | | | |
| 65 years and over | 51.1 | 1.3 | 9.2 | 0.5 | 19.8 | 1.5 | 10.0 | 0.6 | 9.9 | 0.7 |
| 65–74 years | 55.5 | 1.6 | 10.8 | 0.7 | 10.9 | 1.6 | 10.7 | 0.8 | 12.1 | 1.0 |
| 75–84 years | 49.3 | 1.8 | 8.4 | 0.7 | 23.3 | 2.3 | 9.9 | 0.9 | 9.1 | 0.9 |
| 85 years and over | 39.6 | 2.9 | 5.7 | 1.0 | 43.1 | 3.9 | 8.1 | 1.2 | 3.5 | 0.6 |
| Men | | | | | | | | | | |
| 65 years and over | 54.3 | 1.6 | 11.7 | 0.8 | 13.5 | 1.9 | 8.6 | 0.6 | 11.9 | 0.8 |
| 65–74 years | 56.5 | 1.7 | 12.3 | 0.9 | 7.9 | 1.5 | 10.0 | 0.8 | 13.5 | 1.2 |
| 75 –84 years | 51.1 | 3.1 | 11.8 | 1.6 | 19.7 | 4.0 | 7.1 | 0.8 | 10.3 | 1.3 |
| 85 years and over | 53.0 | 4.4 | 7.6 | 2.2 | 25.5 | 4.8 | 5.6 | 1.3 | 8.4 | 1.9 |

SE Standard error.

**Figure 27. Hospital discharge rates in non-Federal short-stay hospitals for selected first-listed diagnoses among persons 65 years of age and over**

| Diagnosis | Women | | | Men | | |
|---|---|---|---|---|---|---|
| | 65–74 years | 75–84 years | 85 years and over | 65–74 years | 75–84 years | 85 years and over |
| All diagnoses | 246.6 | 395.3 | 565.3 | 270.6 | 441.3 | 624.7 |
| Heart Disease | 53.4 | 89.1 | 112.7 | 73.5 | 110.3 | 131.0 |
| Stroke | 12.0 | 26.4 | 39.5 | 15.3 | 31.9 | 39.8 |
| Malignant neoplasms | 19.8 | 19.8 | 16.3 | 23.5 | 27.2 | 31.3 |
| Pneumonia | 10.8 | 21.1 | 46.0 | 13.0 | 29.9 | 73.3 |
| Bronchitis | 8.4 | 10.2 | 9.6 | 7.1 | 12.0 | 21.4 |
| Fractures | 9.7 | 23.6 | 55.9 | 3.5 | 10.3 | 30.6 |

**Figure 28. Percent vaccinated against influenza and pneumococcal disease among persons 65 years of age and over**

| Race and Hispanic origin | Influenza | | Pneumococcal disease | |
|---|---|---|---|---|
| | Percent | SE | Percent | SE |
| White, non-Hispanic | 56.8 | 0.6 | 31.2 | 0.7 |
| Black, non-Hispanic | 36.4 | 1.5 | 16.2 | 1.4 |
| Hispanic | 44.0 | 3.2 | 15.9 | 1.7 |

SE Standard error.

**Figure 29. Home health care patients among persons 65 years of age and over**

| Sex | 65 years and over | 65–74 years | 75–84 years | 85 years and over |
|---|---|---|---|---|
| | Patients per 1,000 population | | | |
| Women | 61.1 | 27.6 | 84.1 | 130.1 |
| Men | 36.5 | 18.2 | 55.4 | 99.5 |

**Figure 30. Home health care services received by current patients 65 years of age and over**

| Type of service | Percent receiving service |
|---|---|
| Nursing | 85.3 |
| Homemaker | 28.7 |
| Physical therapy | 20.0 |
| Social services | 10.9 |
| Medications | 9.9 |
| Continuous home care | 5.8 |
| Occupational therapy | 4.8 |
| Physician services | 3.7 |
| Nutrition | 3.4 |
| All other services | 15.1 |

**Figure 31. Health insurance coverage among persons 65 years of age and over**

| Age, race, and Hispanic origin | Medicare only | | Medicare/Medicaid | | Medicare/private | | Private only | | None | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Percent | SE | Percent | SE | Percent | SE | Percent | SE | Percent | SE |
| 65–84 years | | | | | | | | | | |
| White, non-Hispanic | 13.9 | 0.9 | 5.1 | 0.3 | 77.9 | 1.0 | 2.7 | 0.2 | 0.5 | 0.1 |
| Black, non-Hispanic | 29.5 | 1.7 | 22.4 | 1.2 | 43.2 | 1.9 | 3.6 | 0.6 | 1.3 | 0.3 |
| Hispanic | 27.3 | 2.5 | 23.5 | 1.9 | 42.4 | 2.9 | 3.8 | 0.8 | 3.0 | 0.5 |
| 85 years of age and over | | | | | | | | | | |
| White, non-Hispanic | 20.4 | 1.4 | 7.5 | 0.8 | 70.2 | 1.6 | * | * | * | * |
| Black, non-Hispanic | 38.6 | 4.5 | 28.1 | 3.3 | 32.5 | 4.8 | * | * | * | * |
| Hispanic | 23.7 | 5.6 | 49.2 | 5.7 | 22.6 | 4.4 | * | * | * | * |

SE Standard error.
* Number in this category is too small to calculate reliable rates.

**Figure 32. Percent of Medicare enrollees in health maintenance organizations**

| State | Percent |
|---|---|
| New England | |
| Maine | 0 |
| New Hampshire | 0 |
| Vermont | 1 |
| Massachusetts | 16 |
| Rhode Island | 15 |
| Connecticut | 5 |
| Middle Atlantic | |
| New York | 13 |
| New Jersey | 7 |
| Pennsylvania | 17 |
| East North Central | |
| Ohio | 6 |
| Indiana | 2 |
| Illinois | 9 |
| Michigan | 1 |
| Wisconsin | 2 |
| West North Central | |
| Minnesota | 18 |
| Iowa | 2 |
| Missouri | 10 |
| North Dakota | 1 |
| South Dakota | 0 |
| Nebraska | 3 |
| Kansas | 3 |
| South Atlantic | |
| Delaware | 0 |
| Maryland | 8 |
| District of Columbia | 21 |
| Virginia | 1 |
| West Virginia | 2 |
| North Carolina | 1 |
| South Carolina | 1 |
| Georgia | 1 |
| Florida | 22 |
| East South Central | |
| Kentucky | 1 |
| Tennessee | 0 |
| Alabama | 3 |
| Mississippi | 0 |
| West South Central | |
| Arkansas | 1 |
| Louisiana | 9 |
| Oklahoma | 6 |
| Texas | 11 |
| Mountain | |
| Montana | 0 |
| Idaho | 0 |
| Wyoming | 0 |
| Colorado | 26 |
| New Mexico | 17 |
| Arizona | 34 |
| Utah | 17 |
| Nevada | 20 |
| Pacific | |
| Washington | 20 |
| Oregon | 37 |
| California | 38 |
| Alaska | 0 |
| Hawaii | 33 |

**Figure 33. Estimated amount of personal health care expenditures attributed to heart disease among persons 65 years of age and over**

| Type of Health Service | Women | | | | Men | | | |
|---|---|---|---|---|---|---|---|---|
| | *65 years and over* | *65–74 years* | *75–84 years* | *85 years and over* | *65 years and over* | *65–74 years* | *75–84 years* | *85 years and over* |
| | Amount in billions | | | | | | | |
| All personal health care | 31.2 | 8.2 | 12.0 | 11.0 | 26.5 | 12.6 | 9.9 | 3.9 |
| Hospital care | 14.2 | 5.2 | 5.9 | 3.0 | 18.2 | 9.4 | 6.8 | 2.0 |
| Physician and other professional services | 3.0 | 1.2 | 1.2 | 0.6 | 3.2 | 1.8 | 1.1 | 0.3 |
| Home health care | 2.1 | 0.4 | 1.1 | 0.6 | 0.8 | 0.2 | 0.4 | 0.2 |
| Prescription drugs and medical durables | 1.8 | 0.7 | 0.8 | 0.4 | 1.6 | 0.9 | 0.6 | 0.2 |
| Nursing home care | 10.2 | 0.7 | 3.1 | 6.4 | 2.7 | 0.4 | 1.0 | 1.3 |

Figures may not sum to totals due to rounding.

**Figure 34. Estimated amount of personal health care expenditures attributed to diabetes among persons 65 years and over**

| Type of Health Service | Women | | | | Men | | | |
|---|---|---|---|---|---|---|---|---|
| | *65 years and over* | *65–74 years* | *75–84 years* | *85 years and over* | *65 years and over* | *65–74 years* | *75–84 years* | *85 years and over* |
| | Amount in billions | | | | | | | |
| All personal health care | 15.6 | 6.5 | 6.1 | 3.1 | 10.6 | 5.6 | 3.5 | 1.5 |
| Hospital care | 6.4 | 3.1 | 2.2 | 1.1 | 5.6 | 3.4 | 1.7 | 0.6 |
| Physician and other professional services | 2.1 | 1.1 | 0.7 | 0.3 | 1.5 | 0.9 | 0.5 | 0.1 |
| Home health care | 2.2 | 0.9 | 1.0 | 0.3 | 1.5 | 0.7 | 0.6 | 0.3 |
| Prescription drugs and medical durables | 0.9 | 0.5 | 0.3 | 0.1 | 0.7 | 0.5 | 0.2 | 0.1 |
| Nursing home care | 4.0 | 0.8 | 1.9 | 1.3 | 1.2 | 0.2 | 0.6 | 0.4 |

Figures may not sum to totals due to rounding.

# Appendixes

# Appendix Contents

# Appendix Contents

# Appendix I

# Sources 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: Kovar MG. Data systems of the National Center for Health Statistics. National Center for Health Statistics. Vital Health Stat 1(23). 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. 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 populations 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.

Some information is collected in more than one survey and estimates of the same statistic may vary among surveys. For example, cigarette use is measured by the Health Interview Survey, the National Household Survey of Drug Abuse, and the Monitoring the Future Survey. Estimates of cigarette use may differ among surveys because of different survey methodologies, sampling frames, questionnaires, definitions, and tabulation categories.

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 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

### Centers for Disease Control and Prevention

### 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. U.S. data shown in detailed tables in this book are for the 50 States and the District of Columbia, unless otherwise specified.

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. 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 tapes. 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. Starting in 1985 all 50 States and the District of Columbia participated in VSCP.

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.

Demographic information on the birth certificate such as race and ethnicity is provided by the mother at the time of birth. Medical and health information is based on hospital records. Demographic information on the death certificate is provided by the funeral director based on information supplied by an informant. Medical certification of cause of death is provided by a physician, medical examiner, or coroner.

*U.S. Standard Certificates*—U.S. Standard Live Birth and Death Certificates and Fetal Death Reports are revised periodically, allowing careful evaluation of each item and addition, modification, and deletion of items. Beginning with 1989, revised standard certificates replaced the 1978 versions. The 1989 revision of the birth certificate includes items to identify the Hispanic parentage of newborns and to expand information about maternal and infant health characteristics. The 1989 revision of the death certificate includes items on educational attainment and Hispanic origin of decedents as well as changes to improve the medical certification of cause of death. Standard certificates 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. For selected items, reporting areas expanded during the years spanned by this report. For items on the birth certificate, the number of reporting States increased for mother's education, prenatal care, marital status, Hispanic parentage, and tobacco use; and on the death certificate, for educational attainment and Hispanic origin of the decedent.

*Maternal age*—Mother's age was reported on the birth certificate by all States. Data are presented for mothers age 10–49 years through 1996 and 10–54 years starting in 1997, based on mother's date of birth or age as reported on the birth certificate. The age of mother is edited for upper and lower limits. When the age of the mother is computed to be under 10 years or 55 years or over (50 years or over in 1964–96), it is considered not stated and imputed according to the age of the mother from the previous birth record of the same race and total birth order (total of fetal deaths and live births). Before 1963 not stated ages were distributed in proportion to the known ages for each racial group. Beginning in 1997, the birth rate for the maternal age group 45–49 years includes data for mothers age 50–54 years in the numerator and is based on the population of women 45–49 years in the denominator.

*Maternal education*—Mother's education was reported on the birth certificate by 38 States in 1970. Data were not available from Alabama, Arkansas, California, Connecticut, Delaware, District of Columbia, Georgia, Idaho, Maryland, New Mexico, Pennsylvania, Texas, and Washington. In 1975 these data were available from 4 additional States, Connecticut, Delaware, Georgia, Maryland, and the District of Columbia, increasing the number of States reporting mother's education to 42 and the District of Columbia. Between 1980 and 1988 only three States, California, Texas, and Washington did not report mother's education. In 1988 mother's education was also missing from New York State outside of New York City. In 1989–91 mother's education was missing only from Washington and New York State outside of New York City. Starting in 1992 mother's education was reported by all 50 States and the District of Columbia.

*Prenatal care*—Prenatal care was reported on the birth certificate by 39 States and the District of Columbia in 1970. Data were not available from Alabama, Alaska, Arkansas, Connecticut, Delaware, Georgia, Idaho, Massachusetts, New Mexico, Pennsylvania, and Virginia. In 1975 these data were available from 3 additional States, Connecticut, Delaware, and Georgia, increasing the number of States reporting prenatal care to 42 and the District of Columbia. Starting in 1980 prenatal care information was available for the entire United States.

*Marital status*—Mother's marital status was reported on the birth certificate by 39 States and the District of Columbia in 1970, and by 38 states and the District of Columbia in 1975. The incidence of births to unmarried women in States with no direct question on marital status was assumed to be the same as the incidence in reporting States in the same geographic division. Starting in 1980 for States without a direct question, marital status was inferred by comparing the parents' and child's surnames and other information concerning the father. In 1980 through 1996 marital status was reported on the birth certificates of 41–45 states. Beginning in 1997, all but four States (Connecticut, Michigan, Nevada, and New York) included a direct question on their birth certificates.

*Hispanic births*—In 1980 and 1981 information on births of Hispanic parentage was reported on the birth certificate by the following 22 States: 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 Tennessee, and in 1983 the District of Columbia began reporting this information. Between 1983 and 1987 information on births of Hispanic parentage was available for 23 States and the District of Columbia. In 1988 this information became available for Alabama, Connecticut, Kentucky, Massachusetts, Montana, North Carolina, and Washington, increasing the number of States reporting

information on births of Hispanic parentage to 30 States and the District of Columbia. In 1989 this information became available from an additional 17 States, increasing the number of Hispanic-reporting States to 47 and the District of Columbia. In 1989 only Louisiana, New Hampshire, and Oklahoma did not report Hispanic parentage on the birth certificate. In 1990 Louisiana began reporting Hispanic parentage. Hispanic origin of the mother was reported on the birth certificates of 49 States and the District of Columbia in 1991 and 1992; only New Hampshire did not provide this information. Starting in 1993 Hispanic origin of mother was reported by all 50 States and the District of Columbia. In 1990, 99 percent of birth records included information on mother's origin.

*Tobacco use*—Information on tobacco use during pregnancy became available for the first time in 1989 with the revision of the U.S. Standard Birth Certificate. In 1989 data on tobacco use were collected by 43 States and the District of Columbia. The following States did not require the reporting of tobacco use on the birth certificate: California, Indiana, Louisiana, Nebraska, New York, Oklahoma, and South Dakota. In 1990 information on tobacco use became available from Louisiana and Nebraska increasing the number of reporting States to 45 and the District of Columbia. In 1991–93 information on tobacco use was available for 46 States and the District of Columbia with the addition of Oklahoma to the reporting area; and in 1994–97, for 46 States, the District of Columbia, and New York City.

*Education of decedent*—Information on educational attainment of decedents became available for the first time in 1989 due to the revision of the U.S. Standard Certificate of Death. Mortality data by educational attainment for 1989 was based on data from 20 States and by 1994–96 increased to 45 States and the District of Columbia. In 1994–96 the following States either did not report educational attainment on the death certificate or the information was more than 20 percent incomplete: Georgia, Kentucky, Oklahoma, Rhode Island, and South Dakota. In 1997 information on decedent's education became available from Oklahoma, increasing the reporting area to 46 States and the District of Columbia. Information on the death certificate about the decedent's educational attainment is reported by the funeral director based on information provided by an informant such as next of kin.

Calculation of unbiased death rates by educational attainment based on the National Vital Statistics System requires that the reporting of education on the death certificate be complete and consistent with the reporting of education on the Current Population Survey, the source of population estimates that form the denominators for death rates. Death records with education not stated have not been included in the calculation of rates. Therefore the levels of the rates shown in this report are underestimated by approximately the percent not stated, which ranged from 3 to 5 percent.

The validity of information about the decedent's education was evaluated by comparing self-reported education obtained in the Current Population Survey with education on the death certificate for decedents in the National Longitudinal Mortality Survey (NLMS). (Sorlie PD, Johnson NJ: Validity of education information on the death certificate, *Epidemiology* 7(4):437–439, 1996.) Another analysis compared self-reported education collected in the first National Health and Nutrition Examination Survey (NHANES I) with education on the death certificate for decedents in the NHANES I Epidemiologic Followup Study. (Makuc DM, Feldman JJ, Mussolino ME: Validity of education and age as reported on death certificates, American Statistical Association 1996 Proceedings of the Social Statistics Section, 102–6, 1997.) Results of both studies indicated that there is a tendency for some people who did not graduate from high school to be reported as high school graduates on the death certificate. This tendency results in overstating the death rate for high school graduates and understating the death rate for the group with less than 12 years of education. The bias was greater among older than younger decedents and somewhat greater among black than white decedents.

In addition, educational gradients in death rates based on the National Vital Statistics System were compared with those based on the NLMS, a prospective study of persons in the Current Population Survey. Results of these comparisons indicate that educational gradients in death rates based on the National Vital Statistics System were reasonably similar to those based on the NLMS for white persons 25–64 years of age and black persons 25–44 years of age. The number of deaths for persons of Hispanic origin in the NLMS was too small to permit comparison for this ethnic group.

*Hispanic deaths*—In 1985 mortality data by Hispanic origin of decedent were based on deaths to residents of the following 17 States and the District of Columbia whose data on the death certificate were at least 90 percent complete on a place-of-occurrence basis and of comparable format: Arizona, Arkansas, California, Colorado, Georgia, Hawaii, Illinois, Indiana, Kansas, Mississippi, Nebraska, New York, North Dakota, Ohio, Texas, Utah, and Wyoming. In 1986 New Jersey began reporting Hispanic origin of decedent, increasing the number of reporting States to 18 and the District of Columbia in 1986 and 1987. In 1988 Alabama, Kentucky, Maine, Montana, North Carolina, Oregon, Rhode Island, and Washington were added to the reporting area, increasing the number of States to 26 and the District of Columbia. In 1989 an additional 18 States were added, increasing the Hispanic reporting area to 44 States and the District of Columbia. In 1989 only Connecticut, Louisiana, Maryland, New Hampshire, Oklahoma, and Virginia were not included in the reporting area. Starting with 1990 data in this book, the criterion was changed to include States whose data were at least 80 percent complete. In 1990 Maryland, Virginia, and Connecticut, in 1991 Louisiana, and in 1993 New Hampshire were added, increasing the reporting area for Hispanic origin of decedent to 47 States and the District of Columbia in 1990, 48 States and the District of Columbia in 1991 and 1992, and 49 States and the District of Columbia in 1993–96. Only Oklahoma did not provide this information in 1993–96. Starting in 1997 Hispanic origin of decedent was reported by all 50 States and the District of Columbia. Based on data from the U.S. Bureau of the Census, the 1990 reporting area encompassed 99.6 percent of the U.S. Hispanic population. In 1990 more than 96 percent of death records included information on origin of decedent.

