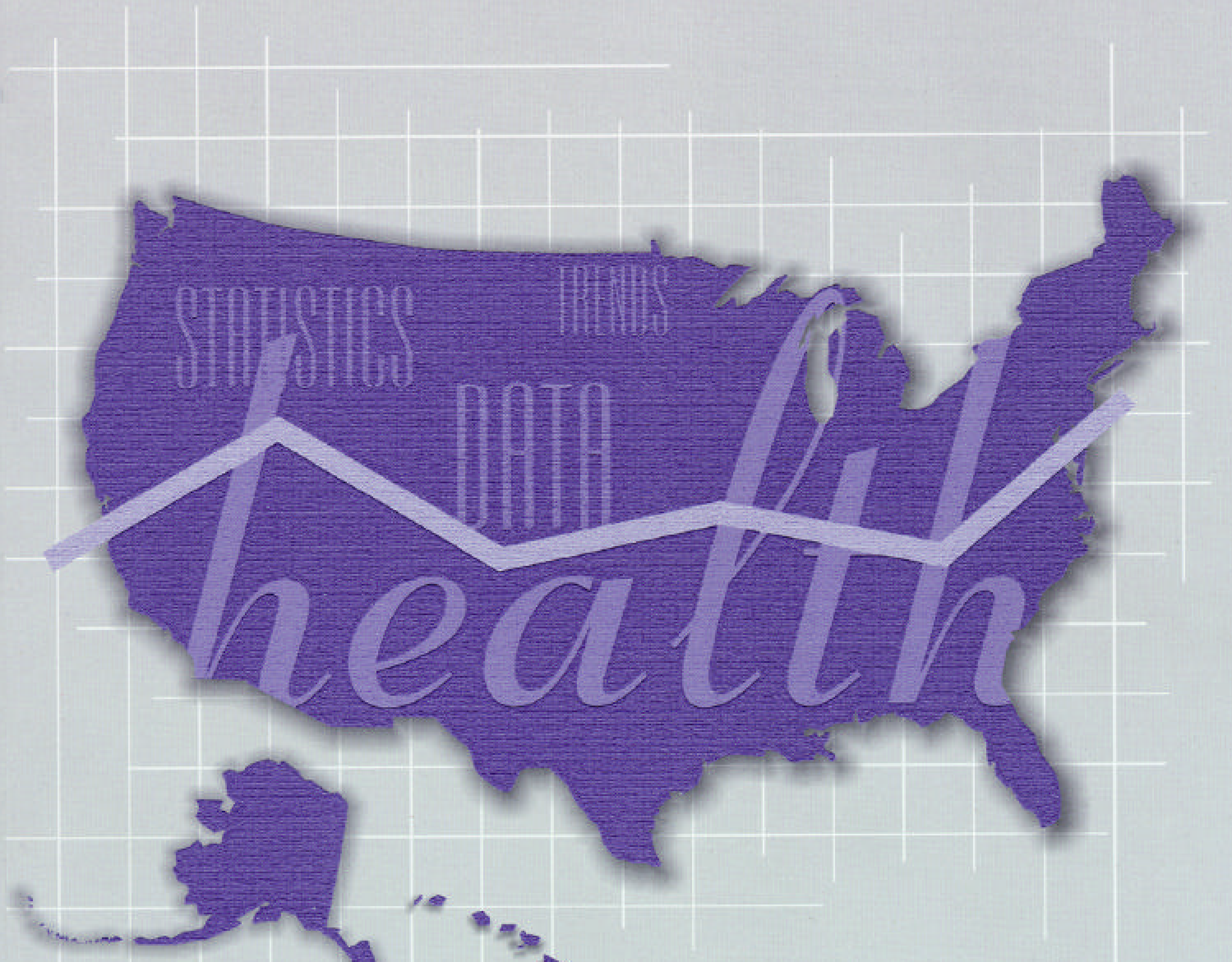
Health, United States, 1998

Socioeconomic Status and Health Chartbook



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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Socioeconomic Status and Health Chartbook

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National Center for Health Statistics
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Preface

Health, United States, 1998 is the 22d report on the health status of the Nation submitted by the Secretary of Health and Human Services to the President and Congress of the United States in compliance with Section 308 of the Public Health Service Act. This report was compiled by the 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 and detailed tables. In each edition of *Health, United States*, the chartbook focuses on a major health topic. This year socioeconomic status and health was selected as the subject of the chartbook. The chartbook consists of 49 figures and accompanying text divided into sections on the population, children's health, and adults' health. The sections on children's and adults' health include subsections on health status, risk factors, and health care access and utilization.

The chartbook is followed by 149 detailed tables 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. Similar tables appear in each volume of *Health, United States* to enhance the use of this publication as a standard reference source. For tables that show extended trends, earlier editions of *Health, United States* may present data for intervening years that are not included in the current printed report. Where possible, intervening years in an extended trend are retained in the Lotus 1–2–3 spreadsheet files (described below).

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 the presentation of 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 according to 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.

Each year new tables are added to *Health, United States* to reflect emerging topics in public health and new variables are added to existing tables to enhance their usefulness. *Health, United States, 1998* includes the following four new tables. For the first time vaccination rates for children 19–35 months of age are provided for States and selected urban areas (table 53); access to health care according to poverty status and health insurance status is measured by no physican contact in the past year for children under 6 years of age and by no usual source of care for children under 18 years of age (tables 78 and 79); and data on medical care benefits for employees of private companies are presented (table 136). The following enhancements were made to existing tables. Data for racial and ethnic groups were expanded in tables showing years of potential life lost rates (table 32) and maternal mortality rates (table 45). Data by race were added to other tables as follows: the poverty rate in 1990 among the American Indian population (NOTE, table 2); vaccination rates for children by race and poverty status (table 52); and functional status of nursing home residents by race, sex, and age (table 96). Data on health care coverage were expanded to include employer-sponsored private insurance and additional race, age, and poverty status subgroups (tables 133 and 134). To address heightened interest in persons 55–64 years of age approaching Medicare eligibility, data by age were expanded for ambulatory care visits (tables 81 and 82). The percent of Medicare enrollees in managed care and the percent of Medicaid recipients in managed care in each State were added to tables 146 and 147.

To use *Health, United States* most effectively, the reader should become familiar with two appendixes at the end of the report. Appendix I describes each data source used in the report 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.

Health, United States can be accessed electronically in several formats. First, the entire *Health, United States, 1998* is available, along with other NCHS reports, on a CD-ROM entitled ‘‘Publications from the National Center for Health Statistics, featuring *Health, United States, 1998*,’’ vol 1 no 4, 1998. These publications can be viewed, searched, printed, and saved using the 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, 1998* is available as an Acrobat .pdf file on the Internet through the NCHS home page on the World Wide Web. The direct Uniform Locator Code (URL) address is:

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

Third, the 149 detailed tables in *Health, United States, 1998* are available on the FTP server as Lotus 1–2–3 spreadsheet files that can be downloaded. An electronic index is included that enables the user to search the tables by topic. The URL address for the FTP server is:

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

The detailed tables and electronic index 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 149 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.

For answers to questions about this report, contact:

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The *Socioeconomic Status and Health Chartbook* is reprinted from *Health, United States, 1998* and includes highlights of the detailed tables and the appendixes from the complete report.

Acknowledgments

The chartbook was prepared by Elsie R. Pamuk, Diane M. Makuc, Katherine E. Heck, Cynthia Reuben, and Kimberly Lochner in the Office of Analysis, Epidemiology, and Health Promotion under the general direction of Jacob J. Feldman. Data for specific charts were provided by Sylvia A. Ellison (figure 23) and Lois A. Fingerhut (figures 30–31) of NCHS; Joseph Gfroerer of the Substance Abuse and Mental Health Administration (figure 37); and Paul Sorlie of the National Heart, Lung, and Blood Institute (figure 25). Technical help was provided by Alan J. Cohen and Catherine Duran of TRW, Information Services Division; Laura Porter, Joyce Abma, Debra Brody, Catherine W. Burt, Margaret Carroll, Margaret A. Cooke, Virginia M. Freid, Wilbur C. Hadden, Tamy Hickman, Meena Khare, John L. Kiely, Patricia A. Knapp, Lola Jean Kozak, Jeffrey D. Maurer, Laura E. Montgomery, Cynthia Ogden, Linda W. Pickle, Mitchell B. Pierre, Jr., Ronica N. Rooks, Kenneth C. Schoendorf, Richard P. Troiano, Kathleen M. Turczyn, and Clemencia M. Vargas of NCHS; Edmond F. Maes of the National Immunization Program, CDC; and Deborah Dawson of the National Institute on Alcohol Abuse and Alcoholism.

Dr. Philip R. Lee, former Assistant Secretary for Health and currently at the University of California at San Francisco, was instrumental in the development of the chartbook. Dr. Lee has long been committed to the study of the relationship between socioeconomic status and health and to applying the knowledge gained to improving the health of disadvantaged populations. Advice and encouragement was also graciously provided by the following individuals: Dr. Norman Anderson of the National Institutes of Health; Dr. A. John Fox of the Office for National Statistics, England; Dr. George Kaplan of the University of Michigan; Dr. Roz Lasker of the New York Academy of Medicine; Dr. Paul Newacheck of the University of California at San Francisco; and Dr. David Williams of the University of Michigan.

Overall responsibility for planning and coordinating the content of *Health, United States* rested with the Office of Analysis, Epidemiology, and Health Promotion, National Center for Health Statistics (NCHS), under the supervision of Kate Prager, Diane M. Makuc, and Jacob J. Feldman. Highlights of the detailed tables were written by Margaret A. Cooke, Virginia M. Freid, Michael E. Mussolino, and Kate Prager. Detailed tables were prepared by Alan J. Cohen, Margaret A. Cooke, Virginia M. Freid, Michael E. Mussolino, Mitchell B. Pierre, Jr., Rebecca A. Placek, and Kate Prager with assistance from La-Tonya Curl, Catherine Duran, Deborah D. Ingram, Patricia A. Knapp, Jaleh Mousavi, Mark F. Pioli, Anita L. Powell, Ronica N. Rooks, Kenneth C. Schoendorf, Fred Seitz, and Jean F. Williams. 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 typing assistance from Carole J. Hunt.

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Publication of *Health, United States* would not have been possible without the contributions of numerous staff members throughout the National Center for Health Statistics and several other agencies. These people gave generously of their time and knowledge, providing data from their surveys and programs; their cooperation and assistance are gratefully acknowledged.

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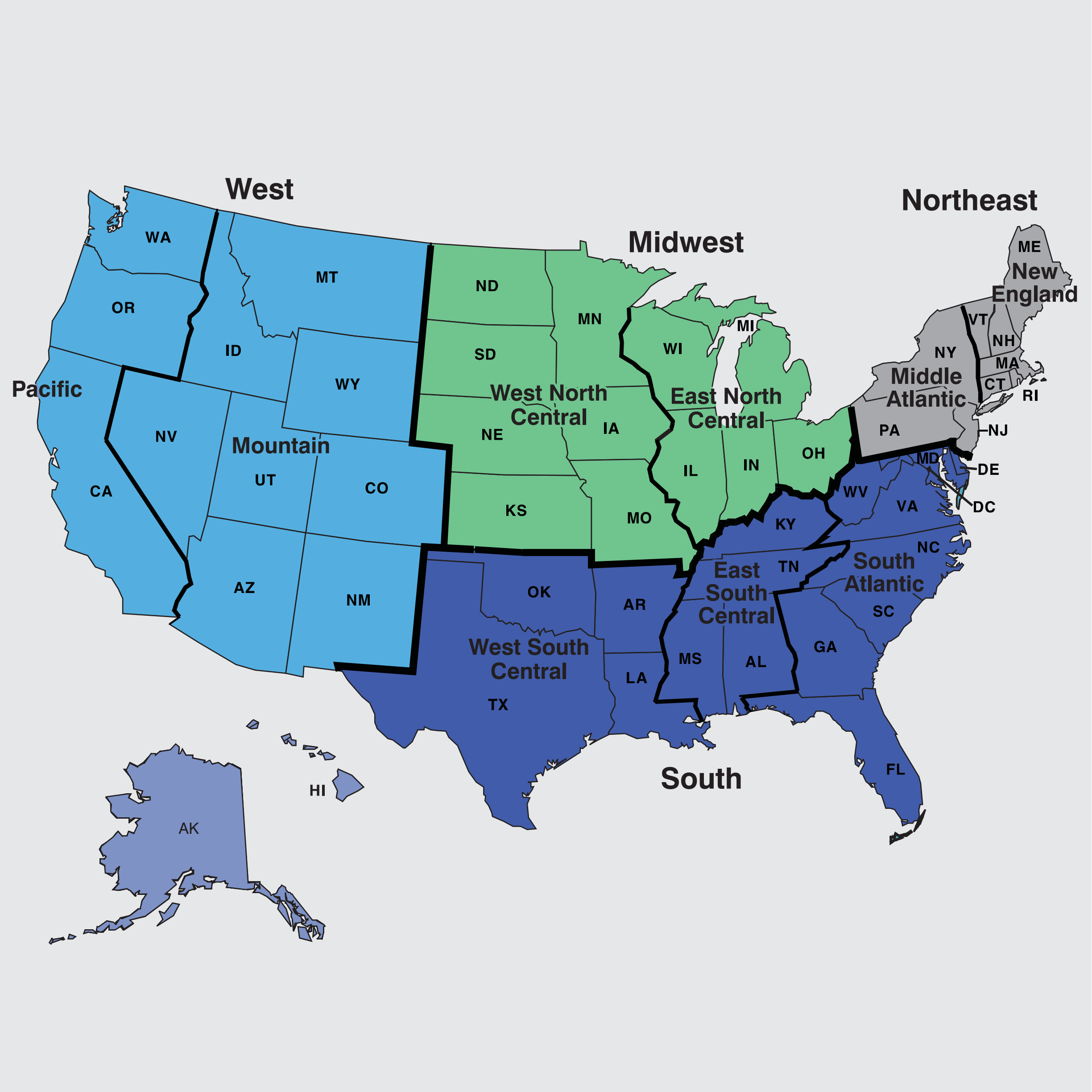
Geographic Regions and Divisions of the United States



Highlights

Population

- **Income inequality** in the United States increased between 1970 and 1996. The growth in inequality was due primarily to larger increases in income among high-income than low-income households. While income increased by 5–7 percent in constant dollars for households in the 20th and the 50th percentiles of income, those at the 80th percentile experienced a 22 percent increase in their earnings, and the income of those in the 95th percentile increased by 36 percent (figure 1).

- Children under 18 years of age were 40 percent more likely to live in **poverty** than was the population as a whole in 1996 (20 compared with 14 percent). Children in female-headed households were particularly unlikely to have adequate incomes. One-half of children in female-headed households were poor in 1996 and an additional 27 percent were near poor. Black and Hispanic children and adults were more likely than non-Hispanic white or Asian persons to be poor or near poor. On the whole, black persons and Hispanic persons had a poverty rate about 3.3 times that of non-Hispanic white persons (figure 3).

- State **poverty** rates in 1994–96 varied more than threefold from 7 to 24 percent. Higher rates of poverty tended to be found in Southern and Southwestern States, while lower rates were found among New England and North Central States (figure 4).

- Between 1980 and 1996 **median household incomes** increased about 5 percent in constant dollars. Non-Hispanic white households saw a 7 percent rise in their median incomes and black households a 14 percent rise, while Hispanic incomes declined by 4 percent. In 1996 Asian or Pacific Islander households had the highest median income, around $43,300, with non-Hispanic white incomes slightly less, at about $38,800; incomes of black and Hispanic households were similar and substantially lower: $23,500 and $24,900, respectively (figure 2).

- In 1996 median **family incomes** rose with each higher level of **education** for men and women in each race and ethnic group. Among non-Hispanic white, non-Hispanic black, and Hispanic persons the ratio of median family income of college graduates to median income of those with less than a high school education ranged from 2.4–2.7 for men and from 2.9–3.6 for women. This ratio was 1.8–2.0 for Asian women and men (figure 6).

- Asian or Pacific Islander adults had the most **education** as well as the largest proportion of men whose **occupation** was white collar. Fully 45 percent of Asian or Pacific Islander persons 25–64 years of age had 16 or more years of education in 1996, compared with 29 percent of non-Hispanic white persons, 15 percent of non-Hispanic black persons, and 10 percent of Hispanic persons. Conversely, 44 percent of Hispanic adults 25–64 years of age had less than 12 years of education, compared with 20 percent of non-Hispanic black adults, 14 percent of Asian or Pacific Islander adults, and 10 percent of non-Hispanic white adults. Education levels were lower among adults 65 and over; in each race and ethnic group, 6 to 20 percent of adults in this age group had 16 or more years of education. The distribution of occupational categories by race and ethnicity reflected the educational patterns in race and ethnic groups. A majority of Asian or Pacific Islander and non-Hispanic white men worked in white collar occupations, while a plurality (almost one-half) of non-Hispanic black and Hispanic men were classified as blue collar. A majority (52 to 78 percent) of women in every race and ethnic group were classified as white collar. Non-Hispanic black and Hispanic men and women were about twice as likely as their non-Hispanic white counterparts to be in service occupations. More than one-quarter of Hispanic and black women were in service jobs as were 15–18 percent of non-Hispanic black and Hispanic men (figures 5 and 7).

Children's Health

■ **Infant mortality** declined between 1983 and 1995 for infants of black and white mothers at all educational levels, but substantial socioeconomic disparities remained in 1995. **Low birthweight** and infant mortality were more common among the children of less educated mothers than among children of more educated mothers; for example, in 1995, infants born to non-Hispanic white mothers with less than 12 years of education were 2.4 times as likely to die in the first year of life as those whose mothers had at least 16 years of education. However, not all race and ethnic groups demonstrated identical patterns; a relationship between maternal education and these infant health outcomes was more apparent for non-Hispanic white, non-Hispanic black, and American Indian or Alaska Native infants than for Asian or Pacific Islander and Hispanic infants (figures 8, 9, and 10).

■ Mothers with more education are more likely to have received early **prenatal care** than less educated mothers; in 1996 mothers with 16 or more years of education were 40 percent more likely to obtain first-trimester prenatal care than those with fewer than 12 years of education. Mothers with fewer than 12 years of education were almost 10 times as likely to **smoke during pregnancy** as mothers with 16 or more years of education in 1996. These maternal risk factors are likely contributors to the higher incidence of low birthweight and infant mortality among the infants of less-educated mothers (figures 8–10, 13, 18, and 19).

■ The relationship between maternal education and health differed for **Hispanic** mothers and their infants compared with non-Hispanic mothers and infants. Non-Hispanic white mothers with fewer than 12 years of education were 80 percent more likely to have a low birthweight infant than those with a college degree. However, the incidence of **low birthweight** among Hispanic infants did not vary by mother's education. The relationship between mother's education and both low birthweight and **smoking during pregnancy** varied according to Hispanic subgroup; for example, Puerto Rican and Cuban American mothers were less likely to smoke during pregnancy if they had higher education levels, but there was no relationship with education for Mexican American and Central and South American mothers, all of whom were unlikely to smoke during pregnancy. Although an inverse educational gradient was found for Hispanic infant mortality, the relationship was weaker for Hispanic infants (40 percent higher mortality in infants of the least educated compared with the most educated mothers) than for non-Hispanic white infants (140 percent higher) (figures 9, 10, and 13).

■ Young children who are exposed to environmental lead may be at risk for a range of mental and physical problems. **Elevated blood lead levels** were more common among poor children and among black children than among children of other groups. Children 1–5 years of age living in poor families in 1988–94 were over seven times as likely to have an elevated blood lead level as children in high-income families. Over one in five non-Hispanic black children who were poor had an elevated level of blood lead, compared with 8 percent of poor non-Hispanic white children and 6 percent of poor Mexican American children (figure 14).

■ Early childbearing is more common among girls from lower socioeconomic-status families. According to a 1995 survey, women in their twenties whose mothers did not finish high school were about five times as likely to have had a **teenage birth** as those whose mothers had 4 years of college education. The adolescent mothers, now in their twenties, had lower family incomes than women the same age who had not had a teenage birth (figure 12).

■ In 1992 non-Hispanic white girls and boys 12–17 years of age from poor families were 45 percent more likely to **smoke** cigarettes than similar adolescents from middle- or high-income families, while poor non-Hispanic black teen boys were almost 3 times as likely to smoke as those from middle- or high-income families. There was no relationship between family income and smoking for non-Hispanic black girls, while for Hispanic girls the pattern was reversed: those from middle- or high-income families were 60 percent more likely to smoke than those from poor families. However, smoking prevalence tended to differ more by race and ethnicity than by family income: smoking was most common among non-Hispanic white teens, somewhat less common among Hispanic teens, and least common among non-Hispanic black teens. For example, in 1992 among poor adolescents, the proportion who smoked was 33 percent for non-Hispanic white males, 23 percent for Hispanic males, and 12 percent for non-Hispanic black males (figure 15).

■ **Overweight** was inversely related to family income among non-Hispanic white adolescents, but not among Mexican American or non-Hispanic black adolescents. The percent of poor non-Hispanic white adolescents who were overweight during 1988–94 (19 percent) was about 2.6 times that for middle- or high-income adolescents (7 percent). **Sedentary lifestyle** was inversely related to family income among teenage girls and to a lesser extent among teenage boys. Poor female adolescents were more than twice as likely as those with high incomes to be sedentary. Girls were more likely than boys to be sedentary, and this difference was most pronounced among lower income youths. Among the poor and near poor, girls were 70–80 percent more likely than boys to be sedentary (figures 16 and 17).

■ Children from higher income families are more likely to have **health insurance** coverage than those from lower income families. More than one in five poor and near-poor children had no health insurance in 1994–95, while 9 percent of middle-income children and 4 percent of high-income children were uninsured. These differences were reflected in less use of health care for low-income children. During 1994–95, poor and near-poor children under 6 years of age were only about one-half as likely to have seen a physician in the prior year as middle- or high-income children. Uninsured children were particularly unlikely to have seen a doctor, especially if they were poor: almost one-quarter of poor uninsured young children had not seen a doctor in the past year, compared with about 1 in 12 poor children with health insurance. Poor uninsured children were almost twice as likely to have had **no recent physician contacts** as middle or upper income uninsured children. When children in lower income areas received **ambulatory care** in 1995, it was less likely to be at a physician's office and more likely to be at a hospital emergency room: 22 percent of visits among children living in areas where the median income was less than $20,000 took place in emergency rooms, while only 8 percent of visits were in emergency rooms for children living in areas where the median income was at least $40,000 (figures 20, 22, and 23 and table 78).

■ Children in lower income families are less likely to receive needed health care. In 1996 two-thirds of poor children 19–35 months of age had been fully **vaccinated**, compared with more than three-quarters of those above the poverty level. Children 1–14 years of age living in low-income areas were more than twice as likely to be **hospitalized for asthma** as those in high-income areas during 1989–91, suggesting they may have been unable to receive outpatient care that could prevent such a hospitalization (figures 21 and 24).

Adults' Health

■ **Life expectancy** is related to family income; people with lower family income tend to die at younger ages than those with higher income. During 1979–89 white men who were 45 years of age and who had a family income of at least $25,000 could expect to live 6.6 years longer than men with family income less than $10,000 (33.9 years compared with 27.3 years). Among black men, the difference in life expectancy at age 45 between those with low and high incomes was 7.4 years; among white women, 2.7

years, and among black women, 3.8 years. At age 65, when life expectancy was shorter, the income disparities were somewhat less: the disparity in life expectancy between the lowest and highest income persons was 1.0 to 3.1 years, depending on sex and race (figure 25).

- Among persons 25–64 years of age **death rates for chronic diseases, communicable diseases, and injuries** are all inversely related to education for men and women. In 1995 the death rate for chronic diseases among men with less than 12 years of education was 2.5 times that for men with more than 12 years education and among women the comparable ratio was 2.1. For men and women non-HIV communicable disease mortality among the least educated was three times that of the most educated. The education gradient in HIV mortality was much stronger among women than men. The ratio of the death rate for injuries for the least educated to the rate for most educated was 3.4 for men and 2.3 for women in 1995 (figure 26).

- Less educated men and women have higher rates of **homicide** and **suicide** than those with more education. In 1994–95 homicide rates for adults 25–44 years of age were between three (for Hispanic women) and nine (for non-Hispanic white men) times as high among those with less than 12 years of education as among those with 13 or more years of education. In 1994–95 suicide rates for 25–44 year old men and women with less than 13 years of education were generally about twice the rates for those with more education. For non-Hispanic white men, however, suicide rates for the less educated were close to 4 times the rates for those with 13 or more years of education. (figures 30 and 31).

- Adults with low incomes are far more likely than those with higher incomes to report **fair or poor health** status. In 1995 poor adults 18 years of age and over were about four to seven times as likely (depending on race, ethnicity, and sex) as high-income adults to report that their health status was fair or poor. Poor persons 18–64 years of age were about three times as likely as middle- or high-income persons to report **limitations in activities** due to chronic conditions (34 percent compared with 11 percent in 1992–95). The gap between poor and middle- or high-income persons widened slightly between 1984–87 and 1992–95, primarily due to a 17 percent increase in the percent reporting limitations among poor non-Hispanic white adults. In addition, adults 70 years of age and over with low incomes were more likely than higher income older persons to report difficulty with **activities of daily living** (the ability to perform routine personal care); in 1995, 36 percent of poor men and 43 percent of poor women reported difficulty with activities of daily living while 20 percent of middle- or high-income men and 28 percent of middle- or high-income women reported such limitations (figures 32, 33, and 34).

- Cigarette **smoking** among adults 25 years of age and over declined between 1974 and 1995, but rates of decline were steeper among more educated adults. While smoking rates declined 51 percent among men with 16 or more years of education, they declined 24 percent among those with less than a high school education. Declines for women were similar (down 49 percent for the college educated, compared with a drop of 13 percent among those who did not finish high school). In 1995 the least educated men and women were more than twice as likely to smoke as the most educated. Smoking also varies inversely with income. In 1995 poor non-Hispanic white, non-Hispanic black, and Hispanic persons 18 years of age and over were 1.2–2.0 times as likely to smoke as those with middle or high income (figures 35 and 36).

- Higher prevalence of cigarette smoking among those of lower socioeconomic status was manifested in elevated **lung cancer and heart disease** death rates for lower income adults during 1979–89. Men with family incomes less than $10,000 were more than twice as likely to die of lung cancer as those earning at least $25,000. Among women, whose smoking and mortality rates were lower, there was no clear income gradient in lung cancer mortality during 1979–89. However, heart disease mortality was higher among those with lower incomes, regardless of sex, age, or race (figures 27 and 28).

- Between 1971–74 and 1988–94 the prevalence of **overweight** increased by 20 to 80 percent, depending on sex and education level. By 1988–94, overweight prevalence was similar among men with less than 12, 12, or 13 to 15 years of education (37–40 percent), but men with 16 or more years of education were less likely to be overweight (28 percent). There were significant educational differences in the prevalence of overweight for women during 1988–94; each increase in education level was associated with a decline in the percent of women who were overweight, from 46 percent among women with less than 12 years of education, down to 26 percent among women with 16 or more years of education. Prevalence of overweight was similar for men of different income levels but it varied inversely with income among women. Non-Hispanic white and Mexican American (but not non-Hispanic black) women with lower income were more likely to be overweight than their higher income counterparts. **Hypertension** was also more common among lower income women in 1988–94. Poor women were 1.6 times as likely as high-income women to be hypertensive. **Sedentary lifestyle** is more common among lower income persons as well; in 1991 poor persons were 1.6 to 3.1 times as likely to be sedentary as high-income persons, depending on sex, race, and ethnicity. Overweight and sedentary persons are more likely to develop **diabetes**; in 1979–89 the death rate for diabetes among low–income women was three times that for high income women and the income gradient in diabetes mortality was only slightly less steep for men (figures 29, 38, 39, 40, and 41).

- Heavy and chronic alcohol use can cause cirrhosis, poor pregnancy outcomes, and motor vehicle crashes as well as other health problems. In 1994–96 the percent of men and women 25–49 years of age reporting **heavy alcohol use** (five or more drinks on at least one occasion in the past month) was 30 percent higher among those with less than a high school education than among college graduates and men were almost three times as likely as women to report heavy drinking during the past month. The percent of heavy alcohol use varied by education and sex from 9 percent among college-educated women to 32 percent among men with less than a high school education (figure 37).

- Adults under age 65 with low family incomes are less likely to have **health insurance coverage** than higher income adults. In 1994–95 poor men were six to seven times as likely to be uninsured as high-income men, depending on race and ethnicity, while poor women were four to eight times as likely as high-income women to be uninsured. Among the poor and the near poor, coverage for women was somewhat higher than among men, due primarily to higher proportions of women than men with Medicaid coverage. In most income groups, non-Hispanic white and non-Hispanic black adults were more likely to be insured than Hispanic adults (figure 43).

- The use of sick care, preventive care, and dental care by adults varies with income. Among adults 18–64 years of age who report a health problem there is a strong inverse income gradient in the percent with **no recent physician contact**, and the gradient is similar across race and ethnic groups. In 1994–95 poor women with a health problem were almost three times as likely, and poor men with a health problem almost twice as likely, not to have seen a doctor within the past year as high-income men and women. There is a strong direct relationship between income and use of recent **mammography**. During 1993–94, high-income women 50 years of age and over were about 70 percent more likely than poor women to have received a mammogram in the past 2 years. In 1993 the percent of adults 18–64 years of age with a **dental visit** within the past 12 months rose sharply with income from 41 percent among the poor to 77 percent among those with high family income (figures 44, 45, and 49).

- Poor persons were far more likely than middle- or high-income persons to report an **unmet need for health care**. Among adults 18–64 years of age, about one-third of poor persons reported an unmet need for care in 1994–95, compared with about 7 percent of high-income persons; among adults 65 years of age and over, about one-fifth of the poor reported an unmet need, compared with 2 percent of high-income persons. Although the elderly have more health care needs than younger persons, almost universal Medicare coverage among the elderly assisted older adults in obtaining needed care (figures 46 and 47).

- **Avoidable hospitalizations** are hospital stays for conditions that may be preventable with appropriate outpatient care. In 1989–91 the rate of **avoidable hospitalizations** among adults 18–64 years of age living in areas where median incomes were lowest (less than $20,000) was 2.4 times the rate among those living in areas where incomes were highest ($40,000 or more) (figure 48).

Health Status and Determinants

Population

- In 1996 some 58 million children under the age of 15 years comprised the U.S. population, which totaled 265 million persons. Populations of **Asian or Pacific Islander children and Hispanic children** in the United States are increasing more rapidly than children in the U.S. population as a whole. Between 1990 and 1996 the average annual rate of increase was 4.5 percent for Asian or Pacific Islander children and 4.1 percent for Hispanic children compared with 1.2 percent for all U.S. children (table 1).

Fertility and Natality

- In 1996 the **birth rate** for teenagers declined for the fifth consecutive year to 54.4 births per 1,000 women aged 15–19 years. Between 1991 and 1996 the teen birth rate declined 12 percent, with larger reductions for 15–17 year-olds than for 18–19 year-olds (13 percent compared with 9 percent) and larger reductions for black than for white teens (21 percent compared with 9 percent). In 1996 the overall fertility rate declined slightly from 65.6 to 65.3 births per 1,000 women 15–44 years of age, after declining at an average annual rate of 1.5 percent between 1990 and 1995 (table 3).

- Between 1994 and 1996 the percent of **births to unmarried mothers** remained essentially level at about 32–33 percent following a threefold increase between 1970 and 1994. Between 1994 and 1996 the birth rate for unmarried black women declined 9 percent to 74 births per 1,000 unmarried black women aged 15–44 years and the birth rate for unmarried Hispanic women declined 8 percent to 93 per 1,000 while the birth rate for unmarried non-Hispanic white women remained stable at about 28 per 1,000 (table 8).

- A trend toward **delayed childbearing** in the United States that began in the mid- to late-1960's has been relatively stable since 1985. The percent of women 25–29 years of age who had not had at least one live birth increased from 20 percent in 1965 to 42 percent in 1985 and 44 percent in 1990–96. Among women 30–34 years of age, the percent who had not had at least one live birth increased from 12 percent in 1970 to 25 percent in 1985 and 26 percent in 1987–96 (table 4).

- **Low birthweight** is associated with elevated risk of death and disability in infants. In 1996 the incidence of low birthweight (less than 2,500 grams) among live-born infants was 7.4 percent. Between 1991 and 1996 low birthweight increased among white infants from 5.8 to 6.3 percent and decreased among black infants from 13.6 to 13.0 percent. Between 1991 and 1996 the incidence of very low birthweight (less than 1,500 grams) rose slightly for white infants from 1.0 to 1.1 percent and was stable at 3.0 percent for black infants (table 11).

- In 1995 **mortality for low-birthweight infants** (weighing less than 2,500 grams at birth) was 22 times that for infants of normal weight (2,500 grams or more) (65.3 compared with 3.0 deaths per 1,000 live births). In 1995 mortality for very low birthweight infants (weighing less than 1,500 grams at birth) was 90 times that for infants of normal weight (table 22).

Mortality

- In 1996 the **infant mortality rate** fell to a record low of 7.3 deaths per 1,000 live births, continuing the longterm downward trend in infant mortality. In 1996 mortality also reached record low rates for black infants (14.7) and white infants (6.1) (table 23).

- In 1995 **infant mortality** for Puerto Rican and American Indian infants (8.9 and 9.0 deaths per 1,000 live births) was about 40 percent higher than mortality for non-Hispanic white infants. Compared with mortality for non-Hispanic white babies, Puerto Rican neonatal mortality (death before 28 days of age) was about 50 percent higher and postneonatal mortality (death in the 1st through 11th month of life) was nearly 30 percent higher. For American Indian babies the race differential in infant mortality was due entirely to a postneonatal mortality rate that was more than double that for white postneonates (table 20).

■ In 1996 **life expectancy** at birth reached an all-time high of 76.1 years. Life expectancy for black males increased for the third consecutive year to a record high of 66.1 years in 1996, following a period between 1984 and 1993 generally characterized by year-to-year declines in life expectancy. Life expectancy for white females rose slightly to 79.7 years but was still below the record high attained in 1992. In 1996 the gender gap in life expectancy narrowed to 6.0 years and the race differential between the white and black populations narrowed to 6.6 years (table 29).

■ Substantial **geographic differences** persist in the death rates for States and geographic divisions in the United States. In 1994–96 the age-adjusted death rate for the East South Central Division (575.5 deaths per 100,000 population) was 15 percent higher than for the United States as a whole whereas age-adjusted death rates for the Mountain, Pacific, West North Central, and New England Divisions were 7–10 percent lower than the U.S. average (table 30).

■ **Years of potential life lost** (YPLL) per 100,000 population under 75 years of age is a measure of premature mortality. In 1996 unintentional injuries were the leading cause of YPLL under 75 years of age among Hispanic males and American Indian females and males, accounting for 20–29 percent of all YPLL in each group. Heart disease was the leading cause of YPLL among black males and non–Hispanic white males, accounting for 14–21 percent of all YPLL. Cancer was the leading cause of YPLL among black, Hispanic, Asian American, and non-Hispanic white females, accounting for 18–32 percent of all YPLL in each group (table 32).

■ Although the first three leading causes of death, heart disease, cancer, and stroke, are the same for **males and females** in the United States, other leading causes of death differ for males and females. In 1996 unintentional injuries ranked higher for males (4th) than for females (7th) and HIV infection and suicide, which ranked 8th and 9th for males, were not among the 10 leading causes for females. For males the age-adjusted death rate for unintentional injuries (43.3 deaths per 100,000 population) was 2.4 times the rate for females and the rates for HIV infection (18.1) and suicide (18.0) were 4–5 times the rates for females (tables 31 and 33).

■ Although the first two leading causes of death, heart disease and cancer, are the same for the **American Indian** and white populations in the United States, other leading causes of death differ for the two populations. In 1996 unintentional injuries and diabetes ranked higher for American Indians (3d and 4th) than for white persons (5th and 7th), and cirrhosis, which ranked 6th for American Indians, ranked 9th for white persons. For American Indians the age-adjusted death rates for unintentional injuries (57.6 deaths per 100,000 population) and diabetes (27.8) were about double the rates for white persons, and the rate for cirrhosis (20.7) was nearly 3 times the rate for white persons (table 31 and 33).

■ In 1996 overall mortality for **Hispanic Americans** was 22 percent lower than for non-Hispanic white Americans. However for males 15–44 years of age death rates were higher for Hispanics than for non-Hispanic white persons, primarily due to elevated death rates for homicide and HIV infection among young Hispanic males. In 1996 homicide rates for Hispanic males 15–24 and 25–44 years of age were 8 times and 4 times the rates for non-Hispanic white males of similar ages and the death rate for HIV infection for Hispanic males 25–44 years of age was about double the rate for non-Hispanic white males (tables 31, 37, 44, and 47).

■ In 1996 the age-adjusted death rate for **black Americans** declined 4 percent to 738 deaths per 100,000 population. Between 1995 and 1996 mortality due to HIV infection, the fourth leading cause of death among black persons, declined 20 percent, following an average increase of 15 percent per year between

1990 and 1995. Mortality among black persons continued to decline for heart disease and injuries. In 1996 age-adjusted death rates declined 4 percent for heart disease, 2 percent for unintentional injuries, and 8 percent for homicide, and homicide dropped from sixth to seventh in the ranking of leading causes of death for black persons (tables 31 and 33).

- Between 1992 and 1996 the age-adjusted death rate for **stroke**, the third leading cause of death overall, was stable following a long downward trend. Between 1980 and 1992 stroke mortality declined at an average rate of 3.6 percent per year. Stroke mortality is higher for the black population than for other racial groups. In 1996 the age-adjusted death rate for stroke for the black population was 80 percent higher than for the white population (tables 31, 33, and 39).

- In 1996 age-adjusted death rates for cancer and heart disease for the **Asian-American** population were 39 percent and 45 percent lower than the rates for the white population, while death rates for stroke were similar for the two populations. Death rates for stroke for Asian-American males 55–64 and 65–74 years of age were 14–28 percent higher than for white males of those ages, while death rates for Asian males age 75 years and over were 12–14 percent lower than for elderly white males (tables 31 and 39).

- Between 1990 and 1996 the age-adjusted death rate for **cancer,** the second leading cause of death, decreased 5 percent, after increasing slowly but steadily over the 20-year period, 1970 to 1990 (tables 31 and 33).

- In 1996 the age-adjusted death rate for **chronic obstructive pulmonary diseases (COPD)**, the fourth leading cause of death overall, was 47 percent higher for males than females (25.9 and 17.6 deaths per 100,000 population). Between 1980 and 1996 age-adjusted death rates for males were relatively stable while death rates for females nearly doubled. COPD death rates are highest for the elderly and have been increasing most rapidly among females age 75 years and over (tables 33 and 43).

- In 1996 the age-adjusted death rate for **HIV infection** declined 29 percent to 11.1 deaths per 100,000 population. Between 1994 and 1995 HIV mortality increased by only 1 percent following a period between 1987 and 1994 in which mortality had increased at an average rate of 16 percent per year. In 1996 the death rate for HIV infection for persons 25–44 years of age declined 30 percent and HIV infection dropped from first to third in the ranking of leading causes of death for this age group (tables 31, 34, and 44).

- Between 1980 and 1996 the age-adjusted **maternal mortality** rate declined by nearly one-third, to 6.4 maternal deaths per 100,000 live births. In 1996, 294 women died of maternal causes compared with 334 women in 1980. In 1996 age-adjusted maternal mortality for black women (19.9 per 100,000 live births) was 5 times the rate for non-Hispanic white women. Maternal mortality for Hispanic women (4.8) was 23 percent higher than the rate for non-Hispanic white women (table 45).

- Between 1993 and 1996 the age-adjusted death rate for **firearm-related injuries** declined by about 6 percent annually on average to 12.9 deaths per 100,000 population, after increasing almost every year since the late 1980’s. Two-thirds of the decline in the firearm-related death rate resulted from the decline in the homicide rate associated with firearms. Between 1993 and 1996 the firearm-related death rate for young black males 15–24 years of age declined at an average annual rate of nearly 10 percent to 131.6 deaths per 100,000. Despite the decline, the firearm-related death rate for young black males was still 6.5 times the rate for young non-Hispanic white males (table 49).

- In general the workplace is safer today than it was over a decade ago. Between 1980 and 1993 the overall **occupational injury death rate** declined 45 percent to 4.2 deaths per 100,000 workers and decreases occurred in all industries. Of the industries with the highest occupational injury mortality, declines of 52 percent occurred in transportation, communication, and public utilities; 45 percent in construction; 42 percent in mining; and 24 percent in agriculture, forestry, and fishing. Although occupational injury mortality in 1993 for wholesale and retail trade was lower than in 1980, rates have increased since 1989. In 1993 the occupational injury death rate was 3.6 deaths per 100,000 workers for wholesale trade and 2.9 for retail trade (table 51).

Determinants and Measures of Health

- In 1996, 77 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. Substantial differences exist among the States in the percent of children 19–35 months of age who received the combined vaccination series, ranging from a high of 87 percent in Connecticut to a low of 63 percent in Utah (tables 52 and 53).

- In 1996 **tuberculosis** incidence declined to 8 cases per 100,000 population. This, the fourth consecutive year of decline, is the lowest rate ever reported and reflects improvements in TB-prevention and TB-control programs. Between 1990 and 1996 the case rate for primary and secondary syphilis declined nearly 80 percent to 4 cases per 100,000 and gonorrhea incidence declined 55 percent to 124 per 100,000 (table 54).

- Between 1995 and 1996 the number of reported **AIDS cases** decreased 6 percent overall. However the decrease was not observed for all population groups. In contrast to other groups, incident AIDS cases for non-Hispanic black females 13 years of age and over increased 6 percent. In 1996 incident AIDS cases decreased for all exposure categories except for the undetermined category, which increased 24 percent overall, and for persons infected through heterosexual contact, which increased 14 percent for non-Hispanic black persons (tables 55 and 56).

- In 1997 the first leveling off of drug use was found in eighth graders since 1992, with **marijuana** use in the past month declining to 10 percent. The percent of eighth graders who drank alcohol (25) or smoked cigarettes (19) also decreased slightly in 1997. Among high school seniors, 37 percent reported smoking cigarettes in the past month; 1997 marked the fifth consecutive year of increase. Marijuana use among high school seniors in 1997 was 24 percent, double that in 1992 (table 65).

- In 1996, 51 percent of the population 12 years of age and over reported using **alcohol** in the past month and 15 percent reported having five or more drinks on at least one occasion in the past month. Young people 18–25 years of age were more likely to drink heavily than were other age groups. Among 18–25 year olds, heavy drinking was more than twice as likely for males as females (44 and 21 percent) and about twice as likely for non-Hispanic white persons as for non-Hispanic black persons (37 and 19 percent) (table 64).

- In 1994 and 1995 there were more than 142,000 **cocaine-related emergency room episodes** per year, the highest number ever reported since these events were tracked starting in 1978. Between 1988 and 1995 cocaine-related episodes among persons 35 years of age and over have almost tripled, reflecting an aging population of drug abusers being treated in emergency departments (table 66).

- 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 (NAAQS). In 1996, 81 percent of Americans lived in counties that met the NAAQS for all pollutants, up from 68 percent in 1995. In 1995, one of the hottest summers on record, a 7-percentage point decline in compliance with air quality standards occurred, following 3 years of higher levels of compliance (table 72).

- Between 1990 and 1996 the **injuries with lost workdays** rate decreased 21 percent to 3.1 per 100 full-time equivalents (FTE's) in the private sector. The industries reporting the largest declines during this period (33–35 percent) were mining; agriculture, fishing, and forestry; and construction. The 1996 rate for the manufacturing industry (4.3 per 100 FTE's) was 19 percent lower than in 1990 and the rate for the transportation, communication, and public utilities industry (5.0 per 100 FTE's) was 7 percent lower than in 1990 (table 73).

Utilization of Health Resources

Ambulatory Care

- In 1994–95, 4 percent of children under 6 years of age had no **usual source of health care**. Being without a usual source of care was more likely for Hispanic children than for non-Hispanic white and non-Hispanic black children (8 percent compared with 3–4 percent); more likely for poor and near poor children (in families whose income was below 200 percent of the poverty threshhold) than for nonpoor children (6 percent compared with 2 percent); and more likely for children without health insurance than for children with insurance (16 percent compared with 2 percent). Among poor children under 6 years of age, 21 percent of uninsured children had no usual source of care compared with 4 percent of insured children (table 79).