*Alaska data*—For 1995 the number of deaths occurring in Alaska is in error for selected causes because NCHS did not receive changes resulting from amended records and because of errors in processing the cause of death data. Differences are concentrated among selected causes of death, principally Symptoms, signs, and ill-defined conditions (ICD-9 Nos. 780–799) and external causes.

For more information, see: National Center for Health Statistics, Technical Appendix, *Vital Statistics of the United States, 1992*, Vol. I, Natality, DHHS Pub. No. (PHS)96–1100 and Vol. II, Mortality, Part A, DHHS Pub. No. (PHS) 96–1101, Public Health Service. Washington. U.S. Government Printing Office, 1996.

### National Linked File of Live Births and Infant Deaths

National linked files of live births and infant deaths are data sets for research on infant mortality. To create these data sets, death certificates are linked with corresponding birth certificates for infants who die in the United States before their first birthday. Linked data files include all of the variables on the national natality file, including the more accurate racial and ethnic information, as well as the variables on the national mortality file, including cause of death and age at death. The linkage makes available for the analysis of infant mortality extensive information from the birth certificate about the pregnancy, maternal risk factors, and infant characteristics and health items at birth. Each year, 97–98 percent of infant death records are linked to their corresponding birth records.

National linked files of live births and infant deaths were first produced for the 1983 birth cohort. Birth cohort linked file data are available for 1983–91 and period linked file data for 1995 and 1996. While

birth cohort linked files have methodological advantages, their production incurs substantial delays in data availability, since it is necessary to wait until the close of a second data year to include all infant deaths to the birth cohort. Starting with data year 1995, more timely linked file data are produced in a period data format, preceding the release of the corresponding birth cohort format. Other changes to the data set starting with 1995 data include the addition of record weights to correct for the 2.2–2.5 percent of records that could not be linked and the addition of an imputation for not stated birthweight. For more information, see: Prager K. Infant mortality by birthweight and other characteristics: United States, 1985 birth cohort. National Center for Health Statistics. Vital Health Stat 20(24). 1994; MacDorman MF, Atkinson JO. Infant mortality statistics from the 1996 period linked birth/death data set. Monthly vital statistics report; vol 46 no 12, supp. Hyattsville, Maryland: National Center for Health Statistics. 1998.

### Compressed Mortality File

The Compressed Mortality File (CMF) used to compute death rates by urbanization level is a county level national mortality and population database. The mortality data base of CMF is derived from the detailed mortality files of the National Vital Statistics System starting with 1968. The population data base of CMF is derived from intercensal and postcensal population estimates and census counts of the resident population of each U.S. county by age, race, and sex. Counties are categorized according to level of urbanization based on an NCHS-modified version of the 1993 rural-urban continuum codes for metropolitan and nonmetropolitan counties developed by the Economic Research Service, U.S. Department of Agriculture. See Appendix II, Urbanization. For more information about the CMF, contact: D. Ingram, Analytic Studies Branch, Division of Health and Utilization Analysis, National Center for Health Statistics, 6525 Belcrest Road, Hyattsville, MD 20782.

### 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 of the United States. The first and second cycles, conducted in 1973 and 1976, excluded most women who had never been married. The third, fourth, and fifth cycles, conducted in 1982, 1988, and 1995, included all women ages 15–44 years.

The purpose of the survey is to provide national data on factors affecting birth and pregnancy rates, adoption, and maternal and infant health. These factors include sexual activity, marriage, divorce and remarriage, unmarried cohabitation, contraception and sterilization, infertility, breastfeeding, pregnancy loss, low birthweight, and use of medical care for family planning and infertility.

Interviews are conducted in person by professional female interviewers using a standardized questionnaire. In 1973–88 the average interview length was about 1 hour. In 1995 the average interview lasted about 1 hour and 45 minutes. In all cycles black women were sampled at higher rates than white women, so that detailed statistics for black women could be produced.

Interviewing for Cycle 1 of NSFG was conducted from June 1973 to February 1974. Counties and independent cities of the United States were sampled to form a frame of primary sampling units (PSU's), and 101 PSU's were selected. From these 101 PSU's, 10,879 women 15–44 years of age were selected; 9,797 of these were interviewed. Most never-married women were excluded from the 1973 NSFG.

Interviewing for Cycle 2 of NSFG was conducted from January to September 1976. From 79 PSU's, 10,202 eligible women were identified; of these, 8,611 were interviewed. Again, most never-married women were excluded from the sample for the 1976 NSFG.

Interviewing for Cycle 3 of NSFG was conducted from August 1982 to February 1983. The sample design was similar to that in Cycle 2: 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. For the first time in NSFG, Cycle 3 included women of all marital statuses.

Interviewing for Cycle 4 was conducted between January and August 1988. The sample was obtained from households that had been interviewed in the National Health Interview Survey in the 18 months between October 1, 1985, and March 31, 1987. For the first time, women living in Alaska and Hawaii were included so that the survey covered women from the noninstitutionalized population of the entire United States. The sample was drawn from 156 PSU's; 10,566 eligible women ages 15–44 years were sampled. Interviews were completed with 8,450 women.

Between July and November of 1990, 5,686 women were interviewed by telephone in the first NSFG telephone reinterview. The average length of interview in 1990 was 20 minutes. The response rate for the 1990 telephone reinterview was 68 percent of those responding to the 1988 survey and still eligible for the 1990 survey.

Interviewing for Cycle 5 of NSFG was conducted between January and October of 1995. The sample was obtained from households that had been interviewed in 198 PSU's in the National Health Interview Survey in 1993. Of the 13,795 eligible women in the sample, 10,847 were interviewed. For the first time, Hispanic as well as black women were sampled at a higher rate than other women.

In order to make national estimates from the sample for the millions of women ages 15–44 years in the United States, data for the interviewed sample women were (a) inflated by the reciprocal of the probability of selection at each stage of sampling (for example, if there was a 1 in 5,000 chance that a woman would be selected for the sample, her sampling weight was 5,000), (b) adjusted for nonresponse, and (c) forced to agree with benchmark population values based on data from the Current Population Survey of the U.S. Bureau of the Census (this last step is called ''poststratification'').

Quality control procedures for selecting and training interviewers, coding, editing, and processing the data, were built into NSFG to minimize nonsampling error.

More information on the methodology of NSFG is available in the following reports: French DK. National Survey of Family Growth, Cycle I: Sample design, estimation procedures, and variance estimation. National Center for Health Statistics. Vital Health Stat 2(76). 1978; Grady WR. National Survey of Family Growth, Cycle II: Sample design, estimation procedures, and variance estimation. National Center for Health Statistics. Vital Health Stat 2(87). 198l; Bachrach CA, Horn MC, Mosher WD, Shimizu I. National Survey of Family Growth, Cycle III: Sample design, weighting, and variance estimation. National Center for Health Statistics. Vital Health Stat 2(98). 1985; Judkins DR, Mosher WD, Botman SL. National Survey of Family Growth: Design, estimation, and inference. National Center for Health Statistics. Vital Health Stat 2(109). 1991; Goksel H, Judkins DR, Mosher WD. Nonresponse adjustments for a telephone followup to a National In-Person Survey. Journal of Official Statistics 8(4):417–32. 1992; Kelly JE, Mosher WD, Duffer AP, Kinsey SH. Plan and operation of the 1995 National Survey of Family Growth. Vital Health Stat 1(36). 1997; Potter FJ, Iannacchione VG, Mosher WD, Mason RE, Kavee JD. Sampling weights, imputation, and variance estimation in the 1995 National Survey of Family Growth. Vital Health Stat 2(124). 1998.

### 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 including race and ethnicity by self-reporting or as reported by an informant. Information is also obtained on 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 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 ongoing portion of the survey (core) has been between 94 and 98 percent over the years. Response rates for special health topics (supplements) have generally been lower. For example the response rate was 80 percent for the 1994 Year 2000 Supplement, which included questions about cigarette smoking and use of such preventive services as mammography.

In 1985 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 consisted of approximately 7,500 segments containing about 59,000 assigned households. Of these households, an expected 10,000 were vacant, demolished, or occupied by persons not in the target population of the survey. The expected sample of 49,000 occupied households yielded a probability sample of about 127,000 persons. In 1994 there was a sample of 116,179 persons.

In 1995 the NHIS sample was redesigned again. Major design changes included increasing the number of primary sampling units from 198 to 358 and oversampling the black and Hispanic populations to improve the precision of the statistics. The sample was designed so that a typical NHIS sample for the data collection years 1995–2004 will consist of approximately 7,000 segments. The expected sample of 44,000 occupied respondent households will yield a probability sample of about 106,000 persons. In 1995 there was a sample of 102,467 persons. In 1996 there was a smaller sample of 63,402 persons because part of the sample was reserved for use in testing the new questionnaire instrument (1997).

In 1997 the questionnaire was redesigned and data were collected using a computer assisted personal interview (CAPI). The CAPI instrument was administered using a laptop computer with interviewers entering responses directly in the computer during the interview. In 1997 the interviewed sample consisted of 39,832 households yielding 40,623 families or 103,477 persons. Because of the extensive redesign of the questionnaire and the introduction of the CAPI method of data collection, 1997 data may differ from earlier years.

A description of the survey design, the methods used in estimation, and the general qualifications of the data obtained from the survey are presented in: Massey JT, Moore TF, Parsons VL, Tadros W. Design and estimation for the National Health Interview Survey, 1985–94. National Center for Health Statistics. Vital Health Stat 2(110). 1989; Kovar MG, Poe GS. The National Health Interview Survey design, 1973–84, and procedures, 1975–83. National Center for Health Statistics. Vital Health Stat 1(18). 1985; Hendershot G, Adams P, Marano M, Benaissa S. Current estimates from the National Health Interview Survey, 1996. National Center for Health Statistics. Vital Health Stat 10(200). 1999.

### National Immunization Survey

The National Immunization Survey (NIS) is a continuing nationwide telephone sample survey togather data on children 19–35 months of age. Estimates of vaccine-specific coverage are available for national, State, and 28 urban areas considered to be high risk for undervaccination.

NIS uses a two-phase sample design. First, a random-digit-dialing (RDD) sample of telephone numbers is drawn. When households with age-eligible children are contacted, the interviewer collects information on the vaccinations received by all age-eligible children. In 1997 the overall response rate was 69 percent, yielding data for 32,742 children aged 19–35 months. The interviewer also collects

information on the vaccination providers. In the second phase, all vaccination providers are contacted by mail. Vaccination information from providers was obtained for 68 percent of all children who were eligible for provider followup in 1997. Providers' responses are combined with information obtained from the households to provide a more accurate estimate of vaccination coverage levels. Final estimates are adjusted for noncoverage of nontelephone households.

A description of the survey design and the methods used in estimation are presented in: Massey JT. Estimating the response rate in a two stage telephone survey. Proceedings of the Section on Survey Research Methods. Alexandria, Virginia: American Statistical Association. 1995.

#### 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 (PSU's) from the 1,900 geographic units.

NHES II (1963–65) and NHES III (1966–70) examined probability samples of the nation's noninstitutionalized children between the ages of 6 and 11 years (NHES II) and 12 and 17 years (NHES III) focusing on factors related to growth and development. Both cycles were multistage, stratified probability samples of clusters of households in land-based segments and used the same 40 PSU's. NHES II sampled 7,417 children with a response rate of 96 percent. NHES III sampled 7,514 youth with a response rate of 90 percent.

For more information on NHES I, see: Gordon T, Miller HW. Cycle I of the Health Examination Survey: Sample and response, United States, 1960–62. National Center for Health Statistics. Vital Health Stat 11(1). 1974. For more information on NHES II, see: Plan, operation, and response results of a program of children's examinations. National Center for Health Statistics. Vital Health Stat 1(5). 1967. For more information on NHES III, see: Schaible, WL. Quality control in a National Health Examination Survey. National Center for Health Statistics. Vital Health Stat 2(44). 1972.

In 1971 a nutrition surveillance component was added and the survey name was changed to the National Health and Nutrition Examination Survey (NHANES). In NHANES I, conducted from 1971 to 1974, a major purpose was to measure and monitor indicators of the nutrition and health 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 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 to 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. Race information for NHANES I and NHANES II was determined primarily by interviewer observation.

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: Miller HW. Plan and operation of the Health and Nutrition Examination Survey, United States, 1971–73. National Center for Health Statistics. Vital Health Stat 1(10a) and 1(10b). 1977 and 1978; and Engel A, Murphy RS, Maurer K, Collins E. Plan and operation of the NHANES I Augmentation Survey of Adults 25–74 years, United States 1974–75. National Center for Health Statistics. Vital Health Stat 1(14). 1978.

For more information on NHANES II, see: McDowell A, Engel A, Massey JT, Maurer K. Plan and operation of the second National Health and Nutrition Examination Survey, 1976–80. National Center for Health Statistics. Vital Health Stat 1(15). 1981. For information on nutritional applications of these surveys, see: Yetley E, Johnson C. 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. The Hispanic ethnicity of these populations was determined by self-report.

In the HHANES three geographically and ethnically distinct populations were studied: Mexican Americans living 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: Maurer KR. Plan and operation of the Hispanic Health and Nutrition Examination Survey, 1982–84. National Center for Health Statistics. Vital Health Stat 1(19). 1985.

The third National Health and Nutrition Examination Survey (NHANES III) is a 6-year survey covering the years 1988–94. Over the 6-year period, 39,695 persons were selected for the survey of which 30,818 (77.6 percent) were examined in the mobile examination center.

The NHANES III target population is the civilian noninstitutionalized population 2 months of age and over. The sample design provides for oversampling among children 2–35 months of age, persons 70 years

of age and over, black Americans, and Mexican Americans. Race is reported for the household by the respondent.

Although some of the specific health areas have changed from earlier NHANES surveys, the following goals of the NHANES III are similar to those of earlier NHANES surveys:

- to estimate the national prevalence of selected diseases and risk factors
- to estimate national population reference distributions of selected health parameters
- to document and investigate reasons for secular trends in selected diseases and risk factors

Two new additional goals for the NHANES III survey are:

- to contribute to an understanding of disease etiology
- to investigate the natural history of selected diseases

For more information on NHANES III, see: Ezzati TM, Massey JT, Waksberg J, et al. Sample design: Third National Health and Nutrition Examination Survey. National Center for Health Statistics. Vital Health Stat 2(113). 1992; Plan and operation of the Third National Health and Nutrition Examination Survey, 1988–94. National Center for Health Statistics. Vital Health Stat 1(32). 1994.

#### National Health Provider Inventory (National Master Facility Inventory)

The National Master Facility Inventories (NMFI's) were a series of surveys of inpatient health facilities in the United States. They included hospitals, nursing and related care homes, and other custodial care facilities. The last NMFI was conducted in 1982. In 1986 a different inventory was conducted, the Inventory of Long-Term Care Places (ILTCP). This was a survey of nursing and related care homes and facilities for the mentally retarded. In 1991 the National Health Provider Inventory (NHPI), which was a survey of nursing homes, board and care homes, home health agencies, and hospices, was conducted. The NMFI, ILTCP, and NHPI were used as a basis for sampling frames for other surveys conducted by the National Center for Health Statistics (National Nursing Home Survey and National Home and Hospice Care Survey).

#### National Home and Hospice Care Survey

The National Home and Hospice Care Survey (NHHCS) is a sample survey of health agencies and hospices. Initiated in 1992, it was also conducted in 1993, 1994, and 1996. The original sampling frame consisted of all home health care agencies and hospices identified in the 1991 National Health Provider Inventory (NHPI). The 1992 sample contained 1,500 agencies. These agencies were revisited during the 1993 survey (excluding agencies that had been found to be out of scope for the survey). In 1994 in-scope agencies identified in the 1993 survey were revisited, with 100 newly identified agencies added to the sample. For 1996 the universe was again updated and a new sample of 1,200 agencies was drawn.

The sample design for the 1992–94 NHHCS was a stratified three-stage probability design. Primary sampling units were selected at the first stage, agencies were selected at the second stage, and current patients and discharges were selected at the third stage. The sample design for the 1996 NHHCS has a two-stage probability design in which agencies were selected at the first stage and current patients and discharges were selected at the second stage. Current patients were on the rolls of the agency as of midnight on the day before the survey. Discharges were selected to estimate the number of discharges from the agency during the year before the survey.

After the samples were selected, a patient questionnaire was completed for each current patient and discharge by interviewing the staff member most familiar with the care provided to the patients. The respondent was requested to refer to the medical records for each patient. For additional information see: Haupt BJ. Development of the National Home and

Hospice Care Survey. National Center for Health Statistics. Vital Health Stat 1(33). 1994.

#### National Hospital Discharge Survey

The National Hospital Discharge Survey (NHDS) is a continuing nationwide sample survey of short-stay hospitals in the United States. The scope of NHDS encompasses patients discharged from noninstitutional hospitals, exclusive of military and Department of Veterans Affairs hospitals, located in the 50 States and the District of Columbia. Only hospitals having six or more beds for patient use are included in the survey and before 1988 those in which the average length of stay for all patients was less than 30 days. 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.

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 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. These tapes were then subjected to NCHS sampling, editing, and weighting procedures.

In 1988 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 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 annual number of discharges 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 and selected State data systems (approximately 38 percent of sample hospitals in 1996) were arrayed by primary diagnoses, patient sex and age group, and date of discharge before sampling. Otherwise, the procedures for sampling discharges within hospitals are the same as those used in the prior design.

In 1994 the hospital sample was updated by continuing the sampling process among hospitals that were NHDS-eligible for the sampling frame in 1994 but not in 1991. The additional hospitals were added at the end of the list for the strata where they belonged, and the systematic sampling was continued as if the additional hospitals had been present during the initial sample selection. Hospitals that were no longer NHDS-eligible were deleted. A similar updating process occurred in 1991.

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. In 1996, 525 hospitals were selected, 507 were within scope, 480 participated, and 282,000 medical records were abstracted.

For more detailed information on the design of NHDS and the magnitude of sampling errors associated with the NHDS estimates, see: Graves EJ, Owings MF. 1996 Summary: National Hospital Discharge Survey. Advance data from vital and health statistics; no 301. Hyattsville, Maryland: National Center for Health Statistics. 1998; and Haupt BJ, Kozak LJ. Estimates from two survey designs: National Hospital Discharge Survey. National Center for Health Statistics. Vital Health Stat 13(111). 1992.

### National Survey of Ambulatory Surgery

The National Survey of Ambulatory Surgery (NSAS) is a nationwide sample survey of ambulatory surgery patient discharges from short-stay non-Federal hospitals and freestanding surgery centers. NSAS was conducted annually between 1994 and 1996. The sample consisted of eligible hospitals listed in the 1993 SMG Hospital Market Database and the 1993 SMG Freestanding Outpatient Surgery Center Database or Medicare Provider-of-Service files. Facilities specializing in dentistry, podiatry, abortion, family planning, or birthing were excluded.

A three-state stratified cluster design was used, and facilities were stratified according to primary sampling unit (PSU). The second stage consisted of the selection of facilities from sample PSU's, and the third stage consisted of a systematic random sample of cases from all locations within a facility where ambulatory surgery was performed. Locations within hospitals dedicated exclusively to dentistry, podiatry, pain block, abortion, or small procedures (sometimes referred to as ''lump and bump'' rooms) were not included. In 1996 of the 751 hospitals and freestanding ambulatory surgery centers selected for the survey, 601 were in-scope, and 488 responded for an overall response rate of 81 percent. These facilities provided information for approximately 125,000 ambulatory surgery discharges. Up to six procedures were coded to the *International Classification of Diseases, 9th Revision, Clinical Modification*. Estimates were derived using a multistage estimation procedure: inflation by reciprocals of the probabilities of selection; adjustment for nonresponse; and population weighting ratio adjustments.

For more detailed information on the design of NSAS, see: McLemore T, Lawrence L. Plan and Operation of the National Survey of Ambulatory Surgery. National Center for Health Statistics. Vital Health Stat 1(37). 1997.

### National Nursing Home Survey

NCHS has conducted five National Nursing Home Surveys. The first survey was conducted from August 1973 to April 1974; the second survey from May 1977 to December 1977; the third from August 1985 to January 1986; the fourth from July 1995 to December 1995; and the fifth from July 1997 to December 1997.

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. 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. 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 1973–74 survey in that it excluded personal or domiciliary care 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 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 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.

The scope of the 1995 and 1997 NNHS was similar to the 1985 and the 1973–74 NNHS in that they included only nursing homes that provided some level of nursing care. Homes providing only personal or domiciliary care were excluded. The 1995 sample of 1,500 homes was selected from a sampling frame of 17,500 nursing homes. The frame consisted of an updated version of the 1991 National Health Provider Inventory (NHPI). Data were obtained from about 1,400 nursing homes and 8,000 current residents. Data on current residents were provided by a staff member familiar with the care received by residents and from information contained in resident's medical records.

The 1997 sample of 1,488 nursing homes was the same basic sample used in 1995. Excluded were out-of-scope and out-of-business places identified in the 1995 survey and included were a small number of additions to the sample from a supplemental frame of places not in the 1995 frame. The 1997 NNHS included the discharge component not available in the 1995 survey.

Statistics for all five 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: Meiners MR. Selected operating and financial characteristics of nursing homes, United States, 1973–74 National Nursing Home Survey. National Center for Health Statistics. Vital Health Stat 13(22). 1975. For more information on the 1977 NNHS, see: Van Nostrand JF, Zappolo A, Hing E, et al. The National Nursing Home Survey, 1977 summary for the United States. National Center for Health Statistics. Vital Health Stat 13(43). 1979. For more information on the 1985 NNHS, see: Hing E, Sekscenski E, Strahan G. The National Nursing Home Survey: 1985 summary for the United States. National Center for Health Statistics. Vital Health Stat 13(97). 1985. For

more information on the 1995 NNHS, see: Strahan G. An overview of nursing homes and their current residents: Data from the 1995 National Nursing Home Survey. Advance data from vital and health statistics; no 280. Hyattsville, Maryland: National Center for Health Statistics. 1997. For more information on the 1997 NNHS, see the Advance Data report available in the summer of 1999.

#### 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. Patient encounters with physicians engaged in prepaid practices (health maintenance organizations (HMO's), independent practice organizations (IPA's), and other prepaid practices) are included in NAMCS. 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 excluded, also.

A multistage probability design is employed. The first-stage sample consists of 84 primary sampling units (PSU's) in 1985 and 112 PSU's in 1992 selected from about 1,900 such units into which the United States has been divided. In each sample PSU, a sample of practicing non-Federal office-based physicians is selected from master files maintained by the American Medical Association and the American Osteopathic Association. The final stage involves systematic random samples of office visits during randomly assigned 7-day reporting periods. In 1985 the survey excluded Alaska and Hawaii. Starting in 1989 the survey included all 50 States.

For the 1997 survey a sample of 2,498 physicians was selected. The physician response rate for 1997 was 69 percent, providing data on 24,715 records.

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 NAMCS, see: Woodwell, DA. National Ambulatory Medical Care Survey: 1997 summary. Advance data from vital and health statistics; no 305. Hyattsville, Maryland: National Center for Health Statistics. 1999.

#### National Hospital Ambulatory Medical Care Survey

The National Hospital Ambulatory Medical Care Survey (NHAMCS), initiated in 1992, is a continuing annual national probability sample of visits by patients to emergency departments (ED's) and outpatient departments (OPD's) of non-Federal, short-stay, or general hospitals. Telephone contacts are excluded.

A four-stage probability sample design is used in NHAMCS, involving samples of primary sampling units (PSU's), hospitals with ED's and/or OPD's within PSU's, ED's within hospitals and/or clinics within OPD's, and patient visits within ED's and/or clinics. In 1997 the hospital response rate for NHAMCS was 95 percent. Hospital staff were asked to complete Patient Record forms for a systematic random sample of patient visits occurring during a randomly assigned 4-week reporting period. In 1997 the number of Patient Record forms completed for ED's was 22,209 and for OPD's was 30,107.

For more detailed information on NHAMCS, see: McCaig LF, McLemore T. Plan and operation of the National Hospital Ambulatory Medical Care Survey. National Center for Health Statistics. Vital Health Stat 1(34). 1994.

### National Center for HIV, STD, and TB Prevention

#### 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 and Prevention (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 semiannual 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, see: Centers for Disease Control and Prevention. *HIV/AIDS Surveillance Report*, published semiannually; or contact: Chief, Surveillance Branch, Division of HIV/AIDS, National Center for HIV, STD, and TB Prevention (NCHSTP), Centers for Disease Control and Prevention, Atlanta, GA 30333; or visit the NCHSTP home page at http://www.cdc.gov/nchstp/od/nchstp.html.

## Epidemiology Program Office

### National Notifiable Diseases Surveillance System

The Epidemiology Program Office (EPO) of 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 conducted by public health practitioners at local, State, and national levels to support 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.)

CSTE and CDC annually review the status of national infectious disease surveillance and recommend additions or deletions to the list of nationally notifiable diseases based on the need to respond to emerging priorities. For example, genital chlamydial infections became nationally notifiable in 1995. However, reporting nationally notifiable diseases to CDC by States is voluntary. Reporting is currently mandated by law or regulation only at the State level. Therefore, the list of diseases that are considered notifiable varies slightly by State. For example, reporting of mumps to CDC is not done by some States in which this disease is not notifiable to local or State authorities.

Completeness of reporting varies because not all cases receive medical care and not all treated conditions are reported. Estimates of underreporting of some diseases have been made. For example, it is estimated that only 22 percent of cases of congenital rubella syndrome are reported. Only 10–15 percent of all measles cases were reported before the institution of the Measles Elimination Program in 1978. Recent investigations suggest that fewer than 50 percent of measles cases were reported following an outbreak in an inner city and that 40 percent of hospitalized measles cases are currently reported. Data from a study of pertussis suggest that only one-third of severe cases causing hospitalization or death are reported. 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 and Prevention, Summary of Notifiable Diseases, United States, 1997. *Morbidity and Mortality*

*Weekly Report*, 46(53), Public Health Service, DHHS, Atlanta, GA, 1998; or write: Chief, Surveillance Systems Branch, Division of Public Health Surveillance and Informatics. Epidemiology Program Office, Centers for Disease Control and Prevention, 1600 Clifton Road, MS C08, Atlanta, GA 30333; or visit the EPO home page at http://www.cdc.gov/epo.

## National Center for Chronic Disease Prevention and Health Promotion

### Abortion Surveillance

In 1969 CDC began abortion surveillance to document the number and characteristics of women obtaining legal induced abortions, monitor unintended pregnancy, and assist efforts to identify and reduce preventable causes of morbidity and mortality associated with abortions. For each year since 1969 abortion data have been available from 52 reporting areas: 50 States, the District of Columbia, and New York City. The total number of legal induced abortions is available from all reporting areas; however, not all areas collect information regarding the characteristics of women who obtain abortions. Furthermore the number of States reporting each characteristic and the number of States with complete data for each characteristic vary from year to year. State data with more than 15 percent unknown for a given characteristic are excluded from the analysis of that characteristic.

For 47 reporting areas, data concerning the number and characteristics of women who obtain legal induced abortions are provided by central health agencies such as State health departments and the health departments of New York City and the District of Columbia. For the other five areas, data concerning the number of abortions are provided by hospitals and other medical facilities. In general the procedures are reported by the State in which the procedure is performed. However, two reporting areas (the District of Columbia and Wisconsin) report abortions by State of residence; occurrence data are unavailable for these areas.

The total number of abortions reported to CDC is about 10 percent less than the total estimated independently by the Alan Guttmacher Institute, a not-for-profit organization for reproductive health research, policy analysis, and public education.

For more information, see: Centers for Disease Control and Prevention, CDC Surveillance Summaries, July 3, 1998. *Morbidity and Mortality Weekly Report* 1998;47 (NoSS-2), Abortion Surveillance - United States, 1995; or contact: Director, Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), Centers for Disease Control and Prevention Atlanta, GA 30333; or visit the NCCDPHP home page at http://www.cdc.gov/nccdphp.

## National Institute for Occupational Safety and Health

### National Traumatic Occupational Fatalities Surveillance System

The National Traumatic Occupational Fatalities (NTOF) surveillance system is compiled by the National Institute for Occupational Safety and Health (NIOSH) based on information taken from death certificates. Certificates are collected from 52 vital statistics reporting units (the 50 States, New York City, and the District of Columbia) based on the following criteria: age 16 years or over, an external cause of death (ICD-9, E800-E999), and a positive response to the ''Injury at work?'' item.

For the period of this analysis there were no standardized guidelines regarding the completion of the ''Injury at work?'' item on the death certificate, thus, numbers and rates of occupational injury deaths from NTOF should be regarded as the lower bound for the true number of these events. Operational guidelines for the completion of the ''Injury at work?'' item have been developed by NIOSH in conjunction with the National Center for Health Statistics, the National Association for Public Health Statistics and Information Systems, and the National Center for Environmental Health and were disseminated in 1992

for implementation in 1993. This should improve death certificate-based surveillance of work-related injuries.

The denominator data for the calculation of rates by industry division were obtained from the U.S. Bureau of Labor Statistics' annual average employment data. All of the rates presented are for the U.S. civilian labor force.

For further information on NTOF, see DHHS (NIOSH). Publication No. 93–108, *Fatal Injuries to Workers in the United States, 1980–1989: A Decade of Surveillance*; or contact: Director, Division of Safety Research, National Institute for Occupational Safety and Health, 1095 Willowdale Road, Mailstop P-1172, Morgantown, WV 26505; or visit the NIOSH home page at http://www.cdc.gov/niosh.

## 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 State of practice. The 1995 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 1995 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 internationally 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 internationally trained 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 the AMA data.

For more information, see: Bureau of Health Professions, *Health Personnel in the United States Ninth Report to Congress, 1993*, DHHS Pub. No. HRS-P-OD-94–1, 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: (a) population of nurses currently licensed to practice; (b) supply of full- and part-time practicing nurses (or available to practice); and (c) full-time equivalent supply of nurses practicing full time plus one-half of those practicing part time (or available on that basis).

The three estimates are divided into three levels of highest educational preparation: associate degree or diploma, baccalaureate, and 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. The base data for the model are derived from the National Sample Surveys of Registered Nurses, conducted by the Division of Nursing, Bureau of Health Professions, HRSA. Other data sources include National League for Nursing for data on nursing education and National Council of State Boards of Nursing for data on licensure.

## Substance Abuse and Mental Health Services Administration

## Office of Applied Studies

### National Household Surveys on Drug Abuse

Data on trends in use of marijuana, cigarettes, alcohol, and cocaine among persons 12 years of age

and over are from the National Household Survey on Drug Abuse (NHSDA). The 1997 survey is the 17th in a series that began in 1971 under the auspices of the National Commission on Marijuana and Drug Abuse. From 1974 to September 1992, the survey was sponsored by the National Institute on Drug Abuse. Since October 1992, the survey has been sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA).

Since 1991 the National Household Survey on Drug Abuse has covered the civilian noninstitutionalized population 12 years of age and over in the United States. This includes civilians living on military bases and persons living in noninstitutionalized group quarters, such as college dormitories, rooming houses, and shelters. Hawaii and Alaska were included for the first time in 1991.

In 1994 the survey underwent major changes that affect the reporting of substance abuse prevalence rates. New questionnaire and data editing procedures were implemented to improve the measurement of trends in prevalence and to enhance the timeliness and quality of the data. Because it was anticipated that the new methodology would affect the estimates of prevalence, the 1994 NHSDA was designed to generate two sets of estimates. The first set, called the 1994-A estimates, was based on the same questionnaire and editing method that were used in 1993. The second set, called the 1994-B estimates, was based on the new questionnaire and editing methodology. A description of this new methodology can be found in Advance Report 10, available from SAMHSA. Because of the 1994 changes, many of the estimates from the 1994-A and earlier NHSDA's are not comparable with estimates from the 1994-B and later NHSDA's. To be able to describe long-term trends in drug use accurately, an adjustment procedure was developed and applied to the pre-1994 estimates. This adjustment uses the 1994 split sample design to estimate the magnitude of the impact of the new methodology for each drug category. The adjusted estimates are presented in this volume of *Health, United States*. A description of the adjustment method can be found in Advance Report Number 18, Appendix A, available from SAMHSA.

The 1997 survey employed a multistage probability sample design. Young people (age 12–34 years), black Americans, and Hispanics were oversampled. The sample included 24,505 respondents. The screening and interview response rates were 92.7 percent and 78.3 percent, respectively.

For more information on the National Household Survey on Drug Abuse (NHSDA), see: NHSDA Series: H-5 National Household Survey on Drug Abuse Main Findings 1996, H-6 Preliminary Results from the 1997 National Household Survey on Drug Abuse, H-7 National Household Survey on Drug Abuse: Population Estimates 1997; or write: Office of Applied Studies, Substance Abuse and Mental Health Services Administration, Room 16C-06, 5600 Fishers Lane, Rockville, MD 20857; or visit the SAMHSA home page at http://www.samhsa.gov.

### Drug Abuse Warning Network

The Drug Abuse Warning Network (DAWN) is a large-scale, ongoing drug abuse data collection system based on information from emergency room and medical examiner facilities. DAWN collects information about those drug abuse occurrences that 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, the identification of substances associated with drug abuse episodes, and the assessment of drug-related consequences and other health hazards.

Hospitals eligible for DAWN are non-Federal, short-stay general hospitals that have a 24-hour emergency room. Since 1988 the DAWN emergency room data have been collected from a representative sample of these hospitals located throughout the coterminous United States, including 21 oversampled metropolitan areas. Within each facility, a designated DAWN reporter is responsible for identifying drug abuse episodes by reviewing official records and transcribing and submitting data on each case. The data from this sample are used to generate estimates of the total number of emergency room drug abuse

episodes and drug mentions in all such hospitals. A response rate of 74 percent was obtained in the 1996 survey.

A methodology for generating comparable estimates for years before 1988 was developed, taking advantage of historical data on the characteristics of the universe of eligible hospitals and the extensive data files compiled over the years by DAWN. After the new probability sample for DAWN was implemented in 1988, old and new DAWN sample data were collected for a period of 1 year. This overlap period was used to evaluate various procedures for weighting the old sample data (from 1978 to 1987). The procedure that consistently produced reliable estimates for a particular metropolitan area was selected as the weighting scheme for that area and used to generate all estimates for that area for years before 1988. These historical estimates are available in Advance Report 16, available from SAMHSA.

For further information, see: Series I, Number 14-A The Drug Abuse Warning Network (DAWN) Annual Data, 1994; Advance Report 14: Historical Estimates from the Drug Abuse Warning Network; DAWN Series: D-5 Mid-Year 1997 Preliminary Emergency Department Data from the Drug Abuse Warning Network and D-6 Drug Abuse Warning Network - Annual Medical Examiner Data 1996 or write: Office of Applied Studies, Substance Abuse and Mental Health Services Administration, Room 16C-06, 5600 Fishers Lane, Rockville, MD 20857; or visit the SAMHSA home page at http://www.samhsa.gov.

#### Uniform Facility Data Set

The Uniform Facility Data Set (UFDS), is part of the Drug and Alcohol Services Information System (DASIS) maintained by the Substance Abuse and Mental Health Services Administration. UFDS is a census of all substance abuse treatment and prevention facilities that are licensed, certified, or otherwise recognized by the individual State substance abuse agencies, and an additional group of substance abuse treatment facilities identified from other sources. It seeks information from all specialized facilities that treat substance abuse. These include facilities that only treat substance abuse, as well as specialty substance abuse units operating within larger mental health (for example, community mental health centers), general health (for example, hospitals), social service (for example, family assistance centers), and criminal justice (for example, probation departments) agencies. UFDS solicits data concerning facility and client characteristics for a specific reference day (on or about October 1) including number of individuals in treatment, substance of abuse (alcohol, drugs, or both), types of services, and source of revenue. Public and private facilities are included.

Treatment facilities contacted through UFDS are identified from the National Master Facility Inventory (NMFI), which lists all State-sanctioned substance abuse treatment and prevention facilities and additional treatment facilities identified through business directories and other sources. In 1996, only State-sanctioned facilities were included in the published tables. The 1997 data include, for the first time, the facilities identified through business directories and other sources. Response rates to the survey were 86 and 88 percent in 1996 and 1997 respectively.

For further information on UFDS, contact: Office of Applied Studies, Substance Abuse and Mental Health Services Administration, Room 16–105, 5600 Fishers Lane, Rockville, MD 20857; or visit the OAS statistical information section of the SAMHSA home page: http://www.samhsa.gov.

### Center for Mental Health Services

#### Surveys of Mental Health Organizations

The Survey and Analysis Branch of the Division of State and Community Systems Development conducts a biennial inventory of mental health organizations (IMHO) and general hospital mental health services (GHMHS). One version is designed for specialty mental health organizations and another for non-Federal general hospitals with separate psychiatric services. 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.

IMHO and GHMHS are the primary sources for Center for Mental Health Services 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, Department of Veterans Affairs psychiatric services, residential treatment centers for emotionally disturbed children, freestanding outpatient psychiatric clinics, partial care organizations, freestanding day-night organizations, 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 the Center for Mental Health Services, 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 (for example, 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.

Other surveys conducted by the Survey and Analysis Branch encompass samples of patients admitted to State and county mental hospitals, private mental hospitals, multiservice mental health organizations, the psychiatric services of non-Federal general hospitals and Department of Veterans Affairs medical centers, residential treatment centers for emotionally disturbed children, and freestanding outpatient and partial care programs. 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 Analysis Branch, Division of State and Community Systems Development, Center for Mental Health Services, Room 15C-O4, 5600 Fishers Lane, Rockville, MD 20857. For further information on mental health, see: Center for Mental Health Services, *Mental Health, United States, 1998.* Manderscheid R, Henderson MJ, eds. DHHS Pub. No. (SMA) 99–3285. Washington: Superintendent of Documents, U.S. Government Printing Office. 1998; or visit the Center for Mental Health Services home page at http://www.samhsa.gov/cmhs/cmhs.htm.

## 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 to provide data on all residents diagnosed with cancer during the year and to provide current followup information on all previously diagnosed patients.

This report covers 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.