- In 1996 there were 892 million **ambulatory care visits,** 82 percent occurring in physician offices, 8 percent in hospital outpatient departments, and 10 percent in hospital emergency departments. Compared with older persons, a larger proportion of the ambulatory care visits by younger persons are to hospital emergency departments. In 1996 hospital emergency department visits accounted for 12–14 percent of ambulatory care visits among persons under 45 years of age and 8 percent of visits among persons 75 years of age and over (table 81).

- In 1996, 60 percent of all **surgical operations** in community hospitals were performed on an outpatient basis, almost 4 times the percent in 1980. The upward trend in the proportion of surgery performed on outpatients is slowing. During the 1980's the proportion of surgery that was outpatient increased 12 percent per year on the average whereas by the 1990's that growth had slowed to 3 percent per year (table 94).

- In 1995 there were 457 **clients in specialty substance abuse treatment** per 100,000 population 12 years of age and over, 5 percent higher than in 1992. Nearly one-half (46 percent) of the clients were enrolled in simultaneous treatment for alcohol and drug abuse in 1995, up from 38 percent in 1992. In 1995 30 percent of clients were enrolled in alcohol-only treatment and 23 percent in drug abuse-only treatment. The total number of substance abuse clients in all specialty treatment units per 100,000 population was lowest in the West South Central (258) and West North Central divisions (279) and highest in the Pacific (618) and Middle Atlantic divisions (596) (table 84).

- In 1996 **home health agencies** provided care to about 2.4 million persons on an average day. Two-thirds of users of home health services were female. Home health services are provided mainly to the elderly. In 1996 one-third of those being served were 75–84 years of age at the time of admission and one-sixth were 85 years of age and over. In 1996 the most common primary admission diagnoses were heart disease (11 percent of patients), diseases of the musculoskeletal system and diabetes (9 percent each), and cerebrovascular diseases and diseases of the respiratory system (8 percent each) (table 86).

Inpatient Care

- Utilization of **inpatient short-stay hospital care** is greater for persons with low family income (less than $15,000) than for persons with high family income ($50,000 or more). In 1995 the age-adjusted days of care rate for low income persons was almost 3 times the rate for high income persons (880 and 300 days of care per 1,000 population) (table 87).

- Between 1988 and 1995 the age-adjusted **hospital discharge rate** for non-Federal short-stay hospitals declined 11 percent to 105 discharges per 1,000 population. The decline was greater for persons under 64 years of age (14–17 percent) than for persons 65–74 years of age (3 percent). By contrast the hospital discharge rate increased 5 percent for persons 75 years of age and over. Between 1988 and 1995 the **average length of stay** decreased for persons of all ages with larger declines for elderly than for younger persons. The average length of stay declined by more than 2 days for persons 65 years of age and over, 1.3 days for persons 45–64 years of age, and by less than 1 day for persons under 45 years of age (table 88).

- In 1995 among elderly persons with a first-listed diagnosis of **ischemic heart disease**, the hospital discharge rate for non-Federal short-stay hospitals was higher for men than for women, but the difference diminished with increasing age. In 1995 among persons 65–74 years of age the rate of ischemic heart disease discharges for men was 1.8 times the rate for women (43.7 and 24.0 per 1,000 population). Among persons 75 years of age and over, the rate for men was 1.4 times the rate for women (51.6 and 36.8) (table 90).

- In 1995 for persons 65 years of age and over, the hospital discharge rate for **coronary bypass surgery** for men was 3 times the rate for women and this difference did not diminish with increasing age. For persons 65–74 years of age, the discharge rate for men was 11.2 per 1,000 population compared with 3.8 for women. For persons 75 years of age and over, the rate for men was 8.9 compared with 3.0 for women (table 92).

- Between 1990 and 1994, overall **additions to mental health inpatient and residential treatment organizations** (admissions and readmissions) remained stable at 830–840 per 100,000 civilian population. However, trends differed for different types of mental health organizations. Additions declined 19–24 percent in State and county mental health organizations and the Department of Veterans Affairs while additions increased 5–11 percent in non-Federal general hospitals and private psychiatric hospitals (table 85).

- Between 1985 and 1995 the number of **nursing home residents** 85 years of age and over per 1,000 population decreased 10 percent to 199. During this 10-year period the number of nursing home residents 85 years of age and over increased 21 percent while this age group in the population increased 36 percent. In 1995 the nursing home residency rate among persons 85 years and over was about 70 percent higher for women than men and 20 percent higher for white persons than for black persons (tables 1 and 95).

- Functional dependencies most commonly afflicting **nursing home residents** are in mobility, incontinence, and eating. In 1995, 79 percent of nursing home residents 65 years of age and over were dependent in mobility, 64 percent were incontinent, 45 percent were dependent in eating, and 37 percent were dependent in all three functionalities. Compared with 1985 a larger proportion of nursing home residents were functionally dependent in 1995. In 1995 a larger proportion of black than white residents had functional dependencies (table 96).

Health Care Resources

Personnel

- In 1996 the number of active **doctors of medicine in patient care** per 10,000 civilian population was 22 for the United States as a whole, an increase of 61 percent since 1975. In 1996 the divisions with the highest ratios were New England and Middle Atlantic (28–29) and the divisions with the lowest ratios were East South Central, West South Central, and Mountain (18), a pattern similar to that in 1975 (table 100).

- Between 1980 and 1995 the **supply of active registered nurses** increased 42 percent to 798 per

100,000 population. Registered nurses are generally more educated today than they were 15 years ago. In 1995, 58 percent of active registered nurses were prepared at the associate and diploma level, 32 percent at the baccalaureate level, and 10 percent at the masters and doctoral level. By contrast in 1980, the mix was 71 percent associate and diploma, 23 percent baccalaureate, and 5 percent masters and doctoral nurses (table 103).

■ In 1993 through 1996 the annual number of **graduates from dentistry school** was stable at 3,700–3,800 after declining steadily from 5,400 in 1985. Between 1985 and 1996 the number of professional schools of dentistry declined from 60 to 53 (table 106).

■ In academic year 1995–96, women comprised 42 percent of total student enrollment in **allopathic schools of medicine** compared with 27 percent in academic year 1980–81. In academic year 1995–96 women comprised 40–45 percent of the non-Hispanic white, Asian, Hispanic, and American Indian students compared with 60 percent of the non-Hispanic black students (table 108).

Facilities

■ In 1996 **occupancy rates in community hospitals** averaged 62 percent. Community hospital occupancy varied inversely by bed size ranging from 33 percent for hospitals with 6–24 beds to 70 percent for hospitals with 500 beds or more (table 109).

■ Between 1990 and 1994 the number of **mental health inpatient and residential treatment beds** per 100,000 population declined 13 percent to 98 after remaining relatively stable between 1984 and 1990. Between 1990 and 1994, the bed to population ratio declined 24 percent for State and county mental hospitals to 31 per 100,000 and declined 14 percent for private psychiatric hospitals to 16. By contrast, the mental health bed to population ratio remained relatively stable for non-Federal general hospitals, Department of Veterans Affairs hospitals, and residential treatment centers for emotionally disturbed children (table 110).

■ Between 1992 and 1996 the number of **nursing home beds** in the United States increased by 9 percent to 1.8 million beds. During the same period, occupancy rates in nursing homes declined by 3 percentage points from 86 percent to 83 percent. In 1996 occupancy rates varied among the geographic divisions from a low of 72 percent in the West South Central division to a high of 90–93 percent in the East South Central, New England, and Middle Atlantic divisions (table 114).

Health Care Expenditures

National Health Expenditures

■ In 1996 **national health care expenditures** in the United States totaled $1,035 billion, an average of $3,759 per person. In 1996 the 4-percent increase in national health expenditures continued the steady slowdown in growth of the 1990’s. During the 1980’s national health expenditures grew at an average annual rate of 11 percent compared with 7 percent between 1990 and 1995 (tables 115 and 119).

■ **Health expenditures as a percent of the gross domestic product** remained stable at 13.6 percent between 1993 and 1996, after increasing steadily from 8.9 percent in 1980 (table 115).

■ In 1995 health spending in the United States continued to account for a larger **share of gross domestic product** (GDP) than in any other major industrialized country. The United States devoted 13.6 percent of GDP to health in 1995. The countries with the next highest share of GDP devoted to health in 1995 were Germany with 10.4 percent and Canada, Switzerland, and France with 9.7 to 9.9 percent each. In the United Kingdom the percent of GDP devoted to health care has been stable at 6.9 percent during 1992–95 while in Japan the percent has been steadily rising during the 1990’s to 7.2 percent in 1995 (table 116).

Highlights

- During the 1990's the rate of increase in the medical care component of the **Consumer Price Index** (CPI) has declined every year from 9.0 percent in 1990 to 2.8 percent in 1997. From 1990 to 1995 the inflation rate for the medical care component of CPI (6.3 percent) averaged more than double the overall inflation rate of 3.1 percent. However for the last two years medical care inflation averaged 20 percent higher than the overall rate of inflation. In 1997 inflation for dental services (4.7 percent) and outpatient services (4.6 percent) outpaced inflation for all other types of medical care services and commodities (tables 117 and 118).

- During the 1990's the percent of **national health expenditures that were publicly funded** increased steadily to 47 percent in 1996. Between 1990 and 1996 public funds for national health expenditures grew at an average annual rate of 9.2 percent compared with 4.9 percent for private funds (table 119).

- Expenditures for hospital care continued to decline as a percent of **national health expenditures** from 42 percent in 1980 to 35 percent in 1996. Physician services accounted for 20 percent of the total in 1996 and drugs and nursing home care each for 8–9 percent (table 120).

- In 1995, 34 percent of **expenditures for health services and supplies** was paid by households, 26 percent by private business, and 38 percent by the Federal and State and local governments. Between 1990 and 1995 the share of expenditures from out-of-pocket health spending by individuals declined from 22 percent to 19 percent and the share of expenditures paid by private business declined from 28 percent to 26 percent (table 121).

- Between 1994 and 1997 **private employers' health insurance costs** per employee-hour worked declined from $1.14 to $.99 per hour after increasing by 24 percent between 1991 and 1994. In 1997 private employers with 500 or more employees paid 2.2 times as much for health insurance per employee-hour worked ($1.57) as did the employers with fewer than 100 employees ($.72), and 2.4 times as much for health insurance per employee-hour worked for union workers ($2.01) as for nonunion workers ($.85). Among private employers the share of total compensation devoted to health insurance declined from 6.7 percent in 1994 to 5.5 percent in 1997 (table 122).

- In 1996, 19 percent of **personal health care expenditures** were paid out-of-pocket; private health insurance paid 32 percent, the Federal Government paid 36 percent, and State and local government paid 10 percent. Between 1990 and 1996 the share paid by the Federal Government increased nearly 7 percentage points, while the share paid out-of-pocket decreased by nearly 5 percentage points (table 124).

- In 1996 the major **sources of funds** for hospital care were Medicare (33 percent) and private health insurance (32 percent). In 1996 physician services were also primarily funded by private health insurance (50 percent) and Medicare (21 percent). In contrast, in 1996 nursing home care was financed primarily by Medicaid (48 percent) and out-of-pocket payments (31 percent). In 1996 out-of-pocket payments financed only 3 percent of hospital care and 15 percent of physician services (table 125).

- Between 1990 and 1996 the proportion of **health expenditures** paid by Medicaid increased from 12 to 15 percent for hospital care and from 5 to 8 percent for physician services. Over the same period Medicare funding for hospital care increased from 27 to 33 percent and for nursing home care increased from 3 to 11 percent (table 125).

- Between 1993 and 1996 the average annual increase in **total expenses in community hospitals** was 3.4 percent, following a period of higher growth that averaged 9.3 percent per year from 1985 to 1993. Between 1993 and 1996 expenses per inpatient day increased by 5.1 percent per year in nonprofit hospitals and by 1.1 percent per year in proprietary hospitals, while expenses per inpatient stay increased by 0.9 percent per year in nonprofit community hospitals and decreased by 2.6 percent per year in proprietary hospitals. In 1996 employee costs accounted for 53 percent of total hospital costs in nonprofit community hospitals compared with 48 percent in proprietary hospitals (table 126).

- In 1995 the **average monthly charge in a nursing home** was $3,135 per resident. The monthly charge varied widely by geographic region from about $2,700 in the Midwest and South to $3,700 and $3,900 in the West and Northeast. In 1995 nearly one-half of the nursing home residents were 85 years of age or older and nearly three-quarters were women (table 127).

- The **average monthly nursing home charge** varies according to the primary source of payment. In 1995 the average monthly charge for patients funded by Medicaid (60 percent of residents) was $2,769 per resident, one-half of the charge of $5,546 for Medicare patients (10 percent of residents). Medicare funds nursing home patients who have been discharged directly from the hospital to the nursing home and who are likely to be sicker than nursing home patients funded by Medicaid. Residents paying for nursing home care with their own income, family support, or private health insurance paid $3,081 per month (28 percent of residents) (table 128).

- **Expenditures by mental health organizations** increased between 1990 and 1994 from $28 to $33 billion. Spending on mental health was $128 per capita in 1994, up from $117 per capita in 1990 and 1992. Private psychiatric hospitals continued to account for about one-fifth of the mental health dollar. State and county mental hospitals continued to decrease their share of mental health expenditures from 27 percent in 1990 to 24 percent in 1994 (table 129).

- In 1995 **funding for health research and development** increased by 7 percent to $36 billion. The average annual rate of increase in health research funding during 1992–95 (7 percent) was less rapid than during 1990–92 (12.5 percent). 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 130).

- Between 1995 and 1997 **Federal expenditures for HIV-related activities** increased at an average annual rate of 11 percent to $8.5 billion compared with an average annual increase of 17 percent between 1990 and 1995. Of the total Federal spending in 1997, 56 percent was for medical care, 21 percent for research, 15 percent for cash assistance (Disability Insurance, Supplemental Security Income, and Housing and Urban Development assistance), and 8 percent for education and prevention. Between 1996 and 1997 expenditures for medical care increased by 17 percent, cash assistance by 10 percent, education and prevention expenditures by 7 percent, and research by 5 percent (table 132).

Health Care Coverage and Major Federal Programs

- Between 1993 and 1996 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. More than 90 percent of private coverage was obtained through the workplace (a current or former employer or union) in 1996. Compared with persons living in the South, those living in the Northeast and Midwest geographic regions were about 14–19 percent more likely to have private health insurance in 1996. Persons living in the South and West were about equally likely to have private health insurance (table 133).

- Expansions in the **Medicaid** program have resulted in an increase in the percentage of poor children under 18 years of age with Medicaid or other public assistance from 48 percent in 1989 to 66 percent in 1996. During this period the percentage of near poor children with Medicaid doubled from 12 to 25 percent for children at 100–149 percent of the poverty threshold and from 6 to 11 percent for children at 150–199 percent of the poverty threshold (table 133).

Highlights

- Nearly all persons 65 years of age or older are eligible for **Medicare**, the Federal health program for the elderly, but most of the elderly have additional health care coverage. In 1996, 72 percent of the elderly had private health insurance and 38 percent had private health insurance obtained through the workplace (a current or former employer or union). In 1996, 9 percent of the elderly had Medicaid or other public assistance and 18 percent had Medicare only, with no other health plan (table 134).

- In 1997, one-quarter of the U.S. population was enrolled in **health maintenance organizations (HMO's)**, ranging from only 18 percent in the South to 36 percent in the West. HMO enrollment is steadily increasing. Enrollment in 1997 was 67 million persons, double the enrollment in 1991. The distribution of enrollees among model types is also changing. Between 1991 and 1997 the percent of HMO members enrolled in group HMO's declined from 50 to 17 percent while the percent enrolled in mixed HMO's increased from 10 to 43 percent. During the same period the percent of HMO members enrolled in individual practice associations was relatively unchanged at about 40 percent (table 135).

- Employee participation in **medical care benefits** is related to the size of the company. In 1995, 77 percent of full-time and 19 percent of part-time employees in medium and large private establishments (100 or more employees) participated in the medical care benefits offered by their company. In 1994, 66 percent of full-time and only 7 percent of part-time employees in small private establishments (less than 100 employees) participated in the company's medical care benefits (table 136).

- In private companies with 100 or more employees the percent of full-time **employees participating in health care benefits** declined between 1991 and 1995 from 83 to 77 percent. The decline among blue collar and service employees was 9 percentage points compared with a 5-percentage point decline among employees in other occupational groups (table 136).

- During the 1990's the use of **traditional fee-for-service** medical care benefits by employees in private companies declined sharply. In 1994 in small companies, 55 percent of full-time employees who participated in medical care benefits were in traditional fee-for-service medical care, down from 74 percent in 1990. In 1995 in medium and large companies, only 37 percent of participating full-time employees were in traditional fee-for-service medical care, down from 67 percent in 1991 (table 136).

- During the 1990's **full financing of medical care coverage** became less common. In 1994, 47 percent of full-time participating employees in small companies received full financing of individual medical coverage compared with 58 percent in 1990. In 1995, 33 percent of full-time participating employees in larger companies received full financing of individual medical coverage compared with 49 percent in 1991. Similar declines in full financing of family medical coverage were also seen in small and larger companies (table 136).

- The average **monthly contribution** by full-time employees for family **medical care benefits** was 36 percent higher in small companies ($160 in 1994) than in medium and large companies ($118 in 1995). Average monthly contributions by full-time employees for individual medical care benefits were more than 20 percent higher in small than in medium and large companies ($41 in 1994 compared with $34 in 1995). Average employee contributions for HMO medical care benefits were higher than for non-HMO fee arrangements, regardless of company size (table 136).

- In 1996 the **Medicare** program had 38.1 million enrollees and expenditures of $200 billion. The total number of enrollees increased less than 2 percent over the previous year while expenditures increased nearly 9 percent. In 1996 supplementary medical insurance (SMI) accounted for 35 percent of Medicare expenditures. Expenditures for home health agency care increased to 13.5 percent of hospital insurance (HI) expenditures in 1996 up from 5.5 percent in 1990.

Expenditures for skilled nursing facilities more than doubled to 9 percent of the HI expenditures over the same period. Group practice prepayment increased from 6 percent of the SMI expenditures in 1990 to 13 percent in 1996 (table 137).

- Of the 33.1 million elderly **Medicare** enrollees in 1995, 11 percent were 85 years of age and over. In 1995 the average payment per Medicare enrollee for those 85 years of age and over ($6,356) was 2.5 times that for those aged 65–66 years ($2,546). In every age group for those 65 years of age and over, Medicare payments per person served and payments per enrollee were higher for men than for women. In 1995 in the West there were 663 persons served per 1,000 enrollees compared with 865 or more in the other three regions of the country (table 138).
- In 1996 **Medicaid** vendor payments totaled $122 billion for 36.1 million recipients, showing little change from the previous year. Between 1993 and 1995 the average annual increase slowed to 9 percent for payments and 4 percent for recipients, about one-half the growth during the period 1990 to 1993. In 1996 children under the age of 21 years comprised 46 percent of recipients but accounted for only 14 percent of expenditures. The aged, blind, and disabled accounted for 29 percent of recipients and 73 percent of expenditures (table 139).
- In 1996 nearly one-quarter of **Medicaid** payments went to nursing facilities and 21 percent to general hospitals. Home health care accounted for 9 percent of Medicaid payments in 1996, up from 1 percent in 1980. In 1996, 5 percent of Medicaid recipients received home health care at a cost averaging $6,293 per recipient. Early and periodic screening, rural health clinics, and family planning services combined received less than 2 percent of Medicaid funds in 1996, with the cost per recipient averaging between $200 and $215 (table 140).
- Between 1995 and 1996 spending on health care by the **Department of Veterans Affairs** increased by less than 2 percent to $16.4 billion. In 1996, 46 percent of the total was for inpatient hospital care, down from 58 percent in 1990, one-third for outpatient care, up from one-quarter in 1990, and 10 percent for nursing home care. The number of inpatient stays decreased by 8 percent between 1995 and 1996 and the number of outpatient visits increased by 6 percent. In 1996 veterans with service-connected disabilities accounted for 40 percent of inpatients and 38 percent of outpatients. Low-income veterans with no service-connected disability were the largest group served accounting for 56 percent of inpatients and 42 percent of outpatients (table 141).

State Health Expenditures

- In 1995 **Medicare payments per enrollee** averaged $4,750 in the United States, ranging from $3,300 in Nebraska, Iowa, and Idaho to more than $6,000 in Massachusetts and Louisiana. In 1995 utilization of short-stay hospitals by Medicare enrollees varied among the States from 250 discharges per 1,000 enrollees in Utah to 432 in Mississippi. The length of stay in short-stay hospitals by Medicare enrollees averaged 5.6 and 5.7 days in the Mountain and Pacific geographic divisions compared with 9.0 days in the Middle Atlantic division in 1995 (table 146).
- In 1996 **Medicaid payments per recipient** averaged $3,369 and ranged from $2,049 in Tennessee to $6,811 in New York. For the United States as a whole, the ratio of Medicaid recipients to persons below the poverty level increased from 75 per 100 in 1989–90 to 99 per 100 in 1995–96. For 1995–96 the ratio of Medicaid recipients to persons below the poverty level was above the average in all States in the New England geographic division and below the average in all States in the West South Central and Mountain divisions (table 147).
- In 1997 the percent of the population enrolled in a **health maintenance organization (HMO)** varied among the States from 0 in Alaska and Vermont to 47 percent in Oregon. In seven other States more than one-third of the population was enrolled in an HMO in

1997 including Massachusetts (45 percent), New York (36 percent), Connecticut (35 percent), Maryland and Delaware (38–39 percent), Utah (41 percent), and California (44 percent) (table 148).

- In 1996 the proportion of the population without **health care coverage** was 15.6 percent, compared with 15.4 percent the previous year and 12.9 percent in 1987. In 1996 the proportion of the population without health care coverage varied from less than 9 percent in Wisconsin, Michigan, and Hawaii to more than 20 percent in Arkansas, Louisiana, Texas, New Mexico, Arizona, and California (table 149).

One of the three overarching goals of *Healthy People 2000*, the Public Health Service's national health objectives for the year 2000, is to reduce health disparities among Americans (1). *Healthy People 2000*, the Nation's prevention agenda, seeks to reduce such disparities by encouraging preventive efforts targeted for ‘‘special population’’ groups: low-income persons, racial and ethnic minorities, and persons with disabilities. In the United States health disparities among racial and ethnic subgroups of the population, especially between white persons and black persons, have received much of the attention. However, individuals' access to social and economic resources, as indicated by income, level of education, or type of occupation, is a major source of disparities in health in this country, and many others (2–4). *Healthy People 2000* implicitly recognizes the strength and persistence of disparities in health outcomes and access to health services by setting separate targets for special population groups that represent a more rapid rate of improvement and thus a narrowing of the gap. In 1997, goals for *Healthy People 2010* were proposed that seek to eliminate, rather than reduce, health disparities.

The first section of this chartbook documents the strong relationship between race, ethnicity, and various measures of socioeconomic status: household or family income (figures 2 and 6), poverty status (figure 3), level of education (figure 5), and type of occupation (figure 7). Racial and ethnic minorities are disproportionately represented among the poor in the United States. In 1996 African Americans comprised 13 percent of the overall U.S. population and 26 percent of the poor population; persons of Hispanic origin comprised 11 percent of the overall population and 22 percent of the poor; while non-Hispanic white persons made up 72 percent of the overall population and 45 percent of the poor. By contrast, the high-income population was considerably more homogeneous with respect to race and Hispanic origin; 87 percent of individuals with incomes of $50,000 or more in 1996 were non-Hispanic white persons. This chartbook addresses the overlap between race, ethnicity, and socioeconomic status by documenting health disparities across levels of socioeconomic status for as many race and ethnic subgroups as possible, given the limitations of the data.

The chartbook includes separate sections on the health of children under 18 years of age (figures 8–24) and adults 18 years of age and over (figures 25–49). Each of these sections is divided into subsections on health status, health risk factors, and health care access and utilization. Many of the charts in each section present data by gender where appropriate and feasible. The charts are followed by Technical Notes that describe data sources, definitions, and methods and a Data Table that includes data points presented in the charts and standard errors. Appendixes I and II present additional information on data sources and definitions.

Data Issues

With the exception of data derived from the Census and from the vital registration system (birth and death certificates), the existing sources of health data do not permit examination of socioeconomic differences for any but the three largest race and ethnic categories: non-Hispanic white persons, non-Hispanic black persons, and persons of Hispanic or Mexican origin. Much of the data used in this chartbook was collected by surveys that may provide reliable estimates for entire race and ethnic subgroups, but usually have insufficient numbers to make good estimates for detailed subcategories within these populations. This problem is particularly acute when the subcategories reflect socioeconomic levels, because of the tendency for race and ethnic groups to be disproportionately concentrated at either the low or high ends of the socioeconomic distribution (as shown in the Population section). The reader will notice that, even for the three largest race and ethnic groups, sample sizes often require collapsing socioeconomic variables into fewer categories than reported for the population as a whole.

Combining into larger groups is an expedient solution to problems of small numbers, but it is not without cost. Readers should be aware that the broad groupings presented in this chartbook may mask differences among subgroups. For example, ‘‘Asian or Pacific Islander’’ includes persons with ancestry in such countries as China, Vietnam, the Phillippines, Japan, and Samoa, while ‘‘Hispanic’’ combines persons whose origins were in Cuba, Puerto Rico, Mexico, or any of the countries of Central or South America. These subgroups often have very diverse socioeconomic profiles and may also have very different health status and risk behaviors.

This problem of hidden heterogeneity also affects the socioeconomic categories. For example, in many of the charts that follow, ‘‘high income’’ persons may have a family income for the year ranging from $50,000 to $500,000 or more; the category of 16 or more years of education combines persons with baccalaureate degrees with those with graduate and professional degrees, such as lawyers and doctors. There are likely to be differences within each of these categories that are not discernable in the charts. In addition, race and ethnic groups are likely to have different ‘‘mixes’’ of persons within a uniformly named category. In 1996, in an income category labeled ‘‘$50,000 or more,’’ 25 percent of the non-Hispanic white households in this group would have incomes of $100,000 or more, compared with only 17 percent of Hispanic households and 14 percent of black households (5). The reader should also bear in mind that race and ethnic groups are distributed very differently across socioeconomic strata, although the categories are depicted equally in the charts. Thus, in the charts for children under the age of 18, the category ‘‘poor’’ usually represents around 11 percent of non-Hispanic white children, but 40 percent or more of Hispanic or black children (figure 3).

Another difficulty in presenting health data by socioeconomic status is that each indicator used to stratify the population into levels of SES has certain conceptual and practical limitations.

Income is the most common measure of socioeconomic status, and is probably the most relevant to health policy formulation. Current income provides a direct measure of the quality of food, housing, leisure-time amenities, and health care an individual is able to acquire, as well as reflecting their relative position in society. However, income may fluctuate over time so that income received in a given year may not accurately reflect one’s lifetime income stream, the measure of resources more relevant to health. Among the elderly, persons who have low incomes may also have accumulated assets that offset their need for a high annual income. Of particular importance in considering the relationship between income and health is the fact that income may be low because illness has limited the amount of income earned or prevented earning income entirely.

The use of income as a measure of SES also involves more practical difficulties. A fairly high percent of persons either do not know or refuse to report their incomes. In the income-based charts shown in this report, the proportion of the population excluded because of missing data on family income generally varied between 10 and 16 percent, although it was as high as 24 percent for persons 70 years of age and older (figure 34). To reduce nonresponse, income is most often collected in categories. The categorization of income, however, introduces a certain amount of error into calculation of poverty status (family income as a percent of the Federal poverty level), although the error is likely to be small when the number of categories is large. Since low-income populations are of particular interest to health researchers, income data has traditionally been collected at a finer level of detail at the lower end of the income distribution. In most of the surveys used in this report, less detailed income categories were collected at higher income levels; in particular, all persons with family incomes of $50,000 or more were grouped together (see Technical Notes).

Converting family income into percent of the Federal poverty level is generally desirable because family size is taken into account and poverty definitions are adjusted each year to account for inflation (See Technical Notes and Appendix II). Since the calculation of poverty status was not feasible for the full range of incomes, trend data are generally presented by level of education. Education is frequently used as the measure of SES in presentations of health data. There are several reasons for this preference. Education is generally better reported than income; usually 95 percent or more of respondents report their attained level of education. Unlike occupation, all adults may be characterized by their education level. Education, unlike income, remains fixed for most people after the age of 25 and usually is not influenced by health. In addition, education is highly related to income as shown in figure 6. However, education cannot be used to characterize the socioeconomic position of children (except through parental education), and the average education level of the U.S. population has increased dramatically over time, complicating comparisons across age groups.

This chartbook relies most heavily on poverty, income, and education as measures of socioeconomic status. We have included average income level in the individual's area of residence as a measure of SES where an individual-level indicator was not available (figures 23, 24, and 48). Occupation is another indicator of SES that reflects education and income. However, occupation as usually collected is not relevant to children, retired persons, or women not currently employed, which characterizes a significant portion of women during childbearing. Since these stages of the life cycle are of great interest to health researchers and policymakers, we have not included in this report charts showing health variables by occupation.

Socioeconomic Disparities in Health

This chartbook is intended to document the extent to which socioeconomic disparities continue to exist in indicators of health status, health behaviors and other risk factors, and health care access and utilization within the United States. This demonstration provides a cautionary note when examining progress toward the *Healthy People 2000* objectives for the population as a whole. Although progress is occurring toward most targets, data presented in this chartbook demonstrate that, for many objectives, only the higher socioeconomic groups have achieved or are close to achieving the target, while lower socioeconomic groups lag farther behind. For a broad cross section of indicators where substantial progress toward the year 2000 objectives has already occurred—mortality from heart disease (figure 27) and lung cancer (figure 28), infant mortality (figures 8 and 9), cigarette smoking (figures 35 and 36) and smoking during pregnancy (figure 13), receipt of early prenatal care (figure 19), and having regular mammograms (figure 45)—further improvement clearly depends on achieving greater gains among persons of lower socioeconomic status. This chartbook does not attempt to present a complete examination of differential progress toward all of the Year 2000 objectives since this is routinely presented in the *Healthy People 2000 Progress Reviews* (6). We have however tried to include a broad cross-section of indicators reflecting different aspects of health and health care and applicable to several age groups, that demonstrate both the magnitude and complexity of the effects of socioeconomic status.

Often examinations of the relationship between SES and health have focused on the lowest end of the SES distribution, comparing poor persons to those above the poverty threshold or persons with less than a high school education to everyone else (7). Although poverty is a powerful determinant and consequence of ill health, focus on the extreme end of the SES distribution implies uniformity among persons above the thresholds of poverty or high school graduation. Evidence from previous studies in Europe and the United States have indicated that the association between SES and health generally takes the form of a gradient; that is, while persons of lowest SES have the worst health outcomes, persons of middle SES have worse health than persons of high SES (8,9).

The data presented in this chartbook support the existence of a socioeconomic gradient in most of the health indicators examined; each increase in social position, measured either by income or education, improves the likelihood of being in good health. For most of the health indicators, this SES gradient was observed for persons in every race and ethnic group examined. In general, the SES gradient was strongest for non-Hispanic white persons and weakest for Mexican American or all Hispanic persons or, in the few instances where data were available, for Asians and Pacific Islanders. In addition, lower SES Hispanic persons tend to have better health status than non-Hispanic persons at a similar social position. The different pattern of SES and health among persons of Hispanic origin characterizes Mexican Americans, who make up the largest share of the U.S. Hispanic population. Evidence suggests that this pattern may be due, in part, to protective effects of traditional culture, which is likely to be more prevalent among recent immigrants who are also most likely to have lower incomes and educational attainment (10–12).

Although documenting socioeconomic disparities in health is not new, identifying and understanding the causes still remain a challenge. The sections of this chartbook on risk factors and health care access demonstrate the likely contributions of these two broad areas toward disparities seen in health outcomes. The socioeconomic differences apparent in risk factors, such as smoking (figures 13, 15, 35, and 36), overweight (figures 16, 38, and 39), elevated blood lead (figures 14 and 42), and sedentary lifestyle (figures 17 and 40), as well as differential access to and utilization of health care, such as seen in health insurance coverage (figures 20 and 43), physician visits (figures 22, 23, 44, 46, and 47), and avoidable hospitalizations (figures 24 and 48), influence the rates of health outcomes such as low birthweight (figure 10), heart disease mortality (figure 27), fair or poor health (figure 32), diabetes mortality (figure 29), and activity limitation (figures 11 and 33).

Given the ubiquity of SES differences in health risk factors, we need to address the question of why these behaviors are disproportionately concentrated among persons with fewer socioeconomic resources. Differences in the life circumstances of high- and low-SES persons in the United States are substantial. Higher socioeconomic position may directly influence health through income- and education-related differences including having knowledge and time to pursue healthy behaviors, having sufficient income to assure access to comfortable housing, healthy food, and appropriate health care, access to safe and affordable locations to exercise and relax, and living and working in a safe, healthy environment (13,14). In addition, a more direct connection may exist in that persons whose attention and energy are focused on attaining economic security, or dealing with the lack of it, may have few resources, financial and emotional, for pursuing healthy lifestyles and obtaining preventive health care. It has also been suggested that simply being at a lower position on the economic distribution exacts an emotional or psychological cost that translates into poorer health practices, or simply poorer health (15,16). This latter explanation may also apply to the effects of racial and ethnic discrimination, proposed by some as a contributor to the poorer health outcomes experienced by many minorities even after adjusting for differences in their socioeconomic profile (17,18).

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This section presents current patterns and recent trends in measures of socioeconomic status (SES) in the United States population. To the extent possible, distributions and trends in measures of SES are shown for major race and ethnic subgroups of the population, and for gender and age groups where appropriate.

Figure 1 shows household income at selected percentiles of the household income distribution for the years 1970 to 1996 and demonstrates increasing income inequality in recent years in the United States. In 1996 the bottom 20 percent of U.S. households had incomes below $14,770; adjusted for inflation, this represents an increase of less than $800 since 1970. In contrast, the top 20 percent of households had incomes above $68,000 in 1996, $12,300 more than in 1970. A major contributor to the increase in income inequality has been increasing inequality in wages. The increase in earnings inequality over the last 25 years was primarily produced by technological change that increased returns to highly skilled labor at the same time that less skilled workers saw their real wages stagnate or decline. This trend was exacerbated to some degree by ‘‘globalization’’ of the economy, declines in the real minimum wage and in unionization, and an increase in immigration. Household income, however, is also a product of household composition and income from sources other than earnings. A significant part of the increase in income inequality can be attributed to changes in family composition and an increase in female labor-force participation. Because individuals tend to marry individuals with similar earnings profiles, increasing the number of families with both husband and wife working increases income inequality. In addition, an increase in families headed by women (from 10 percent of families in 1970 to 18 percent in 1996) has acted to increase income inequality since these households generally have lower incomes (1–5).

Income may be related to health because it increases access to medical care, enables one to live in better neighborhoods and afford better housing, and increases the opportunity to engage in health-promoting behaviors. Income may also be affected by poor health, by restricting type or amount of employment, or preventing an individual from working entirely. Figure 2 shows median household income by race and Hispanic origin for the years 1980 to 1996. Throughout this period, the median income of non-Hispanic white households has been much higher than that of black or Hispanic households, but the income gap between white and Hispanic households widened, whereas the gap between white and black households narrowed slightly. In 1996 Asian or Pacific Islander households had the highest median income, with the median income of these households showing no significant change between 1991 and 1996. Trends in median income for Hispanic and Asian or Pacific Islander households are likely to have been affected by increasing immigration into the United States in recent years since recent immigrants have a lower median income than natives or longer term residents (6).

As mentioned above, household income is affected by household composition. The poverty index takes household size and composition into account (see Technical Notes). Figure 3 shows the proportion of persons poor and near poor by race and Hispanic origin for 1996. Overall, almost 14 percent of the population lived in poverty in 1996 and 20 percent more had incomes that were near poverty.

There are distinct demographic differences in poverty by age, race, ethnicity and household composition. In accordance with differences in median household income, black persons and persons of Hispanic origin are disproportionately represented among the poor and near poor. Poverty rates also vary across age groups. In 1996 over one-fifth of all children lived in poverty. Between 1970 and 1980 the poverty rate among children rose from around 15 percent to more than 20 percent and it has remained at or above 20 percent for the last 16 years. In contrast, nearly one-quarter of persons 65 years of age and over were poor in 1970, but by 1980 the proportion in poverty had decreased to 16 percent. Between 1980 and 1996 poverty among the elderly continued to decline to 10.8 percent, slightly below the rate for working-age adults (18–64 years of age) (7).

Race and ethnic differences in the poverty rate are as pronounced among children as among adults; in 1996, 11 percent of non-Hispanic white children were poor compared with 40 percent of black and Hispanic children. Children in female-headed households had the highest rates of poverty; nearly one-half of the children living in female-headed households in 1996 were below the poverty line. Even among female-headed households, however, poverty rates for children were higher in black and Hispanic households than white households.

Figure 4 demonstrates that there are substantial geographic differences in poverty rates in the United States. The average State poverty levels for the years 1994–96 ranged from 7–8 percent in New Hampshire and Utah to 22 percent and more in New Mexico, the District of Columbia, and Louisiana with the South and West having disproportionately larger shares of the Nation's poor population. Geographic differences in health outcomes may be related to these variations in poverty.

Education is a widely used indicator of socioeconomic status in the United States. Educational attainment is a major determinant of earnings. In addition, education is also likely to influence health through a variety of cultural, social, and psychological mechanisms (8). For example, higher levels of education may increase exposure to health-related information as well as equip individuals with the skills to adopt health promoting behaviors. Education may also influence health-related values such as a belief in prevention.

Figure 5 shows the distribution of educational attainment for persons 25 years and over by age, race, and Hispanic origin in 1996. Educational attainment is presented for persons 25–64 years and 65 years or over because educational attainment varies by age cohort, with persons 65 years and over much less likely to have completed high school. Educational attainment also differs substantially by race and ethnicity. The race and ethnic patterns in household income (figure 2) are mirrored in the educational distributions of these groups. Among persons 25 to 64 years of age in 1996, 45 percent of Asian or Pacific Islanders and nearly 30 percent of non-Hispanic white persons have college degrees, compared with 15 percent of non-Hispanic black persons and 10 percent of Hispanic persons. This pattern is essentially reversed at the low end of educational attainment; 10 percent of non-Hispanic white persons and 14 percent of Asian or Pacific Islander persons have not completed high school, compared with 20 percent of non-Hispanic black persons and 44 percent of Hispanic persons.

Figures 2 and 5 show that income and education vary by race and ethnicity, but even within the same category of educational attainment, median family income varies by race and ethnicity and also gender (figure 6). For men and women across all race and ethnic groups, the higher the level of education, the higher the median family income. However, within education level categories, men have higher median family incomes than women, and median family incomes of Asian or Pacific Islander and white persons were higher than median family incomes of black or Hispanic men and women. Some of these differences, especially differences between men and women, may be attributed to the number of family members who are employed and to whether employed family members work full-time or part-time.

Type of occupation can also significantly impact health, largely because occupation and income are intrinsically connected. However, occupation may additionally influence health directly by determining exposure to hazards in the work environment, as well as exposure to job-associated stress (9). Figure 7 shows the distribution of men and women by racial and ethnic groups across occupational categories (see Technical Notes for a description of each occupational category). The majority of persons 25–64 years of age are employed in white collar occupations. However, a greater proportion of Asian or Pacific Islander and non-Hispanic white men are employed in white collar jobs while more black and Hispanic men are employed in blue collar jobs. Women were twice as likely to be employed in service occupations than men, with black and Hispanic women more likely to be employed in service occupations than Asian or Pacific Islander or white women.

As these charts briefly demonstrate, the most common measures of socioeconomic status (income, education, and occupation) can vary substantially by race, ethnicity, and sex. The two following sections of the chartbook will demonstrate how measures of socioeconomic status—particularly income and education—are strongly associated with health outcomes, health-related behaviors and other risk factors, and measures of health care access and utilization.

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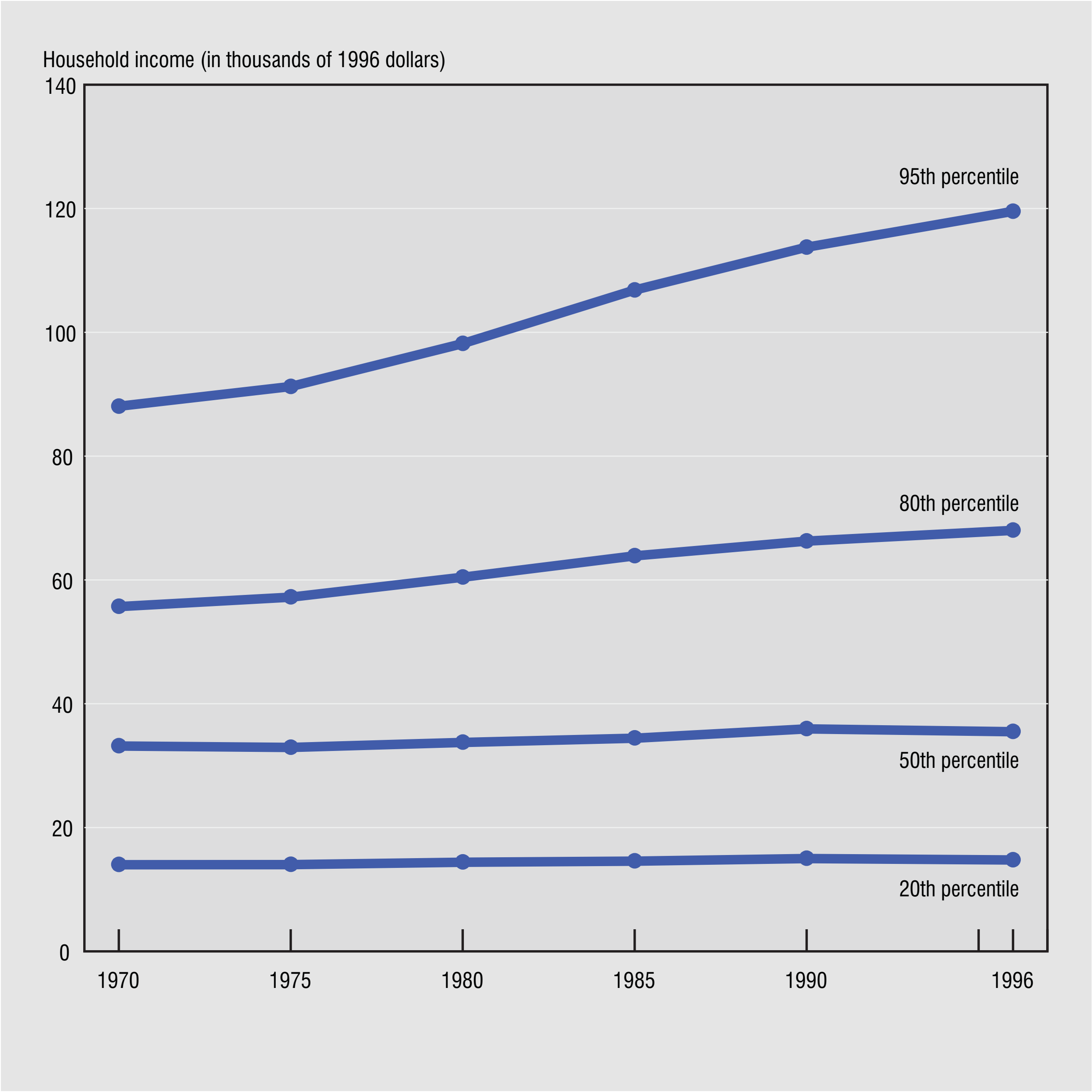
Income

- In 1996, 20 percent of U.S. households had incomes above $68,015 and 20 percent had incomes below $14,768, so that household income at the 80th percentile of the household income distribution was 4.6 times household income at the 20th percentile.
- The ratio of income at the 80th percentile to that at the 20th percentile increased over the past 26 years; in 1970 this ratio was 4.0. The increase in the ratio of income at the 95th percentile to that at the 20th percentile has been even greater, from 6.3 in 1970 to 8.1 in 1996. By contrast, income at the 50th percentile remained approximately 2.4 times income at the 20th percentile over the 26 year period.
- Measured in 1996 dollars, household income at the 20th and 50th percentiles changed little between 1970 and 1996. Between 1970 and 1990, income at the 20th percentile increased slightly, then fell by a small amount between 1990 and 1996, yielding an average annual increase of 0.20 percent over the 26-year period. Income at the 50th percentile followed a similar pattern with an average annual increase of 0.26 percent between 1970 and 1996. Income at the 80th percentile increased consistently over the period at an average annual rate of 0.77 percent, while the top 5 percent of the income distribution showed the greatest increase at 1.18 percent per year.