Population estimates used to calculate incidence rates are obtained from the U.S. Bureau of the Census. NCI uses estimation procedures as needed to obtain estimates for years and races not included in the data provided by the U.S. Bureau of the Census. 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 NCHS and in-house calculations. 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, 1973–95* by L.A.G. Ries, et al. Public Health Service. Bethesda, MD, 1998; or visit the SEER home page: http://www-seer.ims.nci.nih.gov.

## National Institute on Drug Abuse

### Monitoring the Future Study (High School Senior Survey)

Monitoring the Future Study (MTF) is a large-scale epidemiological survey of drug use and related attitudes. It was initiated by the National Institute on Drug Abuse (NIDA) in 1975 and is conducted annually through a NIDA grant awarded to the University of Michigan's Institute for Social Research. MTF is composed of three substudies: (a) annual survey of high school seniors initiated in 1975; (b) ongoing panel studies of representative samples from each graduating class that have been conducted by mail since 1976; and (c) annual surveys of 8th and 10th graders initiated in 1991.

The survey design is a multistage random sample with stage one being the selection of particular geographic areas, stage two the selection of one or more schools in each area, and stage three the selection of students within each school. Data are collected using self-administered questionnaires administered in the classroom by representatives of the Institute for Social Research. Dropouts and students who are absent on the day of the survey are excluded. Recognizing that the dropout population is at higher risk for drug use, this survey was expanded to include similar nationally representative samples of 8th and 10th graders in 1991. Statistics that are published in the Dropout Rates in the United States: 1996 (published by the National Center for Educational Statistics, Pub. No. 98–250) stated that among persons 15–16 years of age, 3.5 percent have dropped out of school. Among persons 17 years of age, 3.4 percent have dropped out of school, while the dropout percent increases to 5.9 percent of persons 18 years of age, and to 8.9 percent for persons 19 years of age. Therefore, surveying eighth graders (where drop out rates are much lower than for high school seniors) should be effective for picking up students at higher risk for drug use.

Approximately 50,000 8th, 10th, and 12th graders are surveyed annually. In 1998 the annual senior samples are comprised of 15,780 seniors in 144 public and private high schools nationwide, selected to be representative of all seniors in the continental United States. The 10th grade samples involve about 15,419 students in 129 schools in 1998, and the 1998 eighth grade samples have 18,667 students in 149 schools.

For further information on Monitoring the Future Study, see: National Institute on Drug Abuse, National Survey Results on Drug Use from Monitoring the Future Study, 1975–1997, vol I, secondary school students. NIH Pub. No. 98–4345. Washington: Public Health Service. 1998; or visit the NIDA home page at http://www.nida.nih.gov or University of Michigan's website, http://www.isr.umich.edu/src/mtf/.

## 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.

Estimates of expenditures for health services come from an array of sources. The American Hospital Association (AHA) 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 home health care and for services of health professionals (for example, doctors, chiropractors, private duty nurses, therapists,

and podiatrists) are estimated primarily using a combination of data from the U.S. Bureau of the Census' Service Annual Survey and the quinquennial Census of Service Industries.

The estimates of retail spending for prescription drugs are based on results of a HCFA-sponsored study conducted by the Actuarial Research Corporation and on industry data on prescription drug transactions. Expenditures for 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, U.S. Bureau of Labor Statistics/Consumer Expenditure Survey, and the 1987 National Medical Expenditure Survey conducted by the Agency for Health Care Policy and Research. Those durable and nondurable products provided to inpatients in hospitals or nursing homes, and those provided by licensed professionals or through home health agencies are excluded here, but are included with the expenditure estimates of the provider service category.

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 data from the U.S. Bureau of the Census Services Annual Survey, and the quinequennial Census of Service Industries.

Expenditures for construction include those spent on the erection or renovation of hospitals, nursing homes, medical clinics, and medical research facilities, but not for private office buildings providing office space for private practitioners. Expenditures for noncommercial research (the cost of commercial research by drug companies is 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, and from the Bureau of Labor Statistics' survey on the cost of employer-sponsored health insurance and on consumer expenditures. Information on out-of-pocket spending from the U.S. Bureau of the Census' Services Annual Survey, U.S. Bureau of Labor Statistics' Consumer Expenditure Survey, the 1987 National Medical Expenditure Survey conducted by the Agency for Health Care Policy and Research, and from private surveys conducted by the American Hospital Association, American Medical Association, and the American Dental Association are used to develop estimates of direct spending by customers.

For more specific information on definitions, sources and methods used in the National Health Accounts, see: National Health Accounts: Lessons from the U.S. Experience, by Lazenby HC, Levit KR, Waldo DR, et al. Health Care Financing Review, vol 14 no 4. Health Care Financing Administration. Washington: Public Health Service. 1992 and National Health Expenditures, 1994, Levit KR, Lazenby HC, Sivarajan L, et al. Health Care Financing Review, vol 17 no 3. Health Care Financing Administration. Washington: Public Health Service. 1996.

#### Estimates of State Health Expenditures

Estimates of spending by State are created using the same definitions of health care sectors used in producing the National Health Expenditures (NHE).

The same data sources used in creating NHE are also used to create State estimates whenever possible. Frequently, however, surveys that are used to create valid national estimates lack sufficient size to create valid State level estimates. In these cases, alternative data sources that best represent the State-by-State distribution of spending are substituted and the U.S. aggregate expenditures for the specific type of service or source of funds are used to control the level of State-by-State distributions. This procedure implicitly assumes that national spending estimates can be created more accurately than State specific expenditures.

Despite definitional correspondence, NHE differ from the sum of State estimates. NHE include expenditures for persons living in U.S. territories and for military and Federal civilian employees and their families stationed overseas. The sum of the State level expenditures exclude health spending for those groups. For hospital care, exclusion of purchases of services in non-U.S. areas accounts for a 0.9 percent reduction in hospital expenditures from those measured as part of NHE.

For more information, contact: Office of the Actuary, Health Care Financing Administration, 7500 Security Blvd., Baltimore, MD 21244–1850.

### Medicare National Claims History Files

The Medicare Common Working File (CWF) is a Medicare Part A and Part B benefit coordination and claims validation system. There are two National Claims History (NCH) files, the NCH 100 percent-Nearline File, and the NCH Beneficiary Program Liability (BPL) File. The NCH files contain claims records and Medicare beneficiary information. The NCH 100 percent Nearline File contains all institutional and physician/supplier claims from the CWF. It provides records of every claim submitted, including all adjustment claims. The NCH BPL file contains Medicare Part A and Part B beneficiary liability information (such as deductible and coinsurance amounts remaining). The records include all Part A and Part B utilization and entitlement data. Records for 1997 were maintained on more than 38 million enrollees and 48,826 institutional providers including 6,246 hospitals, 14,619 skilled nursing facilities, 10,487 home health agencies, 2,239 hospices, 2,689 outpatient physical therapy, 472 comprehensive outpatient rehabilitation facilities, 3,274 end state renal dialysis facilities, 3,447 rural health clinics, 1,175 community mental health centers, 2,406 ambulatory surgical centers, and 1,772 federally qualified health centers. About 708 million claims were processed in fiscal year 1996.

Data from the NCH files 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, reimbursement, and services used.

For further information on the NCH files see: Health Care Financing Administration, Office of Information Services, Enterprise Data Base Group, Division of Information Distribution, Data Users Reference Guide or call the Medicare Hotline at 410–786–3689.

For further information on Medicare visit the HCFA home page at http://www.hcfa.gov.

### 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).

- HCFA-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.

The Medicaid data presented in *Health, United States* are from the Medicaid statistical system (using form HCFA-2082) and may differ from data presented elsewhere using the quarterly financial reports (form HCFA-64) submitted by States for reimbursement. Vendor payments from the Medicaid statistical system exclude disproportionate share hospital payments ($17 billion in 1993) and payments to health maintenance organizations and Medicare ($6 billion in 1993).

For further information on Medicaid data, see: *Health Care Financing Review: Medicare and Medicaid Statistical Supplement, 1995*, HCFA Pub. No. 0374, Health Care Financing Administration, Baltimore, MD. U.S. Government Printing Office, Sept. 1995; or visit the HCFA home page at http://www.hcfa.gov.

### Online Survey Certification and Reporting Database

The Online Survey Certification and Reporting (OSCAR) database has been maintained by the Health Care Financing Administration (HCFA) since 1992. OSCAR is an updated version of the Medicare and Medicaid Automated Certification System that has been in existence since 1972. OSCAR is an administrative database containing detailed information on all Medicare and Medicaid health care providers in addition to all currently certified Medicare and Medicaid nursing home facilities in the United States and Territories. (Data for the territories are not shown in this report.) The purpose of the nursing home facility survey certification process is to ensure that nursing facilities meet the current HCFA long-term care requirements and thus can participate in serving Medicare and Medicaid beneficiaries. Included in the OSCAR database are all certified nursing facilities, certified hospital-based nursing homes, and certified units for other types of nursing home facilities (for example, life care communities or board and care homes). Facilities not included in OSCAR are all noncertified facilities (that is, facilities that are only licensed by the State and are limited to private payment sources), and nursing homes that are part of the Department of Veterans Affairs. Also excluded are nursing homes that are intermediate care facilities for the mentally retarded.

Information on the number of beds, residents, and resident characteristics are collected during an inspection of all certified facilities. All certified nursing homes are inspected by representatives of the State survey agency (generally the Department of Health) at least once every 15 months. The information present on OSCAR is based on each facility's own administrative record system in addition to interviews with key administrative staff members.

For more information, see: HCFA: OSCAR data users reference guide, 1995, available from HCFA, Health Standards and Quality Bureau, HCFA/HSQB S2–11–07, 7500 Security Boulevard, Baltimore, MD 21244; or visit the HCFA home page at http://www.hcfa.gov.

## Department of Commerce

### Bureau of the Census

#### Census of Population

The census of population has been taken in the United States every 10 years since 1790. In the 1990 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 representative sample of the population. For most of the country, one out of six households (about 17 percent) received the more detailed questionnaire. In places of residence estimated to have less than 2,500 population, 50 percent of households received the long form.

For more information on the 1990 census, see: U.S. Bureau of the Census, *1990 Census of Population, General Population Characteristics*, Series 1990, CP-1; or visit the Census Bureau home page at http://www.census.gov.

#### 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. CPS provides estimates of employment, unemployment, and other characteristics of the general labor force, the population as a whole, and various other subgroups of the population.

The 1998 CPS sample is located in 754 sample areas, with coverage in every State and the District of Columbia. In an average month during 1998, the number of housing units or living quarters eligible for interview was about 50,000; of these about 7 percent were, for various reasons, unavailable for interview. In 1994 major changes were introduced, which included a complete redesign of the questionnaire and the introduction of computer-assisted interviewing for the entire survey. In addition, there were revisions to some of the labor force concepts and definitions.

The estimation procedure used involves inflation by the reciprocal of the probability of selection, adjustment for nonresponse, and ratio adjustment. Beginning in 1994 new population controls based on the 1990 census adjusted for the estimated population undercount were utilized.

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; U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, Feb. 1994, vol 41 no 2 and Feb. 1995, vol 42 no 2, Washington: U.S. Government Printing Office, Feb. 1994 and Feb. 1995; or visit the CPS home page at http://www.bls.census.gov.

#### Population Estimates

National population estimates are derived by using decennial census data as benchmarks and data available from various agencies as follows: births and deaths (National Center for Health Statistics); immigrants (Immigration and Naturalization Service); 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 consistent with official decennial census figures and do not reflect estimated decennial census underenumeration.

After decennial population censuses, intercensal population estimates for the preceding decade are prepared to replace postcensal estimates. Intercensal population estimates are more accurate than postcensal estimates because they take into account the census of population at the beginning and end of the decade. Intercensal estimates have been prepared for the 1960's, 1970's, and 1980's to correct the ''error of closure'' or difference between the estimated population at the end of the decade and the census

count for that date. The error of closure at the national level was quite small during the 1960's (379,000). However, for the 1970's it amounted to almost 5 million and for the 1980's, 1.5 million.

For more information, see: U.S. Bureau of the Census, U.S. population estimated by age, sex, race, and Hispanic origin: 1990–96, release PPL-57, March 1997; or visit the Census Bureau home page: http://www.census.gov.

## Department of Labor

### Bureau of Labor Statistics

#### Annual Survey of Occupational Injuries and Illnesses

Since 1971 the Bureau of Labor Statistics (BLS) has conducted an annual survey of establishments in the private sector to collect statistics on occupational injuries and illnesses. The Survey of Occupational Injuries and Illnesses is based on records that employers maintain under the Occupational Safety and Health Act. Excluded from the survey are self-employed individuals; farmers with fewer than 11 employees; employers regulated by other Federal safety and health laws; and Federal, State, and local government agencies.

Data are obtained from a sample of approximately 250,000 establishments, that is, single physical locations where business is conducted or where services of industrial operations are performed. An independent sample is selected for each State and the District of Columbia that represents industries in that jurisdiction. BLS includes all the State samples in the national sample.

Establishments included in the survey are instructed in a mailed questionnaire to provide summary totals of all entries for the previous calendar year to its Log and Summary of Occupational Injuries and Illnesses (OSHA No. 200 form). Additionally, from the selected establishments, approximately 550,000 injuries and illnesses with days away from work are sampled in order to obtain demographic and detailed case characteristic information. An occupational injury is any injury, such as a cut, fracture, sprain, or amputation, that results from a work-related event or from a single instantaneous exposure in the work environment. An occupational illness is any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to factors associated with employment. It includes acute and chronic illnesses or disease that may be caused by inhalation, absorption, ingestion, or direct contact. Lost workday cases are cases that involve days away from work, or days of restricted work activity, or both. The response rate is about 92 percent.

For more information, see: Bureau of Labor Statistics, Occupational Injuries and Illnesses: Counts, Rates, and Characteristics, 1993. BLS Bulletin 2478, U.S. Department of Labor, Washington, D.C., August 1996; or visit the BLS home page at http://www.bls.gov.

#### Consumer Price Index

The Consumer Price Index (CPI) 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 covers residents of metropolitan areas as well as residents of urban parts of non-metropolitan areas (about 87 percent of the United States population in 1990).

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, 1982–84, 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 1982–84 to $16.30 in 1998.

The current revision of CPI, projected to be completed in 2000, reflects spending patterns based on

the Survey of Consumer Expenditures from 1993 to 1995, the 1990 Census of Population, and the ongoing Point-of-Purchase Survey. Using an improved sample design, prices for the goods and services required to calculate the index are collected in urban areas throughout the country and from retail and service establishments. Data on rents are collected from tenants of rented housing and residents of owner-occupied housing units. Food, fuels, and other goods and services are priced monthly in urban locations. Price information is obtained through visits or calls by trained BLS field representatives using computer-assisted telephone interviews.

The earlier 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.

Effective January 1997 the hospital index was restructured by combining the three categories room, inpatient services and outpatient services into one category, hospital services. Differentiation between inpatient and outpatient and among service types are under this broad category. In addition new procedures for hospital data collection identify a payor, diagnosis, and the payor's reimbursement arrangement from selected hospital bills.

A new geographic sample and item structure were introducted in January 1998 and expenditure weights were updated to 1993 to 1995. Pricing of a new housing sample using computer-assisted data collection was started in June 1998. In January 1999 the index will be rebased from the 1982–84 time period to 1993–95.

For more information, see: Bureau of Labor Statistics, *Handbook of Methods*, BLS Bulletin 2490, U.S. Department of Labor, Washington, Apr. 1997; IK 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, Apr. 1988; or visit the BLS home page at http://www.bls.gov.

### Employment and Earnings

The Division of Monthly Industry Employment Statistics and the Division of Employment and Unemployment Analysis of the Bureau of Labor Statistics publish data on employment and earnings. The data are collected by the U.S. 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 U.S. 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*, Jan. 1999, vol 46 no 1, Washington: U.S. Government Printing Office. Jan. 1999.

### Employer Costs for Employee Compensation

Employer costs for employee compensation cover all occupations in private industry, excluding farms and households and State and local governments. These cost levels are published once a year with the payroll period including March 12th as the reference period.

The cost levels are based on compensation cost data collected for the Bureau of Labor Statistics Employment Cost Index (ECI), released quarterly. Employee Benefits Survey (EBS) data are jointly collected with ECI data. Cost data were collected from the ECI's March 1993 sample that consisted of about 23,000 occupations within 4,500 sample establishments in private industry and 7,000 occupations within 1,000 establishments in State and local governments. The sample establishments are classified industry categories based on the 1987 Standard Industrial Classification (SIC) system, as defined by the U.S. Office of

Management and Budget. Within an establishment, specific job categories are selected to represent broader major occupational groups such as professional specialty and technical occupations. The cost levels are calculated with current employment weights each year.

For more information, see: U.S. Department of Labor, Bureau of Labor Statistics, *Employment Cost Indexes and Levels, 1975–95*, Bulletin 2466, Oct. 1995.

## Department of Veterans Affairs

Data are obtained from the Department of Veterans Affairs (VA) administrative data systems. These include budget, patient treatment, patient census, and patient outpatient clinic information. Data from the three patient files are collected locally at each VA medical center and are transmitted to the national databank at the VA Austin Automated Center where they are stored and used to provide nationwide statistics, reports, and comparisons.

### The Patient Treatment File

The patient treatment file (PTF) collects data, at the time of the patient's discharge, on each episode of inpatient care provided to patients at VA hospitals, VA nursing homes, VA domiciliaries, community nursing homes, and other non-VA facilities. The PTF record contains the scrambled social security number, dates of inpatient treatment, date of birth, State and county of residence, type of disposition, place of disposition after discharge, as well as the ICD–9–CM diagnostic and procedure or operative codes for each episode of care.

### The Patient Census File

The patient census file collects data on each patient remaining in a VA medical facility at midnight on a selected date of each year, normally September 30. This file includes patients admitted to VA hospitals, VA nursing homes, and VA domiciliaries. The census record includes information similar to that reported in the patient treatment file record.

### The Outpatient Clinic File

The outpatient clinic file (OPC) collects data on each instance of medical treatment provided to a veteran in an outpatient setting. The OPC record includes the age, scrambled social security number, State and county of residence, VA eligibility code, clinic(s) visited, purpose of visit, and the date of visit for each episode of care.

For more information, write: Department of Veterans Affairs, National Center for Veteran Analysis and Statistics, Biometrics Division 008Cl2, 810 Vermont Ave., NW, Washington, DC 20420; or visit the VA home page at http://www.va.gov.

## Environmental Protection Agency

### Aerometric Information Retrieval System (AIRS)

The Environmental Protection Agency's Aerometric Information Retrieval System (AIRS) compiles data on ambient air levels of particulate matter smaller than 10 microns (PM-10), lead, carbon monoxide, sulphur dioxide, nitrogen dioxide, and tropospheric ozone. These pollutants were identified in the Clean Air Act of 1970 and in its 1977 and 1990 amendments because they pose significant threats to public health. The National Ambient Air Quality Standards (NAAQS) define for each pollutant the maximum concentration level (micrograms per cubic meter) that cannot be exceeded during specific time intervals. Data shown in this publication reflect attainment of NAAQS during a 12-month period based on analysis using county level air monitoring data from AIRS and population data from the Bureau of the Census.

Data are collected at State and local air pollution monitoring sites. Each site provides data for one or more of the six pollutants. The number of sites has varied, but generally increased over the years. In 1993 there were 4,469 sites, 4,668 sites in 1994, and 4,800 sites in 1995. The monitoring sites are located primarily in heavily populated urban areas. Air quality

for less populated areas is assessed through a combination of data from supplemental monitors and air pollution models.

For more information, see: Environmental Protection Agency, *National Air Quality and Emissions Trend Report, 1994*, EPA-454/R-95–014, Research Triangle Park, NC, Oct. 1995, or write: Office of Air Quality Planning and Standards, Environmental Protection Agency, Research Triangle Park, NC 27711. For additional information on this measure and similar measures used to track the Healthy People 2000 Objectives and Health Status Indicators, see: National Center for Health Statistics, *Monitoring Air Quality in Healthy People 2000*, Statistical Notes, No. 9. Hyattsville, Maryland: 1995; or visit the EPA AIRS home page at http://www.epa.gov/airs/airs.html.

## 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 ensure comparability, rates, ratios, and percents 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 (a) the definitions of the total population, (b) the definitions used to classify the population into its urban and rural components, (c) the difficulties relating to age reporting, (d) the extent of over- or underenumeration, and (e) 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 1996*, United Nations, New York, NY. 1998; or visit the United Nations home page at http://www.un.org or their website locator at http://www.unsystem.org.

### 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 WHO.

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 1996*, World Health Organization, Geneva, Switzerland, 1998; or visit the WHO home page at http://www.who.org.

## 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 universal survey 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 through the mid to late 1980's was about 20 percent more than the number reported to the Centers for Disease Control and Prevention (CDC). Since 1989 the AGI estimates have been about 12 percent higher than those reported by CDC.

For more information, write: The Alan Guttmacher Institute, 120 Wall Street, New York, NY 10005; or visit AGI's home page at http://www.agi-usa.org.

## American Association of Colleges of Osteopathic Medicine

The American Association of Colleges of Osteopathic Medicine (AACOM) 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, 1997*, American Association of Colleges of Osteopathic Medicine: Rockville, Maryland. 1997; or visit the AACOM home page at http://www.aacom.org.

## American Association of Colleges of Pharmacy

The American Association of Colleges of Pharmacy (AACP) compiles data on the Colleges of Pharmacy, including information on student enrollment and types of degrees conferred. Data are collected through an annual survey; the response rate is 100 percent.

For further information, see: Profile of Pharmacy Students. The American Association of Colleges of Pharmacy, 1426 Prince Street, Alexandria, VA 22314; or visit the AACP home page at http://www.aacp.org.

## American Association of Colleges of Podiatric Medicine

The American Association of Colleges of Podiatric Medicine (AACPM) compiles data on the Colleges of Podiatric Medicine, including information on the schools and enrollment. Data are collected annually through written questionnaires. The response rate is 100 percent.

For further information, write: The American Association of Colleges of Podiatric Medicine, 1350 Piccard Drive, Suite 322, Rockville, MD 20850–4307; or visit the AACPM home page at http://www.aacpm.org.

## American Dental Association

The Division of Educational Measurement of the American Dental Association (ADA) 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, *1996/97 Survey of predoctoral dental*

*educational institutions*. Chicago, Illinois, 1997; or visit the ADA home page at http://www.ada.org.

## American Hospital Association

### Annual Survey of Hospitals

Data from the American Hospital Association (AHA) annual survey are based on questionnaires sent to all hospitals, AHA-registered and nonregistered, in the United States and its associated areas. U.S. government hospitals located outside the United States were excluded. Questionnaires were mailed to all hospitals on AHA files. 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.

For more information on the AHA Annual Survey of Hospitals, see: American Hospital Association, (Health Forum), *Hospital Statistics, 1999 ed*. Chicago. 1999; or visit an AHA page at http://www.aha.org.

## American Medical Association

### Physician Masterfile

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

A file is initiated on each individual upon entry into medical school or, in the case of international graduates, upon entry into the United States. Between 1969–85 a mail questionnaire survey was conducted every 4 years to update the file information on professional activities, self-designated area of specialization, and present employment status. Since 1985 approximately one-third of all physicians are surveyed each year.

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.*, 1999 ed. Chicago. 1999; or visit the AMA home page at http://www.ama-assn.org.

### Annual Census of Hospitals

From 1920 to 1953 the Council on Medical Education and Hospitals of the 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,* 16(11):1055–1144. 1941; or visit the AMA home page at http://www.ama-assn.org.

## Association of American Medical Colleges

The Association of American Medical Colleges (AAMC) 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 (AMCAS) data system. Other data sources are the institutional profile system, the premedical students 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: *Statistical Information Related to Medical Education*. Washington. 1997; or visit the AAMC home page at http://www.aamc.org.

## Association of Schools and Colleges of Optometry

The Association of Schools and Colleges of Optometry (ASCO) compiles data on the various aspects of optometric education including data on schools and enrollment. Questionnaires are sent annually to all the schools and colleges of optometry. The response rate is 100 percent.

For further information, write: Annual Survey of Optometric Educational Institutions, Association of Schools and Colleges of Optometry, 6110 Executive Blvd., Suite 690, Rockville, MD 20852; or visit the ASCO home page at http://www.opted.org.

## Association of Schools of Public Health

The Association of Schools of Public Health (ASPH) compiles data on the 28 schools of public health in the United States and Puerto Rico. Questionnaires are sent annually to all member schools, and the response rate is 100 percent.

Unlike health professional schools that emphasize specific clinical occupations, schools of public health offer study in specialty areas such as biostatistics, epidemiology, environmental and occupational health, health administration, health planning, nutrition, maternal and child health, social and behavioral sciences, and other population-based sciences.

For further information, write: Association of Schools of Public Health, 1660 L Street, NW, Suite 204, Washington, D.C. 20036–5603; or visit the ASPH home page at http://www.asph.org.

## InterStudy

### National Health Maintenance Organization Census

From 1976 to 1980 the Office of Health Maintenance Organizations conducted a census of health maintenance organizations (HMO's). 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: 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: *The InterStudy Competitive Edge*, 1995. InterStudy Publications, St. Paul, MN 55104; or visit the InterStudy home page at http://www.hmodata.com.

## National League for Nursing

The division of research of the National League for Nursing (NLN) 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 registered nurses, basic registered nursing programs (baccalaureate, associate degree, and diploma), and licensed practical nursing programs. Data on enrollments, first-time admissions, and graduates are completed for all nursing education programs. Response rates of approximately 80 percent are achieved for other areas of inquiry.

For more information, see: National League for Nursing, *Nursing Data Review*, 1997, New York, NY; or visit the NLN home page at http://www.nln.org.

# Appendix II

# Glossary

The glossary is an alphabetical listing of terms used in *Health, United States*. It includes cross references to related terms and synonyms. It also contains the standard populations used for age adjustment and *International Classification of Diseases* (ICD) codes for cause of death and diagnostic and procedure categories.

**Abortion**—The Centers for Disease Control and Prevention's (CDC) surveillance system counts legal induced 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 to induce the termination of a pregnancy.

**Acquired immunodeficiency syndrome (AIDS)**—All 50 States and the District of Columbia report AIDS cases to CDC using a uniform case definition and case report form. The case reporting definitions were expanded in 1985 *(MMWR* 1985; 34:373–5); 1987 *(MMWR* 1987; 36 (supp. no. 1S): 1S–15S); and 1993 *(MMWR* 1992; 41 (no. RR-17): 1–19). These data are published semiannually by CDC in HIV/AIDS Surveillance Report. See related *Human immunodeficiency virus (HIV) infection*.

**Active physician**—See *Physician*.

**Addition**—An addition to a psychiatric organization is defined by the Center for Mental Health Services as a new admission, a readmission, a return from long-term leave, or a transfer from another service of the same organization or another organization. See related *Mental health disorder; Mental health organization; Mental health service type*.

**Admission**—The American Hospital Association defines admissions as patients, excluding newborns, accepted for inpatient services during the survey reporting period. See related *Days of care; Discharge; Patient*.

**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 age-specific rates in a population of interest to a standardized age distribution in order to eliminate 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.

Age-adjusted death rates are calculated by the direct method as follows:

$$\sum_{i=1}^{n} r_i \times (p_i / P)$$

where $r_i$ = age-specific death rates for the population of interest

$p_i$ = standard population in age group $i$

$P = \sum_{i=1}^{n} p_i$ for the age groups that comprise the age range of the rate being age adjusted

$n$ = total number of age groups over the age range of the age-adjusted rate

*Mortality data*—Death rates are age adjusted to the U.S. standard million population (relative age distribution of 1940 enumerated population of the United States totaling 1,000,000) (table I).

**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 |

Age-adjusted death rates are calculated using age-specific death rates per 100,000 population rounded to 1 decimal place. Adjustment is based on 11 age groups with 2 exceptions. First, age-adjusted death rates for black males and black females in 1950 are based on nine age groups, with under 1 year and 1–4 years of age combined as one group and 75–84 years and 85 years of age and over combined as one group. Second, age-adjusted death rates by educational attainment for the age group 25–64 years are based on four 10-year age groups (25–34 years, 35–44 years, 45–54 years, and 55–64 years).

The rate for years of potential life lost (YPLL) before age 75 years is age adjusted to the U.S. standard million population (table I) and is based on eight age groups (under 1 year, 1–14 years, 15–24 years, and 10-year age groups through 65–74 years).

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 1970 distribution of live births by mother's age in the United States as shown in table II. See related *Rate: Death and related rates; Years of potential life lost*.

*National Health Interview Survey*—Data from the National Health Interview Survey (NHIS) are age adjusted to the 1970 civilian noninstitutionalized population shown in table III. The 1970 civilian noninstitutionalized population is derived as follows: Civilian noninstitutionalized population = civilian population on July 1, 1970 – institutionalized population. Institutionalized population = (1 – proportion of total population not institutionalized on April 1, 1970) × total population on July 1, 1970.

Most of the data from NHIS (except as noted below and in table III) are age adjusted using four age groups: under 15 years, 15–44 years, 45–64 years, and 65 years and over. The NHIS data on health status and

**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 |

SOURCE: U.S. Bureau of the Census: Population estimates and projections. *Current Population Reports.* Series P-25, No. 499. Washington. U.S. Government Printing Office, May 1973.

**Table III. Populations and age groups used to age adjust NCHS survey data**

| *Population, survey, and age* | *Number in thousands* |
|---|---|
| U.S. civilian noninstitutionalized population in 1970 NHIS, NHDS, NSAS, NAMCS, and NHAMCS | |
| 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 |
| 65–74 years | 12,224 |
| 75 years and over | 6,889 |
| NHIS smoking data | |
| 18 years and over | 130,158 |
| 25 years and over | 107,694 |
| 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 |
| NHIS health status and health care coverage data | |
| All ages | 199,584 |
| Under 18 years | 69,426 |
| 18–44 years | 69,508 |
| 45–64 years | 41,537 |
| 65–74 years | 12,224 |
| 75 years and over | 6,889 |
| U.S. resident population in 1980 NHES and NHANES | |
| 6–11 years | 20,834 |
| 6–8 years | 9,777 |
| 9–11 years | 11,057 |
| 12–17 years | 23,410 |
| 12–14 years | 10,945 |
| 15–17 years | 12,465 |
| 20–74 years | 144,120 |
| 20–34 years | 58,401 |
| 35–44 years | 25,635 |
| 45–54 years | 22,800 |
| 55–64 years | 21,703 |
| 65–74 years | 15,581 |

SOURCE: Calculated from U.S. 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.

health care coverage are age adjusted for the population under 65 years of age using three age groups: under 18 years, 18–44 years, and 45–64 years; and for the population 65 years and over using two age groups: 65–74 years and 75 years and over. The NHIS data on smoking in the population 18 years and over are age adjusted using five age groups: 18–24 years, 25–34 years, 35–44 years, 45–64 years, and 65 years and over. The NHIS data on smoking in the population 25 years and over are age adjusted using four age groups: 25–34 years, 35–44 years, 45–64 years, and 65 years and over. The NHIS data on no usual source of health care among adults are age adjusted using three groups: 18–24 years, 25–44 years, and 45–64 years.

*Health Care Surveys*—Data from the four health care surveys, National Hospital Discharge Survey (NHDS), National Survey of Ambulatory Surgery (NSAS), National Ambulatory Medical Care Survey (NAMCS), and National Hospital Ambulatory Medical Care Survey (NHAMCS) are age adjusted to the 1970 civilian noninstitutionalized population using five age groups: under 15 years, 15–44 years, 45–64 years, 65–74 years, and 75 years and over (table III).

*National Health and Nutrition Examination Survey*— Data from the National Health Examination Survey (NHES) and the National Health and Nutrition Examination Survey (NHANES) are age adjusted to the 1980 U.S. resident population using five age groups for adults: 20–34 years, 35–44 years, 45–54 years, 55–64 years, and 65–74 years (table III). Data for children aged 6–11 years and 12–17 years are age adjusted within each group using two subgroups: 6–8 years and 9–11 years; and 12–14 years and 15–17 years (table III).

**AIDS**—See *Acquired immunodeficiency syndrome*.

**Air quality standards**—See *National ambient air quality standards*.

**Air pollution**—See *Pollutant*.

**Alcohol abuse treatment clients**—See *Substance abuse treatment clients*.

**Ambulatory care**—Health care provided to persons without their admission to a health facility.

**Ambulatory surgery**—According to the National Survey of Ambulatory Surgery (NSAS), ambulatory surgery refers to previously scheduled surgical and nonsurgical procedures performed on an outpatient basis in a hospital or freestanding ambulatory surgery center's general or main operating rooms, satellite operating rooms, cystoscopy rooms, endoscopy rooms, cardiac catheterization labs, and laser procedure rooms. Procedures performed in locations dedicated exclusively to dentistry, podiatry, abortion, pain block, or small procedures were not included.

In NSAS, data on up to six surgical and non-surgical procedures are collected and coded. See related *Outpatient surgery*.

**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.

**Average length of stay**—In the National Health Interview Survey, the average length of stay per discharged patient is computed by dividing the total number of hospital days for a specified group by the total number of discharges for that group. Similarly, in the National Hospital Discharge Survey, the average length of stay is computed by dividing the total number of days of care, counting the date of admission but not the date of discharge, by the number of patients discharged. The American Hospital Association computes the average length of stay by dividing the number of inpatient days by the number of admissions. See related *Days of care; Discharge; Patient*.

**Bed**—Any bed that is set up and staffed for use by inpatients is counted as a bed in a facility. For the American Hospital Association the count is the average number of beds, cribs, and pediatric bassinets during the entire reporting period. In the Health Care Financing Administration's Online Survey Certification and Reporting database, all beds in certified facilities are counted on the day of certification inspection. 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. The Center for Mental Health Services counts the number of beds set up and staffed for use in inpatient and residential treatment services on the last day of the survey reporting period. See related *Hospital; Mental health organization; Mental health service type; Occupancy rate*.

**Birth cohort**—A birth cohort consists of all persons born within a given period of time, such as a calendar year.

**Birth rate**—See *Rate: Birth and related rates*.

**Birthweight**—The first weight of the newborn obtained after birth. Low birthweight is defined as less than 2,500 grams or 5 pounds 8 ounces. Very low birthweight is defined as less than 1,500 grams or 3 pounds 4 ounces. Before 1979 low birthweight was defined as 2,500 grams or less and very low birthweight as 1,500 grams or less.

**Body mass index (BMI)**— BMI is a measure that adjusts body weight for height. It is calculated as weight in kilograms divided by height in meters squared. Sex- and age-specific cut points of BMI are used in this book in the definition of overweight for children and adolescents. Healthy weight for adults is defined as a BMI of 19 to less than 25; overweight, as greater than or equal to a BMI of 25; and obesity, as greater than or equal to a BMI of 30. BMI cut points are defined in the Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 1995. U.S. Department of Agriculture, Agricultural Research Service, Dietary Guidelines Advisory Committee. 1995. pp.23–4; Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report. National Institutes of Health. National Heart, Lung, and Blood Institute. in press; and in the Healthy People 2010 Objectives: Draft for Public Comment. September 15, 1998. Objectives 2.1, 2.2, and 2.3.

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

**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. Beginning with 1979 the *International Classification of Diseases, Ninth Revision* (ICD-9) has been used for coding cause of death. Data from earlier time periods were coded using the appropriate revision of the ICD for that time period. (See tables IV and V.) Changes in classification of causes of death in successive revisions of the ICD may introduce discontinuities in cause-of-death statistics over time. For further discussion, see Technical Appendix in National Center for Health Statistics: *Vital Statistics of the United States, 1990, Volume II, Mortality, Part A*. DHHS Pub. No. (PHS) 95–1101, Public Health Service, Washington, U.S. Government Printing Office, 1994. See related *Human immunodeficiency virus infection; International Classification of Diseases, Ninth Revision*.

**Cause-of-death ranking**—Cause-of-death ranking for infants is based on the List of 61 Selected Causes of Infant Death and HIV infection (ICD-9 Nos.

# Appendix II

**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 |
| Communicable diseases | . . . | . . . | . . . | 001–139, 460–466, 480–487 |
| Chronic and other non-communicable diseases | . . . | . . . | . . . | 140–459, 467–479, 488–799 |
| Injury and adverse effects | . . . | . . . | . . . | E800–E999 |
| Meningococcal infection | . . . | . . . | . . . | 036 |
| Septicemia | . . . | . . . | . . . | 038 |
| Human immunodeficiency virus infection[1] | . . . | . . . | . . . | *042–*044 |
| Malignant neoplasms | 140–205 | 140–205 | 140–209 | 140–208 |
| Colorectal | 153–154 | 153–154 | 153–154 | 153, 154 |
| Malignant neoplasm of peritoneum and pleura | . . . | . . . | 158, 163.0 | 158, 163 |
| Respiratory system | 160–164 | 160–164 | 160–163 | 160–165 |
| Malignant neoplasm of trachea, bronchus and lung | . . . | . . . | . . . | 162 |
| Breast | 170 | 170 | 174 | 174–175 |
| Prostate | 177 | 177 | 185 | 185 |
| Benign neoplasms | . . . | . . . | . . . | 210–239 |
| Diabetes mellitus | 260 | 260 | 250 | 250 |
| Anemias | . . . | . . . | . . . | 280–285 |
| Meningitis | . . . | . . . | . . . | 320–322 |
| Alzheimer's disease | . . . | . . . | . . . | 331.0 |
| Diseases of heart | 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 |
| Atherosclerosis | . . . | . . . | . . . | 440 |
| Pneumonia and influenza | 480–483, 490–493 | 480–483, 490–493 | 470–474, 480–486 | 480–487 |
| Chronic obstructive pulmonary diseases | 241, 501, 502, 527.1 | 241, 501, 502, 527.1 | 490–493, 519.3 | 490–496 |
| Coalworkers' pneumoconiosis | . . . | . . . | 515.1 | 500 |
| Asbestosis | . . . | . . . | 515.2 | 501 |
| Silicosis | . . . | . . . | 515.0 | 502 |
| Chronic liver disease and cirrhosis | 581 | 581 | 571 | 571 |
| Nephritis, nephrotic syndrome, and nephrosis | . . . | . . . | . . . | 580–589 |
| Complications of pregnancy, childbirth, and the puerperium | 640–689 | 640–689 | 630–678 | 630–676 |
| Congenital anomalies | . . . | . . . | . . . | 740–759 |
| Certain conditions originating in the perinatal period | . . . | . . . | . . . | 760–779 |
| Newborn affected by maternal complications of pregnancy | . . . | . . . | . . . | 761 |
| Newborn affected by complications of placenta, cord, and membranes | . . . | . . . | . . . | 762 |
| Disorders relating to short gestation and unspecified low birthweight | . . . | . . . | . . . | 765 |
| Birth trauma | . . . | . . . | . . . | 767 |
| Intrauterine hypoxia and birth asphyxia | . . . | . . . | . . . | 768 |
| Respiratory distress syndrome | . . . | . . . | . . . | 769 |
| Infections specific to the perinatal period | . . . | . . . | . . . | 771 |
| Sudden infant death syndrome | . . . | . . . | . . . | 798.0 |
| Unintentional injuries[2] | E800–E962 | E800–E962 | E800–E949 | E800–E949 |
| Motor vehicle-related injuries[2] | 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 |
| Firearm-related injuries | . . . | . . . | E922, E955, E965, E970, E985 | E922, E955.0–E955.4, E965.0–E965.4, E970, E985.0–E985.4 |

. . . Category not applicable.