Figure 1. Household income at selected percentiles of the household income distribution: United States, 1970–96



NOTES: See Technical Notes for the definition of income. In 1995, the 1990 Census adjusted population controls and sample redesign were implemented: there was a change in data collection method from paper-pencil to computer-assisted interviewing, and income reporting limits changed. In 1980, the 1980 Census population controls were implemented. In 1975, the 1970 population controls were implemented.

SOURCE: U.S. Census Bureau. Money Income in the United States: 1996. Current Population Reports, Series P60-197, Washington: U.S. Government Printing Office. September 1997.

Income

- In 1996 median household income in the United States was $35,492. Asian or Pacific Islander households had the highest median income ($43,276), followed by non-Hispanic white households ($38,787). Median incomes for black and Hispanic households ($23,482 and $24,906) were less than 65 percent of the median for non-Hispanic white households.

- Between 1982 and 1989, median income increased for black, non-Hispanic white, and Hispanic households (by 17 percent, 12 percent and 11 percent, respectively), then declined for all race and ethnic groups between 1989 and 1992. Between 1992 and 1996 median incomes rose for black, Asian or Pacific Islander, and non-Hispanic white households, but not for Hispanic households. In 1996 median income for black households was slightly higher than it had been in 1989, but median income for white households was still slightly lower than in 1989.

- Between 1980 and 1996 the difference in income between non-Hispanic white households and black households decreased slightly, but the difference between Hispanic households and non-Hispanic white households widened. In 1980 the median income for white households was 39 percent higher than for Hispanic households; in 1990, 43 percent higher; and in 1996, 56 percent higher. In contrast, median income for non-Hispanic white households in 1980 was 77 percent higher than for black households; it was 71 percent higher in 1990, and 65 percent higher in 1996.

- Similarly, the income difference between Hispanic and black households decreased considerably between 1980 and 1996. In 1980 median income for Hispanic households was 27 percent higher than median income for black households; in 1990 it was 20 percent higher, but by 1996 it was only 6 percent higher.

- Household income is influenced by number of earners per household and comparison across race and ethnic groups is affected by differences in average household size. In 1996, the total money income per household member was $20,216 for non-Hispanic white persons, $17,928 for persons of Asian or Pacific Islander origin, $11,543 for black persons, and $9,545 for persons of Hispanic origin (1).

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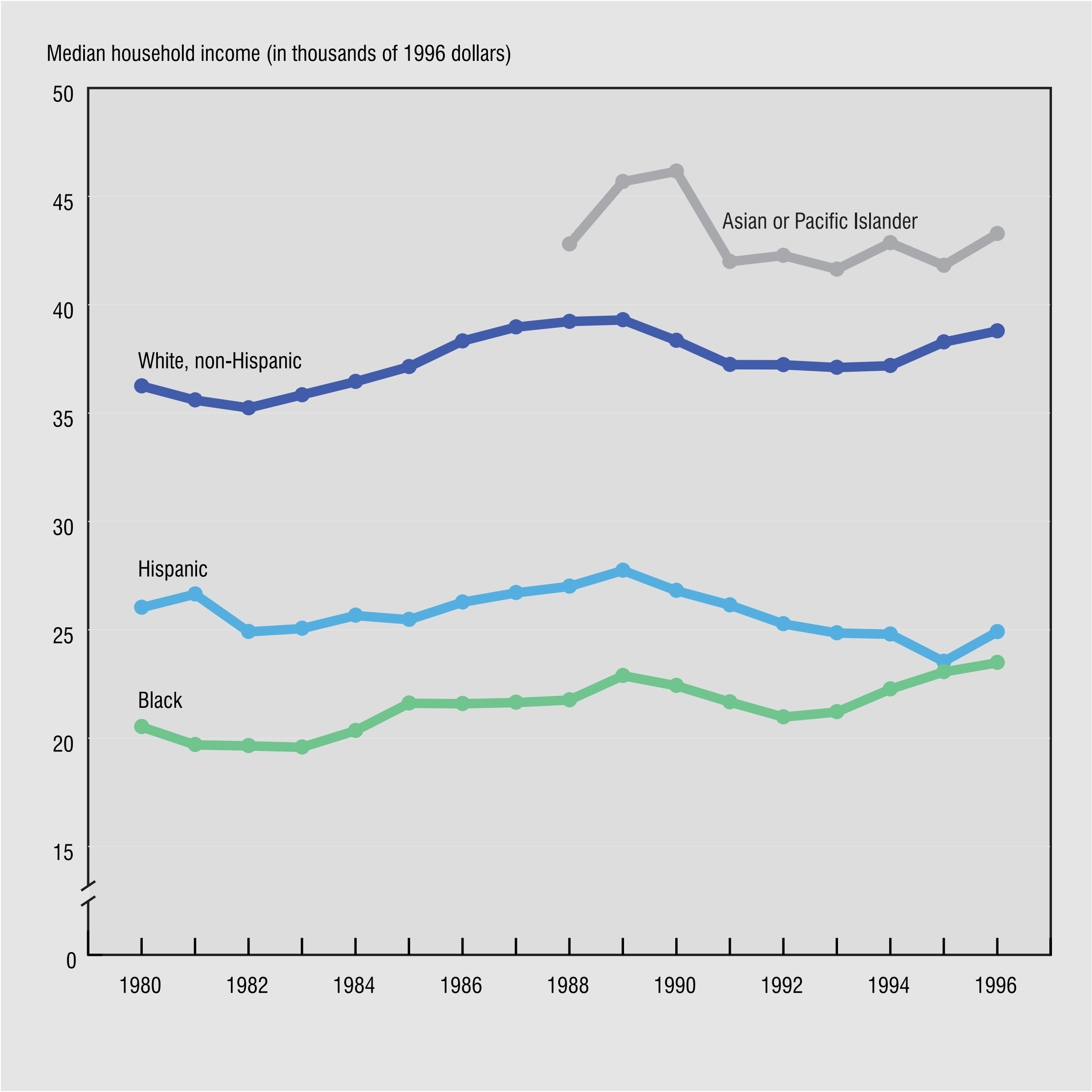
Figure 2. Median household income by race and Hispanic origin: United States, 1980–96



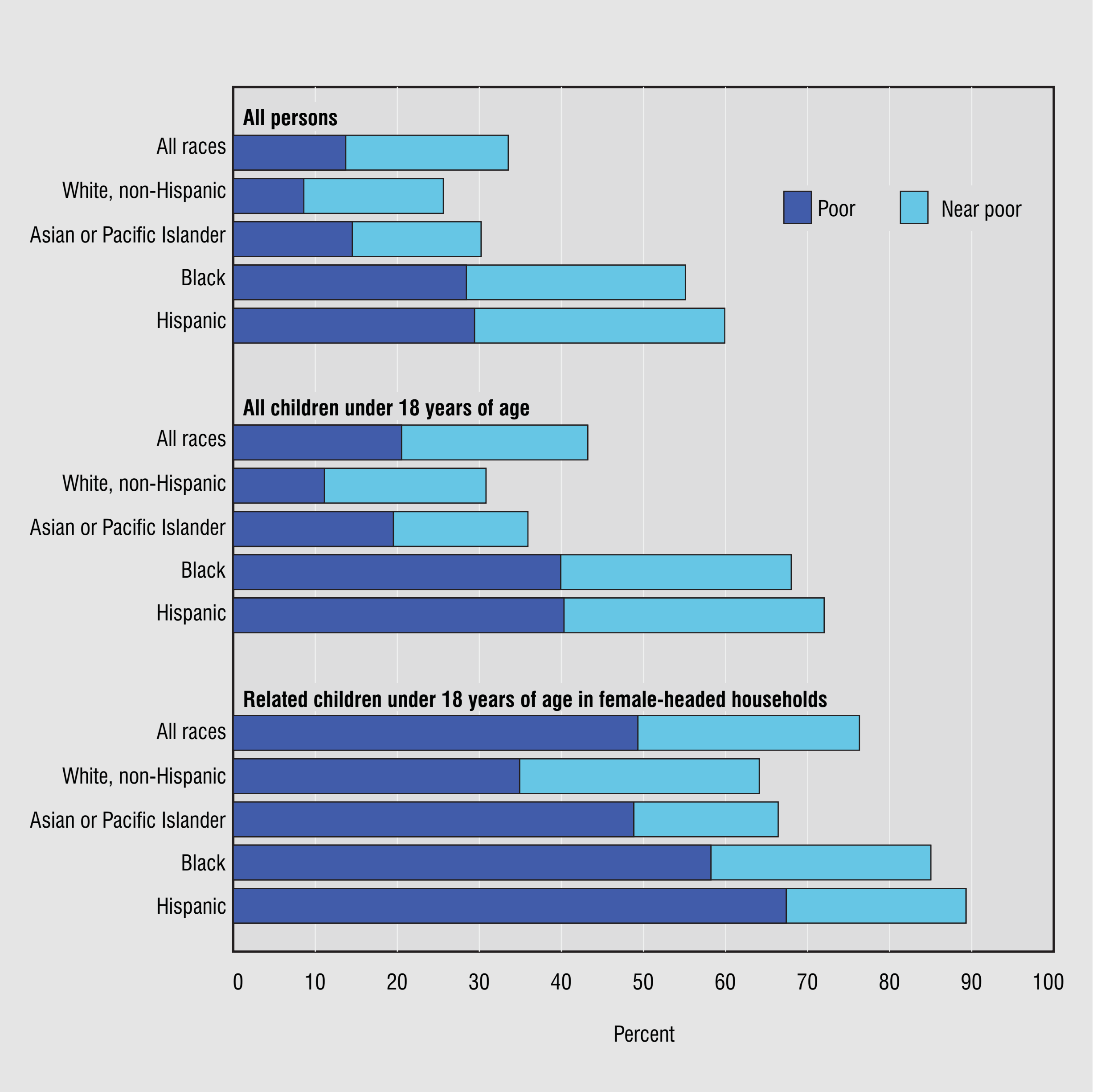
NOTES: See Technical Notes for the definition of income. In 1995 the 1990 census adjusted population controls and sample redesign were implemented: there was a change in data collection method from paper-pencil to computer-assisted interviewing, and income reporting limits changed. In 1980, the 1980 Census population controls were implemented. In 1975, the 1970 population controls were implemented.

SOURCE: U.S. Census Bureau. "Historical Income Tables, Household Table H-5. Race and Hispanic Origin of Householder—Households by Median and Mean Income: 1967 to 1996." Published 29 September 1997. <www.census.gov/hhes/income/histic/h05.html>

Poverty

- In 1996, 36.5 million residents of the United States (14 percent) were living in poverty. Forty-five percent (16.5 million) of persons living below the poverty line were non-Hispanic white persons, 27 percent (9.7 million) were black persons, 24 percent (8.7 million) were persons of Hispanic origin, and 4 percent (1.5 million) were persons of Asian or Pacific Islander origin.
- The poverty rate was lowest among non-Hispanic white persons (9 percent) followed by persons of Asian or Pacific Islander origin (15 percent). Poverty rates for black persons and persons of Hispanic origin were more than three times the rate for non-Hispanic white persons.
- Over one-third of the U.S. population was living in or near poverty in 1996. The majority of black persons (55 percent) and persons of Hispanic origin (60 percent) lived in families classified as poor or near poor.
- In 1996, one out of every five children in the United States (14.5 million) lived in poverty. Poverty rates for black and Hispanic children were much higher (40 percent in each group) than the overall rate, and almost 4 times the poverty rate for non-Hispanic white children.
- Over two-thirds of black children and nearly three-quarters of Hispanic children were living in or near poverty in 1996; 31 percent of non-Hispanic white children and 36 percent of children of Asian or Pacific Islander origin were classified as poor or near poor.
- Children living in female-headed households had the highest rates of poverty. In 1996 nearly one-half of all children in female-headed households (8 million) were living below the poverty line and another 27 percent were near poor. Poverty rates for black and Hispanic children in female-headed households were considerably higher than the rates for non-Hispanic white children or children of Asian or Pacific Islander origin.

Figure 3. Percent of persons poor and near poor by race and Hispanic origin: United States, 1996



NOTES: All figures refer to persons. "All children under 18 years of age" includes unrelated children. "Female-headed households" above are families with female householder and no spouse present. See Technical Notes for a description of poverty status.

SOURCE: U.S. Census Bureau. "Detailed Poverty Tables, Table 2. Age, Sex, Household Relationship, Race and Hispanic origin, and Selected Statuses-Ratio of Income to Poverty level in 1996." Last revised: October 3, 1997. <http://ferret.bls.census.gov/macro/031997/pov/2_001-3.htm>. See related *Health, United States, 1998*, table 2.

Poverty

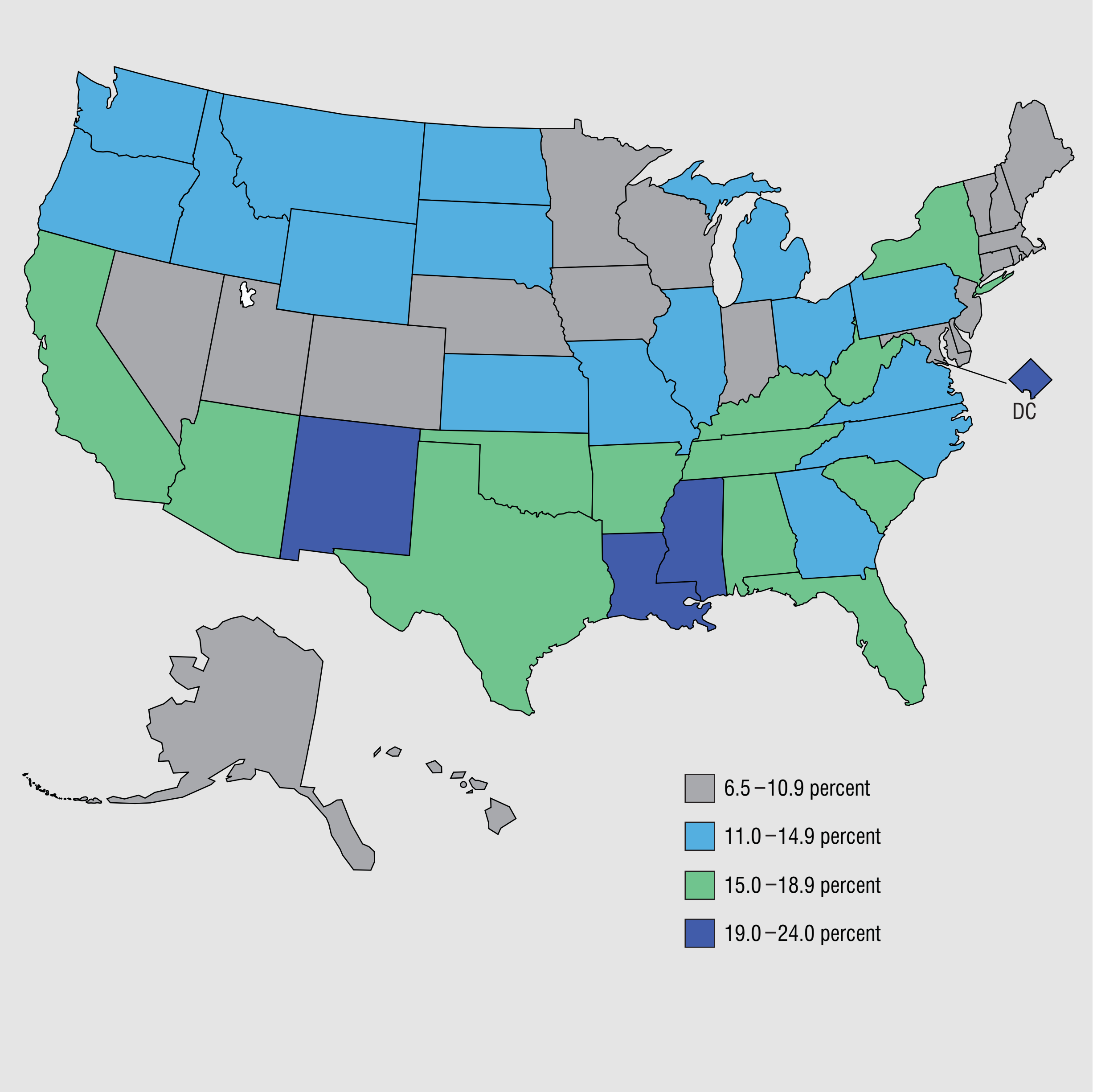
- Across States the average annual poverty rates for the years 1994–96 varied over threefold from 7 to 24 percent. Poverty rates were lowest in New Hampshire and Utah (7–8 percent) and highest in Louisiana, New Mexico, and the District of Columbia (22–24 percent).

- The South has a disproportionately large share of the Nation's poor population. In 1996, 35 percent of the U.S. population, but 38 percent of persons below the poverty line, lived in the South. One-quarter of poor persons lived in the West, while the Midwest and Northeast each contained 18 percent of the Nation's poor.

- Before 1994 the South had the highest poverty rate of any region. In 1996 the poverty rate in the West was not significantly different from that in the South; both were 15 percent. Thirteen percent of persons living in the Northeast were poor in 1996, as were 11 percent of persons living in the Midwest.

- Within the West, the States with the highest poverty rates during 1994–96 include New Mexico (24 percent), Arizona (18 percent), and California (17 percent). Within the South the following eight States had poverty rates of 16 percent or higher during 1994–96: Louisiana, the District of Columbia, Mississippi, West Virginia, Alabama, Texas, Oklahoma, and Kentucky.

Figure 4. Percent of persons in poverty by State: United States, average annual 1994–96



NOTE: See Technical Notes for a description of poverty status.

SOURCE: U.S. Bureau of the Census. Poverty in the United States: 1996. Current Population Reports, Series P60-194. Washington: U.S. Government Printing Office. September 1997.

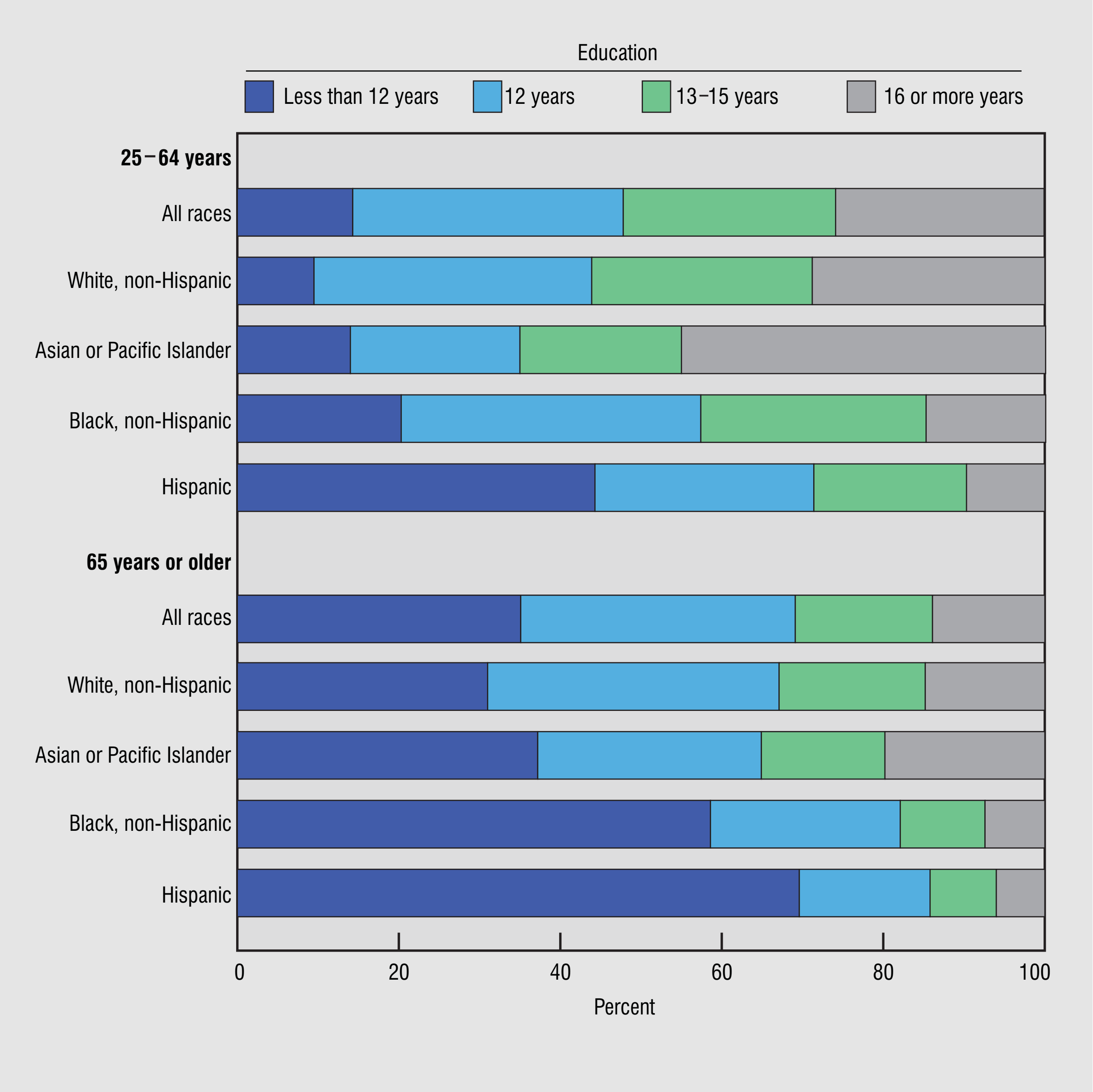
Education

- The average level of education in the U.S. population has increased steadily since this information was first collected by the Current Population Survey in 1947. In 1996, 35 percent of persons 65 years of age and over, but only 14 percent of persons ages 25–64 years, had not completed high school. In contrast, more than one-half of persons 25–64 years of age had some education beyond high school, whereas only 31 percent of persons 65 years of age and over had more than a high school diploma.

- Educational levels vary considerably among race and ethnic subgroups. Among persons 25–64 years of age, the proportion who had not completed high school in 1996 ranged from 10 percent for white persons to 44 percent for Hispanic persons. In this age group, one out of every five black persons and one out of every eight Asian or Pacific Islander persons had less than a high school education. The percent with a college degree or higher level of education ranged from 10 percent for Hispanic persons to 45 percent for Asian or Pacific Islander persons.

- Among persons 65 years of age and older, the percent who did not complete high school ranged from 31 percent for white persons to 70 percent for Hispanic persons. In this age group, one-third of white persons and 35 percent of Asian or Pacific Islander persons had some education beyond high school, compared with 18 percent of black persons and 14 percent of Hispanic persons.

Figure 5. Educational attainment among persons 25 years and over by age, race, and Hispanic origin: United States, 1996



NOTES: Less than 12 years includes persons with 12 years of schooling but no high school diploma. Twelve years includes persons with a high school diploma or G.E.D. Thirteen to fifteen years includes persons without a degree and persons with associate's degrees. Sixteen years or more includes all persons with a baccalaurate degree or higher.

SOURCE: U.S. Bureau of the Census. Current Population Survey, March 1996.

Education

- Median household income increases with each higher level of education. Men 25 years of age and over with at least a college degree had a median family income of $66,690 in 1996, 2.7 times the median for men who did not complete high school ($24,386). The income gradient with increasing education was similar for women; median family income for women with a college degree or higher level of education was 3.4 times as high as the median for women without a high school diploma ($62,050 compared with $18,200).

- At each level of attained education, women generally lived in households with less income than men, but the gender disparity tended to decrease at higher levels of education. Median household income for men who had not finished high school was 34 percent higher than the median for women with the same level of education; median household income for men with at least a college degree was 7 percent higher than the median for women at the same education level.

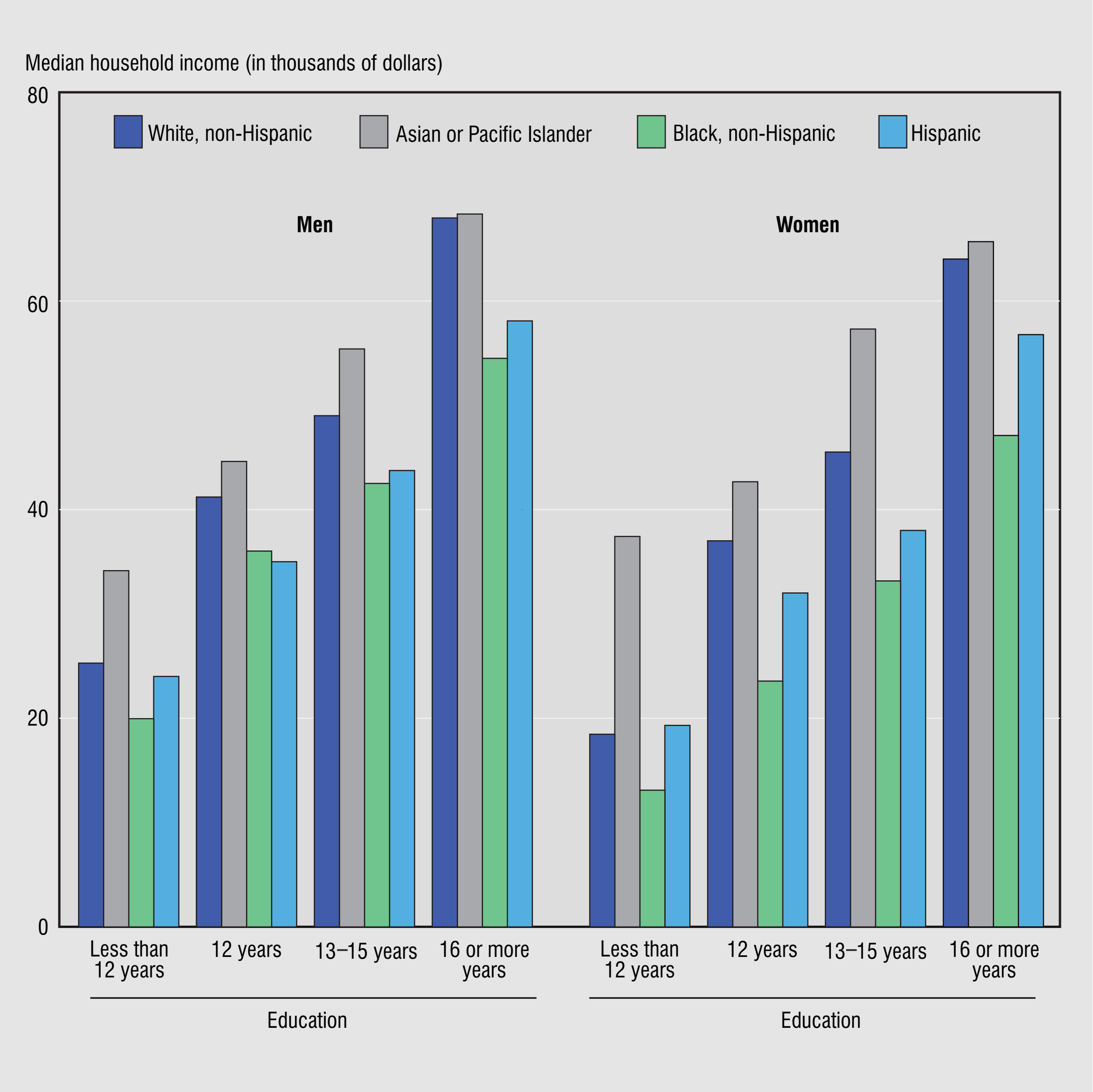
- The disparity between the median household incomes of men and women at the same level of education was greatest for black persons; median income for men exceeded that for women by 52 percent for persons with less than a high school education, and by 16 percent for college graduates. Among Asian or Pacific Islander persons, there was essentially no gender disparity in median household income within levels of education.

- Among men, the education-related gradient in median household income was greatest for non-Hispanic white and black men; in 1996 black and white men with a college degree had median household incomes 2.7 times higher than the median income for those with no high school diploma. This ratio was 2.4 for Hispanic men and 2.0 for Asian or Pacific Islander men.

- The education-related gradient in median household income was similar for black and white women; those with at least a college degree lived in households where the median family income was approximately 3.5 times greater than that for women who had not finished high school. Among Hispanic women, this ratio was 2.9. There was less of an education-related gradient in income for Asian or Pacific Islander women; those with a college degree or higher lived in households with a median income less than twice that of women with no high school diploma.

- At each level of education, median household incomes for women varied more across the race and ethnic subgroups than did those for men. Within each education level, median household income in 1996 was similar for Hispanic and black men, but the median for black women was lower than that for Hispanic women.

Figure 6. Median household income among persons 25 years of age and over by education, sex, race, and Hispanic origin: United States, 1996



NOTES: Median income is based on total household income (earnings and other income) and is not adjusted for work status or number of hours worked by household members. Median is calculated using actual reported household income, not grouped data. Educational attainment is as of March 1997. Less than 12 years includes persons with 12 years of schooling but no high school diploma. Twelve years includes persons with a high school diploma or G.E.D. Thirteen to fifteen years includes persons without a degree and persons with Associate's degrees. Sixteen years or more includes all persons with a baccalaurate degree or higher.

SOURCE: U.S. Bureau of the Census. Current Population Survey: March 1997.

Occupation

- The U.S. labor force has become increasingly concentrated in white collar occupations: executive, professional, managerial, administrative, technical, clerical, and sales positions. In 1996, among civilians 25–64 years of age reporting a current occupation, 48 percent of men and 73 percent of women held white collar positions. Thirty–nine percent of civilian men in this age range held blue collar jobs, compared with only 10 percent of women. By contrast, women were nearly twice as likely as men to be employed in service occupations (16 percent compared with 9 percent). Only 4 percent of men and just 1 percent of women reported their major occupation as farm related.

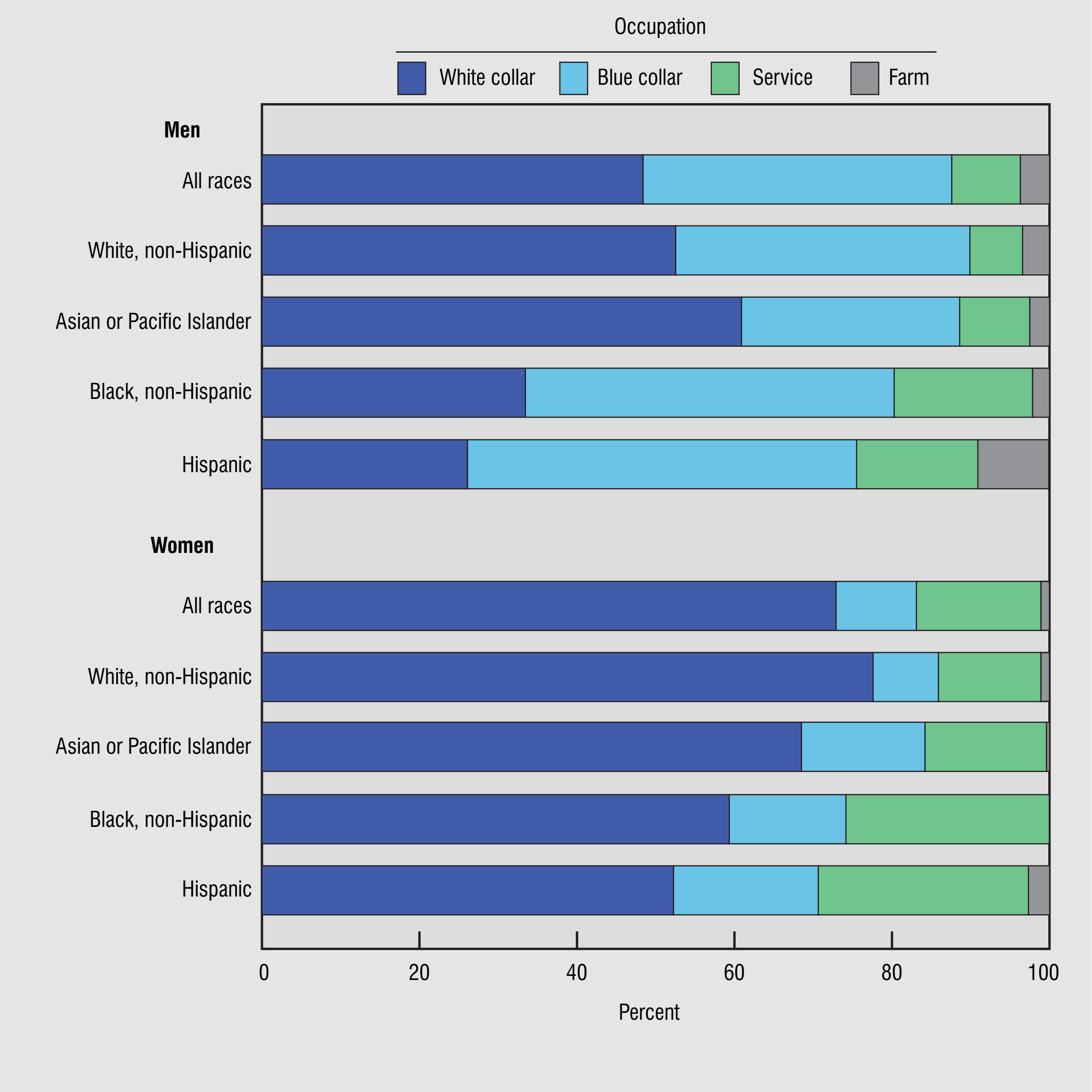
- Asian or Pacific Islander men and non-Hispanic white men were much more likely to hold white collar positions than black or Hispanic men; three out of every five Asian or Pacific Islander men and over one-half of white men were employed in white collar occupations, compared with one out of every three black men and about one-quarter of Hispanic men. For each race and ethnic group examined, the majority of employed civilian women between 25 and 64 years of age held white collar positions, from 52 percent of Hispanic women to over three-quarters of white women.

- In 1996 average compensation for persons holding blue-collar jobs was 81 percent of that for white collar workers (see *Health, United States, 1998*, table 122). Nearly one-half of employed civilian Hispanic and black men were working in blue collar jobs in 1996, but only 28 percent of Asian or Pacific Islander men were in blue collar employment. Only 8 percent of currently employed white women held blue collar jobs, compared with between 15 and 18 percent of women in other race and ethnic groups.

- In 1996 average compensation for service workers was 41 percent of that for persons in white collar employment (see *Health, United States, 1998*, table 122). Black and Hispanic women were nearly twice as likely as white and Asian or Pacific Islander women to be employed in service occupations (26 and 27 percent compared with 13 and 15 percent, respectively) in 1996. White and Asian or Pacific Islander men were least likely to be employed in service occupations, 7 and 9 percent compared with 15 and 18 percent for Hispanic and black men, respectively.

- Hispanic men and women were more likely to be employed in farm occupations than those in other race and ethnic groups. In 1996, 9 percent of Hispanic men and 3 percent of Hispanic women reported farm-related work as their major occupation.

Figure 7. Current occupation for persons 25–64 years of age by sex, race, and Hispanic origin: United States, 1996



NOTES: Within the occupational categories there is a great deal of occupational diversity. See Technical Notes for description of each occupational category. Persons in the military are excluded.

SOURCE: U.S. Bureau of the Census. Current Population Survey: March 1996.

A healthy childhood is a foundation of success and health in later life. This section of the chartbook shows the relationship between socioeconomic status (SES) of a child's family and indicators of health status in childhood, risk factors for poor health during pregnancy through adolescence, and health care access and utilization for children.

Receiving prenatal care and maintaining good health behaviors during pregnancy are the first steps toward having a healthy child. Early and consistent prenatal care reduces the risk of poor birth outcomes. Figures 18 and 19 present data on prenatal care utilization. During the 1990's early initiation of prenatal care increased for mothers at every level of education. This improvement may have been due partly to expansions in Medicaid coverage for pregnant women (1). However, data indicated that in 1996 more educated mothers were still more likely than less educated mothers to obtain prenatal care in the first trimester, regardless of race or ethnicity. The *Healthy People 2000* goal for prenatal care is for 90 percent of live births to have received prenatal care in the first trimester. While mothers with 16 or more years of education were close to the goal or achieved it in most race and ethnic groups, fewer than three-quarters of mothers who had not completed high school obtained early prenatal care in any race and ethnic group; in some groups the percent with early prenatal care was closer to one-half. In addition to lack of insurance or other financial problems, other factors, such as lack of transportation, scheduling difficulties, or lack of knowledge about the pregnancy, may act as barriers to receiving early care (2,3).

Maternal behaviors also influence the health of the infant at birth. Infants whose mothers smoked during pregnancy are more likely to experience health problems, such as low birthweight, abruptio placentae (4), intrauterine growth retardation (5), Sudden Infant Death Syndrome (6), and asthma in childhood (7). Figure 13 demonstrates that in 1996 less educated women were more likely to smoke during pregnancy, but there were significant differences by race and ethnicity; less educated non-Hispanic white women were far more likely to smoke than women of other backgrounds. Almost one-half of non-Hispanic white women without a high school diploma smoked during pregnancy, compared with less than one-third of women in any other group. Hispanic and Asian or Pacific Islander women were particularly unlikely to smoke, yet even in these groups, an education-related gradient was apparent.

Adolescent childbearing, another risk factor for poor health in childhood, was more common among mothers of lower socioeconomic status (figure 12). Women whose own mothers were less educated were more likely to become teenage parents. The low education levels of the respondents' mothers likely reflected lower household incomes, on average, when the teenage mothers were young, and perhaps different expectations for educational attainment or childbearing than were found among the daughters of more educated women (8). Early childbearing is associated with a wide range of poor health and economic outcomes (9), and the teenage mothers in this data set had much lower incomes in adulthood than those who delayed their first birth. Lower socioeconomic status was a predictor and a consequence of early childbearing.

Infants born to mothers of lower socioeconomic status tended to have poorer health, as measured by their rates of low birthweight and infant mortality. In addition to the importance of infant survival in its own right, the infant mortality rate is correlated strongly with a variety of other health measures, and is considered to be a good measure of overall community health (10). Low birthweight is associated with an increased risk of health and developmental problems during infancy and childhood (11). Infants whose mothers had fewer years of education were more likely to have a low weight at birth (less than 5.5 pounds) and to die before reaching their first birthday (figures 8, 9, and 10). These two measures are closely associated as low birthweight is a frequent antecedent to infant mortality. Among white and black infants, each increase in maternal education was associated with a decline in low birthweight and infant mortality rates. This pattern was evident among Hispanic children for infant mortality but not for low birthweight. Neither infant mortality nor low birthweight was clearly associated with maternal education among American Indian or Alaska Native children or among Asian or Pacific Islander children, although the infants of the least educated American Indian or Alaska Native women had higher rates of both measures. Analysis of data for Hispanic and Asian or Pacific Islander subgroups found the association with socioeconomic status to be evident among some groups and less so among others. Analysis of trends in infant mortality (figure 8) indicated that the health gaps between children of higher and lower socioeconomic status have been fairly wide throughout the 1980’s and early 1990’s, and that declines in infant mortality during 1983–95 were fairly consistent across maternal education groups.

Health insurance may be a contributing factor in health disparities. Children without health insurance coverage are likely to have difficulties obtaining medical care (12,13). The parents of children with public (usually Medicaid) coverage may also have trouble finding a physician since many do not accept Medicaid patients, often because Medicaid reimburses at a lower rate than does private insurance (14). Children who have no insurance may be forced to bypass well-child and preventive visits. Those without adequate access may procure services at an emergency room as a last-resort location for health care (13).

Children from low-income families were much less likely to be insured (figure 20), although there were few differences between poor and near-poor children. Among black and Hispanic children, the near-poor had lower coverage rates, probably because many of the poor were insured through the Medicaid program, for which most of the near-poor children were not eligible. Very few children in high-income families were uninsured (from 4 to 7 percent), while up to one-third of children in low-income families had no health insurance.

Several measures of health status and health care utilization indicated that children from lower SES families had worse health status and more risk factors for poor health while having less adequate access to and utilization of health services. Health care utilization reflected the disparities evident in insurance coverage. Children under age 6 who were from poor and near-poor families were less likely than those from middle- or high-income families to have seen a physician in the past year, and uninsured children from every income group were substantially less likely than insured children to have seen a doctor (figure 22). Children living in lower income areas had lower rates of outpatient visits than those living in higher income areas, and were more likely to have received care in hospital emergency or outpatient departments than at a physician’s office (figure 23).

Children from poor families were less likely to be fully vaccinated on schedule than children from higher income families (figure 21). Prompt vaccination is important to protect children’s health, and may be a marker of the quality of children’s health care early in life. Insufficient vaccine levels may indicate that the child has not had timely use of well-child visits.

Another indicator of adequacy of preventive care is hospitalization for asthma. Asthma is one of the most common chronic diseases in childhood, and is generally managed via outpatient care and, occasionally, emergency room visits. Hospitalization for asthma indicates severe disease and may suggest that the child has not had adequate care from a physician who can help them control their asthma (15). Children who lived in poorer neighborhoods had higher rates of hospitalization for asthma (figure 24) and black children had higher rates than those of white children at every level of neighborhood socioeconomic status during 1989–91.

Disparity in environmental quality is another factor contributing to the influence of socioeconomic status on health. Figure 14 shows that children in lower income households were more likely to have elevated levels of blood lead, which is associated with less than optimal developmental outcome, such as lower intelligence (16). Poorer children may be more subject to environmental degradation, such as substandard housing, putting them at greater risk of lead intake (17).

Activity limitation due to a chronic health condition is a broad measure of health and functioning. In contrast to the declines in infant mortality, rates of reported activity limitation among children increased slightly between 1984–87 and 1992–95. This increase appeared to be greater among children in lower income than higher income families, resulting in a slight widening of the disparity by income (figure 11). Hispanic children had lower rates of reported activity limitation in each income group and a less marked income gradient than white or black children. The increase in reported rates of activity limitation may have been a result of a true increase in limitation, but also may have been influenced if there was an increase in diagnosis of existing limitations (such as the diagnosis of learning disability) or a change in awareness of such limitations.

Many risk factors for poor health in later life develop in adolescence. Smoking is most frequently begun in adolescence (18), and obesity in youth may remain into adulthood (19). Although smoking rates among pregnant women were inversely related to level of education, there was no clear gradient in smoking rates for adolescents by family income group overall (figures 13 and 15). However, when adolescent smoking data were broken down by race and ethnic group, results appeared more similar to those of childbearing women: the proportion smoking was highest and the income gradient strongest among white adolescents. However, smoking was more common among Hispanic adolescents and less common among black adolescents than among pregnant women of the same race or ethnicity.

Overall, adolescents from lower income families were more likely to be overweight than those from higher income families. However, within the race and ethnic subgroups examined, the negative relationship of income and overweight was true only for non-Hispanic white adolescents (figure 16). Black adolescents had no clear pattern of overweight in relation to family socioeconomic status, while Mexican American teenagers from higher income families were more likely to be overweight. Since sedentary behavior is a strong risk factor for overweight, one might expect the two to have a similar socioeconomic profile, and sedentariness was associated with socioeconomic status (figure 17), with the association more marked for girls than for boys. The overall relationship between income and sedentary behavior may obscure substantial differences among race and ethnic groups, which could not be examined here due to insufficient sample size.

Data suggested that health status of children has improved in some areas since the early 1980's and worsened in others. However, the health gap between children of higher and lower socioeconomic status parents was constant through the time period and remained in the mid-1990's. Children who had well-educated or high-income parents had a better chance of being born healthy and continuing to remain healthy throughout childhood. Access to appropriate health care, health behaviors of parents and children, and exposure to environmental risks are among the factors contributing to the socioeconomic disparities in children's health.

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Infant Mortality

- Infant mortality is comprised of deaths that occur before an infant's first birthday. Infant mortality is an important indicator of the health of infants and pregnant women because it is closely related to factors such as maternal health, quality of and access to medical care, socioeconomic conditions, and public health practices. About two-thirds of infant deaths are associated with problems of the infant or the pregnancy, while one-third result from conditions arising after the delivery, often reflecting social or environmental factors (1). The *Healthy People 2000* target is for no more than 7 deaths per 1,000 infants in the United States as a whole, and no more than 11 deaths per 1,000 black infants.