[1]Categories for coding human immunodeficiency virus infection were introduced in 1987. The * indicates codes are not part of the Ninth Revision.

[2]In the public health community, the term ''unintentional injuries'' is preferred to ''accidents and adverse effects'' and ''motor vehicle-related injuries'' to ''motor vehicle accidents.''

*042–*044). Cause-of-death ranking for other ages is based on the List of 72 Selected Causes of Death, HIV infection, and Alzheimer's disease. 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—Certain conditions originating in the perinatal period and Symptoms, signs, and ill-defined conditions—are not ranked from the List of 61 Selected Causes of Infant Death; and two group titles—Major cardiovascular diseases and Symptoms, signs, and ill-defined conditions—are not ranked from the List of 72 Selected Causes. In addition, category titles that begin with the words ''Other'' and ''All other'' are not ranked. The remaining category titles are ranked according to number of deaths to determine the leading causes of death. When one of the titles that represent a subtotal is ranked (for example, unintentional injuries), its component parts are not ranked (in this case, motor vehicle crashes and all other unintentional injuries). See related *International Classification of Diseases, Ninth Revision.*

**Civilian noninstitutionalized population; Civilian population**—See *Population.*

**Cocaine-related emergency room episodes**—The Drug Abuse Warning Network monitors selected adverse medical consequences of cocaine and other drug abuse episodes by measuring contacts with hospital emergency rooms. Contacts may be for drug overdose, unexpected drug reactions, chronic abuse, detoxification, or other reasons in which drug use is known to have occurred.

**Cohort fertility**—Cohort fertility refers to the fertility of the same women at successive ages. Women born during a 12-month period comprise a birth cohort. Cohort fertility for birth cohorts of women is measured by central birth rates, which represent the number of births occurring to women of an exact age divided by the number of women of that exact age. Cumulative birth rates by a given exact age represent the total childbearing experience of women in a cohort up to that age. Cumulative birth rates are sums of central birth rates for specified cohorts and show the number of children ever born up to the indicated age. For example, the cumulative birth rate for women exactly 30 years of age as of January 1, 1960, is the sum of the central birth rates for the 1930 birth cohort for the years 1944 (when its members were age 14) through 1959 (when they were age 29). Cumulative birth rates are also calculated for specific birth orders at each exact age of woman. The percent of women who have not had at least one live birth by a certain age is found by subtracting the cumulative first birth rate for women of that age from 1,000 and dividing by 10. For method of calculation, see Heuser RL. *Fertility tables for birth cohorts by color: United States, 1917–73.* Rockville, Maryland. NCHS. 1976. See related *Rate: Birth and related rates.*

**Community hospitals**—See *Hospital.*

**Compensation**—See *Employer costs for employee compensation.*

**Completed fertility rate**—See *Rate: Birth and related rates.*

**Condition**—A health condition is a departure from a state of physical or mental well-being. An impairment is a health condition that includes chronic or permanent health defects resulting from disease, injury, or congenital malformations. All health conditions, except impairments, are coded according to the *International Classification of Diseases, Ninth 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. A *chronic condition* refers to any condition lasting 3 months or more or is a condition classified as chronic regardless of its time of onset (for example, diabetes, heart conditions, emphysema, and arthritis). The National Nursing Home Survey uses a specific list of chronic conditions, also disregarding time of onset. See

related *International Classification of Diseases, Ninth Revision, Clinical Modification*.

**Consumer Price Index (CPI)**—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 CPI shows trends in medical care prices based on specific indicators of hospital, medical, dental, and drug prices. A revision of the definition of CPI has been in use since January 1988. See related *Gross domestic product; Health expenditures, national*.

**Crude birth rate; Crude death rate**—See *Rate: Birth and related rates; Rate: Death and related rates*.

**Current smoker**—In 1992 the definition of current smoker in the National Health Interview Survey (NHIS) was modified to specifically include persons who smoked on ''some days.'' Before 1992 a current smoker was defined by the following questions from the NHIS survey ''Have you ever smoked 100 cigarettes in your lifetime?'' and ''Do you smoke now?'' (traditional definition). In 1992 data were collected for half the respondents using the traditional smoking questions and for the other half of respondents using a revised smoking question (''Do you smoke every day, some days, or not at all?''). An unpublished analysis of the 1992 traditional smoking measure revealed that the crude percent of current smokers 18 years of age and over remained the same as 1991. The statistics for 1992 combine data collected using the traditional and the revised questions. For further information on survey methodology and sample sizes pertaining to the NHIS cigarette data for data years 1965–92 and other sources of cigarette smoking data available from the National Center for Health Statistics, see: National Center for Health Statistics, *Biographies and Data Sources, Smoking Data Guide,* No. 1, DHHS Pub. No. (PHS) 91–1308-1, Public Health Service. Washington. U.S. Government Printing Office. 1991.

Starting with 1993 data estimates of cigarette smoking prevalence are based on the revised definition that is considered a more complete estimate of smoking prevalence. In 1993–95 estimates of cigarette smoking prevalence were based on a half-sample. Smoking data were not collected in 1996.

**Days of care**—According to the American Hospital Association, days, hospital days, or inpatient days are the number of adult and pediatric days of care rendered during the entire 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 before the interview week. A hospital day is a night spent in the hospital for persons admitted as inpatients.

In the National Hospital Discharge Survey, days of care refers 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. See related *Admission; Average length of stay; Discharge; Hospital; Patient.*

**Death rate**—See *Rate: Death and related rates*.

**Dental visit**—The National Health Interview Survey considers dental visits to be visits to a dentist's office for treatment or advice, including services by a technician or hygienist acting under the dentist's supervision. Services provided to hospital inpatients are not included. Dental visits are based on a 12-month recall period.

**Diagnosis**—See *First-listed diagnosis*.

**Diagnostic and other nonsurgical procedures**—See *Procedure*.

**Discharge**—The National Health Interview Survey defines a hospital discharge as the completion of any continuous period of stay of one night or more in a hospital as an inpatient, not including the period of stay of a well newborn infant. According to the National Hospital Discharge Survey and the American Hospital Association, discharge is the formal release of an inpatient by a hospital (excluding newborn infants),

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. See related *Admission; Average length of stay; Days of care; Patient*.

**Domiciliary care homes**—See *Nursing home*.

**Drug abuse treatment clients**—See *Substance abuse treatment clients*.

**Emergency department**—According to the National Hospital Ambulatory Medical Care Survey (NHAMCS), an emergency department is a hospital facility for the provision of unscheduled outpatient services to patients whose conditions require immediate care and is staffed 24 hours a day. Off-site emergency departments open less than 24 hours are included if staffed by the hospital's emergency department. An emergency department visit is a direct personal exchange between a patient and a physician or other health care providers working under the physician's supervision, for the purpose of seeking care and receiving personal health services. See related *Hospital; Outpatient department*.

**Employer costs for employee compensation**—A measure of the average cost per employee hour worked to employers for wages and salaries and benefits. Wages and salaries are defined as the hourly straight-time wage rate, or for workers not paid on an hourly basis, straight-time earnings divided by the corresponding hours. Straight-time wage and salary rates are total earnings before payroll deductions, excluding premium pay for overtime and for work on weekends and holidays, shift differentials, nonproduction bonuses, and lump-sum payments provided in lieu of wage increases. Production bonuses, incentive earnings, commission payments, and cost-of-living adjustments are included in straight-time wage and salary rates. Benefits covered are paid leave—paid vacations, holidays, sick leave, and other leave; supplemental pay—premium pay for overtime and work on weekends and holidays, shift differentials, nonproduction bonuses, and lump-sum payments provided in lieu of wage increases; insurance benefits—life, health, and sickness and accident insurance; retirement and savings benefits—pension and other retirement plans and savings and thrift plans; legally required benefits—social security, railroad retirement and supplemental retirement, railroad unemployment insurance, Federal and State unemployment insurance, workers' compensation, and other benefits required by law, such as State temporary disability insurance; and other benefits—severance pay and supplemental unemployment plans.

**Expenditures**—See *Health expenditures, national*.

**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 is the total income received by the members of a family (or by an unrelated individual) in the 12 months before the interview. Family income includes 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.

**Federal hospitals**—See *Hospital*.

**Federal physicians**—See *Physician*.

**Fee-for-service health insurance**—This is private (commercial) health insurance that reimburses health care providers on the basis of a fee for each health service provided to the insured person. Also known as indemnity health insurance. See related *Health insurance coverage*.

**Fertility rate**—See *Rate: Birth and related rates*.

**Fetal death**—In the World Health Organization's definition, also adopted by the United Nations and the National Center for Health Statistics, a fetal death is death before the complete expulsion or extraction from

its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation, the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. For statistical purposes, fetal deaths are classified according to gestational age. In this report tabulations are shown for fetal deaths with stated or presumed gestation of 20 weeks or more and of 28 weeks or more, the latter gestational age group also known as late fetal deaths. See related *Gestation; Live birth; Rate: Death and related rates*.

**First-listed diagnosis**—In the National Hospital Discharge Survey this is the first recorded final diagnosis on the medical record face sheet (summary sheet).

**General hospitals**—See *Hospital*.

**General hospitals providing separate psychiatric services**—See *Mental health organization*.

**Geographic region and division**—The 50 States and the District of Columbia are grouped for statistical purposes by the U.S. Bureau of the Census into 4 geographic regions and 9 divisions. 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

**Gestation**—For the National Vital Statistics System and the Centers for Disease Control and Prevention'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 or day of termination of pregnancy. See related *Abortion; Fetal death; Live birth*.

**Gross domestic product (GDP)**—GDP is the market value of the goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the suppliers (that is, the workers and, for property, the owners) may be either U.S. residents or residents of the rest of the world. See related *Consumer Price Index; Health expenditures, national*.

**Health expenditures, national**—See related *Consumer Price Index; Gross domestic product*.

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

*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 (for example, out-of-pocket payments, private health insurance, and government programs), type of expenditures (for example, hospital care, physician services, and drugs), and are in current dollars for the year of report. Data are compiled from a variety of sources.

*Nursing home expenditures*—These 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.

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

*Public expenditures*—These 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).

**Health insurance coverage**—National Health Interview Survey (NHIS) respondents were asked about their health insurance coverage at the time of the interview in 1984, 1989, and 1997 and in the previous month in 1993–96. Questions on health insurance coverage were expanded starting in 1993 compared with previous years. In 1997 the entire questionnaire was redesigned and data were collected using a computer assisted personal interview (CAPI).

Respondents are covered by private health insurance if they indicate private health insurance or if they are covered by a single service hospital plan, except in 1997 when no information on single service plans was obtained. Private health insurance includes managed care such as health maintenance organizations (HMO's).

Until 1996 persons were defined as having Medicaid or other public assistance coverage if they indicated that they had either Medicaid or other public assistance, or if they reported receiving Aid to Families with Dependent Children (AFDC) or Supplementary Security Income (SSI). After welfare reform in late 1996, Medicaid was delinked from AFDC and SSI. In 1997 persons were considered to be covered by Medicaid if they reported Medicaid or a State-sponsored health program.

Medicare or military health plan coverage is also determined in the interview, and in 1997 other government-sponsored program was determined.

If respondents do not report coverage under one of the above types of plans and they have unknown coverage on either private health insurance or Medicaid then they are considered to have unknown coverage.

The remaining respondents are considered uninsured. The uninsured are persons who do not have coverage under private health insurance, Medicare, Medicaid, public assistance, a State-sponsored health plan, other government-sponsored programs, or a military health plan. Persons with only Indian Health Service coverage are considered uninsured. Estimates of the percent of persons who are uninsured based on the NHIS (table 129) are slightly higher than those based on the March Current Population Survey (CPS) (table 146). The NHIS asks about coverage at the time of the survey (or in some survey years, coverage during the previous month), whereas the CPS asks about coverage over the previous calendar year. This may result in higher estimates of Medicaid and other health insurance coverage and correspondingly lower

estimates of persons without health care coverage in the CPS compared with the NHIS. In addition, the CPS estimate is for persons of all ages whereas the NHIS estimate is for persons under age 65. See related *Fee-for-service health insurance; Health maintenance organization; Managed care; Medicaid; Medicare*.

**Health maintenance organization (HMO)**—An HMO is 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 a plan for a specified period of time (usually 1 year). Pure HMO enrollees use only the prepaid capitated health services of the HMO's panel of medical care providers. Open-ended HMO enrollees use the prepaid HMO health services but in addition may receive medical care from providers who are not part of the HMO's panel. There is usually a substantial deductible, copayment, or coinsurance associated with the use of nonpanel providers. These open-ended products are governed by State HMO regulations. 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. The plan is predominantly organized around solo-single-specialty practices.

*Mixed*—An HMO that combines features of group and IPA. This category was introduced in mid-1990 because HMO's are continually changing and many now combine features of group and IPA plans in a single plan.

See related *Managed care*.

**Health services and supplies expenditures**—See *Health expenditures, national*.

**Health status, respondent-assessed**—Health status was measured in the National Health Interview Survey by asking the respondent, ''Would you say _____'s health is excellent, very good, good, fair, or poor?''

**Hispanic origin**—Hispanic origin includes persons of Mexican, Puerto Rican, Cuban, Central and South American, and other or unknown Latin American or Spanish origins. Persons of Hispanic origin may be of any race. See related *Race*.

**HIV**—See *Human immunodeficiency virus infection*.

**Home health care**—Home health care as defined by the National Home and Hospice Care Survey is care provided to individuals and families in their place of residence for promoting, maintaining, or restoring health; or for minimizing the effects of disability and illness including terminal illness.

**Hospice care**—Hospice care as defined by the National Home and Hospice Care Survey is a program of palliative and supportive care services providing physical, psychological, social, and spiritual care for dying persons, their families, and other loved ones. Hospice services are available in home and inpatient settings.

**Hospital**—According to the American Hospital Association, hospitals are licensed institutions with at least six beds whose primary function is to provide diagnostic and therapeutic patient services for medical conditions by an organized physician staff, and have continuous nursing services under the supervision of registered nurses. The World Health Organization considers an establishment to be 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, size in terms of number of beds, and length of stay. In the National Hospital Ambulatory Medical Care Survey (NHAMCS)

hospitals include all those with an average length of stay for all patients of less than 30 days (short-stay) or hospitals whose specialty is general (medical or surgical) or children's general. Federal hospitals and hospital units of institutions and hospitals with fewer than six beds staffed for patient use are excluded. See related *Average length of stay; Bed; Days of care; Emergency department; Outpatient department; Patient*.

*Community hospitals* traditionally included all non-Federal short-stay hospitals except facilities for the mentally retarded. In the revised definition the following additional sites are excluded: hospital units of institutions, and alcoholism and chemical dependency facilities.

*Federal hospitals* are operated by the Federal Government.

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

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

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

*Psychiatric hospitals* are ones whose major type of service is psychiatric care. See *Mental health organization*.

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

*Short-stay hospitals* in the National Hospital Discharge Survey are those in which the average length of stay is less than 30 days. 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.

*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.

**Hospital-based physician**—See *Physician*.

**Hospital days**—See *Days of care*.

**Human immunodeficiency virus (HIV) infection**—Mortality coding: Beginning with data for 1987, NCHS introduced category numbers *042–*044 for classifying and coding HIV infection as a cause of death. HIV infection was 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). Before 1987 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, before 1987, death statistics for HIV infection are not strictly comparable with data for 1987 and later years, and are not shown in this report.

Morbidity coding: The National Hospital Discharge Survey codes diagnosis data using the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD–9–CM). Discharges with diagnosis of HIV as shown in *Health, United States*, have at least one HIV diagnosis listed on the face sheet of the medical record and are not limited to the first-listed diagnosis. During 1984 and

**Table VI. Codes for industries, according to the *Standard Industrial Classification (SIC) Manual***

| Industry | Code numbers |
|---|---|
| Agriculture, forestry, and fishing | 01–09 |
| Mining | 10–14 |
| Construction | 15–17 |
| Manufacturing | 20–39 |
| Transportation, communication, and public utilities | 40–49 |
| Wholesale trade | 50–51 |
| Retail trade | 52–59 |
| Finance, insurance, and real estate | 60–67 |
| Services | 70–89 |
| Public administration | 91–97 |

1985 only data for AIDS (ICD–9–CM 279.19) were included. In 1986–94, discharges with the following diagnoses were included: acquired immunodeficiency syndrome (AIDS), human immunodeficiency virus (HIV) infection and associated conditions, and positive serological or viral culture findings for HIV (ICD–9–CM 042–044, 279.19, and 795.8). Beginning in 1995 discharges with the following diagnoses were included: human immunodeficiency virus (HIV) disease and asymptomatic human immunodeficiency virus (HIV) infection status (ICD–9–CM 042 and V08). See related *Acquired immunodeficiency syndrome; Cause of death; International Classification of Diseases, Ninth Revision; International Classification of Diseases, Ninth Revision, Clinical Modification.*

**ICD; ICD codes**—See *Cause of death; International Classification of Diseases, Ninth Revision.*

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

**Individual practice association (IPA)**—See *Health maintenance organization (HMO).*

**Industry of employment**—Industries are classified according to the *Standard Industrial Classification (SIC) Manual* of the Office of Management and Budget. Three editions of the SIC are used for coding industry data in *Health, United States*: the 1972 edition; the 1977 supplement to the 1972 edition; and the 1987 edition.

The changes between versions include a few detailed titles created to correct or clarify industries or to recognize changes within the industry. Codes for major industrial divisions (table VI) were not changed between versions.

The category ''Private sector'' includes all industrial divisions except public administration and military. The category ''Civilian sector'' includes ''Private sector'' and the public administration division. The category ''Not classified'' is comprised of the following entries from the death certificate: housewife, student, or self-employed; information inadequate to code industry; establishments not elsewhere classified.