- Between 1983 and 1995, the infant mortality rate in the United States among infants born to mothers 20 years of age and over declined from 10.3 to 7.1 deaths per 1,000 live births. Reductions in infant mortality were seen in all race and education groups examined, though the decline occurred more steadily in some groups than in others.

- The infant mortality gap across education levels remained approximately constant during the time period among white and black infants. In every year, infants born to less educated mothers had higher rates of mortality than infants born to more educated mothers, but the disparity was constant or decreased slightly over time. Between 1983 and 1995, among infants born to white mothers, the relative decline in infant mortality was greatest among infants born to women with less than 12 years of education (39 percent) and least among infants of mothers with 12 years of education (26 percent). Among infants born to black women the relative decline in infant mortality ranged from 16 percent among those born to the most educated mothers to 27 percent among those born to the least educated mothers.

- In every year black infants remained at higher risk of dying than white infants at every level of mother's education. By 1995 rates among infants born to more educated black mothers were approaching rates seen in the mid-1980's among infants of less educated white mothers.

- White infants' mortality rates declined more rapidly than those of black infants at each level of mother's education. In 1983, the ratio of black to white infant mortality rates ranged from 1.9 for infants born to the least educated mothers to 2.1 among infants born to the most educated mothers. In 1995 the black-white infant mortality ratio increased to 2.2 for infants born to the least educated mothers to 2.7 among infants born to the most educated mothers.

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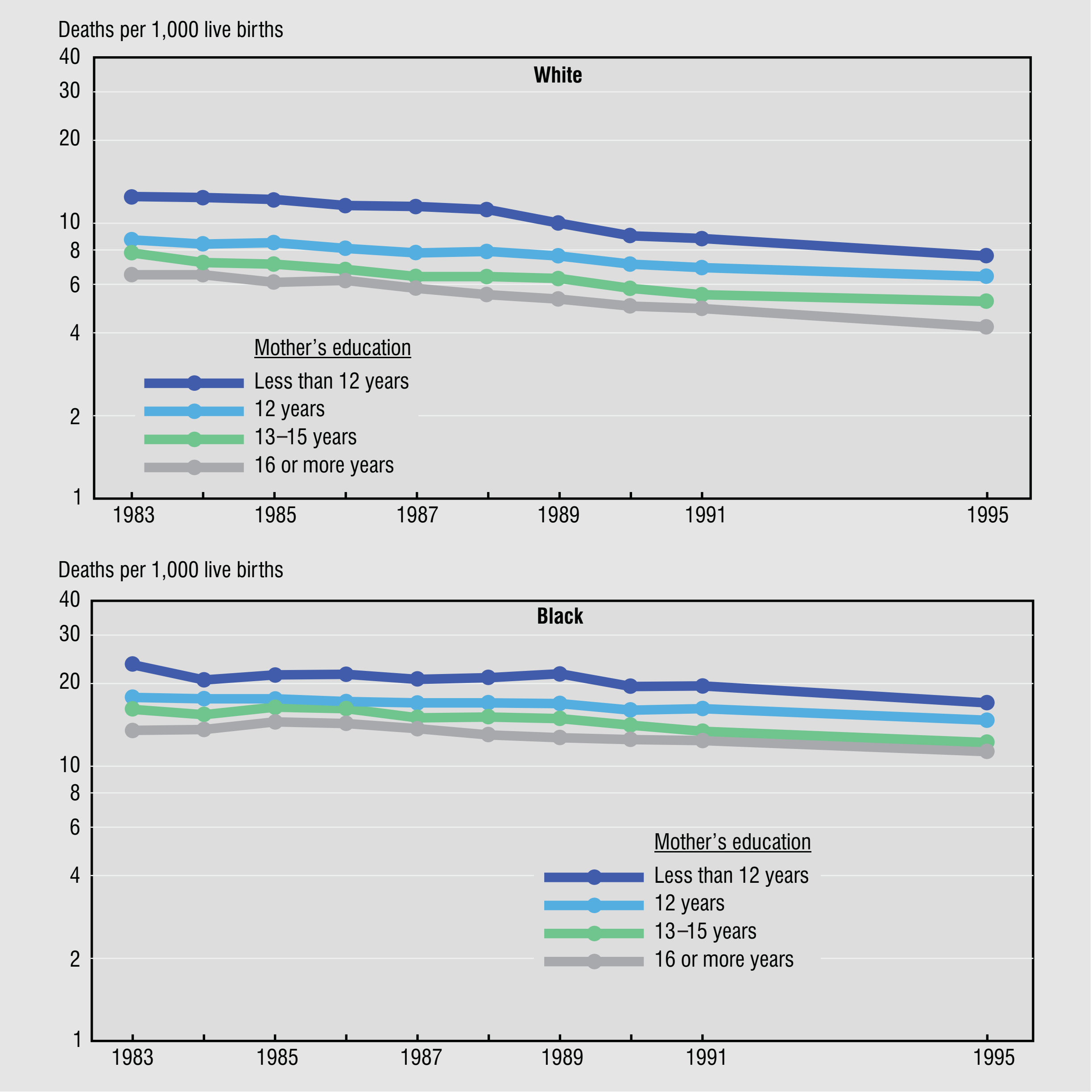
Figure 8. Infant mortality rates among infants of mothers 20 years of age and over by mother's education and race: United States, 1983–95



NOTES: 1995 data were calculated on a period basis, while prior years were calculated on a cohort basis; 1995 data used weighting for the first time. See *Health, United States, 1998* Appendix I for an explanation of the differences in the methods.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Linked Files of Live Births and Infant Deaths. See related *Health, United States, 1998*, table 21.

Infant Mortality

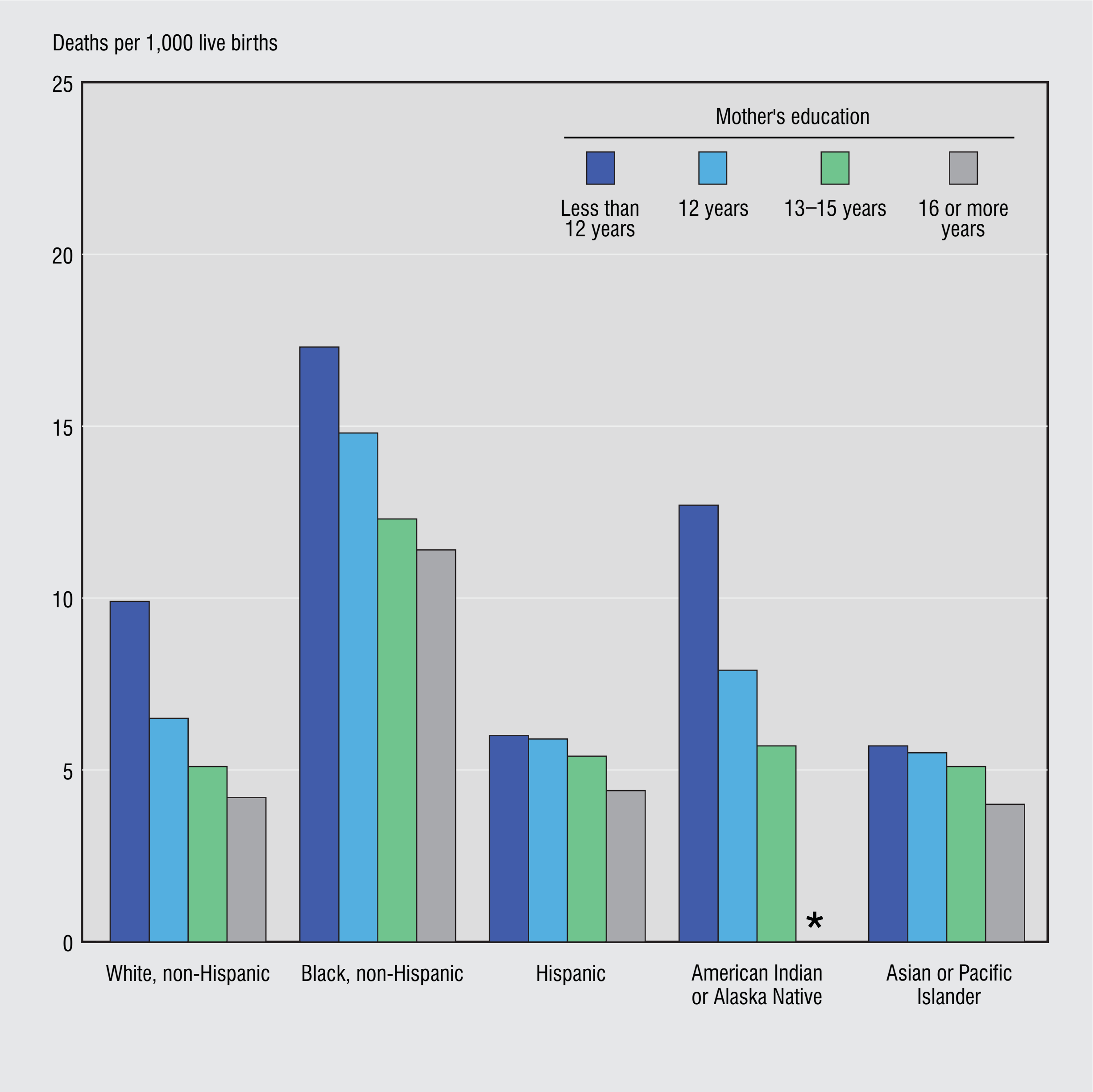
- During 1995 about seven in every thousand infants died before their first birthday. The likelihood of death in infancy was related to the mother’s education; each higher level of maternal education was associated with an improvement in the infant mortality rate. Among live births to mothers 20 years of age and over in 1995, babies born to mothers who did not finish high school were almost 1.9 times as likely to die as those whose mothers graduated from college.

- Infant mortality rates varied significantly among racial and ethnic groups. Hispanic and Asian or Pacific Islander infants tended to have similar infant mortality rates. Black infants had higher rates. Non-Hispanic white and American Indian or Alaska Native infants had intermediate rates at lower education levels, but rates among non-Hispanic white infants approached Hispanic and Asian or Pacific Islander rates at the highest education levels. The *Healthy People 2000* goal for American Indian or Alaska Native infants is 8.5 deaths per 1,000.

- Although apparent for all race and ethnic groups, the educational gradient in infant mortality was stronger for white and American Indian or Alaska Native infants than for black, Asian or Pacific Islander, or Hispanic infants. White infants had the steepest gradient; infants born to mothers with fewer than 12 years of education were 2.4 times as likely to die as those born to mothers with 16 or more years of education. Among both Hispanic and Asian or Pacific Islander infants, babies born to the least educated mothers were 1.4 times as likely to die as those born to the most educated mothers.

- There was diversity in the educational disparities among Hispanic and Asian or Pacific Islander subgroups. When Hispanic subgroups were examined separately for the 3-year period 1989–91, Cuban and Puerto Rican infants had stronger maternal educational gradients in mortality (the infants of the least educated women were 1.8 or 1.9 times as likely to die as infants of the most educated women) than did Mexican or Central and South American infants (where the disparity was 1.1–1.3). *Healthy People 2000* sets a target for Puerto Rican infants of 8 deaths per 1,000 by the year 2000. During the same time period, among Asian or Pacific Islander infants, Filipino American and Chinese American infants had a relatively lower gradient (infants born to the least educated women were 1.2 to 1.4 times as likely to die as infants of the most educated), while Japanese American (infants of the least educated were 1.7 times as likely to die) and Hawaiian infants (infants of the least educated were over three times as likely to die) had steeper maternal educational gradients.

Figure 9. Infant mortality rates among infants of mothers 20 years of age and over by mother's education, race, and Hispanic origin: United States, 1995



*The number of infant deaths among American Indian or Alaska Native mothers with 16 or more years of education was too small for stable rate calculation.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Linked File of Live Births and Infant Deaths. See related *Health, United States, 1998*, table 21.

Low Birthweight

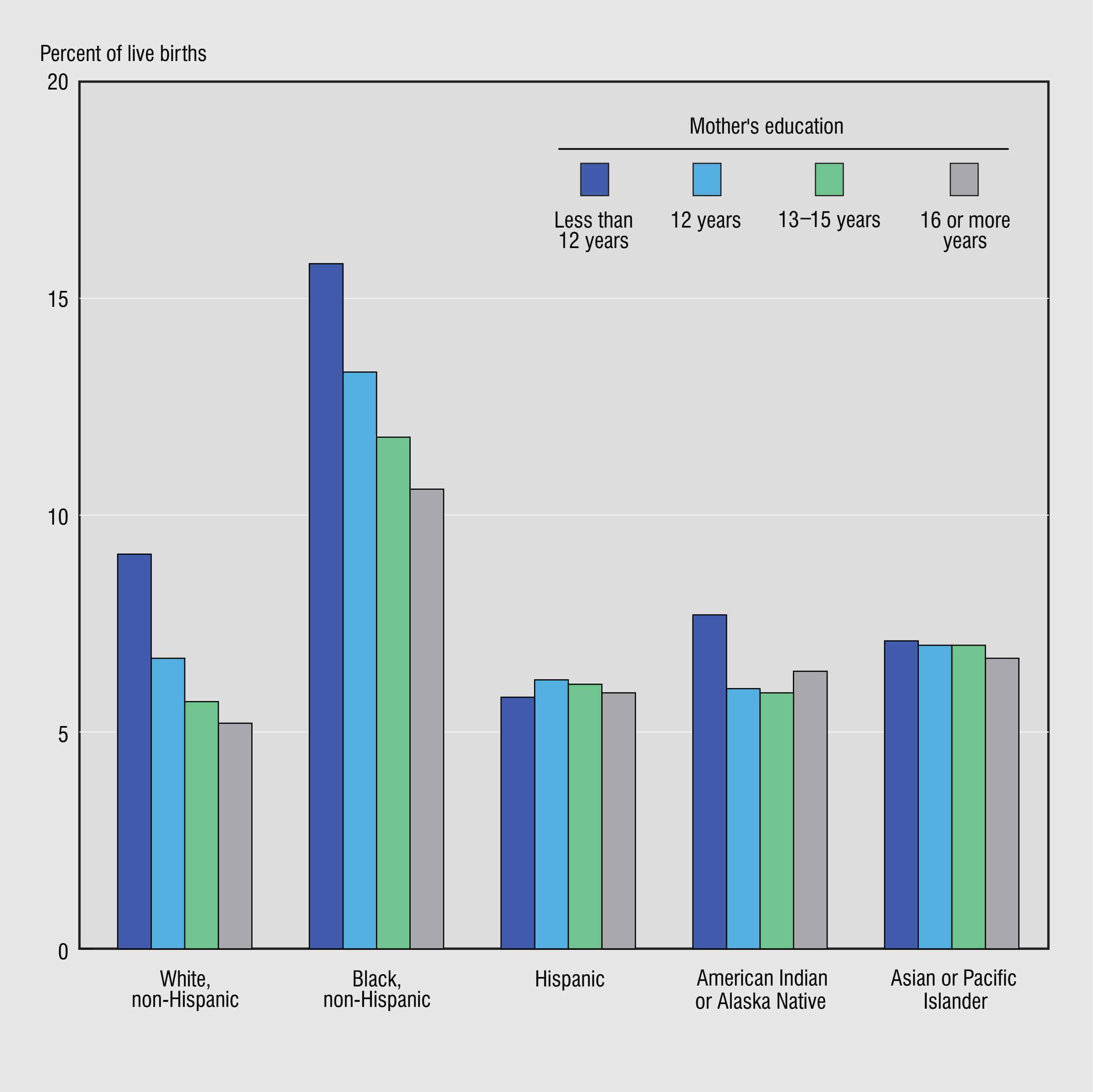
- Low-birthweight infants are born weighing less than 2,500 grams, or about 5.5 pounds. Infants of low birthweight are less likely to survive and have a higher risk of disability if they live. Low birthweight may result from premature birth and/or from insufficient growth for the gestational age. *Healthy People 2000* sets a low-birthweight goal of 5 percent overall, and 9 percent for black infants.

- Among births to non-Hispanic white, black, and American Indian or Alaska Native mothers 20 years of age and over, greater maternal education was associated with a decreased likelihood of low birthweight. In 1996 the prevalence of low birthweight among births to white mothers with less than 12 years of education was 1.8 times as high as among mothers with at least 16 years of education; among black mothers, the least educated had low birthweight rates 1.5 times those of their counterparts who had 16 or more years of education. For American Indian or Alaska Native infants, low birthweight was 1.2 times as high among births to mothers with less than a high school education as among births to mothers who had at least some college.

- Overall, births to Hispanic and Asian or Pacific Islander mothers did not show the same kind of trend; no matter what the mother's education level, the infants were equally likely to be low birthweight, and the rates were uniformly low (on average, 6 percent of Hispanic infants and 7 percent of Asian or Pacific Islander infants). When Asian or Pacific Islander subgroups were examined, only Hawaiian mothers had a strong relationship between education and birthweight; other groups did not show a trend. Among Hispanics, less educated Puerto Rican and Cuban American mothers had higher low birthweight rates, while Mexican and Central and South American mothers had no such gradient. The *Healthy People 2000* target for Puerto Rican infants is 6 percent with low birthweight.

- There was a greater disparity in low birthweight across race and ethnic groups than by maternal education. Black women were much more likely to have a low-birthweight infant than women of any other background. Over 13 percent of black infants were low birthweight, compared with between 6 and 7 percent of infants for the four other groups. The reasons for this disparity are unclear, but socioeconomic status could not fully account for it; the most educated black women were more likely to have a low-birthweight infant than the least educated women of any other race or ethnic group.

Figure 10. Low-birthweight live births among mothers 20 years of age and over by mother's education, race, and Hispanic origin: United States, 1996



NOTE: Low birthweight refers to an infant weighing less than 2,500 grams at birth.

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. See related *Health, United States, 1998*, table 12.

Activity Limitation

- This chart refers to the proportion of children whose usual activities, such as playing and going to school, are limited due to chronic health conditions. Conditions included here have persisted at least 3 months and may include illnesses, such as asthma or diabetes, injuries, or impairments affecting abilities such as vision, hearing, or speech.

- Overall, the rate of children who are reported to have some kind of limitation in their everyday activities increased slightly between 1984–87 and 1992–95. There was a clear pattern of socioeconomic disparity in each time period, such that children from lower income families were more likely to have some kind of activity limitation. During 1992–95 children in poor families were about 1.9 times as likely to have an activity limitation as children living in higher income households.

- In every race and ethnic group for every time period, limitation of activity rates increased as income declined. In 1992–95, poor non-Hispanic white children were about 2.2 times as likely, and poor black children twice as likely, to have an activity limitation as white and black children in higher income households. Hispanic children, however, had less of a gradient; the lower income children were only 1.4 times as likely as upper income children to have a limitation.

- Data suggested that the disparity between the lowest and highest income groups may have increased over time. During 1984–87 children living in poor families were 1.7 times as likely to have a limitation of activity as those in the highest income families, while in 1992–95 poor children were almost twice as likely to have a limitation as wealthier children.

Figure 11. Activity limitation among children under 18 years of age by family income, race, and Hispanic origin: United States, average annual, 1984–87, 1988–91, and 1992–95

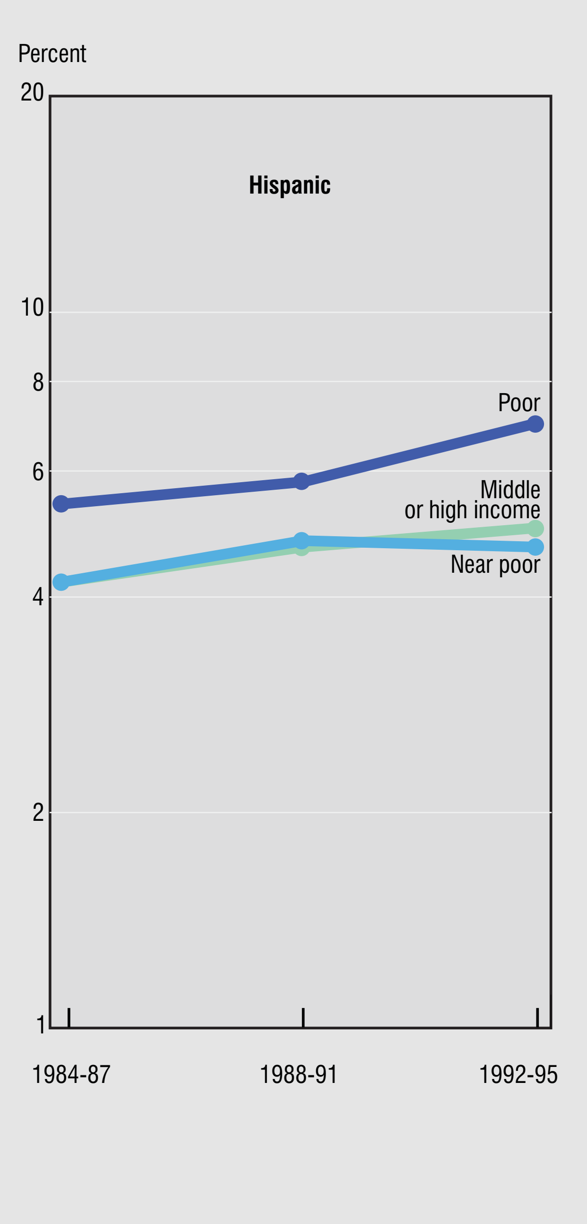
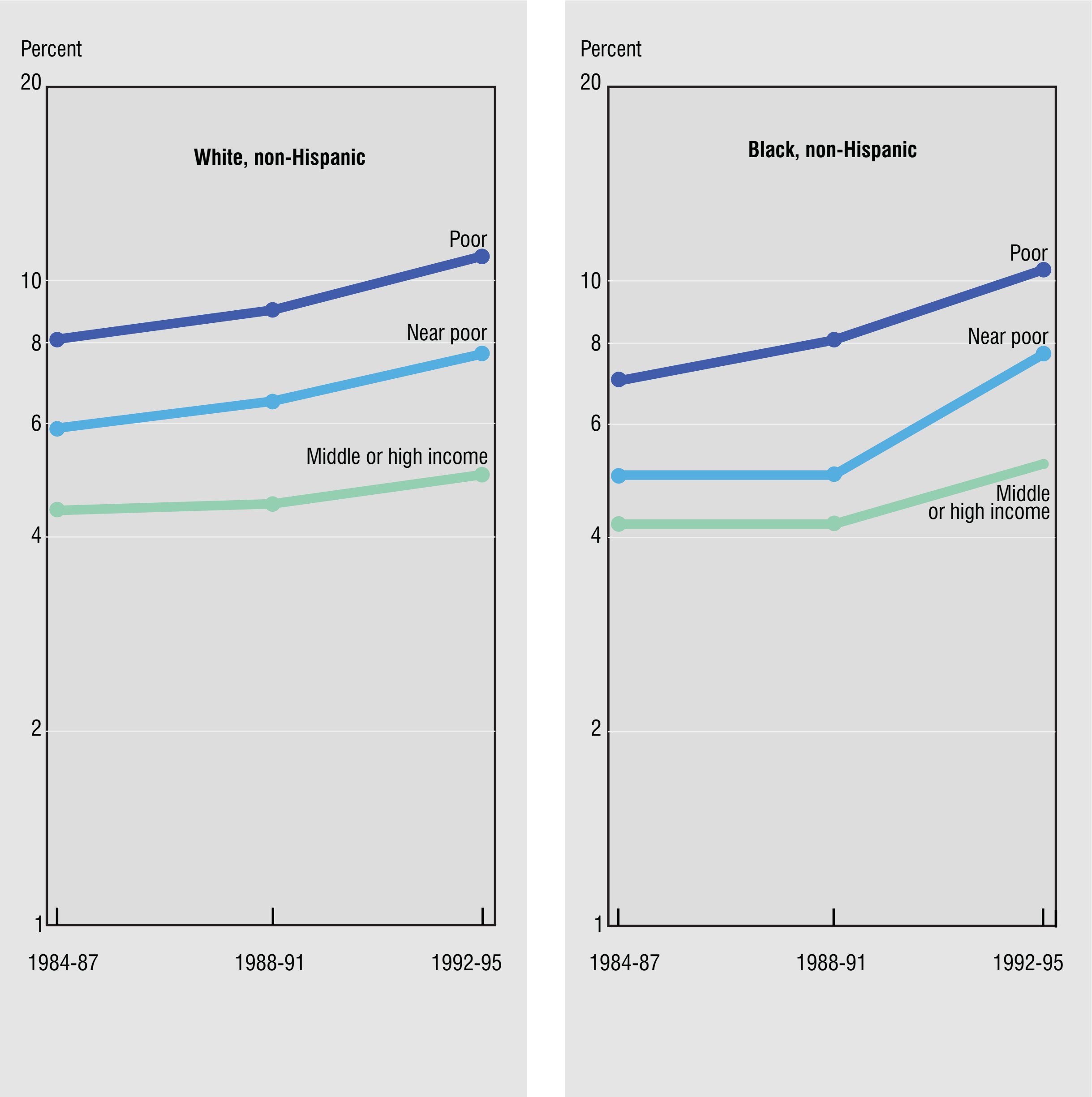


Figure 11. Activity limitation among children under 18 years of age by family income, race, and Hispanic origin: United States, average annual, 1984–87, 1988–91, and 1992–95—Continued



NOTE: See Technical Notes for definitions of activity limitation and family income categories.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1998*, table 60.

Teenage Childbearing

- Teenage childbearing often leads to poor economic and social outcomes for teenage parents and their children. Adolescent mothers are unlikely to attain a high level of education, their relationships with the father are highly unstable, and they are far more likely than other women to live in poverty. Children born to teenagers have higher infant mortality rates, and sequelae continue throughout childhood, including higher rates of abuse and neglect and poorer rates of high school completion.

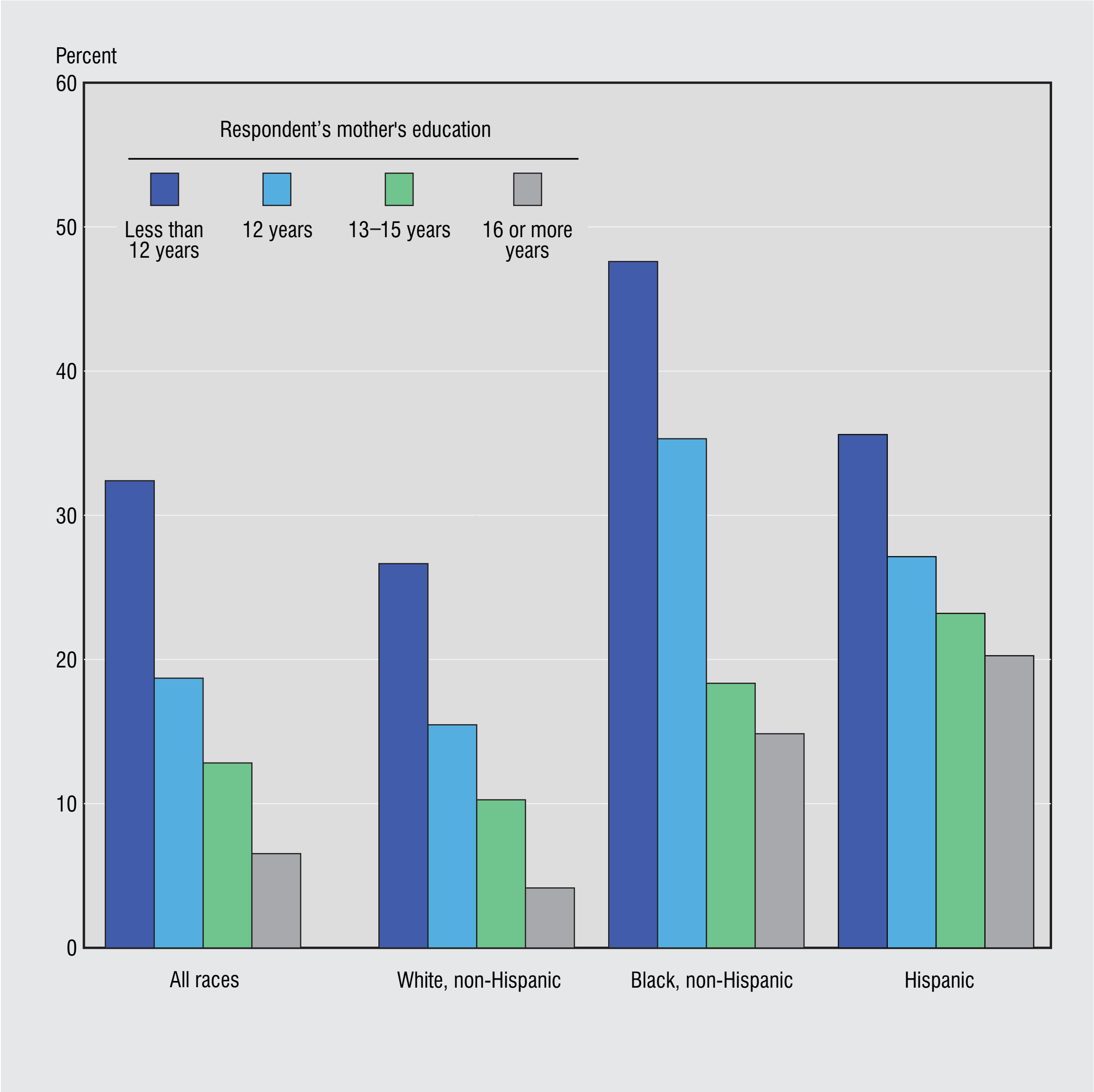
- Almost one out of five women aged 20–29 in 1995 had a first birth before the age of 20. The likelihood of having had a child as a teenager was much higher among women whose own mothers were less educated. Nearly one out of every three women whose mothers had not completed high school began childbearing as an adolescent. The proportion dropped to fewer than one in five among those whose mothers had completed only high school, to 13 percent of women whose mothers had some college, and to 7 percent of women whose mothers had completed college.

- In every race and ethnic group analyzed, there was an inverse relationship between the respondent's mother's education level and the proportion of women who had a teenage birth. Women whose mothers had more education were less likely to have become a teenage parent, no matter what their race or ethnic background, although the magnitude of this disparity differed among the race and ethnic groups.

- The proportion of non-Hispanic white women in their twenties who had their first birth as a teenager declined from more than 1 in 4 among those whose mothers had less than a high school education to less than 1 in 20 among those whose mothers completed college. Among black women, almost one-half of women with the least educated mothers had a teenage birth while about one in seven of those with college-educated mothers had a teenage birth. Hispanic women showed the least disparity; about one-third of women whose mothers were the least educated had a teen birth while one in five daughters of college-educated mothers were teen parents.

- The family income of women in their twenties at the time of the survey suggested that those who had been teen mothers were much worse off economically than those who were not (data not shown). Forty-three percent of women who began childbearing in adolescence were poor in their twenties, while only 16 percent had high incomes in their twenties. Among women in their twenties who had not been teenage mothers, these figures were almost reversed; 13 percent were below the poverty line at the time of the survey and 40 percent were in high-income families.

Figure 12. Percent of women 20–29 years of age who had a teenage birth, by respondent's mother's education and respondent's race and Hispanic origin: United States, 1995



NOTES: Education level is for the infant's maternal grandmother. See Technical Notes for further information.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, 1995 National Survey of Family Growth.

Smoking in Pregnancy

- Infants whose mothers smoke cigarettes during pregnancy are more likely to be born with low birthweight. Other health outcomes associated with maternal smoking include Sudden Infant Death Syndrome (1), pregnancy complications such as placenta previa and abruptio placentae (2), and asthma in childhood (3). The *Healthy People 2000* goal is for no more than 10 percent of mothers to smoke during pregnancy.

- Data from 1996 birth certificates for mothers 20 years of age and older indicated that smoking cigarettes during pregnancy was strongly associated with socioeconomic status among all racial and ethnic groups. In every race and ethnic group, the more education women had, the less likely they were to report smoking during their pregnancy. Overall, non-Hispanic white mothers (16 percent) and American Indian or Alaska Native mothers (21 percent) were most likely to report smoking during their pregnancies, while black mothers had a somewhat lower rate (12 percent), and Hispanic (4 percent) and Asian or Pacific Islander mothers (3 percent) had the lowest rates of smoking.

- Non-Hispanic white mothers with less than a high school education were the most likely of any group to smoke during pregnancy. In 1996 nearly one-half of these women reported smoking during pregnancy, compared with only 3 percent of white mothers with 16 or more years of education. Among American Indian or Alaska Native mothers, the percent who smoked during pregnancy decreased from 32 percent among the least educated to 7 percent among those at the highest level of education. Over one-quarter of black mothers with less than 12 years of education smoked, compared with 3 percent among those with 16 or more years of education. Among Hispanic and Asian or Pacific Islander mothers, smoking during pregnancy was rare but an education gradient was still apparent. The proportion varied from 5 percent at the lowest education level to 1 percent at the highest education level for both Asian or Pacific Islander and Hispanic mothers.

- Among Hispanic subgroups, more educated Puerto Rican and Cuban American mothers were less likely to smoke during pregnancy, but Mexican and Central and South American mothers did not show a strong gradient; their smoking rates were very low at all levels of education. Among Asian or Pacific Islander mothers, data suggested a strong negative relationship between education and smoking for Hawaiian, Filipino, and Japanese American mothers, but Chinese American mothers were very unlikely to smoke at all levels of education.

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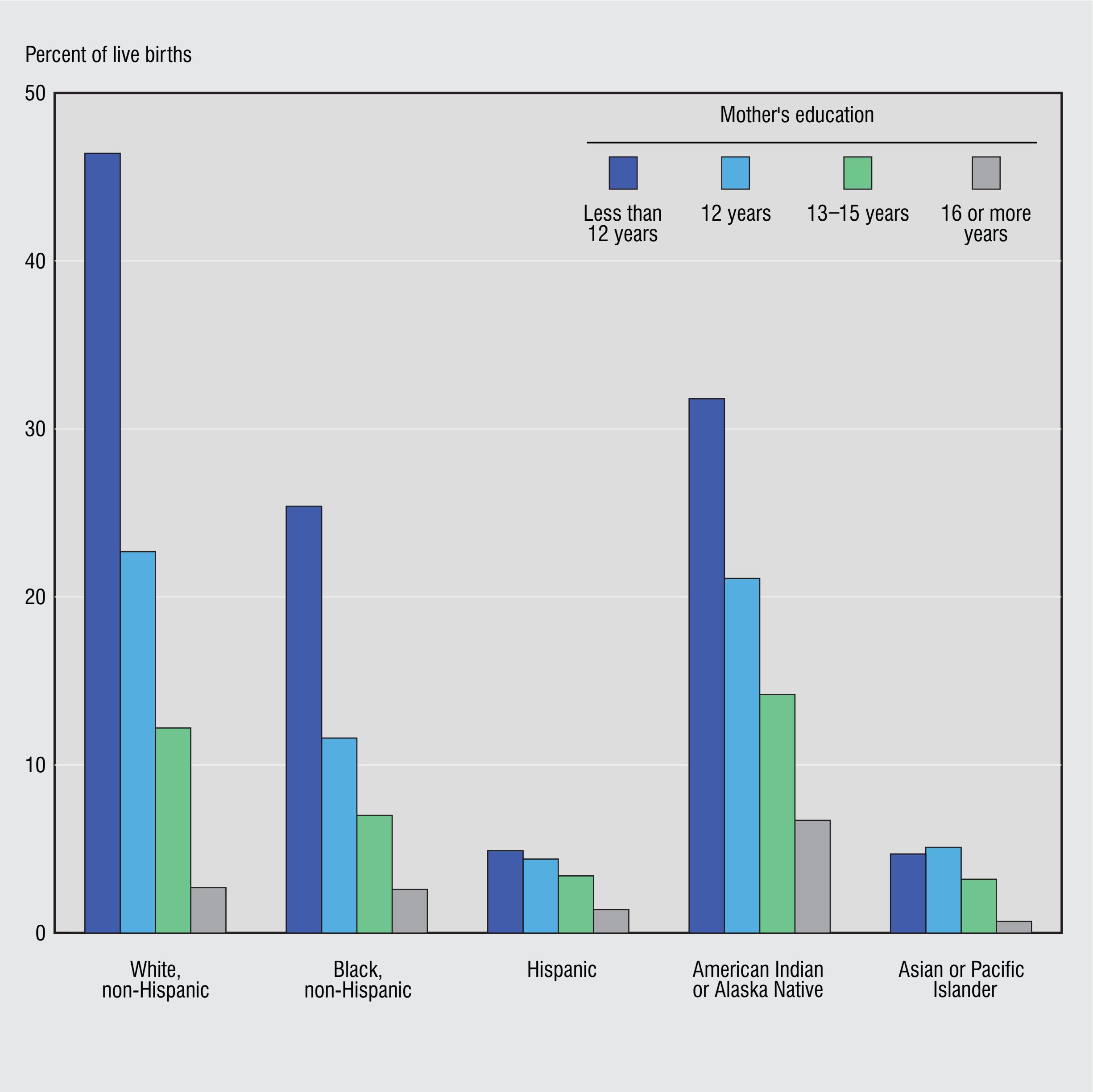
3. Oliveti JF. Pre- and perinatal risk factors for asthma in inner city African-American children. Am J Epidemiol 143(6): 570–577. 1996.

Figure 13. Cigarette smoking during pregnancy among mothers 20 years of age and over by mother's education, race, and Hispanic origin: United States, 1996



SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. See related *Health, United States, 1998*, table 10.

Blood Lead

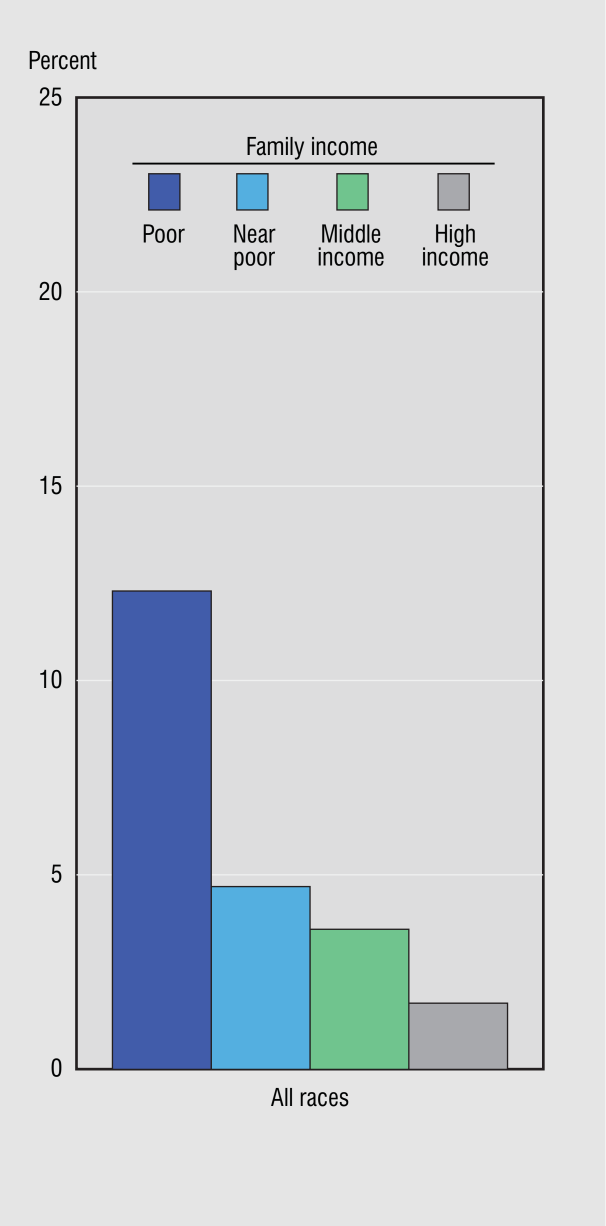
- Lead is dangerous for small children because it can lead to lowered intelligence (1). Elevated blood lead among children in the United States most often results from residence in an older house that has lead paint, which may flake or peel, causing lead dust to be distributed in the house. Young children may eat paint chips or inadvertently take in lead by tasting dusty objects.

- Data presented here are drawn from the Third National Health and Nutrition Examination Survey. In general, children 1 to 5 years of age who lived in families with lower socioeconomic status had a greater likelihood of having a high blood lead level (defined as a level of blood lead at or above 10 µg/dL). About 12 percent of children living in poor families had an elevated lead level, compared with about 2 percent of children in high-income families. There was a clear income-related gradient in the prevalence of high blood lead levels; each increase in family income level was associated with a decline in the proportion of children with elevated blood lead.

- The income-associated gradient in the prevalence of high blood lead levels was seen in each of the race and ethnic groups examined. The gradient was strongest for non-Hispanic black children; 22 percent of black children in families below poverty had an elevated blood lead level, compared with only 6 percent in high-income families.

- In each income group, black children were more likely than children of other race and ethnic groups to have an elevated blood lead level. Among children living in households below the poverty line, black children were 2.7 times as likely as non-Hispanic white children and 3.4 times as likely as Mexican American children to have an elevated blood lead level.

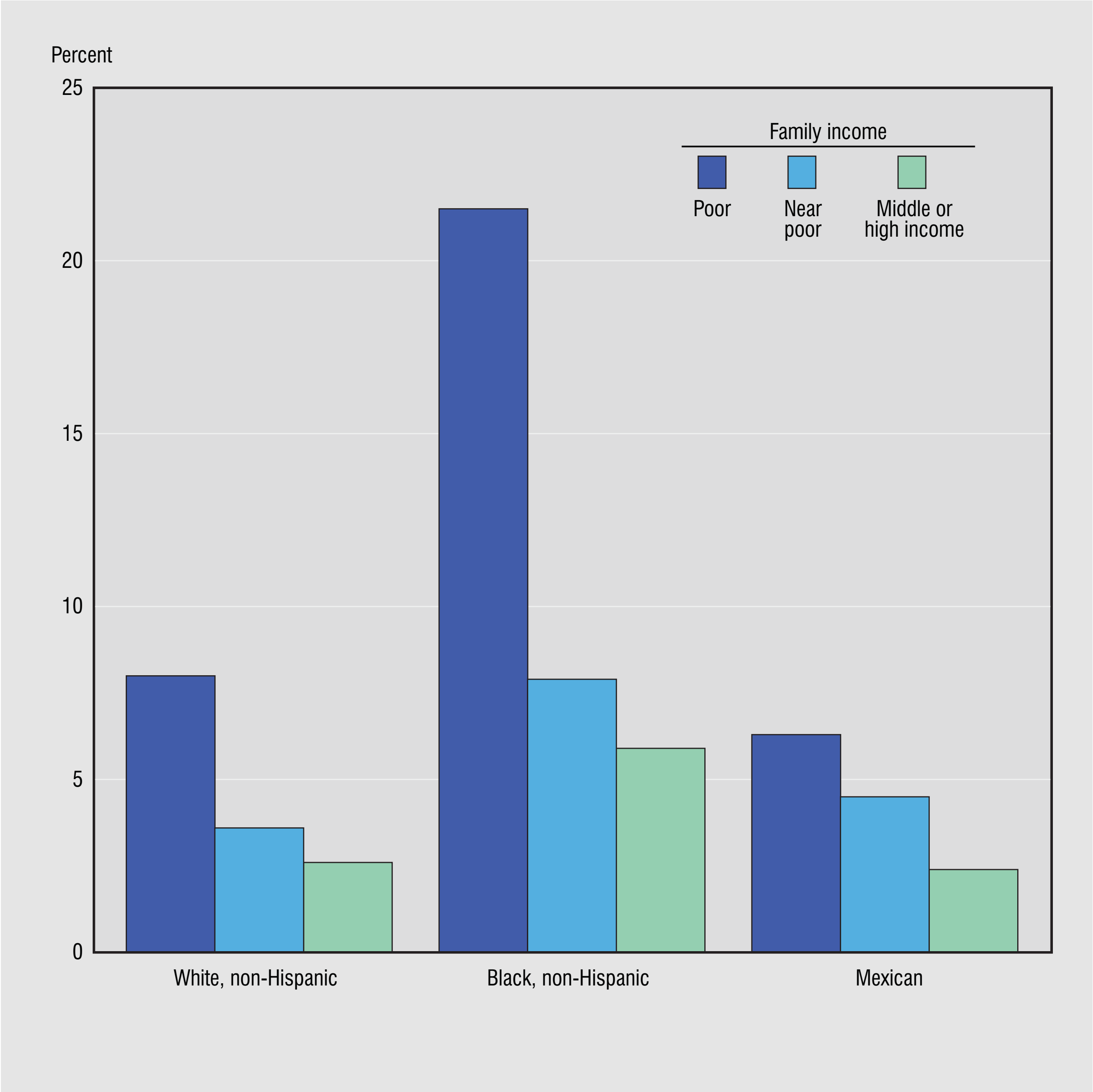
Figure 14. Elevated blood lead among children 1–5 years of age by family income, race, and Hispanic origin: United States, average annual 1988–94



Reference

1. Pocock SJ, Smith M, Baghurst P. Environmental lead and children's intelligence: A systematic review of the epidemiological evidence. BMJ 309:1189–97. 1994.

Figure 14. Elevated blood lead among children 1–5 years of age by family income, race, and Hispanic origin: United States, average annual 1988–94—Continued



NOTES: Elevated blood lead was defined as having at least 10 micrograms of lead per deciliter of blood. See Technical Notes for definition of family income categories.

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

Cigarette Smoking

- Adolescence is the most common time to take up cigarette smoking, which kills about 400,000 people in the United States every year. Each day, about 3,000 teenagers become daily smokers (1). Smoking may lead to heart disease, lung or other forms of cancer, bronchitis and emphysema (also known as chronic obstructive pulmonary disease), and other health problems. The *Healthy People 2000* goal is for no more than 6 percent of adolescents 12–17 to have smoked in the past month.

- In 1992 about one in five adolescents age 12–17 years said they were current cigarette smokers. When all race and ethnic groups were examined together, there was no clear socioeconomic trend in smoking: teenagers in low-income households were about equally likely to smoke as those in higher income households. Boys and girls were also about equally likely to smoke.

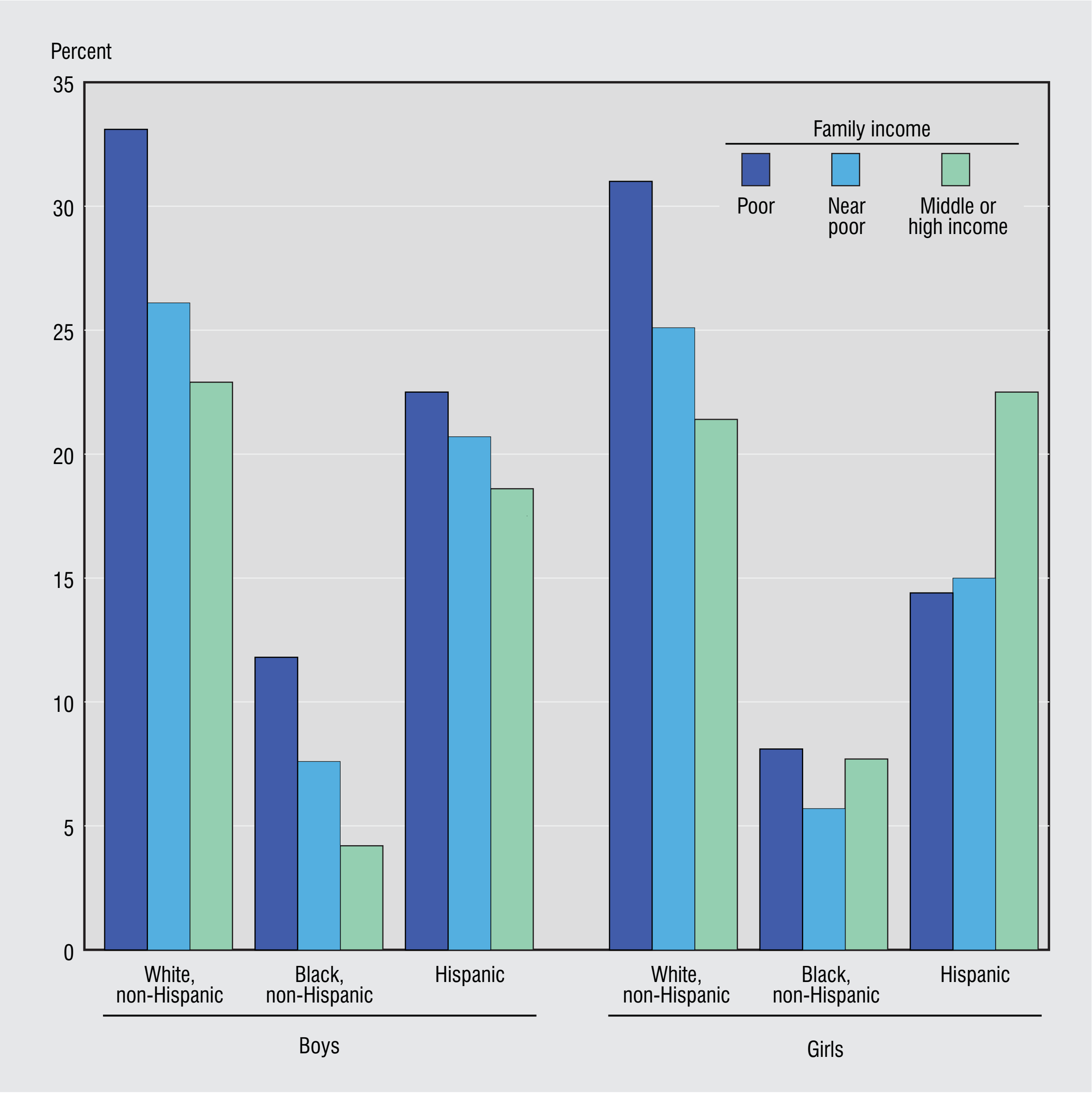
- However, a breakdown by race and ethnicity demonstrated that socioeconomic gradients in smoking did exist. In each race and ethnic group, the prevalence of smoking among adolescent boys was lower in households with higher incomes. In every income category, non-Hispanic white boys had higher rates of smoking than boys of any other race or ethnic background. Among teenagers in poor families, white teen boys were 2.8 times as likely as black teen boys to smoke and 1.5 times as likely as Hispanic teen boys. Among adolescents in higher income households, white teen males were over five times as likely to smoke as black teen males and slightly more likely than Hispanic teen males.

- Among adolescent girls the socioeconomic patterns were less consistent. Non-Hispanic white teen girls had a similar trend to the boys, with higher income girls less likely to smoke. However, in Hispanic teen girls the pattern was reversed with higher income girls more likely to smoke. Among black teen girls there appeared to be little difference in smoking rates by income group. Smoking rates among black adolescents were uniformly lower than the rates in any other race or ethnic group. Almost 1 in 3 poor white, but fewer than 1 in 12 poor black adolescent girls, was a smoker in 1992. About one in five middle- or high-income white and Hispanic teen girls smoked, but only 8 percent of black teen girls in this income group smoked.

Reference

1. Centers for Disease Control and Prevention. The great American smokeout–November 21, 1996. MMWR 45(44): 961. 1996.

Figure 15. Cigarette smoking among adolescents 12–17 years of age by family income, race, and Hispanic origin: United States, 1992



NOTES: Smoking is defined as any smoking in the past month. Percents are age adjusted. See Technical notes for definition of family income categories and age adjustment procedure.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, Youth Risk Behavior Survey, 1992.

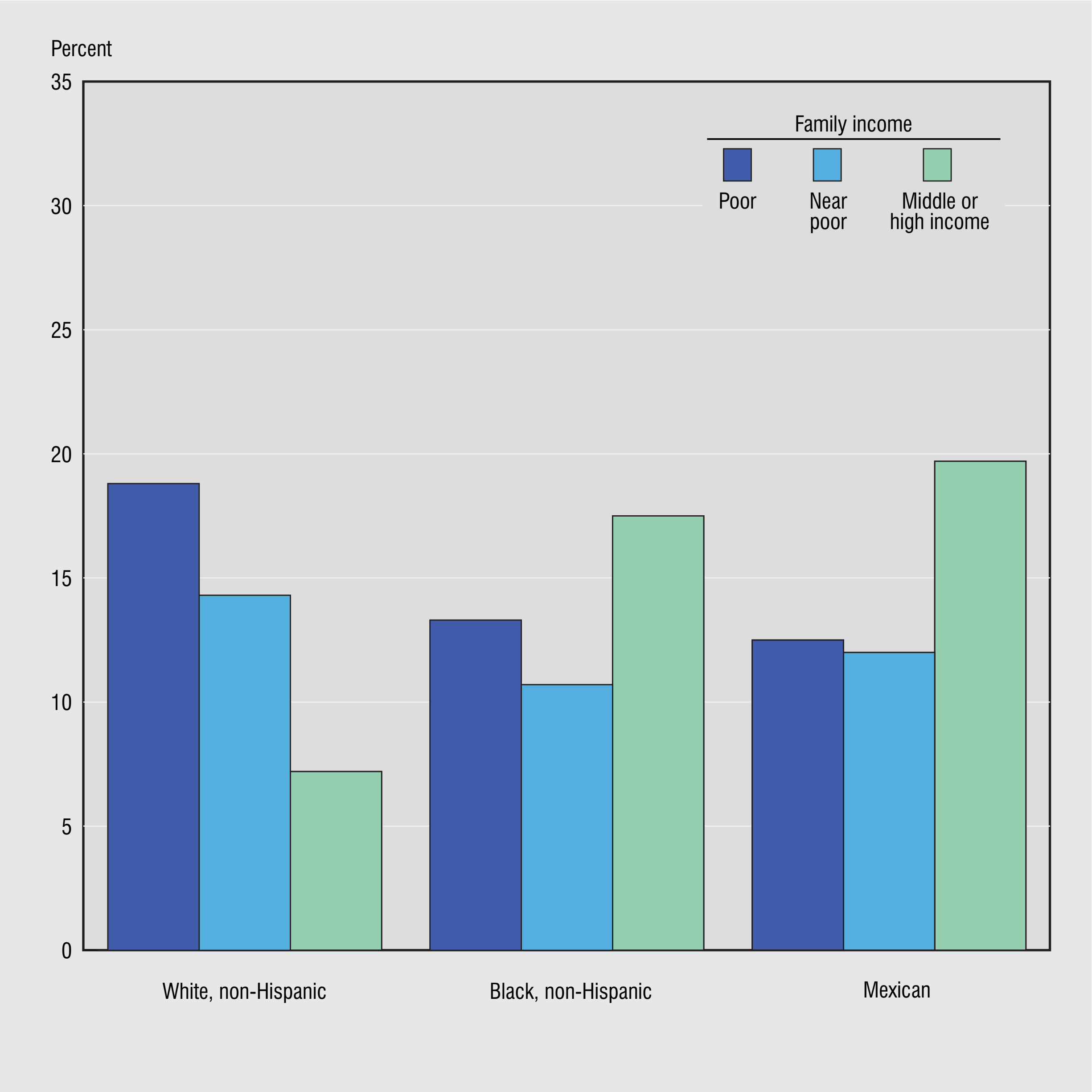
Overweight

- Overweight in adolescence is associated with overweight in adulthood. Excessive weight for height is a risk factor for heart disease, several forms of cancer, diabetes, and other health problems (1).
- Data from the third National Health and Nutrition Examination Survey suggested that among adolescents 12–17 years of age during 1988–94, socioeconomic status was closely related to the prevalence of overweight in some race and ethnic groups. Overall, adolescents in higher income households were less likely to be overweight than those in poorer households. Among adolescents in middle- or high-income households, 9 percent were overweight, compared with 17 percent in poor households.
- Despite the apparent socioeconomic gradient in overweight, only non-Hispanic white adolescents exhibited an association between overweight and socioeconomic status. Poor white adolescents were about 2.6 times as likely to be overweight as those in middle- or high-income families, and adolescents with near-poor family income had an intermediate prevalence.
- Among black and Mexican-origin adolescents, there was no such trend. Adolescents in these groups had lower rates of overweight if they were poor than if they were in middle- or high-income households. The highest rates of overweight were found among Mexican American adolescents whose families were middle- or high-income; about one in five of these teens were overweight. The lowest rates were in middle- or high-income white teens, 7 percent of whom were overweight.

Reference

1. Troiano RP, Flegal KM, Kuczmarski RJ, Campbell SM, Johnson CL. Overweight prevalence and trends for children and adolescents. The National Health and Nutrition Examination Surveys, 1963 to 1991. Arch Pediatr Adolesc Med 149(10):1085–91. 1995.

Figure 16. Overweight among adolescents 12–17 years of age by family income, race, and Hispanic origin: United States, average annual 1988–94



NOTES: Overweight was defined for adolescents by the sex-specific 95th percentile of weight for height and age in the National Health Examination Survey, 1966–70. Percents are age adjusted. See Technical Notes for definition of family income categories, age adjustment, and for more information on classifying overweight.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Third National Health and Nutrition Examination Survey. See related *Health, United States, 1998*, table 71.

Sedentary Lifestyle

- Sedentary lifestyle, or the lack of physical activity, is a risk factor for several chronic diseases, including heart disease, stroke, diabetes, and certain forms of cancer. Physical activity has been shown to improve mental health and is important for the health of muscles, bones and joints. Lack of physical activity contributes to obesity. Participation in all forms of physical activity declines dramatically during adolescence (1). *Healthy People 2000* sets a goal of no more than 15 percent of individuals 6 years of age and over to have a sedentary lifestyle.

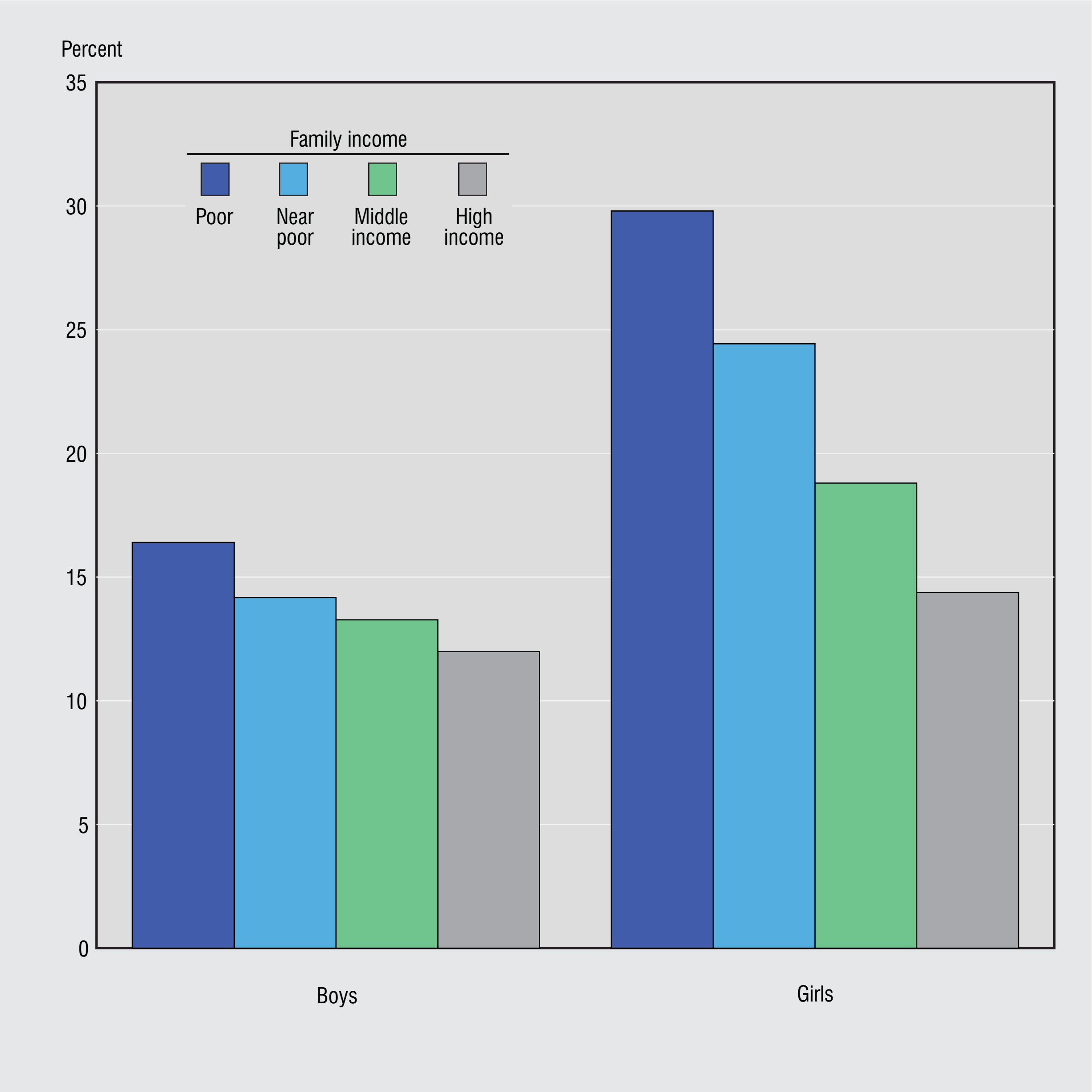
- Data from the Youth Risk Behavioral Survey showed that females 12–17 years of age in lower income households were more likely to be sedentary than those in higher-income households. Among male adolescents, there was less socioeconomic variation. Poor females were over twice as likely as high-income females to be sedentary, while poor males were 1.4 times as likely as high-income males to be sedentary.

- In every income group, girls were more likely than boys to say they were sedentary during the past week. However, the differences between boys and girls also varied with socioeconomic status. The sex differential appeared primarily among lower income youth; poor and near-poor girls were 1.7–1.8 times as likely to be sedentary as poor or near-poor boys, while girls and boys in high-income families had nearly equal rates of inactivity.

Reference

1. U.S. Department of Health and Human Services. Physical activity and health: A report of the Surgeon General. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. 1996.

Figure 17. Sedentary lifestyle among adolescents 12–17 years of age by family income and sex: United States, 1992



NOTES: Percents are age adjusted. See Technical Notes for definition of family income categories, sedentary lifestyle, and age adjustment procedure.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, Youth Risk Behavior Survey, 1992.

Prenatal Care

- Pregnant women are encouraged to obtain regular prenatal care beginning in the first trimester of pregnancy to help ensure a healthy pregnancy and birth. The *Healthy People 2000* goal is for 90 percent of pregnant women to obtain first-trimester prenatal care. Expansion of the Medicaid program to cover pregnant women with incomes up to 185 percent of poverty improved access to prenatal care in some States (1).

- After declining slightly during the 1980's, prenatal care attendance rates increased steadily if slowly during the 1990's.

- Prenatal care utilization is directly associated with education level. Pregnant women who have more education are more likely to start prenatal care early and to have more visits. Throughout the period 1980–96, rates of early prenatal care use among mothers at least 20 years of age were higher among those with more education.

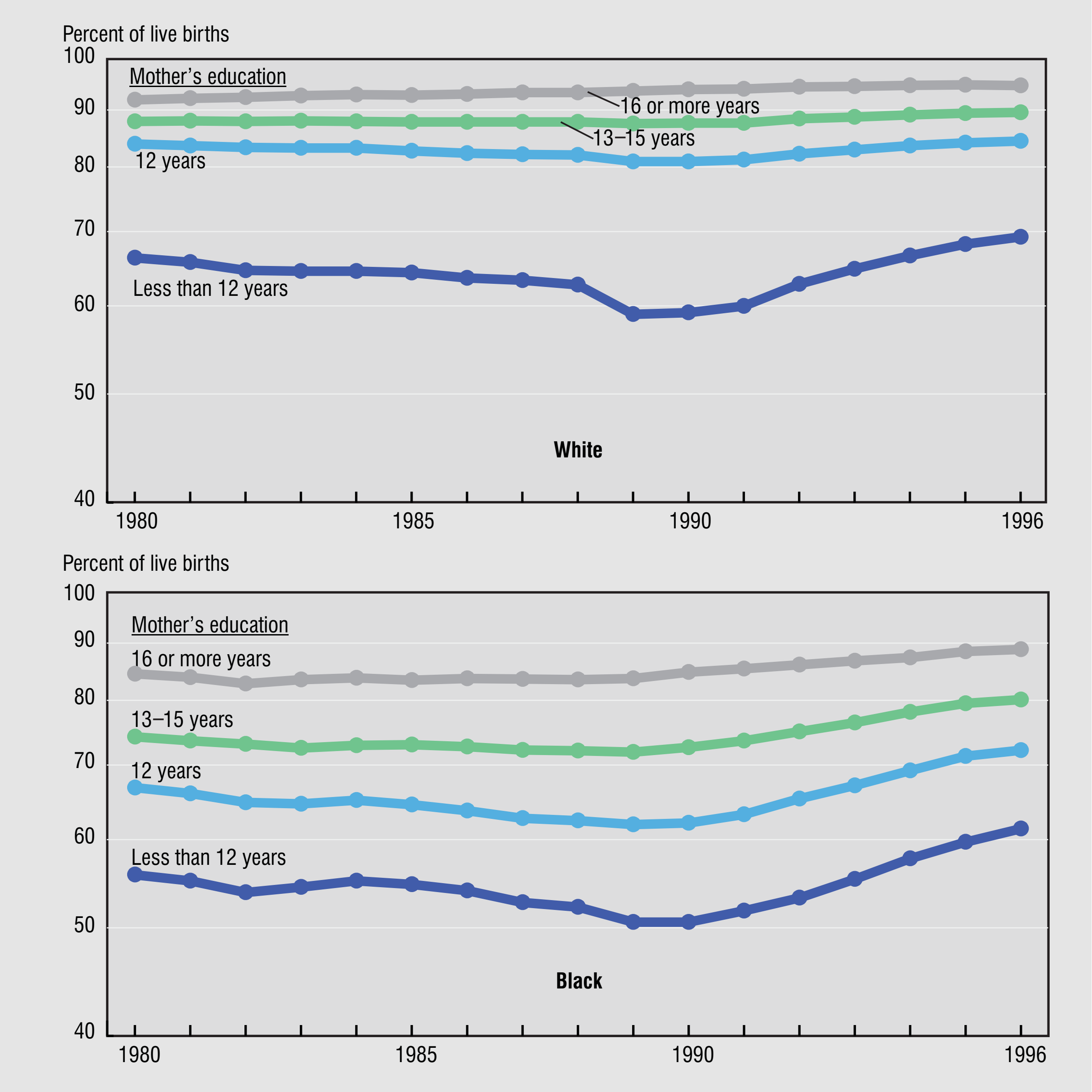
- Among white mothers, there was little change in rates of prenatal care use between 1980 and 1996 except among mothers with fewer than 13 years of education; prenatal care use among white mothers who had not finished high school declined until 1990, when it began to rise again and in 1994 attained the level achieved in 1980. White mothers with 12 years of education evidenced a similar though more moderate pattern. Those with 16 or more years of education had rates that rose throughout the period, resulting in a 3-percent increase in prenatal care use by 1995; among mothers with some college, rates changed relatively little during the time period with less than a 2 percent increase in usage overall. In both 1980 and 1996 white mothers with at least 16 years of education were 1.4 times as likely to have early prenatal care as those with fewer than 12 years of education.

- Black mothers' rates in each education group tended to be lower than the rates among white mothers, but their early prenatal attendance rates increased more rapidly in the 1990's than white mothers' rates. Particularly among those without any college education, rates declined until 1990 and then increased again to surpass the 1980 levels. By 1989 only about one-half of black mothers with fewer than 12 years of education received first-trimester prenatal care. However, between 1990 and 1996 these mothers' rates rose rapidly, so that about 61 percent received early prenatal care in 1996. Similar changes were seen among mothers with 12 years of education, while those with 13–15 and 16 or more years of education experienced slower increases. In 1996 black mothers with 16 or more years of education were about 1.4 times as likely to receive early prenatal care as those with fewer than 12 years of education.

Reference

1. Ray WA. Effect of Medicaid expansions on preterm birth. Am J Prev Med 13(4): 292–7. 1997.

Figure 18. Prenatal care use in the first trimester among mothers 20 years of age and over by mother's education and race: United States, 1980–96



SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. See related *Health, United States, 1998*, table 6.

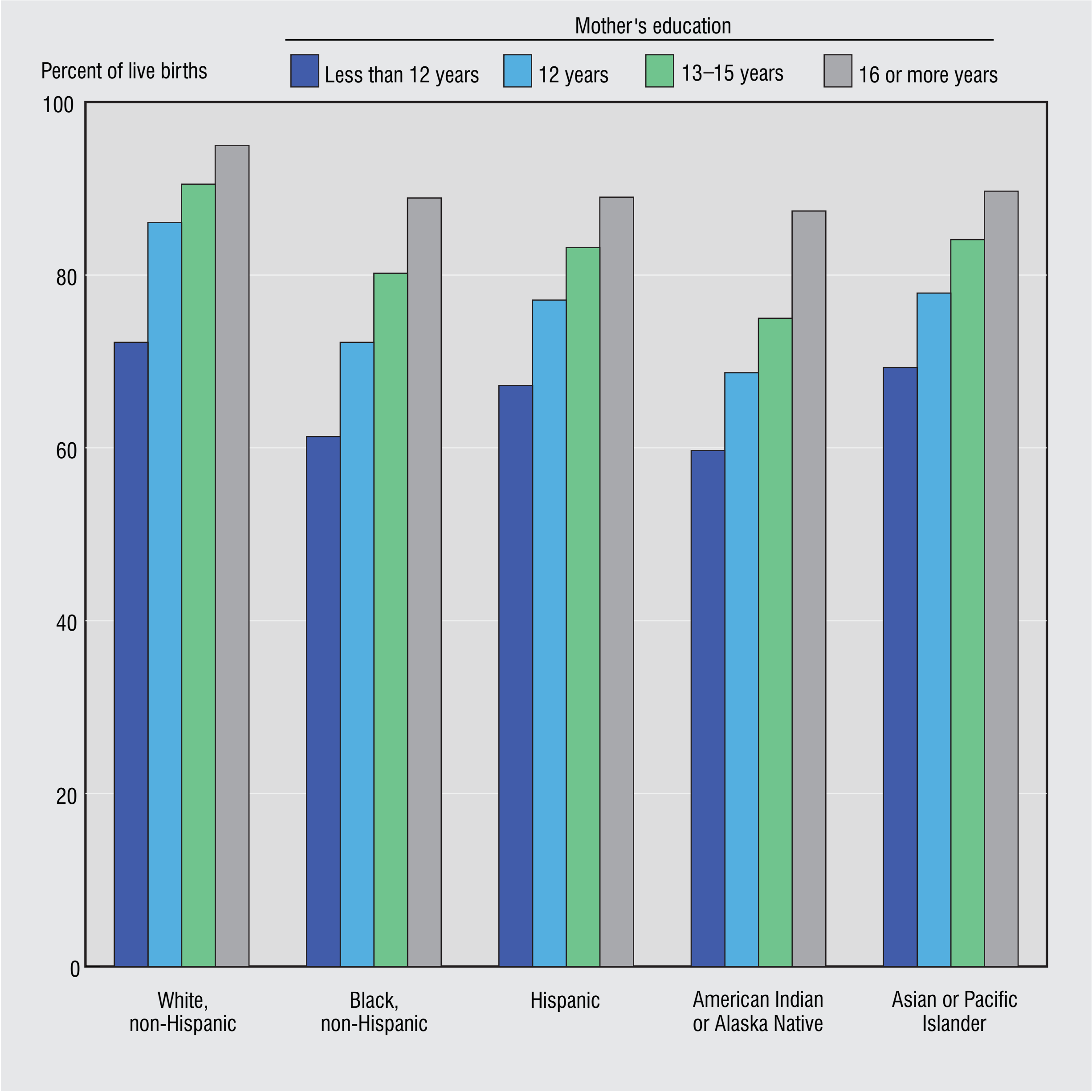
Prenatal Care

- In 1996, 82 percent of mothers received early (first trimester) prenatal care, though there was substantial variation among racial and ethnic groups. Japanese and Cuban American mothers were the most likely to obtain early prenatal care in 1996 (89 percent), while American Indian or Alaska Native mothers were the least likely (68 percent).

- In 1996 there was a clear socioeconomic gradient among mothers 20 years of age and over in use of early prenatal care. In every race and ethnic group, mothers with more education were more likely to receive early prenatal care; overall, the most educated mothers (those with at least 16 years of education) were 1.4 times as likely to receive early prenatal care as the least educated mothers (those with fewer than 12 years of education).

- Among non-Hispanic white, Hispanic, and Asian or Pacific Islander mothers, the most educated were 1.3 times as likely to have early prenatal care as the least educated. The most educated black and American Indian or Alaska Native mothers were 1.5 times as likely to receive early care as the least educated. White mothers with at least 13 years of education have achieved the *Healthy People 2000* goal of 90 percent or more first trimester prenatal care attendance; rates were above 87 percent among the most educated mothers of all other racial and ethnic groups, but substantially lower among less educated mothers.

Figure 19. Prenatal care use in the first trimester among mothers 20 years of age and over by mother's education, race, and Hispanic origin: United States, 1996



SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System. See related *Health, United States, 1998*, table 6.

Health Insurance

- Health insurance coverage is an important component of financial access to health care. Children without health insurance coverage are less likely to have a usual source of health care and are more likely to delay or not receive care when it is needed (1). The *Healthy People 2000* goal is for no one to be without health insurance.

- In 1995, 14 percent of children under age 18 had no health insurance coverage during the month prior to interview in the National Health Interview Survey, while 21 percent had Medicaid or public assistance coverage, and 66 percent had private coverage (see *Health, United States, 1998*, table 133). Between 1989 and 1995 the proportion of children covered by Medicaid increased by more than 60 percent, primarily due to State expansions in Medicaid eligibility for children, while the proportion of children with private coverage declined by 8 percent, and the percent with no coverage remained fairly stable.

- The percent of children who are uninsured is strongly associated with family income. Overall, in 1994–95 poor and near-poor children were more than five times as likely as those with high family income to be uninsured.

- Family income is a strong predictor of insurance coverage, regardless of race and ethnicity. Poor white children were six times as likely as those with high incomes to be uninsured. Among black and Hispanic children those with near-poor family income were somewhat more likely to be uninsured than poor children. Near-poor black children were 3.2 times as likely as high- income black children to be uninsured and near-poor Hispanic children were 4.5 times as likely as high-income Hispanic children to be uninsured.

- Poor Hispanic children were twice as likely as poor black children to be uninsured and near-poor Hispanic children were almost 80 percent more likely than near-poor black children to be uninsured, due in large part to lower rates of Medicaid coverage among Hispanic than black children.

Reference

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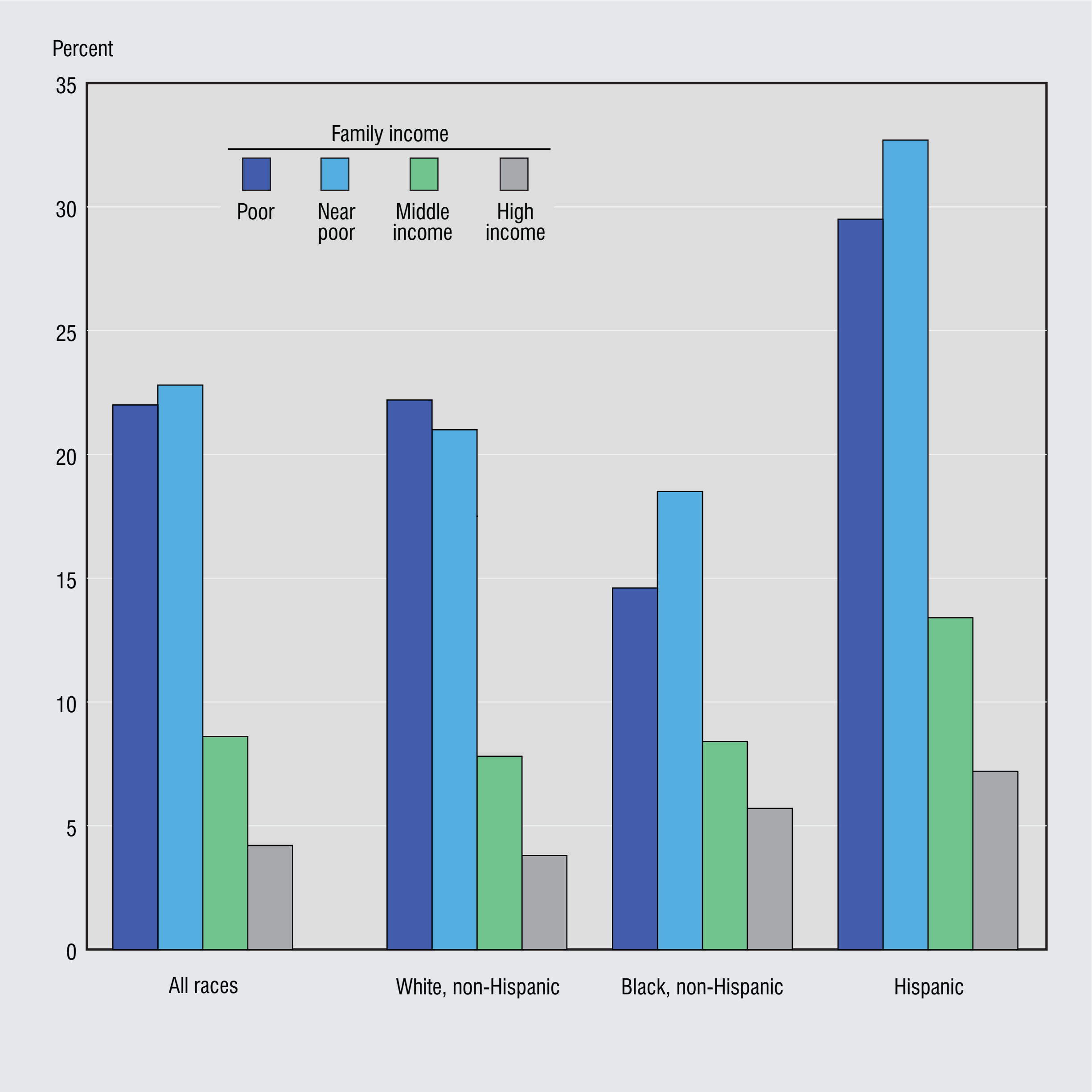
Figure 20. Percent of children under 18 years of age with no health insurance coverage by family income, race, and Hispanic origin: United States, average annual 1994–95



NOTE: See Technical Notes for definitions of the uninsured and family income categories.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1998*, table 133.

Vaccinations

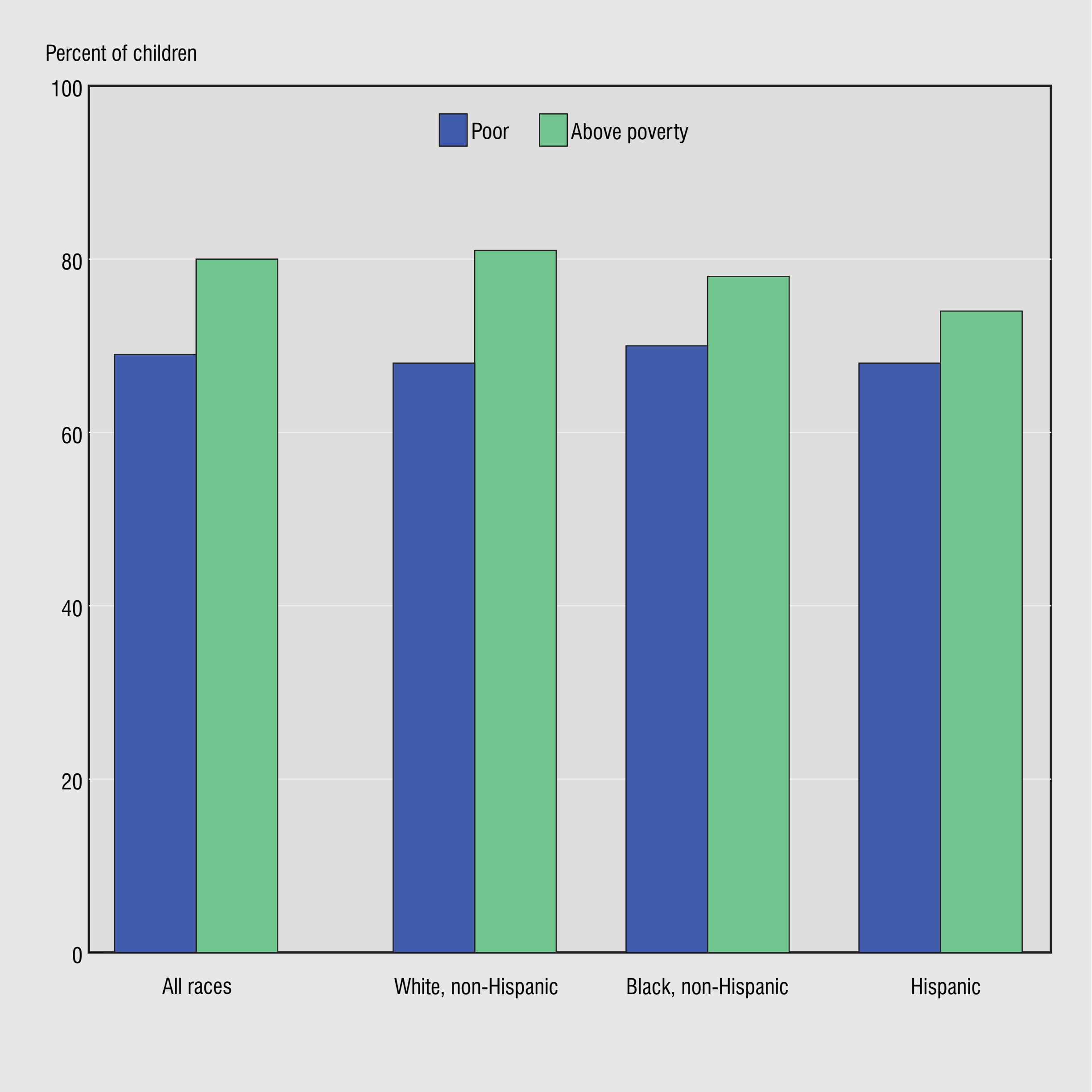
- Timely vaccination protects children from life-threatening and disabling diseases. In 1996 over three-quarters (77 percent) of children ages 19–35 months received the combined series of recommended vaccines consisting of 4 doses of diphtheria, tetanus, and pertussis (DTP) vaccine, 3 doses of polio vaccine, 1 dose of measles-containing vaccine, and 3 doses of *Haemophilus influenzae* type b (Hib) vaccine. The *Healthy People 2000* goal is for 90 percent of children under 2 years of age to have received the recommended immunization series.

- Children with family incomes below the poverty level were less likely to receive the combined series than children with family incomes at or above the poverty level (69 percent compared with 80 percent).

- Non-Hispanic white, black, and Hispanic children whose families were not poor were slightly more likely to be fully vaccinated than those in poor families. Poor white, black, and Hispanic children had similar levels of vaccine coverage, with 68–70 percent having a full series of vaccines. Among those in families above the poverty line, non-Hispanic white children were slightly more likely to be fully vaccinated than Hispanic children; black children had an intermediate level of vaccination.

- In 1996 about 92 percent of children living in families at or above the poverty level were fully vaccinated with polio, Hib, and a measles-containing vaccine (data not shown). About 88 percent of poor children were vaccinated for these diseases. About 84 percent of children in nonpoor families were fully vaccinated for DTP (4 or more doses) and Hepatitis B (3 or more doses). Among children in poor families, 73 percent were vaccinated for DTP and 78 percent for Hepatitis B.

Figure 21. **Vaccinations among children 19–35 months of age by poverty status, race, and Hispanic origin: United States, 1996**



NOTES: Vaccinations included in the full series are 4 doses of diphtheria-tetanus-pertussis (DTP) vaccine, 3 doses of polio vaccine, 1 dose of a measles-containing vaccine, and 3 doses of *Haemophilus influenzae* type b (Hib) vaccine. See Technical Notes for definition of poverty status.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics and National Immunization Program, National Immunization Survey. See related *Health, United States, 1998*, table 52.

No Physician Contact

- All children under age 6 should have at least one physician visit each year to assess the child's growth and development and to ensure that vaccinations are up to date. The proportion of young children who have visited a physician at least once in the previous year varies with family income and health insurance coverage.
- In 1994–95 the percent of young children without a recent physician visit declined with increasing income. Near poor and poor children were 2.5–2.7 times as likely to lack a recent physician visit as high-income children. Eleven percent of poor children and 10 percent of near-poor children lacked a physician visit within the past year compared with 4 percent of high-income children.
- Within each income group the percent of young children without a recent physician visit did not vary by race and ethnicity. In each of the three race and ethnic groups shown, the percent of young children without a recent physician visit declined with increasing income and 11 percent of poor children within each group did not have a recent physician visit.
- Within each income group the percent without a recent visit was greater for uninsured than insured children. Poor children without health insurance coverage were 2.8 times as likely to lack a recent physician visit as poor children with health insurance.
- Among uninsured children the percent without a recent visit ranged from 12 percent for those with middle or high incomes to 23 percent for poor children. Lacking a recent physician visit was less common among insured children at each income level and ranged from 5 percent of those with middle or high incomes to 8–9 percent of the poor and near poor.

Figure 22. Percent of children under 6 years of age with no physician contact during the past year by family income, health insurance status, race, and Hispanic origin: United States, average annual 1994–95

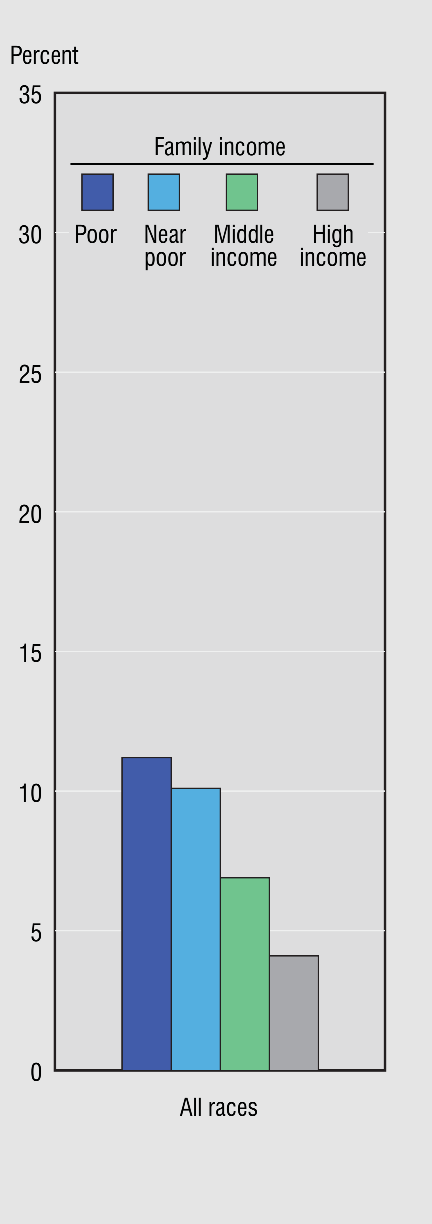
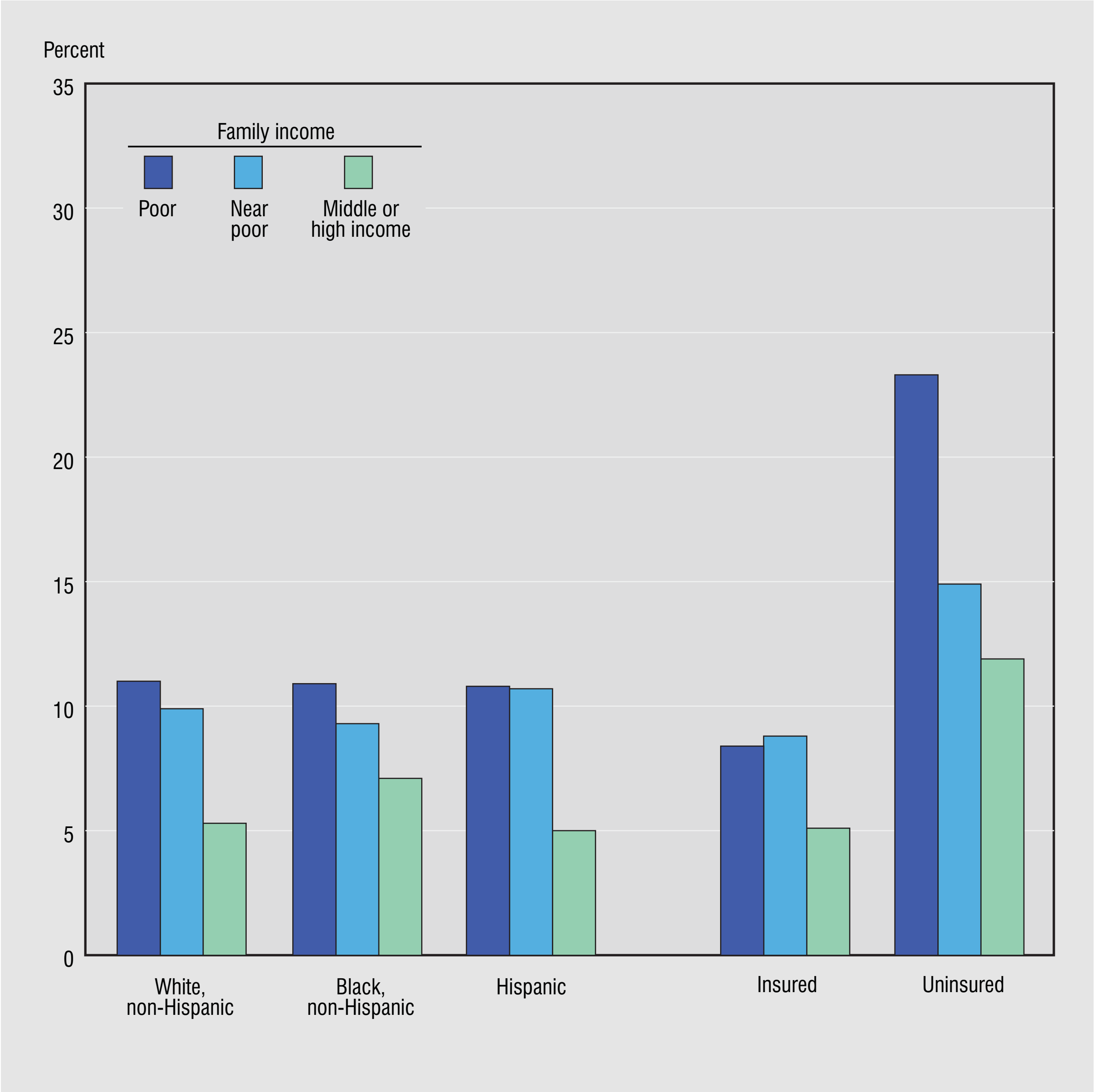


Figure 22. Percent of children under 6 years of age with no physician contact during the past year by family income, health insurance status, race, and Hispanic origin: United States, average annual 1994–95—Continued



NOTES: See Technical Notes for definitions of the uninsured and family income categories.
SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1998*, table 78.