**Infant death**—An infant death is the death of a live-born child before his or her first birthday. Deaths in the first year of life may be further classified according to age as neonatal and postneonatal. Neonatal deaths are those that occur before the 28th day of life; postneonatal deaths are those that occur between 28 and 365 days of age. See *Live birth; Rate: Death and related rates.*

**Inpatient care**—See *Mental health service type.*

**Inpatient days**—See *Days of care.*

**Insured**—See *Health insurance coverage.*

**Intermediate care facilities**—See *Nursing home.*

**International Classification of Diseases, Ninth Revision (ICD-9)**—The *International Classification of Diseases* (ICD) classifies mortality information for statistical purposes. The ICD was first used in 1900 and has been revised about every 10 years since then. The ICD-9, published in 1977, is used to code U.S. mortality data beginning with data year 1979. (See tables IV and V.) See related *Cause of death; International Classification of Diseases, Ninth Revision, Clinical Modification.*

**Table VII. Codes for diagnostic categories from the *International Classification of Diseases, Ninth Revision, Clinical Modification***

| *Diagnostic category* | *Code numbers* |
|---|---|
| Females with delivery | V27 |
| Human immunodeficiency virus (HIV) (1984–85) | 279.19 |
| (1986–94) | 042–044, 279.19, 795.8 |
| (Beginning in 1995) | 042, V08 |
| Malignant neoplasms | 140–208 |
| Large intestine and rectum | 153–154, 197.5 |
| Trachea, bronchus, and lung | 162, 197.0, 197.3 |
| Breast | 174–175, 198.81 |
| Prostate | 185 |
| Diabetes | 250 |
| Psychoses | 293–299 |
| Diseases of the nervous system and sense organs | 320–389 |
| Diseases of the circulatory system | 390–459 |
| Diseases of heart | 391–392.0, 393–398, 402, 404, 410–416, 420–429 |
| Ischemic heart disease | 410–414 |
| Acute myocardial infarction | 410 |
| Congestive heart failure | 428.0 |
| Cerebrovascular diseases | 430–438 |
| Diseases of the respiratory system | 460–519 |
| Bronchitis | 466.0, 490–491 |
| Pneumonia | 466.1, 480–487.0 |
| Asthma | 493 |
| Hyperplasia of prostate | 600 |
| Decubitus ulcers | 707.0 |
| Diseases of the musculoskeletal system and connective tissue | 710–739 |
| Osteoarthritis | 715 |
| Intervertebral disc disorders | 722 |
| Injuries and poisoning | 800–999 |
| Fracture, all sites | 800–829 |
| Fracture of neck of femur (hip) | 820 |

**International Classification of Diseases, Ninth 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 ICD–9–CM is used to code morbidity data and the ICD-9 is used to code mortality data. Diagnostic groupings and code number inclusions for ICD–9–CM are shown in table VII; surgical and nonsurgical operations, diagnostic procedures, and therapeutic procedures and code number inclusions are shown in table VIII.

ICD-9 and ICD–9–CM 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. See related *Condition; International Classification of Diseases, Ninth Revision; Mental health disorder*.

**Late fetal death rate**—See *Rate: Death and related rates*.

**Leading causes of death**—See *Cause-of-death ranking*.

**Length of stay**—See *Average length of stay*.

**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. See related *Rate: Death and related rates*.

# Appendix II

## Glossary

**Table VIII. Codes for procedure categories from the *International Classification of Diseases, Ninth Revision, Clinical Modification***

| *Procedure category* | *Code numbers* |
|---|---|
| Extraction of lens | 13.1–13.6 |
| Insertion of prosthetic lens (pseudophakos) | 13.7 |
| Myringotomy with insertion of tube | 20.01 |
| Tonsillectomy, with or without adenoidectomy | 28.2–28.3 |
| Coronary angioplasty (Prior to 1997) | 36.0 |
| (Beginning in 1997) | 36.01–36.05, 36.09 |
| Coronary artery bypass graft | 36.1 |
| Cardiac catheterization | 37.21–37.23 |
| Pacemaker insertion or replacement | 37.7–37.8 |
| Carotid endarterectomy | 38.12 |
| Endoscopy of large or small intestine with or without biopsy | 45.11–45.14, 45.16, 45.21–45.25 |
| Cholecystectomy | 51.2 |
| Prostatectomy | 60.2–60.6 |
| Bilateral destruction or occlusion of fallopian tubes | 66.2–66.3 |
| Hysterectomy | 68.3–68.7, 68.9 |
| Cesarean section | 74.0–74.2, 74.4, 74.99 |
| Repair of current obstetrical laceration | 75.5–75.6 |
| Reduction of fracture | 76.7,79.0–79.3 |
| Arthroscopy of knee | 80.26 |
| Excision or destruction of intervertebral disc | 80.5 |
| Total hip replacement | 81.51 |
| Lumpectomy | 85.21 |
| Mastectomy | 85.4 |
| Angiocardiography with contrast material | 88.5 |

**Limitation of activity**—In the National Health Interview Survey limitation of activity refers to a long-term reduction in a person's capacity to perform the usual kind or amount of activities associated with his or her age group. Each person is classified according to the extent to which his or her activities are limited, 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; and
- Persons not limited in activity.

See related *Condition; Major activity*.

**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 the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered live born. See related *Gestation; Rate: Birth and related rates*.

**Live-birth order**—In the National Vital Statistics System this item from the birth certificate refers to the total number of live births the mother has had, including the present birth as recorded on the birth certificate. Fetal deaths are excluded. See related *Live birth*.

**Low birthweight**—See *Birthweight*.

**Major activity** (or usual activity)—This is the principal activity of a person or of his or her age-sex group. For children 1–5 years of age, the major activity refers to ordinary play with other children; for children 5–17 years of age, the major activity refers to school attendance; for adults 18–69 years of age, the major activity usually refers to a job, housework, or school attendance; for persons 70 years of age and over, the major activity refers to the capacity for independent living (bathe, shop, dress, or eat without

needing the help of another person). See related *Limitation of activity*.

**Managed care**—Managed care is a health care plan that integrates the financing and delivery of health care services by using arrangements with selected health care providers to provide services for covered individuals. Plans are generally financed using capitation fees. There are signifcant financial incentives for members of the plan to use the health care providers associated with the plan. The plan includes formal programs for quality assurance and utilization review. Health maintenance organizations (HMO's), preferred provider organizations (PPO's), and point of service (POS) plans are examples of managed care. See related *Health maintenance organization; Preferred provider organization*.

**Marital status**—Marital status is classified through self-reporting into the categories married and unmarried. The term married encompasses 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 and Prevention classified separated people as unmarried before 1978.

**Maternal mortality rate**—See *Rate: Death and related rates*.

**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. Medicaid provides health care services for certain low-income persons. Medicaid does not provide health services to all poor people in every State. It categorically covers participants in the Aid to Families with Dependent Children program and in the Supplemental Security Income program. In most States it also covers certain other people deemed to be medically needy. The program was authorized in 1965 by Title XIX of the Social Security Act. See related *Health expenditures, national; Health maintenance organization; Medicare*.

**Medical specialties**—See *Physician specialty*.

**Medical vendor payments**—Under the Medicaid program, medical vendor payments are payments (expenditures) to medical vendors from the State through a fiscal agent or to a health insurance plan. Adjustments are made for Indian Health Service payments to Medicaid, cost settlements, third party recoupments, refunds, voided checks, and other financial settlements that cannot be related to specific provided claims. Excluded are payments made for medical care under the emergency assistance provisions, payments made from State medical assistance funds that are not federally matchable, disproportionate share hospital payments, cost sharing or enrollment fees collected from recipients or a third party, and administration and training costs.

**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). See related *Health expenditures, national; Health maintenance organization; Medicaid*.

**Mental health disorder**—The Center for Mental Health Services defines a mental health disorder as any of several disorders listed in the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD–9–CM) or *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (DSM-IIIR). Table IX shows diagnostic categories and code numbers for ICD–9–CM/DSM-IIIR and corresponding codes for the *International*

*Classification of Diseases, Adapted for Use in the United States, Eighth Revision* (ICDA-8) and *Diagnostic and Statistical Manual of Mental Disorders, Second Edition* (DSM-II). See related *International Classification of Diseases, Clinical Modification.*

**Mental health organization**—The Center for Mental Health Services defines a mental health organization as 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. Excluded are private office-based practices of psychiatrists, psychologists, and other mental health providers; psychiatric services of all types of hospitals or outpatient clinics operated by Federal agencies other than the Department of Veterans Affairs (for example, Public Health Service, Indian Health Service, Department of Defense, and Bureau of Prisons); general hospitals that have no separate psychiatric services, but admit psychiatric patients to nonpsychiatric units; and psychiatric services of schools, colleges, halfway houses, community residential organizations, local and county jails, State prisons, and other human service providers. The major types of mental health organizations are described below.

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

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

*Multiservice mental health organizations* directly provide two or more of the program elements defined under Mental health service type and are not classifiable as a psychiatric hospital, general hospital, or 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.)

*Partial care organizations* provide a program of ambulatory mental health services.

*Private mental hospitals* are operated by a sole proprietor, partnership, limited partnership, corporation, or nonprofit organization, primarily for the care of persons with mental disorders.

*Psychiatric hospitals* are hospitals primarily concerned with providing inpatient care and treatment for the mentally ill. Psychiatric inpatient units of Department of Veterans Affairs general hospitals and Department of Veterans Affairs neuropsychiatric hospitals are combined into the category Department of Veterans Affairs psychiatric hospitals because of their similarity in size, operation, and length of stay.

*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

**Table IX. Mental health 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-IIIR/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 |

conjunction with residential care; (b) Include a clinical program that is directed by a psychiatrist, psychologist, social worker, or psychiatric nurse with a graduate degree; (c) Serve children and youth primarily under the age of 18; and (d) Primary diagnosis for the majority of admissions is mental illness, classified as other than mental retardation, developmental disability, and substance-related disorders, according to DSM-II/ICDA-8 or DSM-IIIR/ICD–9–CM codes. See related *Table IX. Mental health codes*.

*State and county mental hospitals* are under the auspices of a State or county government or operated jointly by a State and county government.

See related *Addition; Mental health service type*.

**Mental health service type**—refers to the following kinds of mental health services:

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

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

*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. Facilities may offer care to emotionally disturbed children or mentally ill adults.

See related *Addition; Mental health organization*.

**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. Metropolitan population, as used in this report in connection with data from the National Health Interview Survey, is based on MSA's as defined in the 1980 census and does not include any subsequent additions or changes.

**Multiservice mental health organizations**—See *Mental health organization.*

**National ambient air quality standards**—The Federal Clean Air Act of 1970, amended in 1977 and 1990, required the Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards. EPA has set specific standards for each of six major pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter whose aerodynamic size is equal to or less than 10 microns (PM-10). Each pollutant standard represents a maximum concentration level (micrograms per cubic meter) that cannot be exceeded during a specified time interval. A county meets the national ambient air quality standards if none of the six pollutants exceed the standard during a 12-month period. See *related Particulate matter; Pollutant.*

# Appendix II

# Glossary

**Neonatal mortality rate**—See *Rate: Death and related rates.*

**Non-Federal physicians**—See *Physician.*

**Nonpatient revenue**—Nonpatient revenues are those revenues received for which no direct patient care services are rendered. The most widely recognized source of nonpatient revenues is philanthropy. Philanthropic support may be direct from individuals or may be obtained through philanthropic fund raising organizations such as the United Way. Support may also be obtained from foundations or corporations. Philanthropic revenues may be designated for direct patient care use or may be contained in an endowment fund where only the current income may be tapped.

**Nonprofit hospitals**—See *Hospital*.

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

**Nursing care**—The following definition of nursing care applies to data collected in National Nursing Home Surveys through 1977. 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; oxygen therapy; and temperature-pulse-respiration or blood pressure measurement. See related *Nursing home*.

**Nursing care homes**—See *Nursing home.*

**Nursing home**—In the Online Certification and Reporting database, a nursing home is a facility that is certified and meets the Health Care Financing Administration's long-term care requirements for Medicare and Medicaid eligibility. In the National Master Facility Inventory and the National Nursing Home Survey a nursing home is an establishment with three or more beds that provides nursing or personal care services to the aged, infirm, or chronically ill. The following definitions of nursing home types apply to data collected in National Nursing Home Surveys 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 one-half the residents.

*Personal care homes with nursing* have some but fewer than one-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 who are 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.

Nursing homes are certified by the Medicare and/or Medicaid program. The following definitions of certification levels apply to data collected in National Nursing Home Surveys of 1973–74, 1977, and 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.

See related *Nursing care; Resident.*

**Nursing home expenditures**—See *Health expenditures, national*.

**Occupancy rate**—The American Hospital Association defines hospital occupancy rate as the average daily census divided by the average number of hospital beds during a reporting period. Average daily census is defined by the American Hospital Association as the average number of inpatients, excluding newborns, receiving care each day during a reporting period. The occupancy rate for facilities other than hospitals is calculated as the number of residents reported at the time of the interview divided by the number of beds reported. In the Online Survey Certification and Reporting database, occupancy is the total number of residents on the day of certification inspection divided by the total number of beds on the day of certification.

**Office**—In the National Health Interview Survey, an office refers to the office of any physician in private practice not located in a hospital. 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. See related *Office visit; Outpatient visit; Physician; Physician contact*.

**Office-based physician**—See *Physician*.

**Office visit**—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. See related *Outpatient visit; Physician contact.*

**Operations**—See *Procedure*.

**Outpatient department**—According to the National Hospital Ambulatory Medical Care Survey (NHAMCS), an outpatient department (OPD) is a hospital facility where nonurgent ambulatory medical care is provided. The following are examples of the types of OPD's excluded from the NHAMCS: ambulatory surgical centers, chemotherapy, employee health services, renal dialysis, methadone maintenance, and radiology. An outpatient department visit is a direct personal exchange between a patient and a physician or other health care provider working under the physician's supervision for the purpose of seeking care and receiving personal health services. See related *Emergency department; Hospital*.

**Outpatient surgery**—According to the American Hospital Association, outpatient surgery is performed on patients who do not remain in the hospital overnight and occurs in inpatient operating suites, outpatient surgery suites, or procedure rooms within an outpatient care facility. Outpatient surgery is a surgical operation, whether major or minor, performed in operating or procedure rooms. A surgical operation involving more than one surgical procedure is considered one surgical operation. See related *Ambulatory surgery*.

**Outpatient visit**—The American Hospital Association defines outpatient visits as visits for receipt of medical, dental, or other services by patients who are not lodged in the hospital. Each appearance by an outpatient to each unit of the hospital is counted individually as an outpatient visit. See related *Office visit; Physician contact*.

**Partial care organization**—See *Mental health organization*.

**Partial care treatment**—See *Mental health service type*.

**Particulate matter**—Particulate matter is defined as particles of solid or liquid matter in the air, including nontoxic materials (soot, dust, and dirt) and toxic materials (for example, lead, asbestos, suspended

sulfates, and nitrates). See related *National ambient air quality standards; Pollutant*.

**Patient**—A patient is a person who is formally admitted to the inpatient service of a hospital for observation, care, diagnosis, or treatment. See related *Admission; Average length of stay; Days of care; Discharge; Hospital*.

**Percent change**—See *Average annual rate of change*.

**Perinatal mortality rate, ratio**—See *Rate: Death and related rates*.

**Personal care homes with or without nursing**—See *Nursing home*.

**Personal health care expenditures**—See *Health expenditures, national*.

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

*Active (or professionally active) physicians* are currently practicing medicine for a minimum of 20 hours per week. Excluded are physicians who are inactive practicing medicine less than 20 hours per week, have unknown addresses, or specialties not classified (when specialty information is presented).

*Federal physicians* are employed by the Federal Government; non-Federal or civilian physicians are not.

*Hospital-based physicians* spend the plurality of their time as salaried physicians in hospitals.

*Office-based physicians* spend the plurality of their time working in practices based in private offices.

Data for physicians are presented by type of education (doctors of medicine and doctors of osteopathy); place of education (U.S. medical graduates and international medical graduates); activity status (professionally active and inactive); employment setting (Federal and non-Federal); area of specialty; and geographic area. See related *Office; Physician specialty*.

**Physician contact**—In the National Health Interview Survey, a physician contact is defined as a consultation with a physician in person or by telephone, for examination, diagnosis, treatment, or advice. The service may be provided by the physician or by another person working under the physician's supervision. Contacts involving services provided on a mass basis (for example, blood pressure screenings) and contacts for hospital inpatients are not included.

Place of contact includes office, hospital outpatient clinics, 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), clinics, HMO's, and other places located outside a hospital.

In the National Health Interview Survey, analyses of the annual number of physician contacts and place of contact are based upon data collected using a 2-week recall period and are adjusted to produce annual estimates. Analyses of children without a physician contact during the past 12-month period are based upon a different question that uses a 12-month recall period. Analyses of the interval since last physician contact are based upon the length of time before the week of interview in which the physician was last consulted. See related *Office; Office visit*.

**Physician specialty**—A physician specialty is any specific branch of medicine in which a physician may concentrate. Data are based on physician self-reports of their primary area of speciality. Physician data are broadly categorized into two general areas of practice: generalists and specialists.

*Generalist physicians* are synonymous with primary care generalists and only include physicians practicing in the general fields of family and general practice, general internal medicine, and general pediatrics. They specifically exclude primary care specialists.

*Primary care specialists* practice in the subspecialties of general and family practice, internal medicine, and pediatrics. The primary care subspecialties for family practice include geriatric medicine and sports medicine. Primary care subspecialties for internal medicine include diabetes, endocrinology and metabolism, hematology, hepatology, cardiac electrophysiology, infectious diseases, diagnostic laboratory immunology, geriatric medicine, sports medicine, nephrology, nutrition, medical oncology, and rheumatology. Primary care subspecialties for pediatrics include adolescent medicine, critical care pediatrics, neonatal-perinatal medicine, pediatric allergy, pediatric cardiology, pediatric endocrinology, pediatric pulmonology, pediatric emergency medicine, pediatric gastroenterology, pediatric hematology/oncology, diagnostic laboratory immunology, pediatric nephrology, pediatric rheumatology, and sports medicine.

*Specialist physicians* practice in the primary care specialties, in addition to all other specialist fields not included in the generalist definition. Specialist fields include allergy and immunology, aerospace medicine, anesthesiology, cardiovascular diseases, child and adolescent psychiatry, colon and rectal surgery, dermatology, diagnostic radiology, forensic pathology, gastroenterology, general surgery, medical genetics, neurology, nuclear medicine, neurological surgery, obstetrics and gynecology, occupational medicine, ophthalmology, orthopedic surgery, otolaryngology, psychiatry, public health and general preventive medicine, physical medicine and rehabilitation, plastic surgery, anatomic and clinical pathology, pulmonary diseases, radiation oncology, thoracic surgery, urology, addiction medicine, critical care medicine, legal medicine, and clinical pharmacology.

See related *Physician*.

**Pollutant**—A pollutant is any substance that renders the atmosphere or water foul or noxious to health. See related *National ambient air quality standards; Particulate matter*.

**Population**—The U.S. Bureau of the Census collects and publishes data on populations in the United States according to several different definitions. Various statistical systems then use the appropriate population for 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 (for example, civilian Federal employees and dependents of members of the Armed Forces or other Federal employees) are not included.

*Resident population* includes persons whose usual place of residence (that is, the place where one usually lives and sleeps) is in one of the 50 States or the District of Columbia. It includes members of the Armed Forces stationed in the United States and their families. It excludes international military, naval, and diplomatic personnel and their families located here and residing in embassies or similar quarters. Also excluded are international workers and international students in this country and Americans living abroad. The resident population is usually the denominator when calculating birth and death rates and incidence of disease. The resident population is also the denominator for selected population-based rates that use numerator data from the National Nursing Home Survey.