Ambulatory Care

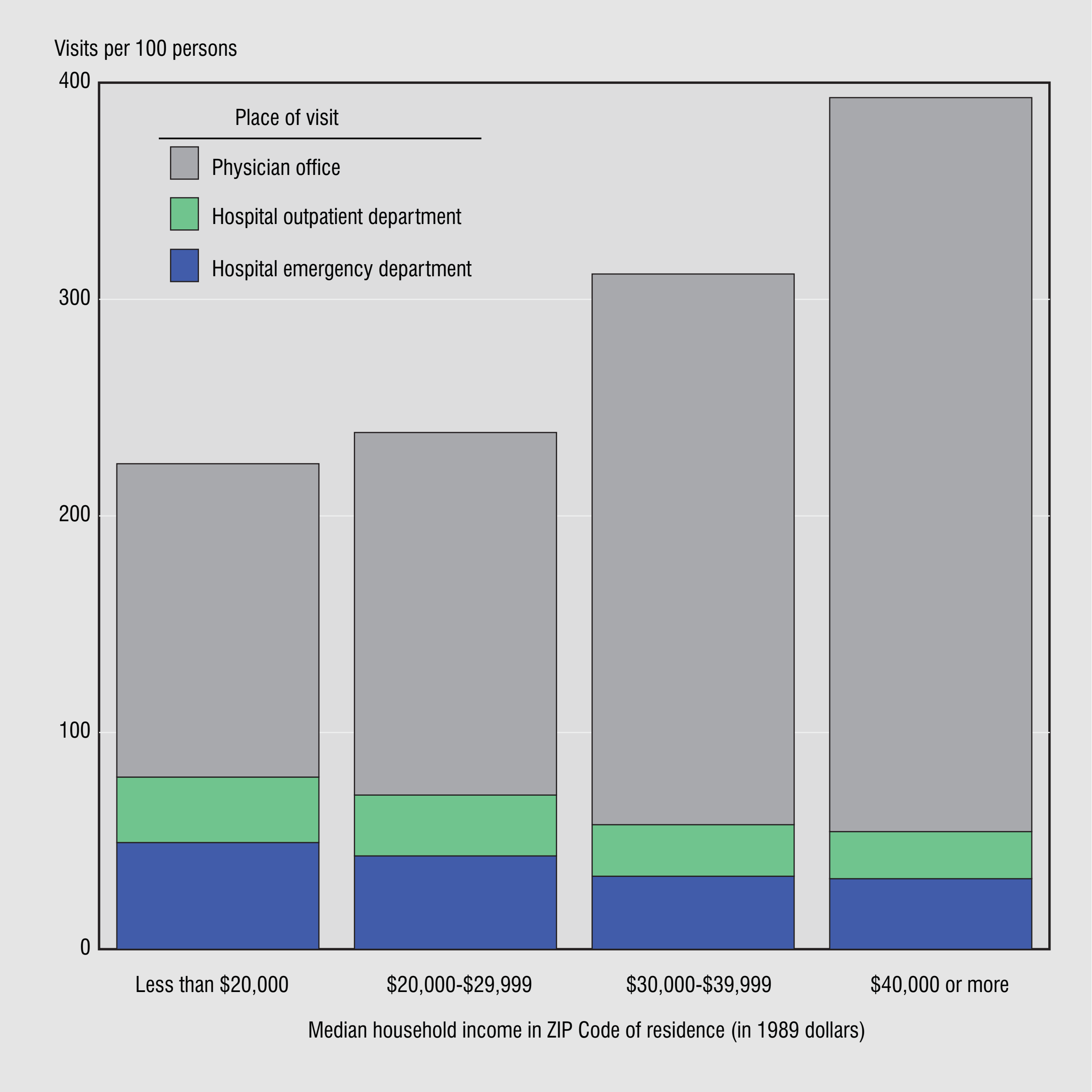
- In 1995 ambulatory care utilization among children who resided in areas with a median income of $40,000 or more was 65–75 percent higher than for children who resided in areas with a median income below $30,000.

- There was a particularly strong income gradient in the use of ambulatory care in physician offices. Children who resided in the highest-income areas had more than twice as many visits as those residing in areas with a median income of less than $20,000 (339 and 145 visits per 100 children, respectively).

- In contrast to physician offices, the use of ambulatory care in hospital settings (emergency departments and outpatient departments) was almost 50 percent higher for children residing in the lowest-income areas (median income below $20,000) than for those in the highest income areas (79 and 54 visits per 100 children, respectively).

- The distribution of the place of ambulatory care visits for children varies substantially by median income of the patient's area of residence. In 1995, 22 percent of visits by children residing in the lowest income areas were to hospital emergency departments, compared with only 8 percent of visits by children in the highest income areas. Hospital outpatient departments accounted for 13 percent of visits by children residing in the lowest income areas and only 6 percent of visits by children in the highest income areas. In contrast, 86 percent of visits by children in the highest income areas took place in physician offices while 65 percent of visits by children residing in the lowest income areas occurred in physician offices.

Figure 23. Ambulatory care visits among children under 18 years of age by median household income in ZIP Code of residence and place of visit: United States, 1995



NOTES: Median income is for persons who resided in the ZIP Code area in 1990. See Technical Notes for methods.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, 1995 National Ambulatory Medical Care Survey and 1995 National Hospital Ambulatory Medical Care Survey. Bureau of the Census, 1990 decennial Census.

Asthma Hospitalization

- Access to and utilization of appropriate medical care can prevent severe episodes of asthma in many cases. Hospitalization for asthma may indicate that the child has not had adequate outpatient management for the disease. Research suggests that asthma, which is the most common chronic disease in childhood, may be increasing in the United States (1,2). The *Healthy People 2000* goal is for no more than 2.25 asthma hospitalizations per 1,000 population for children 0–14 years of age. White, but not black, children in each socioeconomic group attained the goal by 1989–91.

- Data presented here were for hospitalizations in 1989–91 and were categorized by the median family income in the child's ZIP Code in 1990. There was an inverse relationship between median income and hospital admission rates for asthma among children 1–14 years of age. Children living in communities with a median family income below $20,000 were 2.4 times as likely to be hospitalized with asthma as those living in neighborhoods with an income of at least $40,000.

- Asthma hospitalization rates were higher among black children than among white children. Black children had a rate 3.3 times that of white children, and the hospitalization rates of black children were higher than those of white children in each neighborhood income group. Racial disparities were similar within neighborhood income groups.

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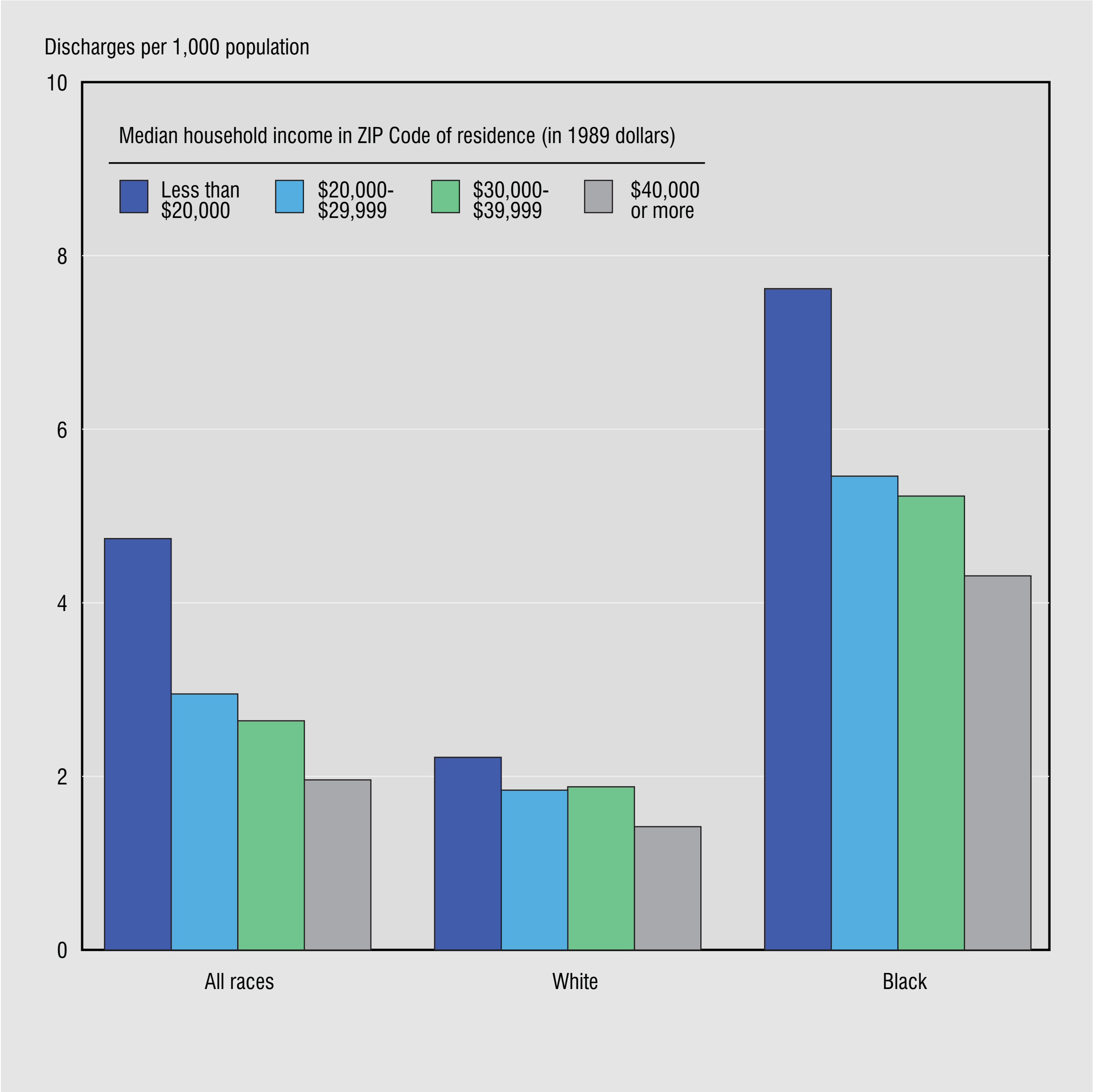
Figure 24. Asthma hospitalization rates among children 1–14 years of age by median household income in ZIP Code of residence and race: United States, average annual 1989–91



NOTE: See Technical Notes for methods.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey; Bureau of the Census, 1990 decennial Census.

Adults' Health

This section describes the relationship between socioeconomic status (SES) and adult health. Using national data from several sources, the figures in this section show this relationship for several indicators of health status, health risk, and health care access and utilization.

The negative relationship between SES and health is perhaps made most evident by examining differences in death rates and life expectancy. As far back as the mid-19th century, vital records from Great Britain indicated that death rates were higher and average age at death lower for men in trade and laboring occupations than for men in the professional class (1). Several of the factors, such as grossly inadequate housing, poor sanitation, and insufficient nutrition, that contributed to SES differences in health a century ago no longer contribute substantially to mortality today; and yet, persons of lower SES still experience higher death rates and lower life expectancy. Furthermore, there is evidence that socioeconomic disparities in death rates have widened since 1960 (2).

Throughout this century, average life expectancy for all persons in the United States has been increasing (*Health, United States, 1998*, table 29), but data show that during 1979–89, 45-year-olds with the highest incomes could expect to live 3 to 7 years longer than those with the lowest incomes (figure 25). Figure 26 shows that the advantage experienced by those with higher social position is evident in death rates for the major categories of natural causes (chronic and communicable diseases) and injuries.

Deaths due to chronic disease now account for nearly three-fourths of all deaths to persons 25–64 years of age. Considered together, cardiovascular diseases, cancer, and diabetes account for over $300 billion in direct medical costs each year (3). Data from the National Longitudinal Mortality Study show that mortality rates from heart disease (figure 27), lung cancer (figure 28), and diabetes (figure 29) increased as family income decreased, indicating that much of the burden of chronic disease is disproportionately concentrated among persons with fewer resources. These discrepancies tended to be larger for young and middle-aged adults than for the elderly.

The consistency of the inverse relationship between measures of SES and most causes of death implies that the health of persons of lower social position is more likely to be affected by these same diseases or injuries while they remain alive. In addition, the greater susceptibility associated with lower SES implies a greater likelihood of having multiple health conditions adversely affecting overall health status. Global health assessments, such as a person rating his or her health as ‘‘poor,’’ ‘‘fair,’’ ‘‘good,’’ or ‘‘excellent,’’ have been shown to be reliable indicators of a person's health status as well as being an independent risk factor for mortality (4,5). Figure 32 shows the strong relationship between self-reported health and family income; regardless of gender, race, or ethnicity, the percent reporting their health as only ‘‘fair’’ or ‘‘poor’’ increases as family income decreases.

Chronically poor health often results in a decline in a person's ability to perform their usual activities; it may prevent them from holding a job or limit the kinds of work they can do, affect their ability to do routine chores inside or outside the home, or, when health impairment is severe, render them incapable of handling their personal care needs (6,7). Figure 33 shows a strong inverse association between income level and health-related activity limitation among working-age adults, while figure 34 demonstrates a similar association for difficulty performing personal care activities among the elderly.

Many chronic diseases have common risk factors. For example, smoking increases a person's risk of developing heart disease and lung cancer while being overweight and having low levels of physical activity are associated with an increased risk of heart disease and diabetes. The relationship of SES to smoking, prevalence of overweight, and lack of physical activity are described in figures 35–36 and 38–40. The decline in cigarette smoking among U.S. adults since the publication of the first Surgeon General's report on smoking in 1964 has been one of the major success stories of public health (8). However, figure 35 shows that the decline in smoking has been disproportionately concentrated among the more educated, and figure 36 shows the prevalence of smoking among lower income persons remains higher than among middle- and high-income persons regardless of gender, race, or ethnicity.

In contrast to smoking, the prevalence of overweight in the United States is increasing among adults and children (9,10). A consistent inverse relationship between overweight and SES exists for women, but not for men, and the gradient is strongest for non-Hispanic white women (figures 38–39). Overweight contributes to diabetes (11) and to hypertension (12), health conditions that are also major risk factors for heart disease and stroke. Like overweight, hypertension is strongly related to SES among women, but not men (figure 41). Lack of physical activity, however, increases sharply as family income decreases within each sex, race, and ethnic group examined (figure 40).

The reasons why lower SES groups experience higher morbidity and mortality are complex. Established risk factors for chronic diseases, such as smoking, being overweight, and low physical activity levels that tend to increase as SES declines account for part of the observed relationship between SES and health. However, many studies have found that an elevated risk of heart disease among lower SES groups remains even after adjustment for the known major behavioral risk factors, such as smoking, obesity, and hypertension (13). This suggests that the relationship between SES and chronic disease mortality may not be fully explained by the differential distribution of health-related behaviors. In addition, as figure 26 demonstrates, the SES gradients in mortality from communicable diseases and injuries are larger, relatively, than that for chronic disease mortality, indicating that environmental and social exposures may be even more unequally distributed than the behavioral risk factors for chronic diseases. For example, figure 42 shows a strong income gradient in elevated blood lead level among adult men that likely results from differential occupational and environmental exposures.

The association between socioeconomic status and the health status of adults may also be explained in part by reduced access to health care among those with lower socioeconomic status. Figures 43–48 provide national data on the relationship between income and a selected set of indicators of access to health care and health care utilization. Access to health care may be defined as ‘‘the attainment of timely, sufficient, and appropriate health care of adequate quality such that health outcomes are maximized’’ (14). Having adequate health insurance coverage is key to assuring access to health care. However, nonfinancial factors such as race, ethnicity, language, culture, education, geographic isolation, and provider availability also have been shown to affect access to care (14).

Almost all U.S. adults age 65 and over have Medicare coverage. About three-quarters of adults 18–64 years of age have private health insurance coverage, most commonly through an employer-sponsored health insurance plan. However, in 1994–95 almost one-fifth of adults under age 65 lacked coverage and the proportion uninsured rose sharply as income declined (figure 43). Reasons for lacking employer-sponsored coverage include not being offered health insurance through work or not being able to afford the coverage offered, losing a job or changing employers, or losing coverage through divorce or the death of a spouse. Persons employed in small firms are less likely to be offered coverage than those in large firms and part-time workers are less likely to be offered coverage than full-time workers. Establishments with predominantly low-wage workers are also less likely to offer coverage than establishments where a majority of employees earn at least $10,000 per year (15). Even those with health insurance may have problems accessing health care for financial reasons. Insurance plans may exclude coverage for certain types of care or require substantial out-of-pocket spending through deductibles and copayments.

Medicaid provides coverage to eligible needy persons, but eligibility varies from State to State and is undergoing major changes with the implementation of welfare reform. Those eligible for Medicaid have included families with children receiving Aid to Families with Dependent Children (AFDC), pregnant women and young children in low-income families, the aged, blind, and disabled receiving assistance under Supplemental Security Income (SSI), and the medically needy (persons who become poor due to illness). The Medicaid eligibility criteria have resulted in greater Medicaid coverage and lower proportions uninsured among poor women than poor men (figure 43). In addition to meeting Medicaid eligibility requirements, individuals must know about the program, complete necessary forms, and provide required documentation to gain access to benefits. These requirements may present difficult barriers to some persons who are eligible for Medicaid. Among the poor and near poor, Hispanic adults are more likely to be uninsured than non-Hispanic white or black adults (figure 43). Immigration status and language and cultural barriers as well as their greater likelihood of employment in service and farm occupations may contribute to the lower proportions with coverage among the Hispanic population.

Low-income adults are more likely to experience financial barriers to health care use than those with higher incomes. They are less able to afford out-of-pocket expenses for health care, but are also more likely to lack health insurance coverage and incur high out-of-pocket expenses when they use health care. Results from the RAND Health Insurance Experiment indicate that cost sharing reduces the use of appropriate and inappropriate services (16). Cost sharing also reduces the use of preventive care (16). While financial barriers may discourage the use of health care among the low-income population, adults with low incomes are more likely to be sick than those with higher incomes and therefore could be expected to need more health care (figures 32–33).

The use of sick care, preventive care, and dental care by adults varies with income. Among adults 18–64 years of age who report a health problem there is a strong inverse income gradient in the percent without a recent physician contact (figure 44), and the gradient is similar across race and ethnic groups. Similarly, the percent of adults 18–64 years of age with a recent dental visit rises sharply with income (figure 49). Women 50 years of age and older from higher income families are more likely to have recently used mammography (figure 45). This relationship is particularly pronounced among non-Hispanic white women. Poor and near-poor black women were more likely than poor and near-poor non-Hispanic white women to have received recent mammography, perhaps as a result of targeted screening programs (17).

Perceived unmet need for health care provides another indicator of access to health care (18,19). Data from the National Health Interview Survey show a strong inverse income gradient in the percent of adults who perceive that they have unmet needs for health care (figures 46–47). This measure incorporates needs for services that may not be covered by health insurance plans (prescription drugs, mental health care, and dental care) as well as delaying or not receiving needed medical care. Although the percent who report unmet need for care is lower among the elderly (who have Medicare coverage) than among those 18–64 years of age, there was a strong inverse relationship between income and unmet need for the elderly as well as for younger adults.

Persons who delay or do not receive needed ambulatory care may become more seriously ill and require hospitalization. Avoidable hospitalizations have been defined as those that could potentially be avoided in the presence of appropriate and timely ambulatory care (20,21). Among adults 18–64 years of age the rate of avoidable hospitalizations during 1989–91 was inversely associated with the median household income of ZIP Code of residence (figure 48). In addition, among residents of low-income areas the avoidable hospitalization rate for black persons was substantially greater than that for white persons. The higher rate of avoidable hospitalizations among black persons than white persons in low income-areas could be due in part to lower family income among black persons than white persons who reside in low income ZIP Code areas.

The direct provision and financing of personal health care services is an area where government has played an important role in the United States (22). Programs such as Medicaid, community health centers, and the National Health Service Corps have had an important effect on improving access to health care for disadvantaged groups. Recent legislative efforts to further extend health insurance coverage to the uninsured have focused on expanding coverage for uninsured children. However, the data in figures 43–48 as well as other published literature demonstrate that low-income adults also clearly face difficulties in accessing the health care system (23).

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Life Expectancy

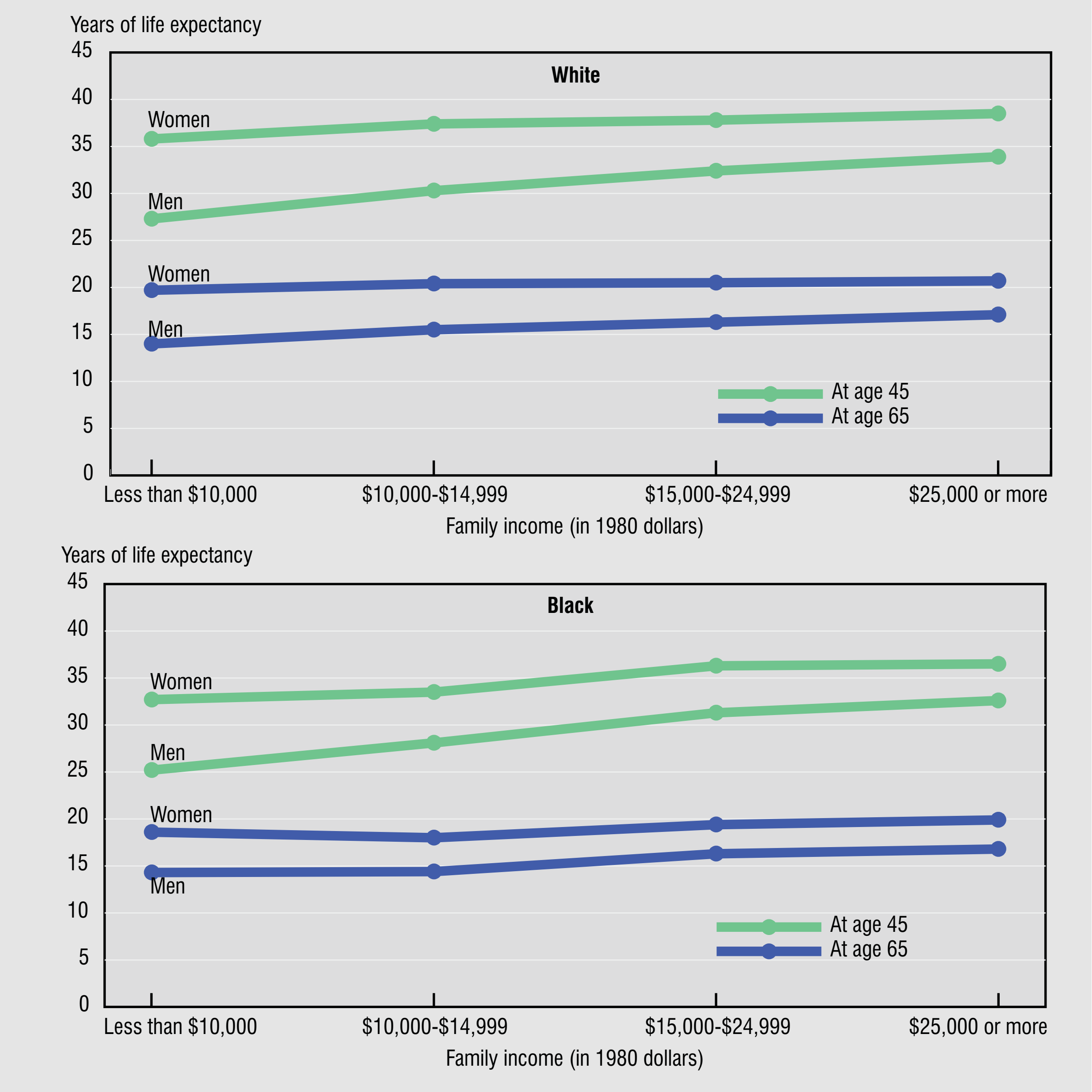
- U.S. vital statistics data show that average life expectancy of all persons in the United States has been increasing. Life expectancy from birth has increased from 70.8 years in 1970 to 75.8 years in 1995. Life expectancy varies by race and sex. Women have a longer life expectancy than men and black persons have a shorter life expectancy than white persons (see *Health, United States, 1998*, table 29). Data from the National Longitudinal Mortality Study for 1979–89 indicate that, among the noninstitutionalized population of the United States, life expectancy also varies by family income level.

- During 1979–89 life expectancy at age 45 increased with each increase in family income, regardless of sex or race. Black men 45 years of age in families earning at least $25,000 could expect to live 7.4 years longer than black men in families earning less than $10,000; among white men the difference was 6.6 years. The differences between the highest and the lowest income groups tended to be smaller for women than for men. At 45 years of age, black women in the highest income group could expect to live 3.8 years longer than those in the lowest income group; among white women the difference was 2.7 years.

- At age 65, white men in the highest income families could expect to live 3.1 years longer than white men in the lowest income families; the difference was 2.5 years for black men, 1.3 years for black women, and 1 year for white women.

- Race differences in life expectancy were larger at age 45 than at age 65. The life expectancy of white persons at age 45 exceeded that of black persons at every income level. Differences between black and white persons in life expectancy at age 45 were larger for women than for men, and larger for persons with family incomes below $15,000 than for persons with higher incomes.

Figure 25. Life expectancy among adults 45 and 65 years of age by family income, sex, and race: United States, average annual 1979–89



NOTE: See Appendix II for definition of life expectancy.

SOURCE: U.S. Bureau of the Census and National Institutes of Health, National Heart, Lung, and Blood Institute, National Longitudinal Mortality Study.

Cause of Death

- Although socioeconomic (SES) differences in mortality have been persistent over time, the nature of the SES relationship for specific causes of death has changed. In earlier times when communicable diseases were the primary causes of death, the higher death rate among persons of lower SES was due to their poor nutrition and unsanitary living conditions. Today chronic diseases, such as heart disease, are the major contributors to death, and although heart disease currently fits the pattern of higher rates among lower SES, this represents a change from the pattern in the past. As recently as the 1950's, heart disease mortality rates were greater among higher SES groups (1). As the factors that influence chronic diseases, such as smoking, high-fat diet, and preventive care, have diffused throughout society, there has been a shift to lower SES groups being more adversely affected, presumably because higher SES groups more quickly adopt practices to reduce their risk of chronic diseases.

- In 1995 nearly three out of every four deaths to persons 25–64 years of age was due to a chronic disease, intentional and unintentional injuries accounted for 15 percent of deaths in this age range, and communicable diseases accounted for 11 percent. Communicable diseases and injuries were responsible for a larger proportion of deaths to men (13 and 18 percent, respectively) than to women (7 and 10 percent, respectively).

- Men and women with more than a high school education had lower age-adjusted death rates than their less educated counterparts within each of these major cause groupings.

- Education gradients in mortality attributed to chronic diseases were similar for men and women 25–64 years of age. In 1995 the chronic disease death rate for men with a high school education or less was 2.3–2.5 times that for men with more than a high school education; less educated women had death rates 1.9–2.2 times the rate of women with education beyond high school.

- The overall death rate and the education gradient for injuries was higher for men than women. In 1995 the death rate from injuries for men was over three times that for women. Men with 12 years of education or less had age-adjusted injury death rates approximately three times that for men with more than 12 years of education. Among women, the education gradient in injury mortality was similar to that for mortality from chronic diseases; less educated women had injury mortality rates approximately twice that of women with more than a high school education.

- At ages 25–64 years, mortality from communicable diseases was 3.5 times higher for men than women, and the education gradient was much stronger for women than for men. The discrepancy between men and women in the education gradient for communicable diseases was due entirely to mortality from HIV infection (see data table). For men and women, non-HIV communicable disease mortality among the least educated was three times that of the most educated, and those with 12 years of education had mortality rates twice as high as persons with more than 12 years. In contrast, mortality from HIV infection among men with 12 or fewer years of education was 60–70 percent higher than among those with more than 12 years. By contrast, women with less than 12 years of education were almost six times as likely to die from HIV infection as those with more than 12 years.

Reference

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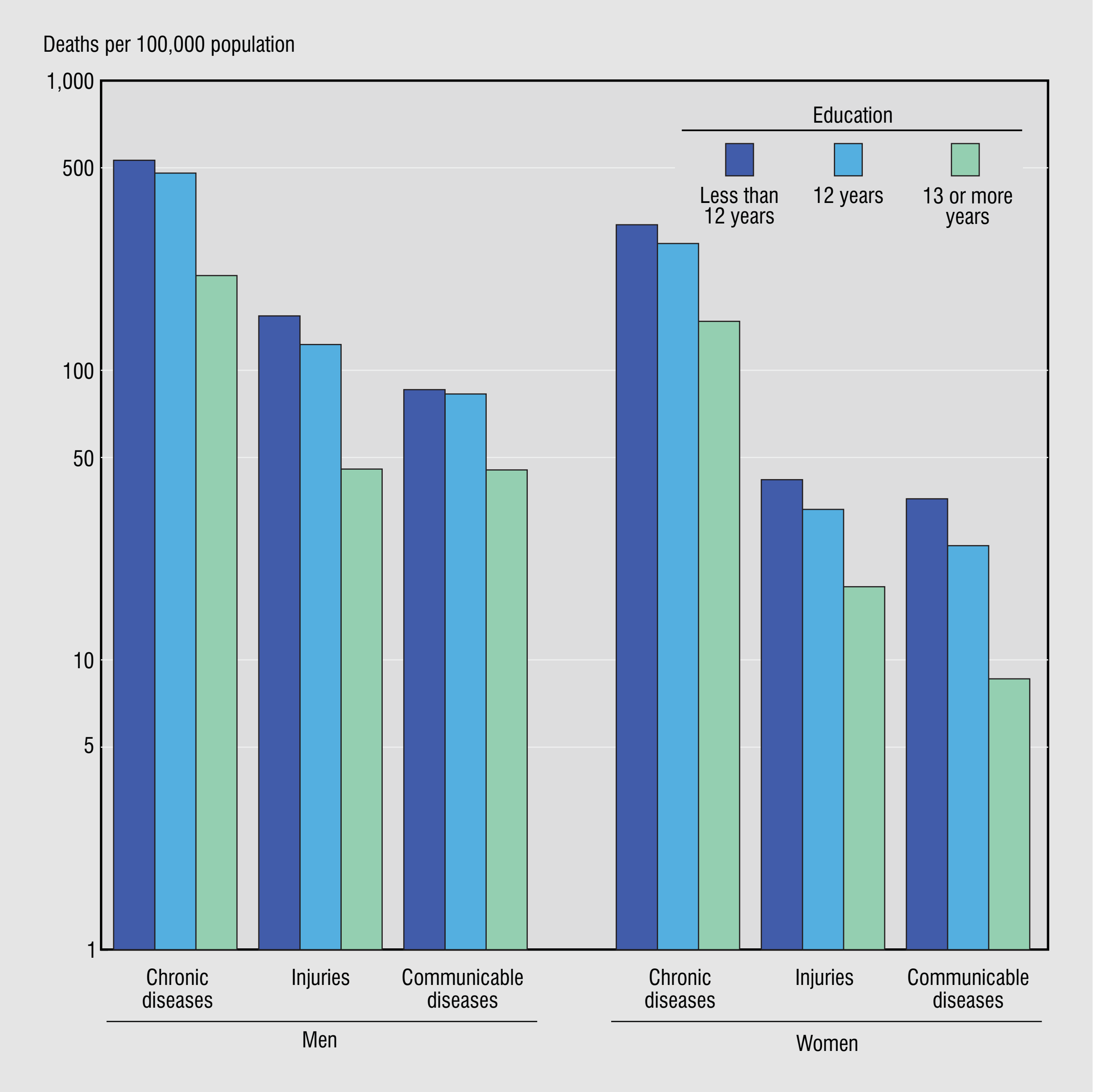
Figure 26. Death rates for selected causes for adults 25–64 years of age, by education level, and sex: selected States, 1995



NOTES: Death rates are age adjusted; see Technical Notes. For a description of International Classification of Diseases code numbers for causes of death, see Appendix II. "Injuries" includes homicide, suicide, unintentional injuries, and deaths from adverse effects of medical procedures. See Appendix I, National Vital Statistics System, for a discussion of reporting of education of decedent on death certificates. Rates are plotted on a log scale.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System.

Heart Disease Mortality

- Although death rates from heart disease have dropped since 1970, heart disease remains the leading cause of death in the United States. In 1995 heart disease accounted for an estimated $79 billion in direct medical expenditures (1). Risk factors for heart disease include diabetes, hypertension, high serum cholesterol, smoking, obesity, and lack of physical activity (2).

- During 1979–89 death rates from heart disease declined as family income increased. Among men 25–64 years of age, heart disease mortality for those with incomes less than $10,000 was 2.5 times that for those with incomes of $25,000 or more. The poorest women in this age range were 3.4 times as likely to die from heart disease as those with the highest incomes. For persons 65 years of age and over, the income gradient in heart disease mortality was similar for men and women and flatter than at younger ages.

- At ages 25–64, income-related gradients in heart disease mortality were similar across sex, race, and ethnic groups; persons with incomes under $10,000 were 2.4–2.9 times as likely to die from heart disease as those with incomes of $15,000 or more. Among persons 65 years of age and older, income gradients were less steep. Ratios of the heart disease death rate in the lowest income group to that in the highest income group ranged from 1.3 for black women to 1.7 for black men.

- Within each income level, non-Hispanic black women had higher mortality from heart disease than non-Hispanic white women. At 25–64 years of age the death rate for heart disease was higher for black men than white men, regardless of income; at older ages, however, the death rate for white men was nearly the same or exceeded that of black men at the same level of income.

- Heart disease mortality varied by sex. The poorest women had death rates similar to those of the highest income men.

Figure 27. Heart disease death rates among adults 25–64 years of age and 65 years of age and over by family income, sex, race, and Hispanic origin: United States, average annual 1979–89

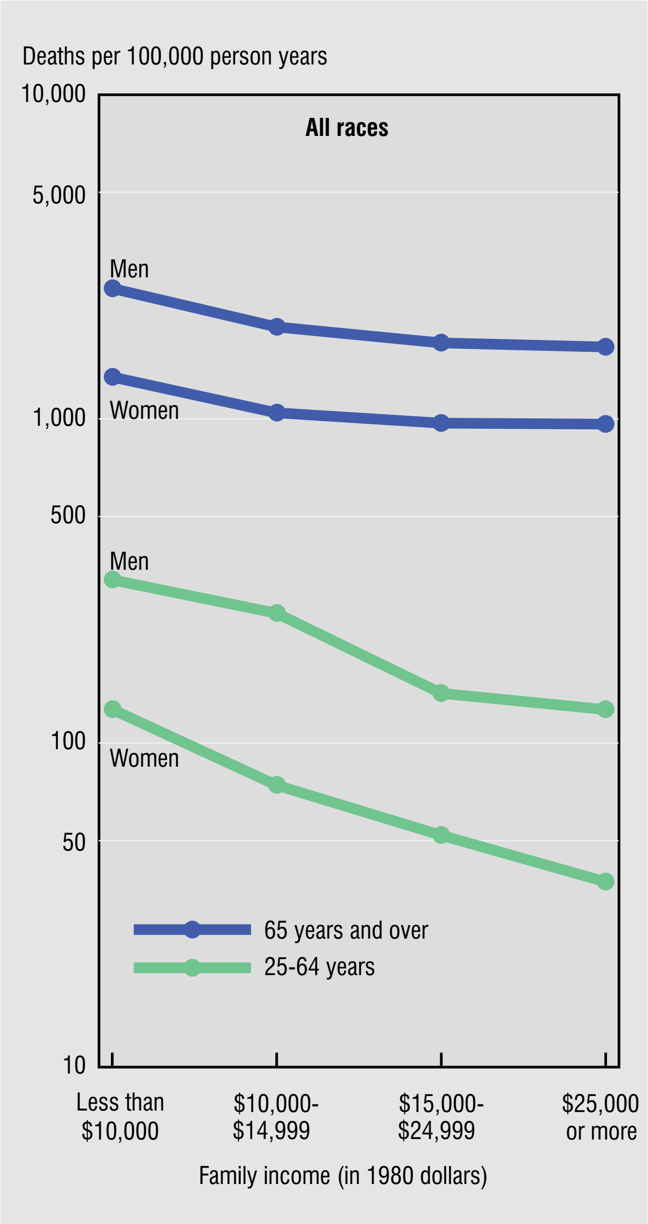


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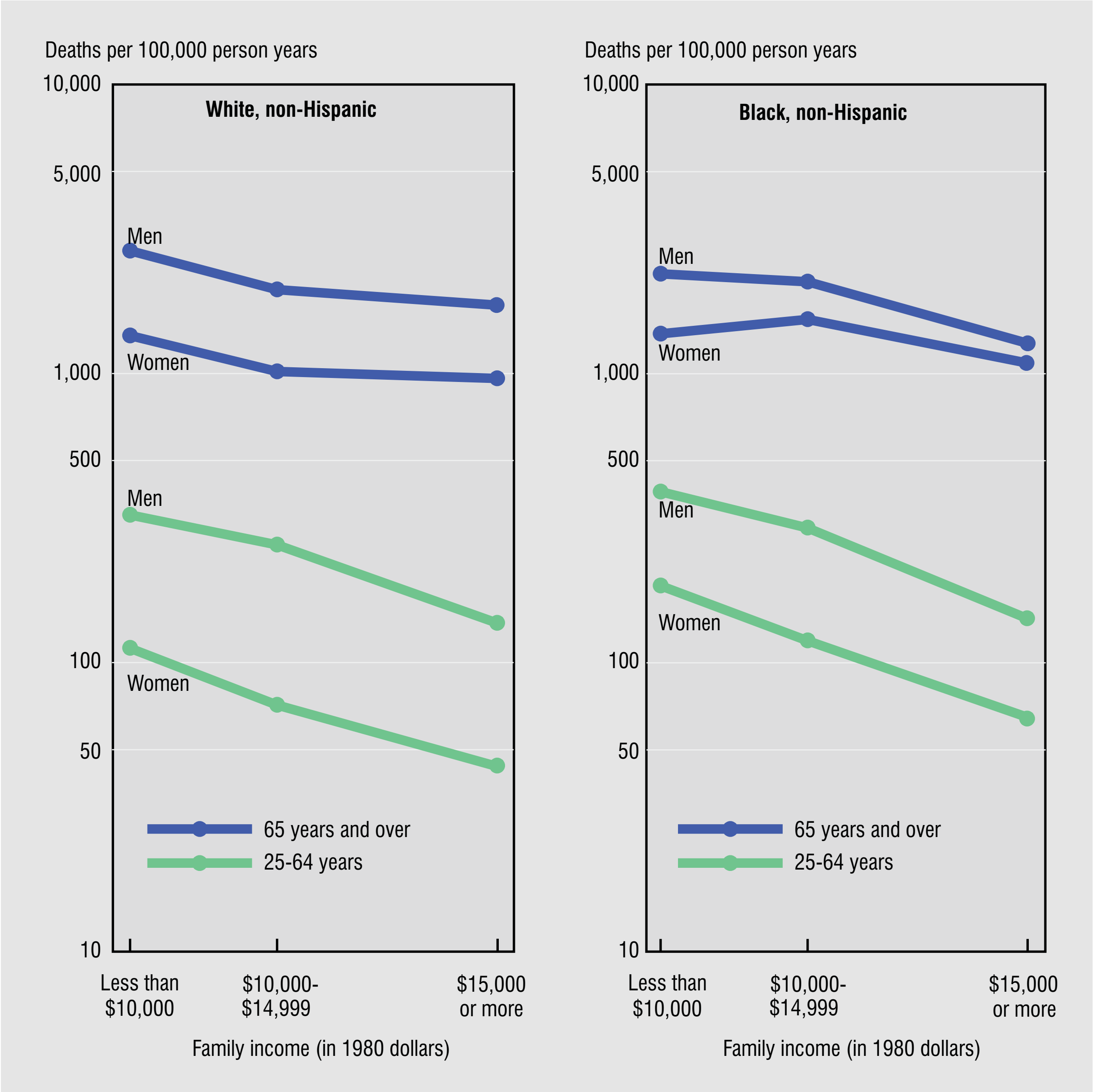
Figure 27. Heart disease death rates among adults 25–64 years of age and 65 years of age and over by family income, sex, race, and Hispanic origin: United States, average annual 1979–89—Continued



NOTES: Death rates are age adjusted; see Technical Notes. For a description of International Classification of Diseases code numbers for causes of death, see Appendix II. Rates are plotted on a log scale.

SOURCE: U.S. Bureau of the Census and National Institutes of Health, National Heart, Lung, and Blood Institute, National Longitudinal Mortality Study.

Lung Cancer Mortality

- Cancer is the second leading cause of death in the United States, and lung cancer accounted for approximately 28 percent of all cancer deaths in 1996 (1,2). Since 1987 lung cancer has been the leading cause of cancer deaths for men and women. Death rates for lung cancer have been consistently higher for men than women. Between 1950 and 1990 the overall age-adjusted death rate for lung cancer increased. However, among men, the rate of increase began to slow during the early 1980's while the rate for women continued to increase sharply. Between 1990 and 1995 the age-adjusted death rate for lung cancer for males decreased 9 percent while the corresponding rate for females increased 5 percent. In 1995 medical expenditures for lung cancer were estimated to be nearly $4 billion (3). Tobacco is the leading contributor to lung cancer incidence, and the majority of lung cancer cases could be prevented by refraining from smoking (4).

- Data from the National Longitudinal Mortality Study for 1979–89 show that, among men, lung cancer mortality rates declined as family income increased. The relationship between family income and lung cancer mortality was somewhat stronger for younger than for older men. Men 25–64 years of age in families earning less than $10,000 had a mortality rate 2.4 times the rate among men in families with an income of at least $25,000. Among men 65 years and over, the lowest income group had a rate twice as high as that of the highest.

- Among women the relationship between family income and lung cancer mortality was weaker and less consistent than among men. Women 25–64 years of age in families earning less than $15,000 had lung cancer death rates 40–60 percent higher than the rates for women with incomes of $15,000 and more. For women ages 65 years and over, there was some indication that mortality from lung cancer increased with income, although differences were small. Lung cancer mortality among elderly women with incomes of $25,000 and more was 25–30 percent higher than among those with incomes below $15,000.

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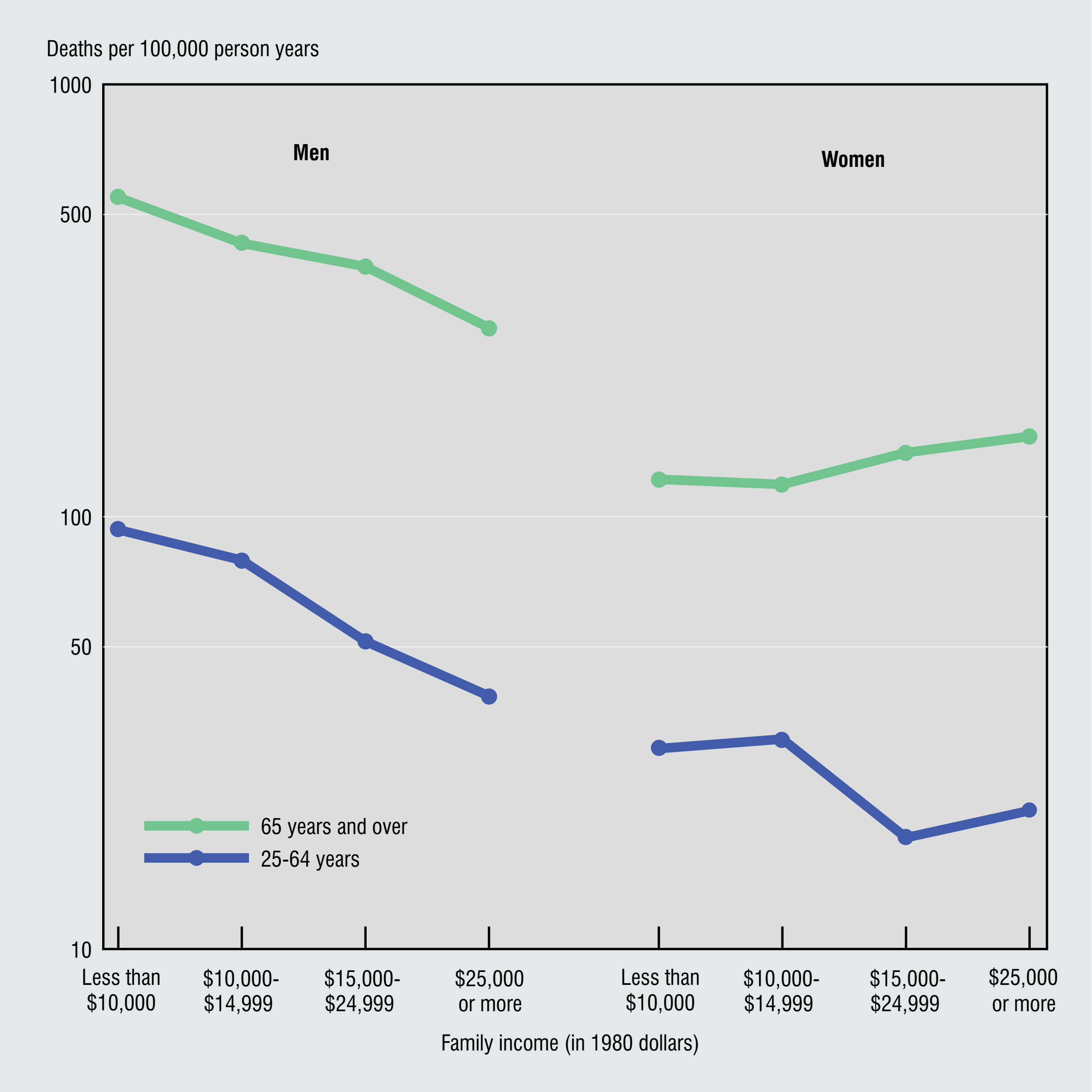
Figure 28. Lung cancer death rates among adults 25–64 years of age and 65 years of age and over by family income and sex: United States, average annual 1979–89



NOTES: Death rates are age adjusted; see Technical Notes. For a description of International Classification of Diseases code numbers for causes of death, see Appendix II. Rates are plotted on a log scale.

SOURCE: U.S. Bureau of the Census and National Institutes of Health, National Heart, Lung, and Blood Institute, National Longitudinal Mortality Study.

Diabetes Mortality

■ Diabetes mellitus is a group of diseases characterized by high levels of blood glucose resulting from defects in insulin secretion, insulin action, or both. In 1995 diabetes was the seventh leading cause of death for all persons in the United States. In recent years mortality from diabetes has been increasing; between 1990 and 1995, the age-adjusted death rate for diabetes increased 17 percent for men and 12 percent for women. Diabetes death rates vary considerably across race and ethnic groups; compared with non-Hispanic white persons, diabetes death rates were 2.5 times higher among black persons, 2.4 times higher among American Indians or Alaska Natives, and 1.7 times higher among persons of Hispanic origin in 1995. Diabetes was responsible for nearly $48 billion in medical expenditures in 1995 (1). The primary risk factor for noninsulin dependent diabetes mellitus is obesity (2).

■ Data from the National Longitudinal Mortality Study for 1979–89 show a strong relationship between diabetes mortality and family income. For persons 45 years of age and over, the age-adjusted death rate from diabetes decreased as family income increased. The relationship between family income and death from diabetes was similar for men and women; for both sexes mortality from diabetes decreased at each higher level of family income. The diabetes death rate for women in families with incomes below $10,000 was 3 times the death rate for those with incomes of $25,000 or more; among men, the death rate for the lowest income group was 2.6 times that of the highest income group.

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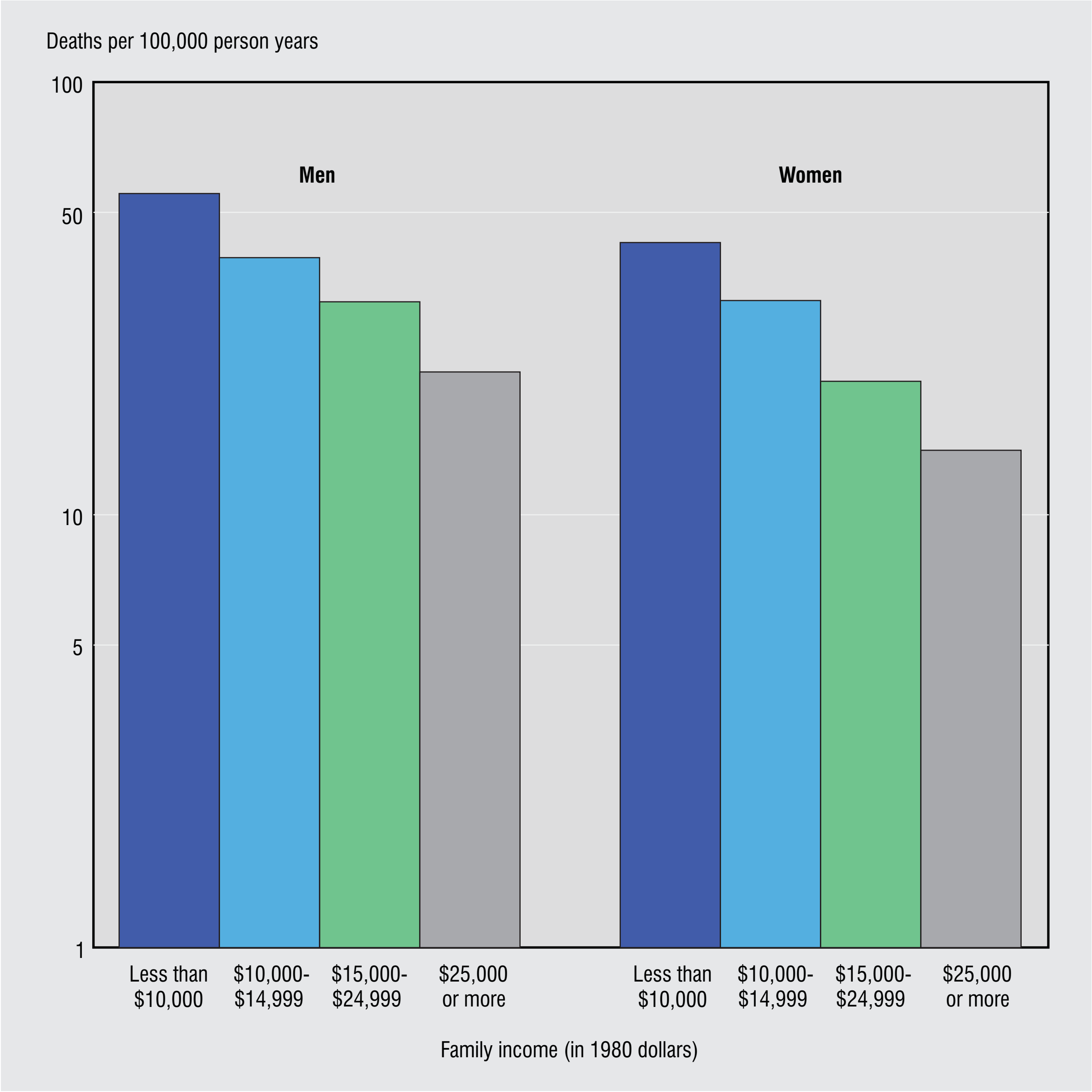
2. Herman WH, Teutsch SM, Geiss LS. Diabetes mellitus. In: Amler RW, Dull HB, eds. Closing the gap: The burden of unnecessary illness. New York: Oxford University Press. 1987.

Figure 29. Diabetes death rates among adults 45 years of age and over by family income and sex: United States, average annual 1979–89



NOTES: Death rates are age adjusted; See Technical Notes. For a description of International Classification of Diseases code numbers for causes of death, see Appendix II. Rates are plotted on a log scale.

SOURCE: U.S. Bureau of the Census and National Institutes of Health, National Heart, Lung, and Blood Institute, National Longitudinal Mortality Study.

Homicide

- The homicide rate in the United States increased sharply between 1985 and 1991 and then began to decline in 1992 (1). In 1995 homicide ranked as the 11th leading cause of death in the United States overall and the 6th leading cause among persons 25–44 years of age.

- In 1994–95 homicide rates decreased as years of education increased for persons 25–44 years of age. For those with less than 12 years of education, the rate was more than 7 times the rate for persons who had 13 or more years of education.

- The education gradient in homicide rates was strongest for non-Hispanic white men. The homicide rate for white men with less than 12 years of education was 8.6 times the rate for those with 13 or more years; for black and Hispanic men, those with the least education were about 5 times as likely to be the victim of homicide as those with the most education. Among women the education gradient for homicide was also strongest for non-Hispanic whites; the rate of the least educated women was 6.4 times the rate for the most educated. Homicide rates for Hispanic and black women with less than 12 years of education were 3–4 times that of those with 13 or more years.

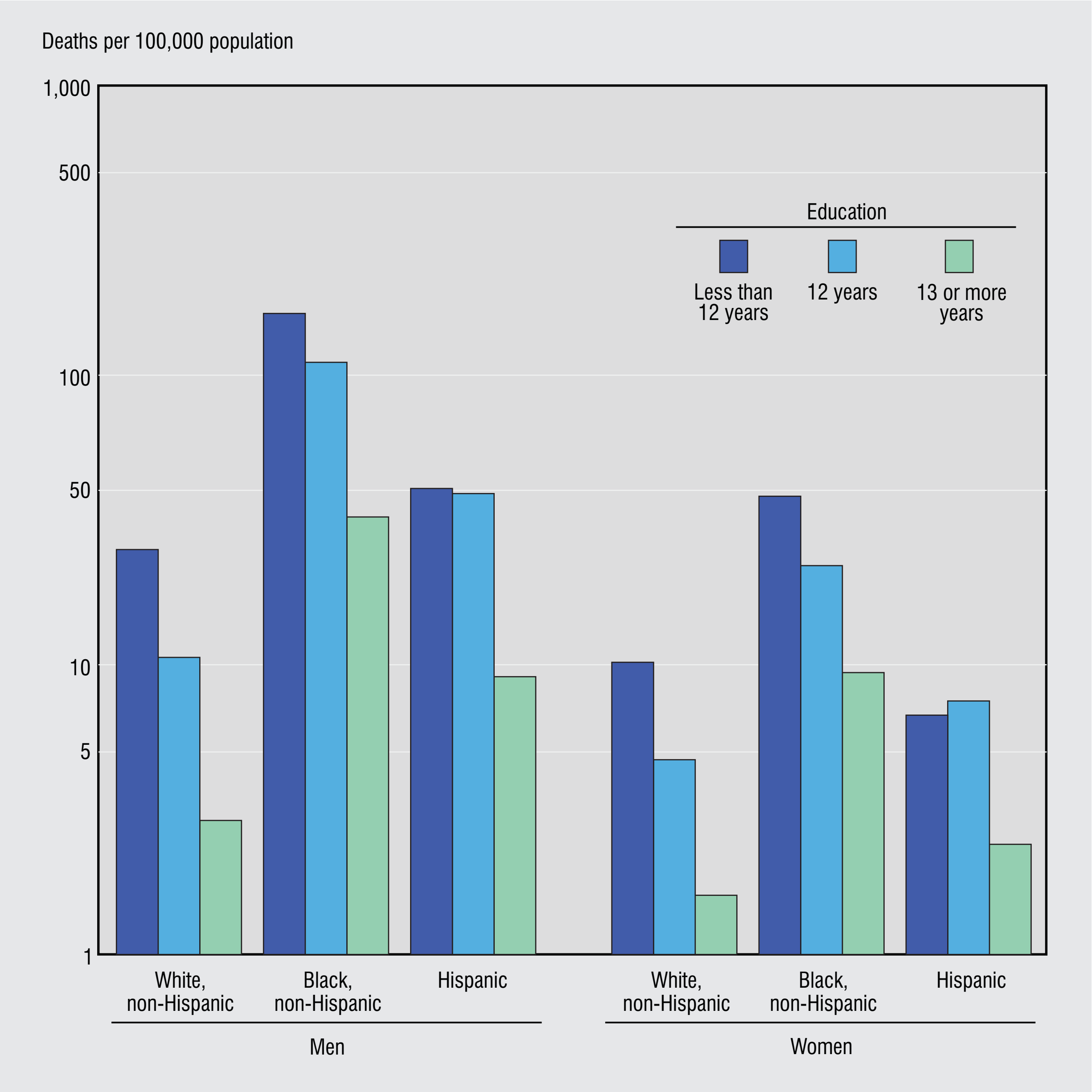
- For all levels of education combined, the homicide rates for black and Hispanic men were 12 and 4 times the rate for non-Hispanic white men. For those with less than a high school education, the relative difference in homicide rates among the race and ethnic groups was much smaller than for those with more education. By contrast, homicide rates for black women were about 4–6 times the rates for non-Hispanic white women, regardless of educational attainment.

- Among white, black, and Hispanic men 25–44 years of age, firearms were the cause of about 70–80 percent of homicides; among women 50–60 percent of homicides were caused by firearms. The proportion of homicides caused by firearms did not vary by education level for any sex, race, or ethnic group.

Reference

1. Centers for Disease Control and Prevention. Trends in rates of homicide-United States, 1985–94. MMWR 45:460–64. 1996.

Figure 30. Homicide rates among adults 25–44 years of age by education, sex, race, and Hispanic origin: Selected States, average annual 1994–95



NOTES: Death rates are age adjusted; see Technical Notes. For a description of International Classification of Diseases code numbers for causes of death, see Appendix II. See Appendix I, National Vital Statistics System, for a discussion of reporting of education of decedent on death certificates. Rates are plotted on a log scale.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System.

Suicide

- In 1994–95 suicide was the ninth leading cause of death in the United States. Suicide rates tend to be higher for men than women, higher for the elderly than for younger persons, and higher among American Indian or Alaska Native and non-Hispanic white persons than other race and ethnic groups (see *Health, United States, 1998*, table 48). Suicide rates vary by geographic region; for 1990–94, suicide rates were higher in the West and lower in the Northeast, after adjustment for differences in the age, sex, race, and ethnic distributions of regional populations(1).

- In 1994–95 suicide rates at ages 25–44 were highest for non-Hispanic white persons, and slightly higher for non-Hispanic black persons than for persons of Hispanic origin. In this age group, suicide rates among men were 4–6 times higher than among women for each race and ethnic group examined.

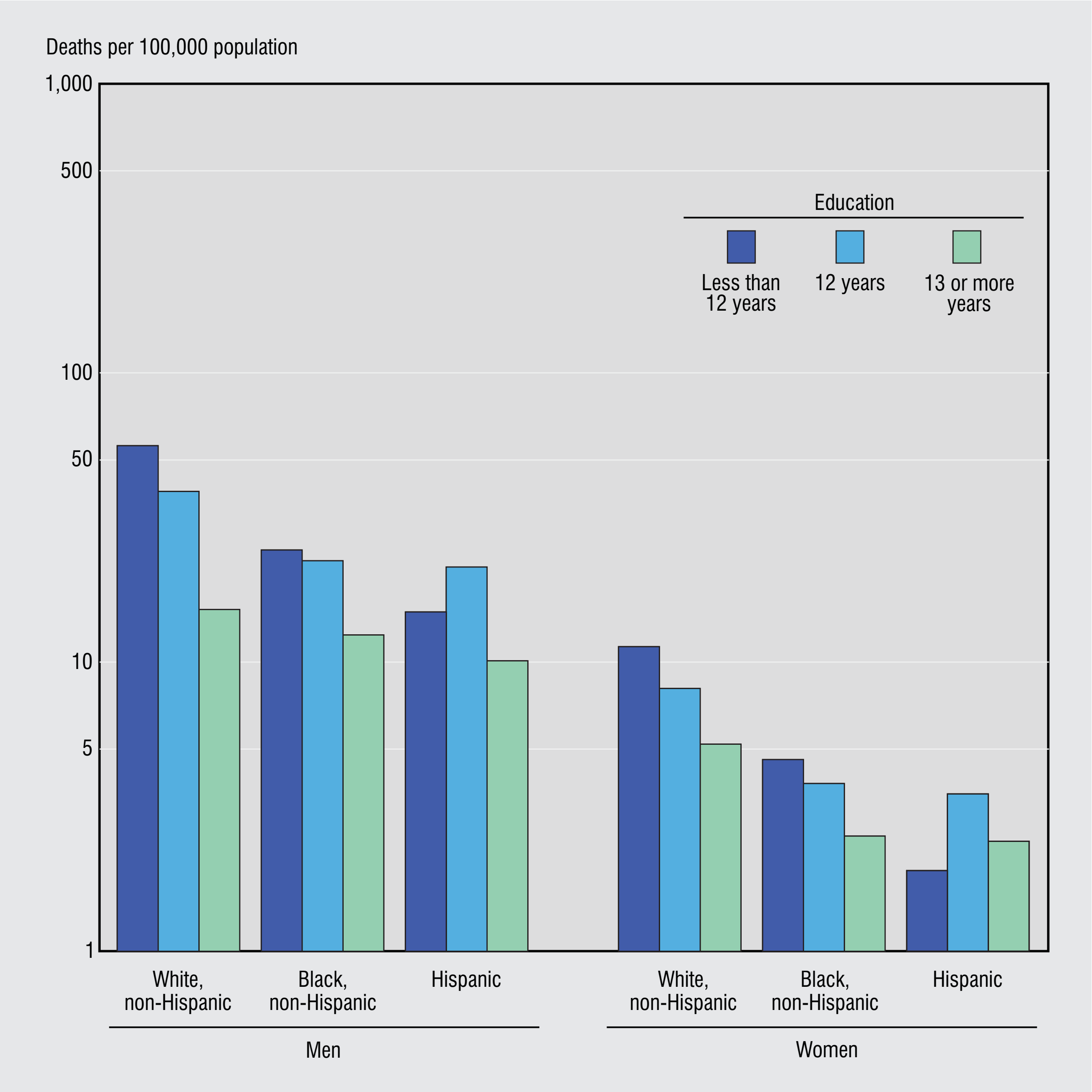
- For 1994–95, the relationship between education and suicide at ages 25–44 differed by race and ethnicity. The strongest education-related gradient in suicide rates was observed for non-Hispanic white men; the rate for those with less than a high school education was 3.7 times the rate for men with at least some college. Suicide rates for black men who had not gone to college were twice that of those who had, but there was little evidence of a gradient among Hispanic men. Among women 25–44 years of age, the education-related patterns in suicide were similar to those of men in the same race and ethnic group, although not as pronounced. Non-Hispanic white women who had not completed high school had a suicide rate 2.2 times that of those with some college; among non-Hispanic black women this ratio was 1.8. Similar to Hispanic men, there appeared to be no education-related gradient in suicide for Hispanic women.

- Firearms caused about 55 percent of suicides among men and 40 percent among women. Firearm use in suicide did not vary by education among men, but was more common among less educated women than among more-educated women. Poisoning as a method was more common among those of higher education, while suffocation was more common among less educated persons.

Reference

1. Centers for Disease Control and Prevention. Regional variations in suicide rates, United States, 1990–94. MMWR 46:789–93. 1997.

Figure 31. Suicide rates among adults 25–44 years of age by education, sex, race, and Hispanic origin: Selected States, average annual 1994–95



NOTES: Death rates are age adjusted; see Technical Notes. For a description of International Classification of Diseases code numbers for causes of death, see Appendix II. See Appendix I, National Vital Statistics System, for a discussion of reporting of education of decedent on death certificates. Rates are plotted on a log scale.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System.

Fair or Poor Health

- Self-assessed health is a broad indicator of health and well being, which incorporates a variety of physical, emotional, and personal components of health. Several studies have shown self-assessed health to be a valid and reliable indicator of a person's overall health status (1) and a powerful predictor of mortality (2) and changes in physical functioning (3).

- In 1995, one in eight persons 18 years of age and over classified themselves as being in fair or poor health, while seven in eight said they were in good to excellent health. Black and Hispanic persons were more likely to consider themselves in fair or poor health than non-Hispanic white persons. However, within each race and gender group there was a strong income gradient in self-assessed health.

- Men in poor households were 1.5 times as likely to be in fair or poor health as men near the poverty line, and over 7 times as likely to report their health as fair or poor as men in the highest-income households. Only 4–5 percent of high-income white, black, and Hispanic men were in fair or poor health, compared with 27–37 percent of those below the poverty line.

- Similar to men, poor women were 1.6 times as likely to say their health was fair or poor as women near the poverty line and over 5 times as likely as high-income women to report their health as less than good. Income disparities in self-assessed health were similar across race and ethnic groups; poor women were four to five times as likely to be in fair or poor health as high-income women.

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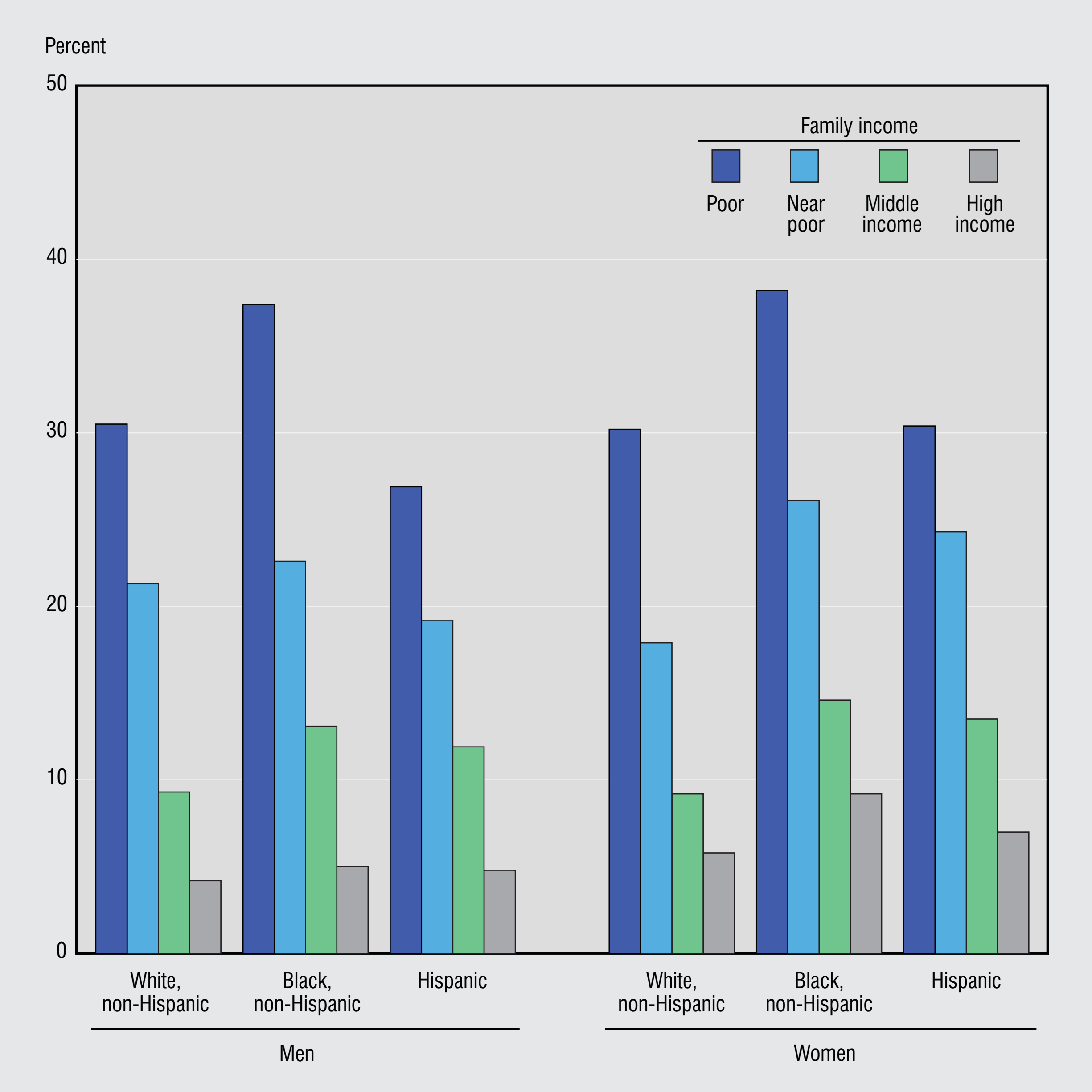
3. Idler EL, Kasl SV. Self-ratings of health: Do they also predict change in functional ability? J Gerontol 50B(6):S344–53. 1995.

Figure 32. Fair or poor health among adults 18 years of age and over by family income, sex, race, and Hispanic origin: United States, 1995



NOTE: Percents are age adjusted. See Technical Notes for definition of family income categories and age adjustment procedure.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1998*, table 61.

Activity Limitation

- Chronic conditions and injuries can have long term health consequences, sometimes resulting in limiting individuals in the performance of their usual activities, such as work, household tasks, or other routine activities. In 1995, 22.5 million Americans 18 to 64 years of age experienced some limitation in normal activities because of a chronic health problem. The conditions responsible for most activity limitation in nonelderly adults include back, spine, and lower extremity injuries and impairments, heart disease, arthritis, and visual problems (1,2).

- In 1992–95 the age-adjusted percent reporting activity limitation was slightly higher among black persons (19 percent) than among white or Hispanic persons (14 percent). However, at each level of income, white persons had the highest rates of activity limitation.

- At each period and within each race and ethnic group, a larger proportion of poor persons reported activity limitation. In 1992–95 one-third of poor persons, 22 percent of near-poor persons, and 11 percent of middle- and high-income persons had activity limitation.

- In 1992–95 the income gradient was larger for non-Hispanic black and non-Hispanic white persons than for Hispanic persons; white and black persons in poor families were nearly 3.5 times as likely to be limited as their middle- and high-income counterparts. Poor Hispanic persons were 2.6 times as likely to be limited as those with middle or high incomes.

- Between 1984–87 and 1992–95 the prevalence of activity limitations among poor white persons increased by 17 percent while the prevalence among those with middle and high incomes increased by only 3 percent. Among black persons increases in the percent with a limitation were similar across income levels (11–15 percent), while among Hispanic persons there was some evidence of an increase in activity limitation for those with incomes above poverty (9–11 percent), but there was no change for those below poverty.

Figure 33. Activity limitation among adults 18–64 years of age by family income, race, and Hispanic origin: United States, average annual, 1984–87, 1988–91, and 1992–95

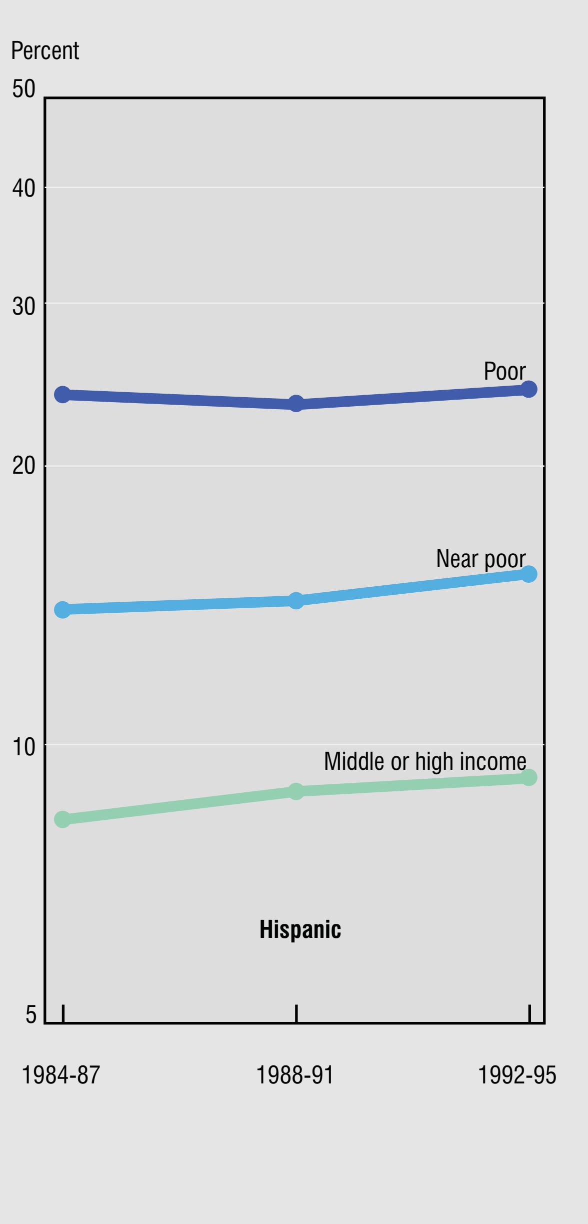


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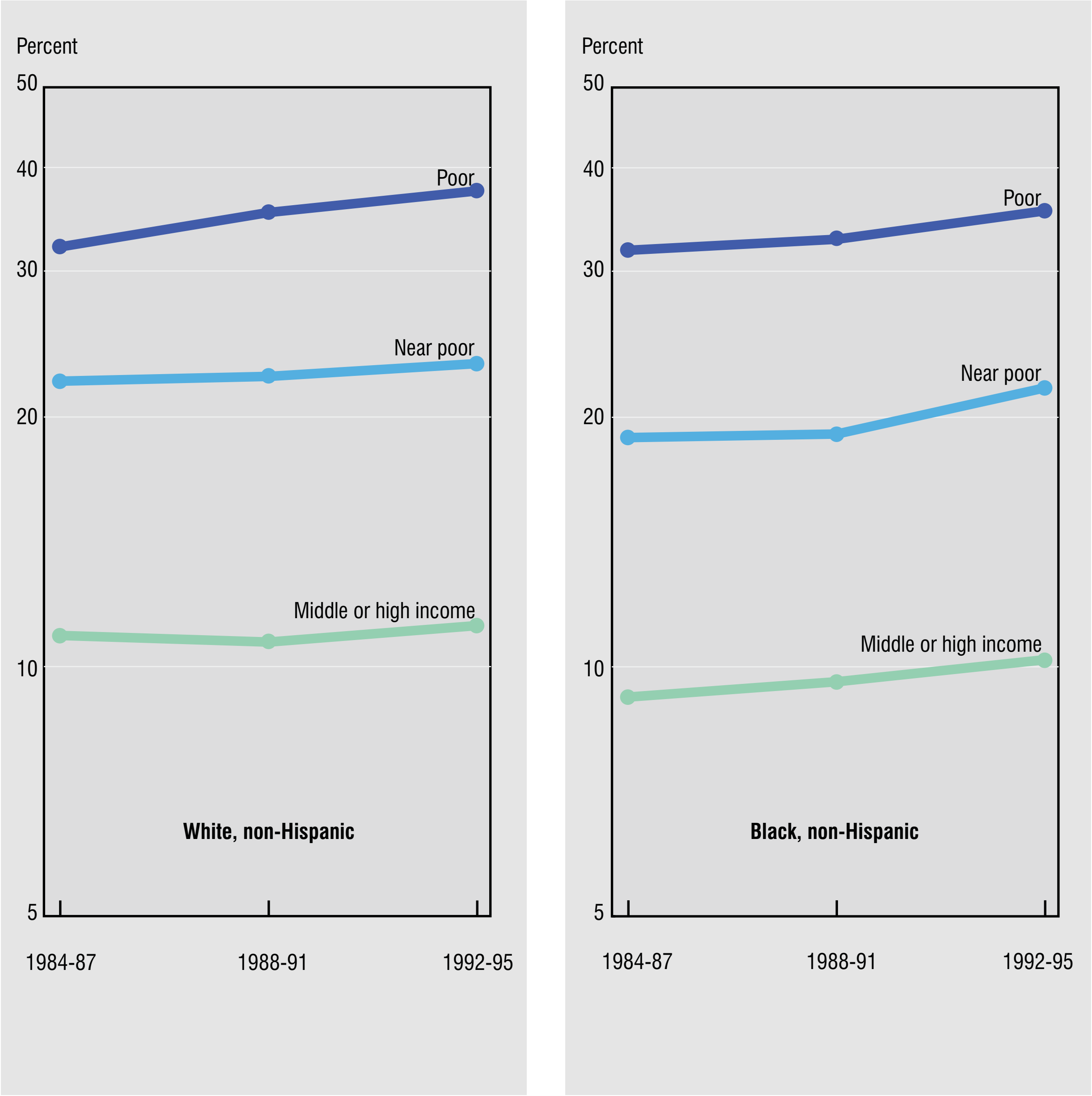
Figure 33. Activity limitation among adults 18–64 years of age by family income, race, and Hispanic origin: United States, average annual, 1984–87, 1988–91, and 1992–95—Continued



NOTES: Percents are age adjusted and plotted on a log scale. See Technical Notes for definition of family income categories and age adjustment procedure.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1998*, table 60.

Activities of Daily Living

- The ability to take care of routine personal needs (eating, bathing, dressing, using the toilet, getting in and out of chairs or bed, walking, and getting outside), is an important aspect of health status, particularly for the elderly population. Needing the assistance of other persons to perform these activities of daily living (ADL) constitutes a physical and psychological burden to the individual affected. The inability to function independently may also impose an additional burden, either in terms of time and foregone opportunities to family members, or a financial burden, if help is obtained from a paid service provider.

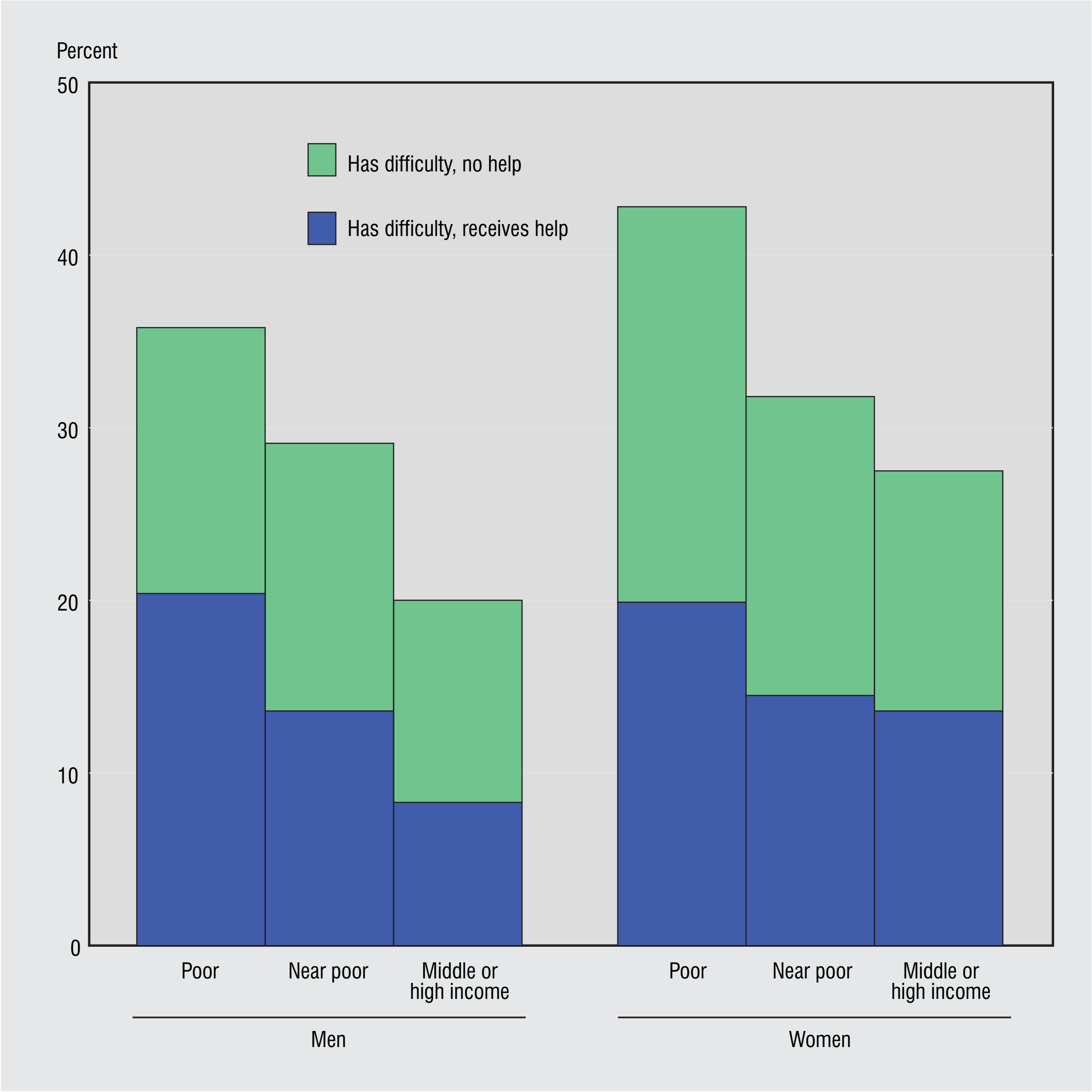
- In 1995, 24 percent of men and 32 percent of women in the noninstitutionalized population 70 years of age and over reported having difficulty performing one or more ADL. Twelve percent of men and 15 percent of women received assistance from another person with at least one of these daily activities.

- Among noninstitutionalized men 70 years of age and over, poor men were 1.8 times as likely to report having difficulty and 2.5 times as likely to receive help as were middle- and high-income men.

- Among noninstitutionalized women 70 years of age and over, income gradients in the proportions experiencing difficulty and receiving help were similar. Poor women were about 1.5 times as likely to have difficulty and to receive help with routine care as were middle- and high-income women.

Figure 34. Difficulty with one or more activities of daily living among adults 70 years of age and over by family income and sex: United States, 1995

Chart corrected from printed version (legend colors reversed).



NOTES: Based on interviews conducted between October 1994 and March 1996 with noninstitutionalized persons. Percents are age adjusted. See Technical Notes for definitions of activities of daily living, family income categories, and age adjustment procedure.

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

Cigarette Smoking

- Smoking is the leading cause of preventable death and disease in the United States. Smoking leads to an increased risk for heart disease, lung cancer, emphysema, and other respiratory diseases. Each year approximately 400,000 deaths in the United States are attributed to smoking (1) and smoking results annually in more than $50 billion in direct medical costs (1). Although there have been recent declines in the prevalence of smoking, the public health burden of smoking-related illness is expected to continue over the next several decades.

- Between 1974 and 1990, cigarette smoking in the United States declined substantially for persons 25 years of age and over. Among men, the age adjusted prevalence of smoking decreased from 43 percent in 1974 to 28 percent in 1990; among women, smoking declined from 32 percent to 23 percent over the same period. Between 1990 and 1995, however, there was little change in smoking prevalence; in 1995, the age adjusted smoking prevalence was 26 percent for men and 23 percent for women.

- Between 1974 and 1990, cigarette smoking declined at all levels of education for both men and women. The rate of decline, however, was greater among persons with more education. Among men, smoking declined at an average annual rate of about 1.5 percent among those with a high school diploma or less education and 2.9 percent per year among those with some college. Average annual declines ranged from 0.9 to 2.2 percent for women with less than a college degree. Among college graduates, cigarette smoking declined by approximately 4 percent per year for men and women.

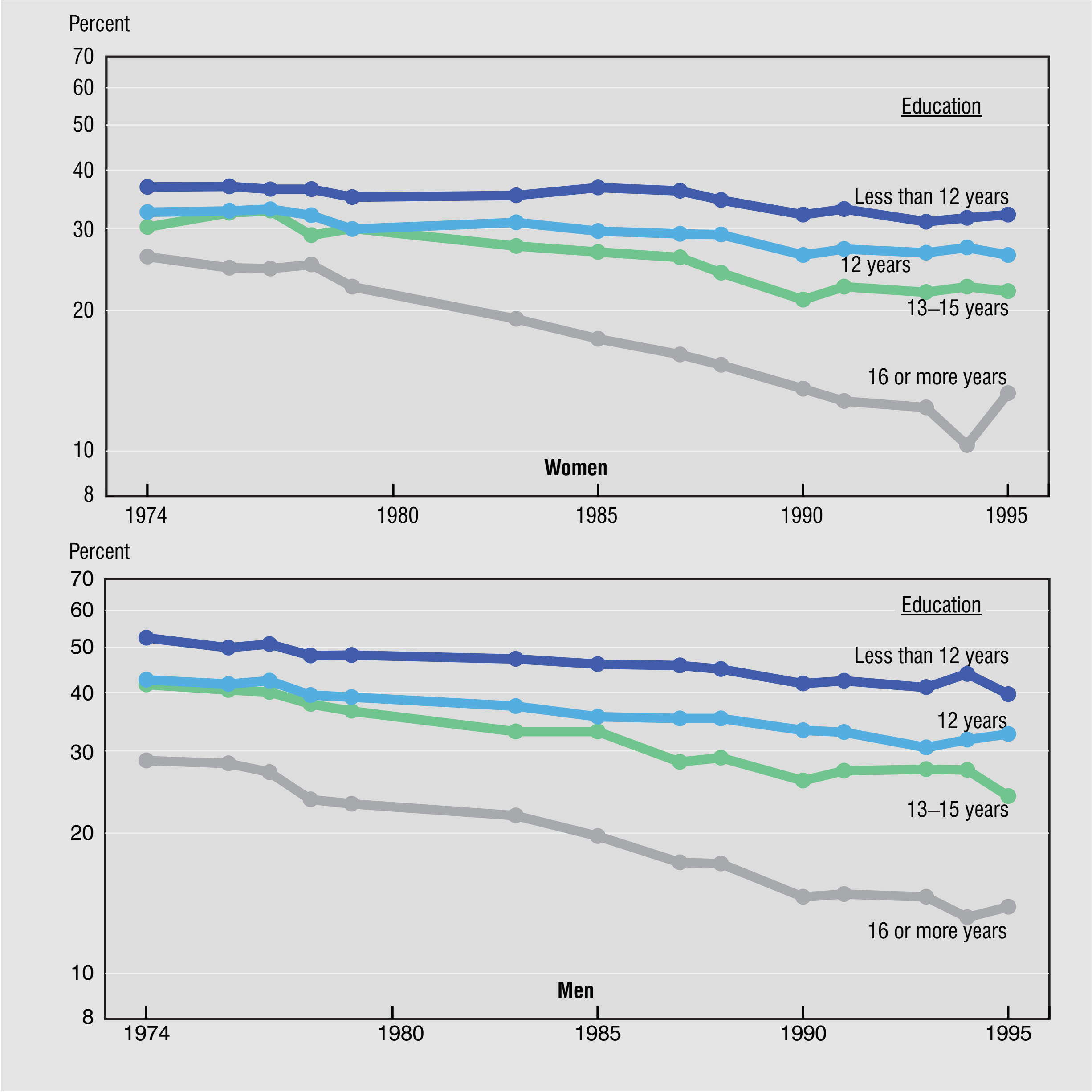
- Between 1990 and 1995, the rate of decline in smoking prevalence was considerably less than occurred during 1974 to 1990. In addition, declines showed no education-related gradient, ranging from 0.4 percent per year among high school graduates to 1.5 percent per year among men with some college. For women at all levels of education, the age-adjusted prevalence of smoking in 1995 was nearly the same as in 1990.