*Civilian population* is the resident population excluding members of the Armed Forces. However, families of members of the Armed Forces are included. 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 (for example, 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 NCHS National Health Interview Survey; National Health and Nutrition Examination Survey; National Ambulatory Medical Care Survey; and the National Hospital Ambulatory Medical Care Survey.

**Postneonatal mortality rate**—See *Rate: Death and related rates*.

**Poverty level**—Poverty statistics are based on definitions originally developed by the Social Security Administration. These include a set of money income thresholds that vary by family size and composition. Families or individuals with income below their appropriate thresholds are classified as below the poverty level. These thresholds are updated annually by the U.S. Bureau of the Census to reflect changes in the Consumer Price Index for all urban consumers (CPI-U). For example, the average poverty threshold for a family of four was $16,036 in 1996 and $13,359 in 1990. For more information, see U.S. Bureau of the Census: *Money Income of Households, Families, and Persons in the United States, 1996.* Series P-60. Washington. U.S. Government Printing office. See related *Consumer Price Index*.

**Preferred provider organization (PPO)**—Health plan generally consisting of hospital and physician providers. The PPO provides health care services to plan members usually at discounted rates in return for expedited claims payment. Plan members can use PPO or non-PPO health care providers, however, financial incentives are built into the benefit structure to encourage utilization of PPO providers. See related *Managed care*.

**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 (for example, the prevalence of diabetes per 1,000 persons during a year). See related *Incidence*.

**Primary admission diagnosis**—In the National Home and Hospice Care Survey the primary admission diagnosis is the first-listed diagnosis at admission on the patient's medical record as provided by the agency staff member most familiar with the care provided to the patient.

**Primary care specialties**—See *Physician specialty*.

**Private expenditures**—See *Health expenditures, national*.

**Procedure**—The National Hospital Discharge Survey (NHDS) and the National Survey of Ambulatory Surgery (NSAS) define a procedure as a surgical or nonsurgical operation, diagnostic procedure, or therapeutic procedure (such as respiratory therapy) recorded on the medical record of discharged patients. A maximum of four procedures per discharge in NHDS and up to six procedures per discharge in NSAS were recorded and coded to the *International Classification of Diseases, Ninth Revision, Clinical Modification.* Previous editions of *Health, United States* classified procedures into surgical and diagnostic and other nonsurgical procedures. The distinction between surgical and diagnostic and nonsurgical procedures has become less meaningful due to the development of minimally invasive and noninvasive procedures thus the practice of classifying procedures has been discontinued. See related *Ambulatory surgery; Outpatient surgery*.

**Proprietary hospitals**—See *Hospital*.

**Psychiatric hospitals**—See *Hospital; Mental health organization*.

**Public expenditures**—See *Health expenditures, national*.

**Public health activities**—Public health activities may include any of the following essential services of

public health—surveillance, investigations, education, community mobilization, workforce training, research, and personal care services delivered or funded by governmental agencies.

**Race**—Beginning in 1976 the Federal Government's data systems classified individuals into the following racial groups: American Indian or Alaska Native, Asian or Pacific Islander, black, and 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. Starting in 1989, data from the National Vital Statistics System for newborn infants and fetal deaths are tabulated according to race of mother, and trend data by race shown in this report have been retabulated by race of mother for all years, beginning with 1980. Before 1980 data were tabulated by race of newborn and fetus according to race of both parents. If the parents were of different races and one parent was white, the child was classified according to the race of the other parent. When neither parent was white, the child was classified according to father's race, with one exception: if either parent was Hawaiian, the child was classified Hawaiian. Before 1964 the National Vital Statistics System classified all births for which race was unknown as white. Beginning in 1964 these births were classified according to information on the previous record.

In *Health, United States*, trends of birth rates, birth characteristics, and infant and maternal mortality rates are calculated according to race of mother unless specified otherwise. Vital event rates for the American Indian or Alaska Native population shown in this book are based on the total U.S. resident population of American Indians and Alaska Natives as enumerated by the U.S. Bureau of Census. In contrast the Indian Health Service calculates vital event rates for this population based on U.S. Bureau of Census county data for American Indians and Alaska Natives who reside on or near reservations. See related *Hispanic origin*.

**Rate**—A rate is a measure of some event, disease, or condition in relation to a unit of population, along with some specification of time. See related *Age adjustment; Population*.

- *Birth and related rates*

  *Birth rate* is calculated by dividing the number of live births in a population in a year by the midyear resident population. For census years, rates are based on unrounded census counts of the resident population, as of April 1. For the noncensus years of 1981–89 and 1991, rates are based on national estimates of the resident population, as of July 1, rounded to 1,000's. Population estimates for 5-year age groups are generated by summing unrounded population estimates before rounding to 1,000's. Starting in 1992 rates are based on unrounded national population estimates. Birth rates are expressed as the number of live births per 1,000 population. The rate may be restricted to births to women of specific age, race, marital status, or geographic location (specific rate), or it may be related to the entire population (crude rate). See related *Cohort fertility; Live birth*.

  *Fertility rate* is the total number of live births, regardless of age of mother, per 1,000 women of reproductive age, 15–44 years.

- *Death and related rates*

  *Death rate* is calculated by dividing the number of deaths in a population in a year by the midyear resident population. For census years, rates are based on unrounded census counts of the resident population, as of April 1. For the noncensus years of 1981–89 and 1991, rates are based on national estimates of the resident population, as of July 1, rounded to 1,000's. Population estimates for 10-year age groups are generated by summing unrounded population estimates before rounding to 1,000's. Starting in 1992 rates are based on unrounded national population estimates. Rates for the Hispanic and non-Hispanic white populations in each year are based on unrounded State population estimates for States in the Hispanic reporting area. Death rates are expressed as the

number of deaths per 100,000 population. The rate may be restricted to deaths in specific age, race, sex, or geographic groups or from specific causes of death (specific rate) or it may be related to the entire population (crude rate).

*Fetal death rate* is the number of fetal deaths with stated or presumed gestation of 20 weeks or more divided by the sum of live births plus fetal deaths, stated per 1,000 live births plus fetal deaths. *Late fetal death rate* is the number of fetal deaths with stated or presumed gestation of 28 weeks or more divided by the sum of live births plus late fetal deaths, stated per 1,000 live births plus late fetal deaths. See related *Fetal death; Gestation*.

*Infant mortality rate* based on period files is calculated by dividing the number of infant deaths during a calendar year by the number of live births reported in the same year. It is expressed as the number of infant deaths per 1,000 live births. *Neonatal mortality rate* is the number of deaths of children under 28 days of age, per 1,000 live births. *Postneonatal mortality rate* is the number of deaths of children that occur between 28 days and 365 days after birth, per 1,000 live births. See related *Infant death*.

*Birth cohort infant mortality rates* are based on linked birth and infant death files. In contrast to period rates in which the births and infant deaths occur in the same period or calendar year, infant deaths comprising the numerator of a birth cohort rate may have occurred in the same year as, or in the year following the year of birth. The birth cohort infant mortality rate is expressed as the number of infant deaths per 1,000 live births. See related *Birth cohort*.

*Perinatal* relates to the period surrounding the birth event. Rates and ratios are based on events reported in a calendar year. *Perinatal mortality rate* is the sum of late fetal deaths plus infant deaths within 7 days of birth divided by the sum of live births plus late fetal deaths, stated per 1,000 live births plus late fetal deaths. *Perinatal mortality ratio* is the sum of late fetal deaths plus infant deaths within 7 days of birth divided by the number of live births, stated per 1,000 live births.

*Feto-infant mortality rate* is the sum of late fetal deaths plus all infant deaths divided by the sum of live births plus late fetal deaths, stated per 1,000 live births plus late fetal deaths. See related *Fetal death; Gestation; Infant death; Live birth*.

*Maternal death* is one for which the certifying physician has designated a maternal condition as the underlying cause of death. Maternal conditions are those assigned to Complications of pregnancy, childbirth, and the puerperium, ICD-9 codes 630–676. (See related table V.) *Maternal mortality rate* is defined as the number of maternal deaths per 100,000 live births. The maternal mortality rate is a measure of the likelihood that a pregnant woman will die from maternal causes. The number of live births used in the denominator is a proxy for the population of pregnant women who are at risk of a maternal death.

**Region**—See *Geographic region and division*.

**Registered hospitals**—See *Hospital*.

**Registered nursing education**—Registered nursing data are shown by level of educational preparation. Baccalaureate education requires at least 4 years of college or university; associate degree programs are based in community colleges and are usually 2 years in length; and diploma programs are based in hospitals and are usually 3 years in length.

**Registration area**—The United States has separate registration areas for birth, death, marriage, and divorce statistics. In general, registration areas correspond to States and include two separate registration areas for the District of Columbia and New York City. All States have adopted laws that require the registration of births and deaths and the reporting of fetal deaths. It is believed that more than 99 percent of the births and deaths occurring in this country are registered.

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, U.S. Virgin Islands, and Guam comprise separate registration areas, although their data are not included in statistical tabulations of U.S. resident data. See related *Reporting area*.

**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 one-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.

**Reporting area**—In the National Vital Statistics System, the reporting area for such basic items on the birth and death certificates as age, race, and sex, is based on data from residents of all 50 States in the United States and the District of Columbia. The reporting area for selected items such as Hispanic origin, educational attainment, and marital status, is based on data from those States that require the item to be reported, whose data meet a minimum level of completeness (such as, 80 or 90 percent), and are considered to be sufficiently comparable to be used for analysis. In 1993–96 the reporting area for Hispanic origin of decedent on the death certificate included 49 States and the District of Columbia. See related *Registration area; National Vital Statistics System* in Appendix I.

**Resident**—In the Online Certification and Reporting database, all residents in certified facilities are counted on the day of certification inspection. In the National Nursing Home Survey, a resident is a person on the roster of the nursing home as of the night before the survey. Included are all residents for whom beds are maintained even though they may be on overnight leave or in a hospital. See related *Nursing home*.

**Resident population**—See *Population.*

**Residential treatment care**—See *Mental health service type.*

**Residential treatment centers for emotionally disturbed children**—See *Mental health organization.*

**Self-assessment of health**—See *Health status, respondent-assessed.*

**Short-stay hospitals**—See *Hospital.*

**Skilled nursing facilities**—See *Nursing home.*

**Smoker**—See *Current smoker*.

**Specialty hospitals**—See *Hospital.*

**State health agency**—The agency or department within State government headed by the State or territorial health official. Generally, the State health agency is responsible for setting statewide public health priorities, carrying out national and State mandates, responding to public health hazards, and assuring access to health care for underserved State residents.

**Substance abuse treatment clients**—In the Substance Abuse and Mental Health Services Administration's Uniform Facilities Data Set substance abuse treatment clients have been admitted to treatment and have been seen on a scheduled appointment basis at least once in the month before the survey reference date or were inpatients on the survey reference date. Types of treatment include 24-hour detoxification, 24-hour rehabilitation or residential care, and outpatient care.

**Surgical operations**—See *Procedure.*

**Surgical specialties**—See *Physician specialty.*

# Appendix II

# Glossary

**Uninsured**—See *Health insurance coverage*.

**Urbanization**—In this report death rates are presented according to level of urbanization of the decedent's county of residence. Metropolitan and nonmetropolitan counties are categorized into urbanization levels based on an NCHS-modification of the 1993 rural-urban continuum codes. The 1993 rural-urban continuum codes were developed by the Economic Research Service, U.S. Department of Agriculture using the 1993 U.S. Office of Management and Budget definition of metropolitan statistical areas (MSA's). The codes classify metropolitan counties by population size and level of urbanization and nonmetropolitan counties by level of urbanization and proximity to metropolitan areas. NCHS modified the 1993 rural-urban continuum codes to make the definition of core and fringe metropolitan counties comparable to the definitions used for the 1983 codes. For this report, the 10 categories of counties have been collapsed into 5 categories (a) core metropolitan counties contain the primary central city of an MSA with a 1990 population of 1 million or more; (b) fringe metropolitan counties are the noncore counties of an MSA with 1990 population of 1 million or more; (c) medium or small metropolitan counties are in MSA's with 1990 population under 1 million; (d) urban nonmetropolitan counties are not in MSA's and have 2,500 or more urban residents in 1990; and (e) rural counties are not in MSA's and have fewer than 2,500 urban residents in 1990. See related *Metropolitan statistical area (MSA).*

**Usual source of care**—Usual source of care was measured in the National Health Interview Survey (NHIS) in 1991 by asking the respondent, ''Is there a particular clinic, health center, doctor's office, or other place that you usually go to if you are sick or need advice about your health?'' In 1993 and 1994 the respondent was asked, ''Is there a particular person or place that __ usually goes to when ___ is sick or needs advice about __ health?'' In the 1995 and 1996 NHIS, the respondent was asked ''Is there one doctor, person, or place that __ usually goes to when __ is sick or needs advice about ___ health?'' Persons who reported multiple sources of care are defined as having a usual source of care. Additionally, persons who reported the emergency room as their usual source of care are defined as having no usual source of care for the purposes of this report.

**Wages and salaries**—See *Employer costs for employee compensation.*

**Years of potential life lost**—Years of potential life lost (YPLL) is a measure of premature mortality. Starting with *Health, United States, 1996–97*, YPLL is presented for persons under 75 years of age because the average life expectancy in the United States is over 75 years. YPLL-75 is calculated using the following eight age groups: under 1 year, 1–14 years, 15–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years, 65–74 years. The number of deaths for each age group is multiplied by the years of life lost, calculated as the difference between age 75 years and the midpoint of the age group. For the eight age groups the midpoints are 0.5, 7.5, 19.5, 29.5, 39.5, 49.5, 59.5, and 69.5. For example, the death of a person 15–24 years of age counts as 55.5 years of life lost. Years of potential life lost is derived by summing years of life lost over all age groups. In *Health, United States, 1995* and earlier editions, YPLL was presented for persons under 65 years of age. For more information, see Centers for Disease Control. *MMWR*. Vol 35 no 25S, suppl. 1986.

## Detailed Tables With Additional Years of Data Available in Electronic Spreadsheet Files

Many of the detailed tables in this report present data for extended time periods. Because of space limitations on the printed page, only selected years of data are shown to highlight major trends. For the tables listed below, additional years of data are available in electronic spreadsheet files that may be accessed through the internet and on CD-ROM.

To access the files on the internet, go to the FTP server on the NCHS homepage at www.cdc.gov/nchswww and select "Data Warehouse" and *Health, United States*.

Spreadsheet files are also available on a CD-ROM entitled "Publications from the National Center for Health Statistics," featuring *Health, United States, 1999*, vol 1 no 5, 1999. The CD-ROM may be purchased from the Government Printing Office or the National Technical Information Service.

| *Table number* | *Table topic* | *Additional data years available* |
|---|---|---|
| 1 | Resident population | 1981–89, 1991–95 |
| 2 | Poverty | 1986–89 |
| 3 | Fertility rates and birth rates | 1981–84, 1986–89 |
| 5 | Live births | 1971–74, 1976–79, 1981–84, 1986–89, 1991–93 |
| 6 | Prenatal care | 1981–84, 1986–89 |
| 7 | Teenage childbearing | 1981–84, 1986–89 |
| 8 | Nonmarital childbearing | 1981–84, 1986–89 |
| 9 | Maternal education | 1981–84, 1986–89 |
| 11 | Low birthweight | 1981–84, 1986–89 |
| 15 | Abortions | 1981–84, 1986–88 |
| 16 | Abortions | 1981–84, 1986–88 |
| 17 | Contraception | 1990 |
| 19 | Infant mortality rates | 1984, 1985–86, 1988–89 |
| 20 | Infant mortality rates | 1984, 1985–86, 1988–89 |
| 21 | Infant mortality rates | 1984 |
| 22 | Infant mortality rates | 1981–84, 1986–88 |
| 28 | Life expectancy | 1975, 1981–84 |
| 29 | Age-adjusted death rates by State | 1992–94, 1993–95, 1994–96 |
| 30 | Age-adjusted death rates for selected causes | 1991–93 |
| 31 | Years of potential life lost | 1985, 1991–96 |
| 36 | Death rates for all causes | 1981–84, 1986–89, 1991–94 |
| 37 | Diseases of heart | 1981–84, 1986–89, 1991–93 |
| 38 | Cerebrovascular diseases | 1981–84, 1986–89, 1991–93 |
| 39 | Malignant neoplasms | 1981–84, 1986–89, 1991–93 |
| 40 | Malignant neoplasms of respiratory system | 1981–84, 1986–89, 1991–93 |
| 41 | Malignant neoplasm of breast | 1981–84, 1986–89, 1991–93 |
| 42 | Chronic obstructive pulmonary diseases | 1981–84, 1986–89 |
| 43 | Human immunodeficiency virus (HIV) infection | 1988 |
| 44 | Maternal mortality | 1981–84, 1986–89, 1991–93 |
| 45 | Motor vehicle-related injuries | 1981–84, 1986–89, 1991–93 |
| 46 | Homicide | 1981–84, 1986–89, 1991–93 |
| 47 | Suicide | 1981–84, 1986–89, 1991–93 |
| 48 | Firearm-related injuries | 1981–84, 1986–87 1989, 1991–92 |
| 49 | Occupational diseases | 1979, 1981–84, 1986–88 |
| 50 | Occupational injury deaths | 1981–84, 1986–88 |
| 53 | Notifiable diseases | 1985, 1988–89, 1991–93 |
| 61 | Cigarette smoking | 1987–88 |

# Appendix III

## Additional Data

| Table number | Table topic | Additional data years available |
|---|---|---|
| 62 | Cigarette smoking | 1987–88 |
| 64 | Use of selected substances | 1982, 1988 |
| 65 | Use of selected substances | 1981–84, 1986, 1987–88 |
| 66 | Cocaine-related emergency room episodes | 1986–89 |
| 74 | Occupational injuries | 1981–84, 1986–88 |
| 75 | Physician contacts | 1985–86 |
| 77 | Physician contacts | 1990–92, 1993–95 |
| 83 | Ambulatory care visits | 1993–94 |
| 87 | Additions to mental health organizations | 1986, 1988 |
| 90 | Discharges | 1988–89 |
| 91 | Discharges | 1989, 1994 |
| 96 | Hospital admissions | 1991–93 |
| 101 | Persons employed | 1983–84, 1986–89, 1991 |
| 103 | Physicians | 1970, 1987, 1989, 1992–94 |
| 106 | Staff in mental health organizations | 1986, 1988 |
| 110 | Hospitals | 1991–93 |
| 112 | Community hospital beds | 1985, 1988–89, 1995–96 |
| 113 | Occupancy rates | 1985, 1988–89, 1995–96 |
| 117 | Consumer Price Index | 1965, 1975 |
| 122 | Employers' costs and health insurance | 1992–93, 1995–96 |
| 123 | Hospital expenses | 1991–92, 1994 |
| 127 | Funding for health research | 1984, 1986–89, 1991–92 |
| 132 | Health maintenance organizations | 1984, 1986–87, 1989, 1991 |
| 134 | Medicare | 1988–89, 1991–94 |
| 135 | Medicare | 1967, 1991–94 |
| 136 | Medicaid | 1986–89, 1991–93 |
| 137 | Medicaid | 1986–89, 1991–93 |
| 138 | Department of Veterans Affairs | 1985, 1988–89, 1991 |
| 143 | Medicare | 1994–95 |

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