- Differential declines across education groups have produced a widening in the socioeconomic gradient in smoking prevalence. In 1974, men with less than a high school education were nearly twice as likely to smoke as those with a college degree or more; by 1995, the least educated men were nearly 3 times as likely to smoke as the most educated. Likewise, in 1974, the least educated women were 1.4 times as likely to smoke as women with 16 or more years of education; by 1995 they were 2.4 times as likely to smoke.

Reference

1. Centers for Disease Control and Prevention. Cigarette smoking-attributable mortality and years of potential life lost—United States, 1990. MMWR 42:654–9. 1993.

Figure 35. Cigarette smoking among adults 25 years of age and over by education and sex: United States, 1974–95



NOTES: Percents are age adjusted (see Technical Notes) and plotted on a log scale. The definition of current smoker was revised in 1992 and 1993. See Appendix II for definition of "current smoker."

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1998*, table 63.

Cigarette Smoking

- In 1995 approximately one out of every four U.S. residents 18 years of age and over was a current cigarette smoker. However, the percent currently smoking decreased as family income increased. For men and women, cigarette smoking was about twice as common among poor persons as among high-income persons. The *Healthy People 2000* goal is to reduce smoking prevalence to no more than 15 percent among persons 18 years of age and older.
- Non-Hispanic white and black persons living below poverty were more likely to smoke than persons with higher incomes. Poor black men and women were twice as likely to smoke as those with middle and high incomes; for white men and women the ratio was 1.7. There appeared to be less of an income gradient in smoking prevalence among Hispanic persons.
- At all income levels, the prevalence of cigarette smoking was similar for non-Hispanic white and black men, whereas non-Hispanic white women were more likely to smoke than black women regardless of income. Hispanic men and women in or near poverty were less likely to smoke than their non-Hispanic white or black counterparts.

Figure 36. Cigarette smoking among adults 18 years of age and over, by family income, sex, race, and Hispanic origin: United States, 1995

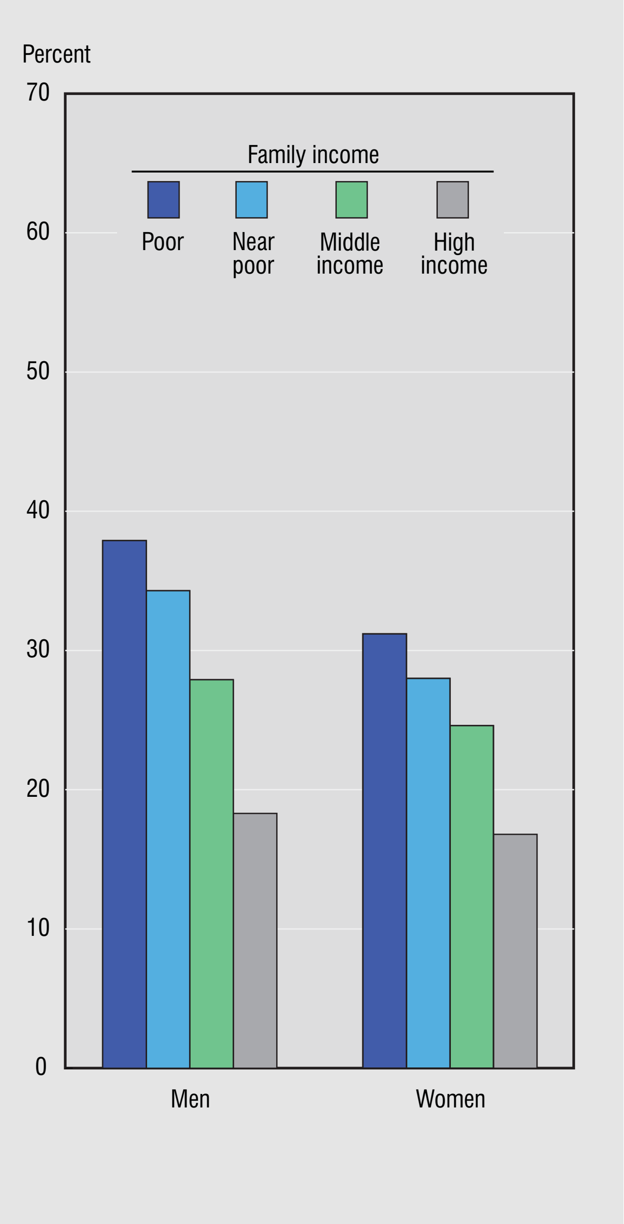
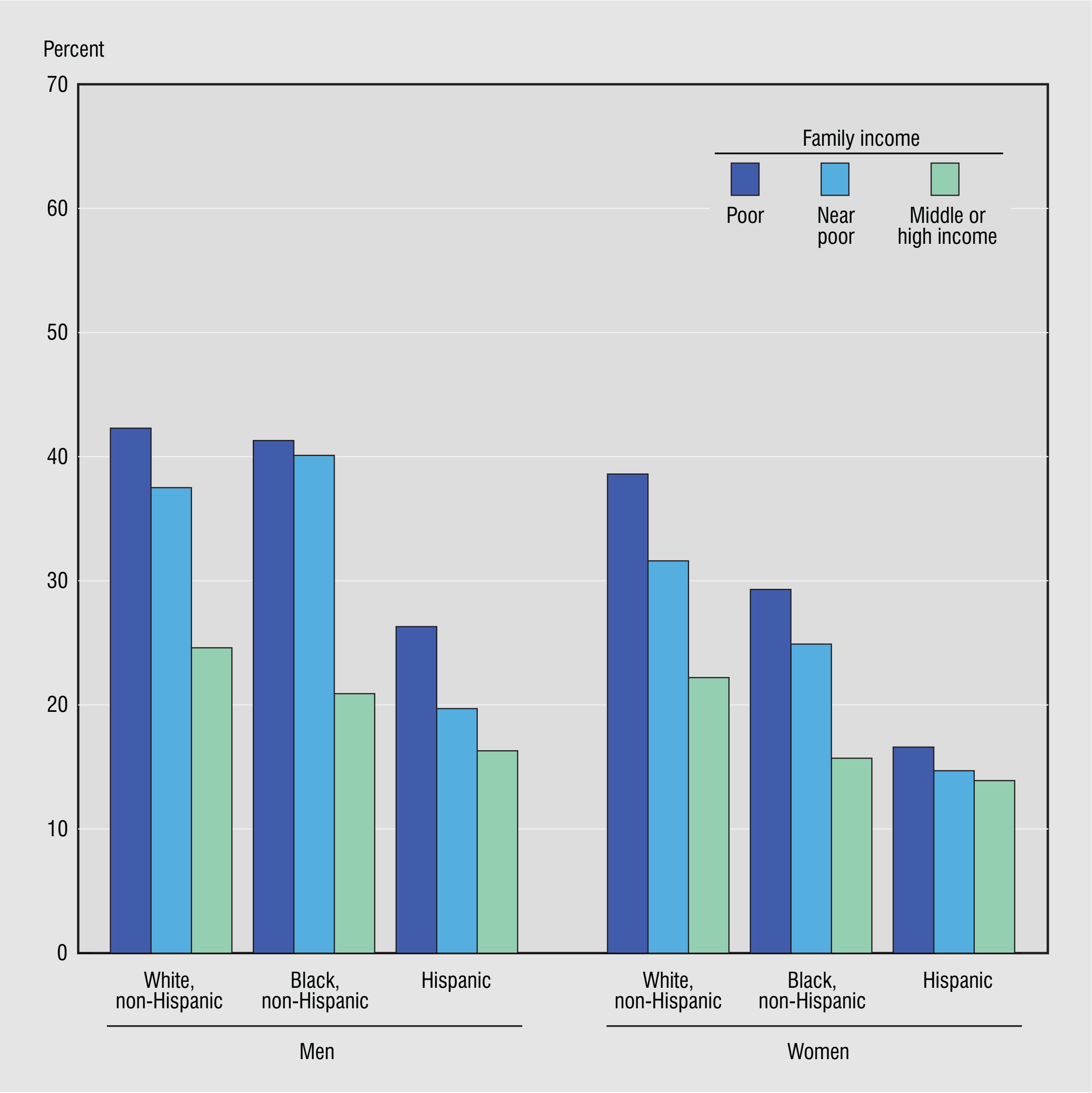


Figure 36. Cigarette smoking among adults 18 years of age and over, by family income, sex, race, and Hispanic origin: United States, 1995—Continued



NOTES: Percents are age adjusted. See Technical Notes for definition of family income categories and age adjustment procedure. See Appendix II for definition of "current smoker."

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

Alcohol Use

- Heavy and chronic alcohol use has numerous harmful effects on the body (1). For example, alcohol use and abuse can cause cirrhosis, poor pregnancy outcomes, and motor vehicle crashes (1). The relationship between socioeconomic status and alcohol differs for moderate and heavy use of alcohol. Heavy drinking decreases with more education, whereas moderate alcohol use increases with educational level (2).

- In 1994–96, 19 percent of persons 25–49 years of age reported heavy alcohol use, defined as having five or more drinks on at least one occasion in the past month. Men were 2.8 times as likely as women to report heavy drinking during the past month.

- The relationship between education and heavy drinking in the past month differed by race, ethnicity, and gender. In 1994–96 black men and women with less than a high school education were almost twice as likely to report heavy alcohol use in the past month as those with more than a high school education. White men with a high school degree were 20 percent more likely to report heavy alcohol use than those with more education and white women with less than a high school degree were 40 percent more likely to report heavy drinking than women with more education. Heavy drinking in the past month did not differ by education among Hispanic women.

- Another measure of heavy alcohol use, drinking five or more drinks on five or more occasions in the past month, shows an even stronger inverse relationship with educational attainment (see data table for figure 37). In 1994–96, 7 percent of persons 25–49 years reported this measure of heavy alcohol use. Those with less than a high school education were 2.7 times as likely to report frequent heavy alcohol use during the past month as college graduates. Except for Hispanic women, all race, ethnicity, and gender groups showed a strong inverse relationship between education and frequent heavy alcohol use.

Figure 37. Heavy alcohol use during the past month among adults 25–49 years of age by education, sex, race, and Hispanic origin: United States, average annual 1994–96

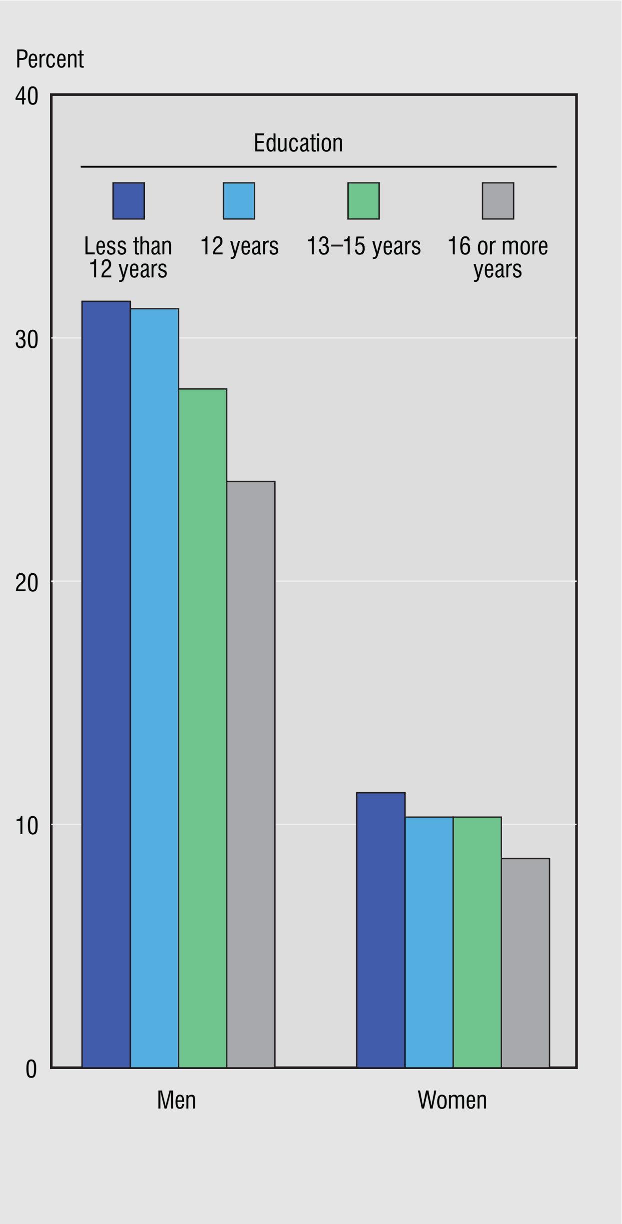


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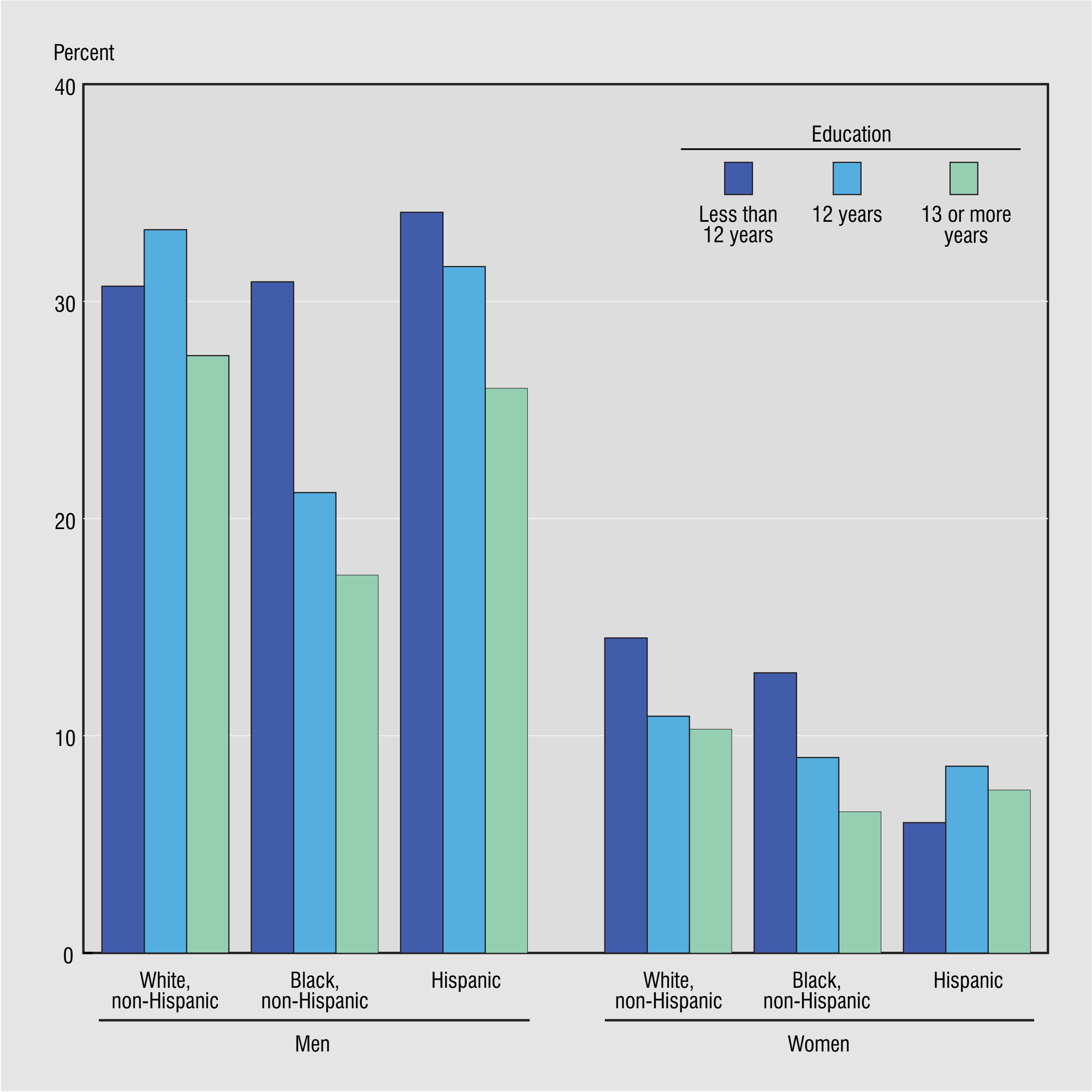
Figure 37. Heavy alcohol use during the past month among adults 25–49 years of age by education, sex, race, and Hispanic origin: United States, average annual 1994–96—Continued



NOTE: Heavy alcohol use during the past month is defined as drinking five or more drinks on the same occasion at least once in the past month.

SOURCE: Substance Abuse and Mental Health Services Administration, Office of Applied Studies, National Household Survey on Drug Abuse, 1994B–96.

Overweight

- Overweight adults are at increased risk for hypertension, heart disease, diabetes and some types of cancer (1). A healthy diet and engaging in regular physical activity are important for maintaining a healthy weight.

- Between 1971–1974 and 1976–80 the prevalence of overweight among U.S. adults 25–74 years of age remained nearly constant at around 26 percent for men and 29 percent for women. By 1988–94, however, 36 percent of men and 39 percent of women in this age range were overweight, an increase of 38 and 33 percent, respectively.

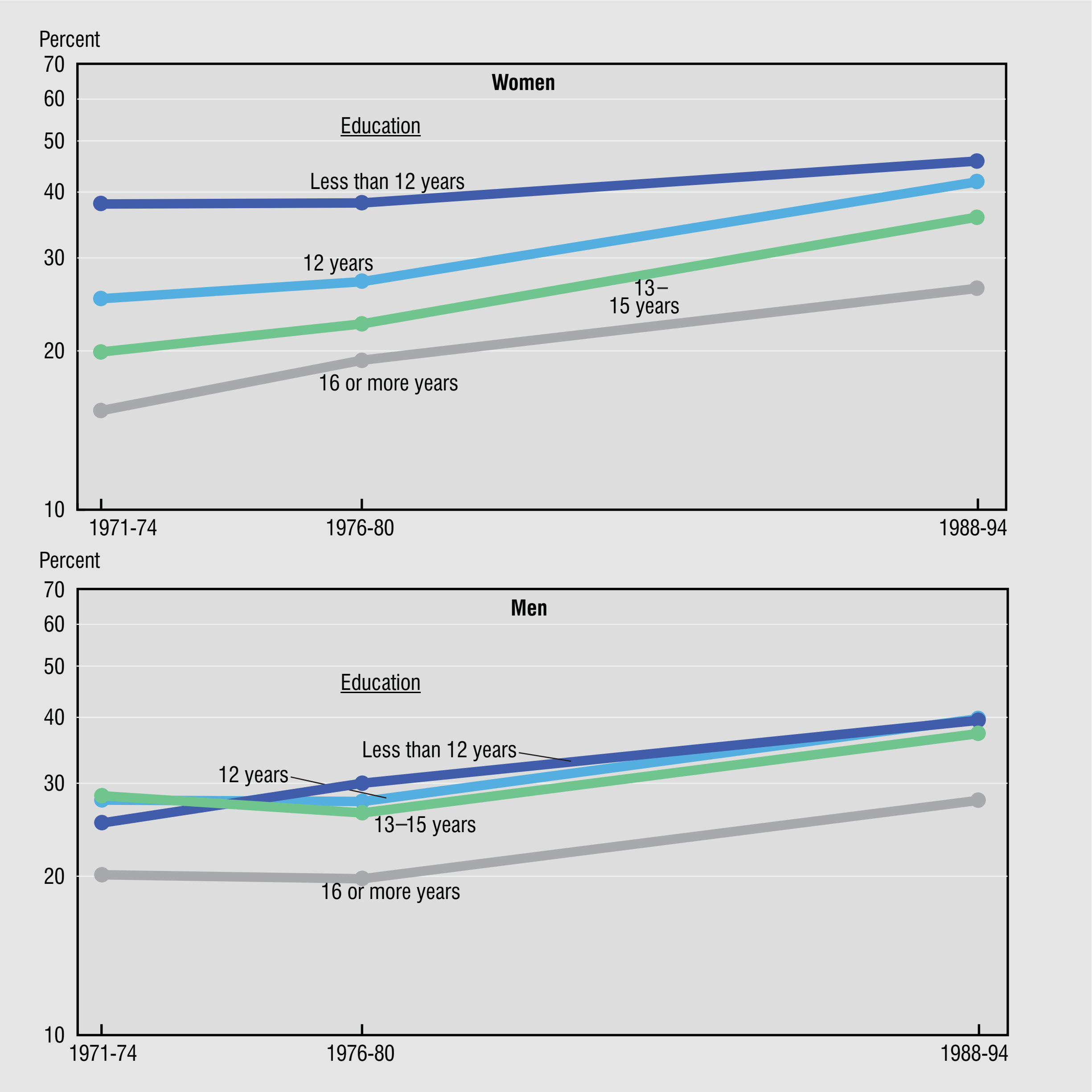
- Over the three time periods, the prevalence of overweight among men has risen continuously only for those with less than 12 years of education, increasing from 25 percent in 1971–74 to 40 percent in 1988–94. For men at all higher levels of education, the prevalence of overweight remained stable between 1971–74 and 1976–80 and then increased between 1976–80 and 1988–94. Among women the trends were different. Between 1971–74 and 1976–80 the prevalence of overweight was stable for women with less than 12 years of education and increased most among women with higher levels of education. Between 1976–80 and 1988–94 overweight increased among women at all levels of education. The increases were greatest for women with 13–15 years of education.

- Among men the greatest educational differences in prevalence of overweight are between men with 16 or more years of education and men with fewer than 16 years. Overweight prevalences among men with less than a college degree were similar at each time period and 1.3–1.5 times as high as those of college graduates. However, among women, overweight prevalence declined as education increased. In 1971–74, overweight prevalence among women with less than 12 years of education was nearly 2.5 times the prevalence among those with 16 or more years. By 1988–94 overweight prevalence among women with less than 12 years of education was only 1.7 times as high as the prevalence among college graduates, due to increases in overweight among college graduates between 1971–74 and 1988–94.

Reference

1. Pi-Sunyer FX. Medical hazards of obesity. Annals of Internal Medicine 119:655–60. 1993.

Figure 38. Overweight among adults 25–74 years of age by sex and education: United States, average annual 1971–74, 1976–80, and 1988–94



NOTES: Percents are age adjusted and plotted on a log scale. See Technical Notes for definition of overweight and age adjustment procedure.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Surveys. See related *Health, United States, 1998*, table 70.

Overweight

- The *Healthy People 2000* goal is for no more than 20 percent of adults 20–74 years of age to be overweight; the target for low-income women is 25 percent. During 1988–94, approximately one-third of adults in the United States were overweight. The prevalence of overweight was similar for men and women, except for persons living below the poverty line. Among the poor, 46 percent of women and 31 percent of men were overweight.

- For men of all races there was little evidence of an income-related gradient in the prevalence of overweight. In contrast, there was a clear income gradient in overweight prevalence among women, with overweight prevalence for poor women 1.4 times that of women with middle incomes and 1.6 times that for women with high incomes.

- The prevalence of overweight was 58 percent higher for black women than for black men. Mexican American women were also more likely than Mexican American men to be overweight, while the prevalence of overweight was the same for white women and men.

- For Mexican American and non-Hispanic white women, there was an income-related gradient in the prevalence of overweight. In 1988–94, 42 percent of poor white women were overweight, 1.4 times the proportion overweight among middle- or high-income white women. Among Mexican American women, overweight prevalence for those in poverty was 1.2 times that for those with middle or high incomes. Among black women, however, the prevalence of overweight did not vary much across the income categories.

Figure 39. Overweight among adults 20 years of age and over by family income, sex, race, and Hispanic origin: United States, average annual 1988–94

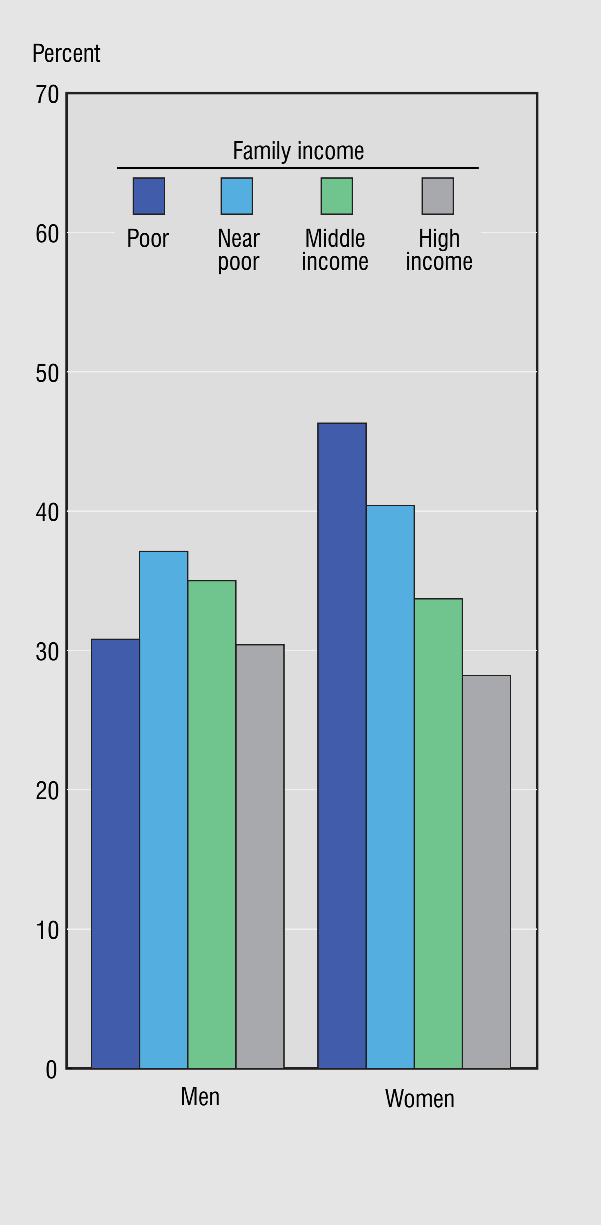
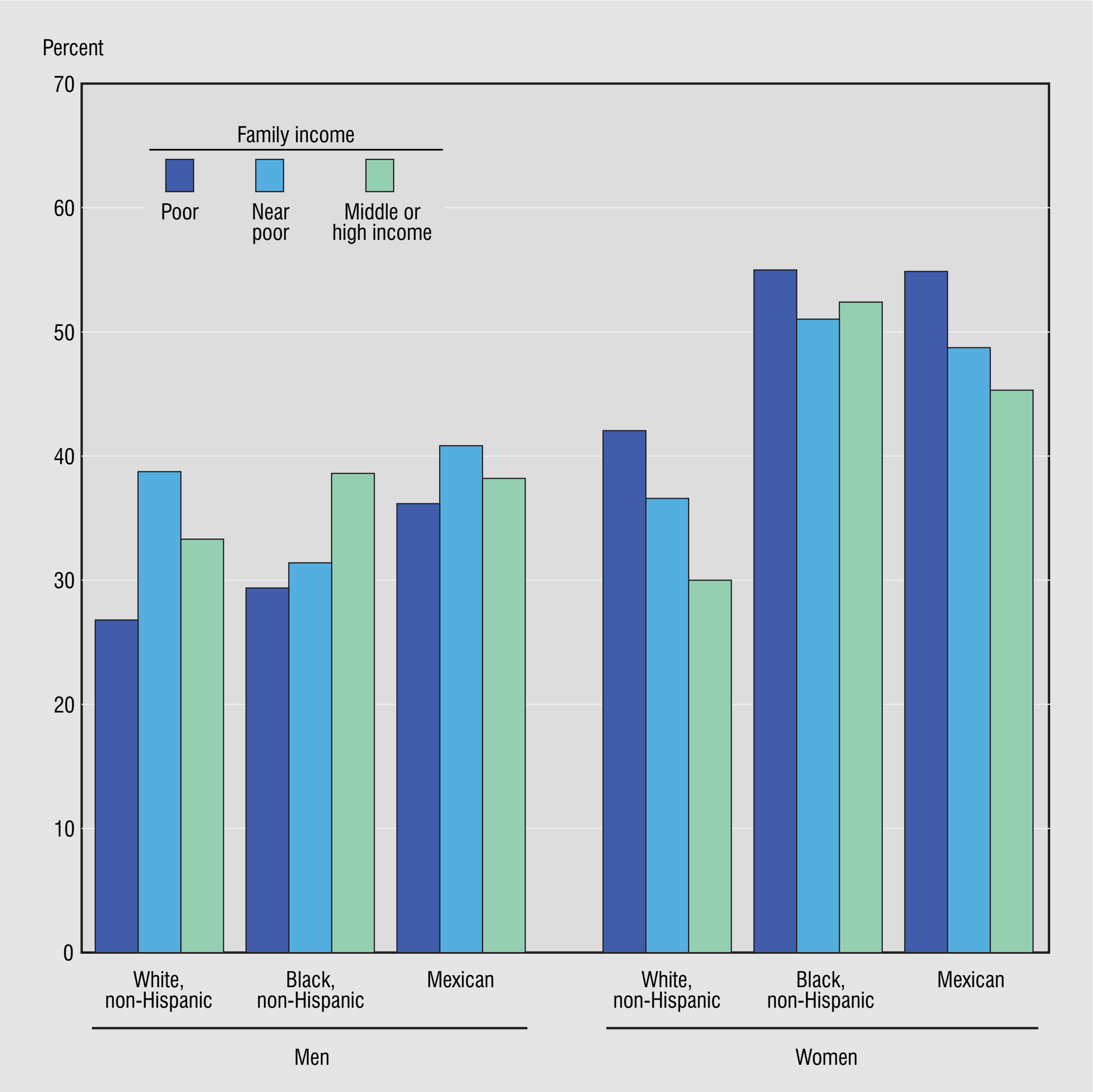


Figure 39. Overweight among adults 20 years of age and over by family income, sex, race, and Hispanic origin: United States, average annual 1988–94—Continued



NOTES: Percents are age adjusted. See Technical Notes for definition of family income categories, overweight, and age adjustment procedure.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey. See related *Health, United States, 1998*, table 70.

Sedentary Lifestyle

- Regular physical activity can reduce the risk of developing coronary heart disease, noninsulin-dependent diabetes, hypertension, and colon cancer, and thus lower the risk of premature death and disability. Physical activity also helps to control and maintain weight as well as reduce anxiety and depression. Recent research has shown that adults and children do not have to engage in strenuous physical activity to gain health benefits, but rather Americans can improve their health and quality of life by incorporating moderate amounts of physical activity (for example, walking, dancing, or yard work) in their daily lives (1). No more than 15 percent of adults 18 years of age and over should lead a sedentary lifestyle, according to the *Healthy People 2000* goal.

- In 1991 one out of every five men and one out of every four women 18 years of age and over were not physically active during their leisure time. Although sedentary lifestyle was more common for Hispanic and black persons than for white persons, sedentary lifestyle showed a strong relationship to income in every sex, race, and ethnic group. The percent who were sedentary in their leisure time declined at each higher income level.

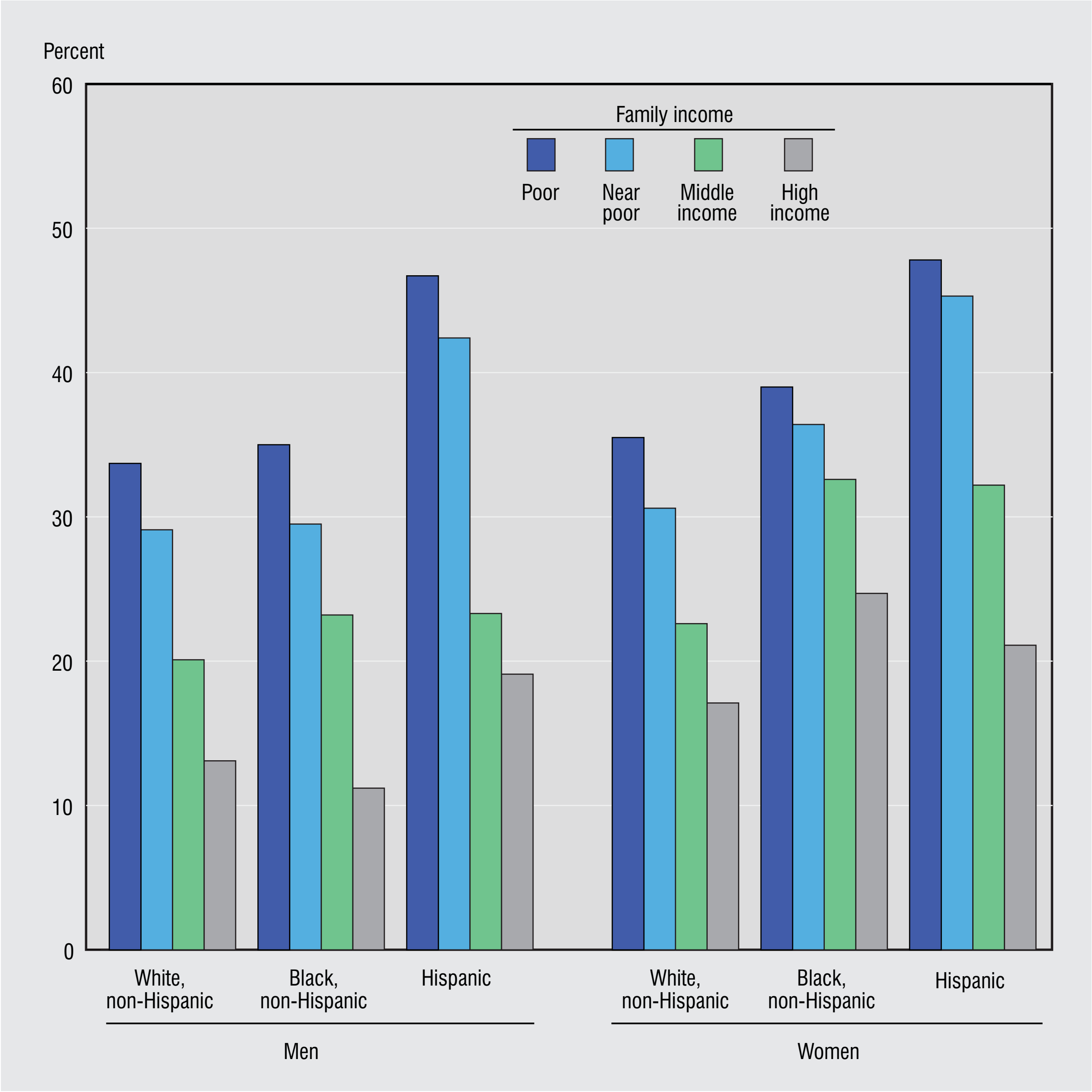
- Black men living in poverty were three times as likely to have a sedentary lifestyle as those with high family incomes. For Hispanic and non-Hispanic white men, the prevalence of sedentary lifestyle for the poor was around 2.5 times the prevalence among those with high family incomes.

- Women had similar income-related gradients in sedentary lifestyle, with higher income groups having lower prevalences. Poor Hispanic women and poor white women were more than twice as likely to be sedentary as their high income counterparts. The percent sedentary among poor black women was 1.6 times the percent sedentary among black women with high incomes.

Reference

1. U.S. Department of Health and Human Services. Physical activity and health: A report of the Surgeon General. Atlanta, Georgia: Public Health Service. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. 1996.

Figure 40. Sedentary lifestyle among adults 18 years of age and over by family income, sex, race, and Hispanic origin: United States, 1991



NOTES: Percents are age adjusted. See Technical Notes for definitions of sedentary lifestyle, family income categories, and age adjustment procedure.

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

Hypertension

- Hypertension is a risk factor for heart disease and stroke, the first and third leading causes of death in the United States. During 1988–94 hypertension affected nearly one in four U.S. adults 20 years of age and over, 25 percent of men and 23 percent of women. Twenty percent of men and 17 percent of women had uncontrolled high blood pressure while 18 percent of hypertensive men and 28 percent of hypertensive women were controlling their blood pressure with medication. The *Healthy People 2000* goal is for 50 percent of hypertensives (40 percent of hypertensive men) to be controlling their hypertension.

- For men of all races, there was little evidence of an income-related gradient in hypertension prevalence in 1988–94. The prevalence of hypertension was 26–27 percent for poor, near poor, and middle income men. Men with high family incomes, however, had a somewhat lower prevalence of hypertension (22 percent). In contrast, there was a clear income-related gradient in hypertension prevalence among women. The prevalence of hypertension ranged from 31 percent for poor women to 19 percent for high-income women and poor women were 1.8 times as likely as high-income women to have uncontrolled hypertension.

- The income-associated prevalences of hypertension for all men and women mask considerable differences across race and ethnic groups. Among non-Hispanic white men, hypertension prevalence was similar across income groups. Hypertension prevalence was higher for black men than for white and Mexican American men, and also varied little across income categories (33–34 percent). However, poor black men were less likely than those with higher incomes to control their hypertension with medication. Among Mexican American men, uncontrolled hypertension increased at higher levels of income.

- In 1988–94 total hypertension prevalence and uncontrolled hypertension declined as income increased for white and black women. Forty percent of poor black women had hypertension, compared with 30 percent of middle- and high-income women. Among white women the prevalence of hypertension ranged from 30 percent for those in poverty to 20 percent for those with middle or high incomes. Among Mexican American women there was no association between income and hypertension.

Figure 41. Hypertension among adults 20 years of age and over by family income, sex, race, and Hispanic origin: United States, average annual 1988–94

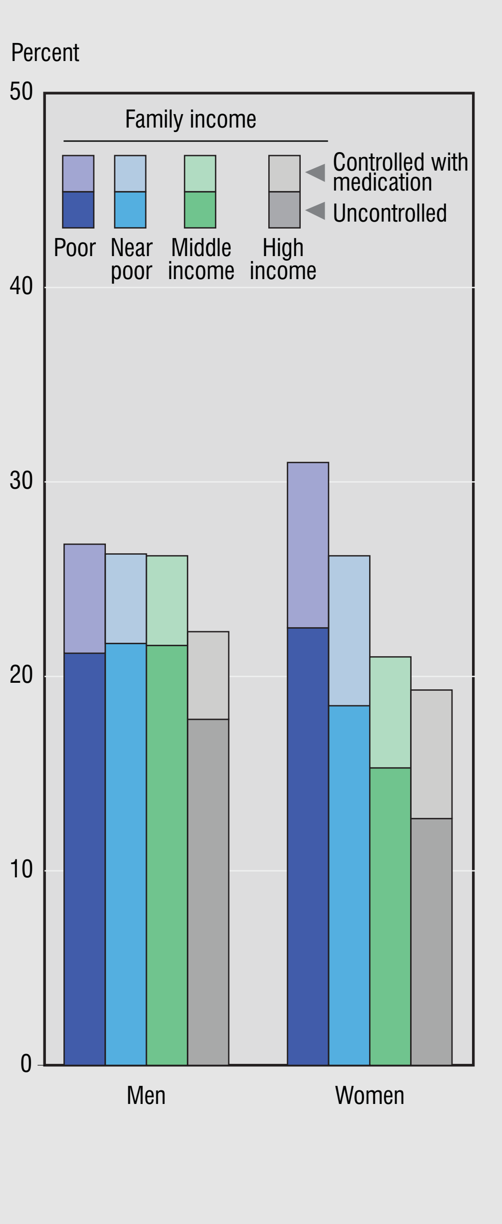
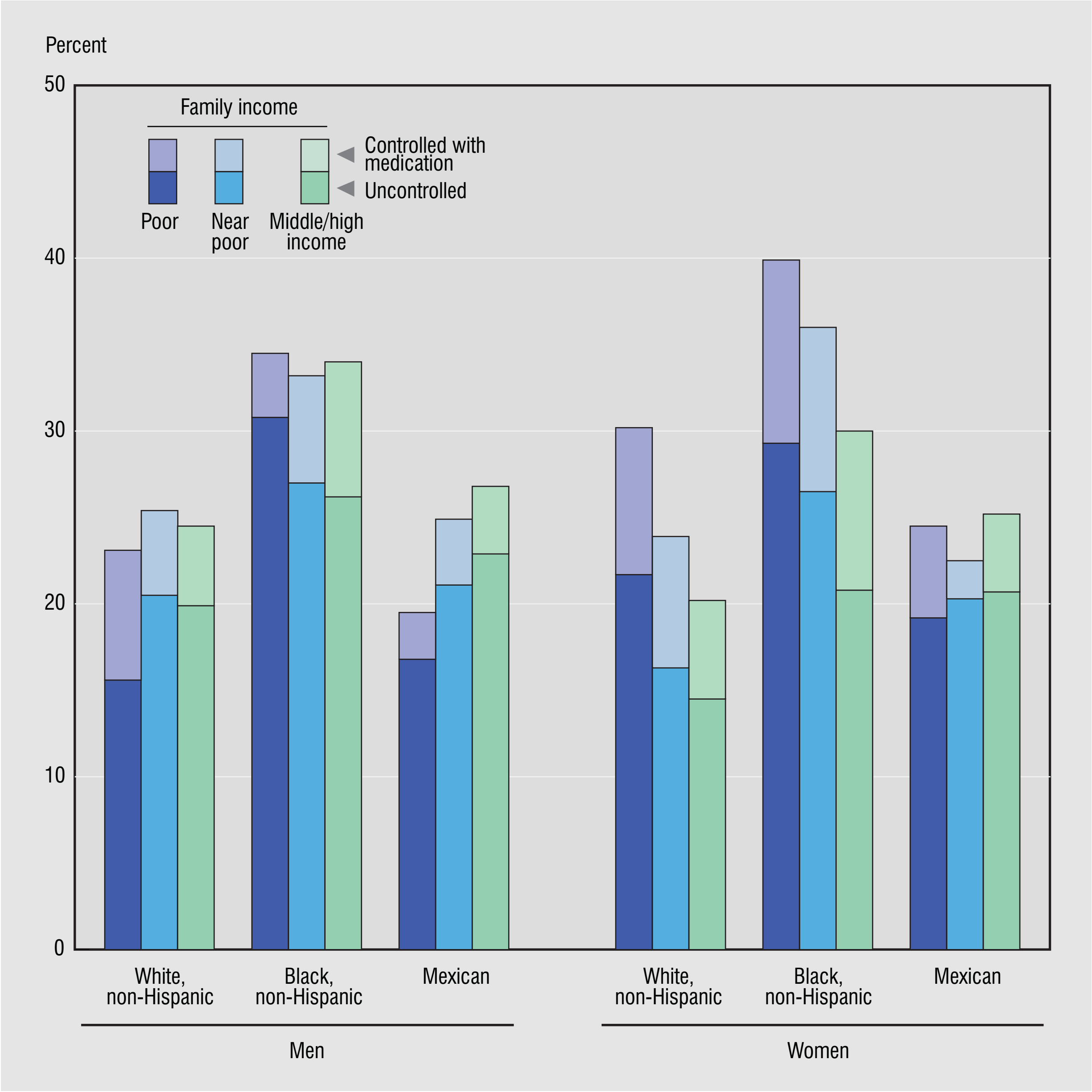


Figure 41. Hypertension among adults 20 years of age and over by family income, sex, race, and Hispanic origin: United States, average annual 1988–94—Continued



NOTES: Percents are age adjusted. See Technical Notes for definition of family income categories and age adjustment procedure. A person with hypertension is defined as either having elevated blood pressure (systolic pressure of at least 140 mmHg or diastolic pressure of at least 90 mmHg) or taking antihypertensive medication. Percents are based on an average of up to six measurements of blood pressure.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, Third National Health and Nutrition Examination Survey. See related *Health, United States, 1998*, table 68.

Blood Lead

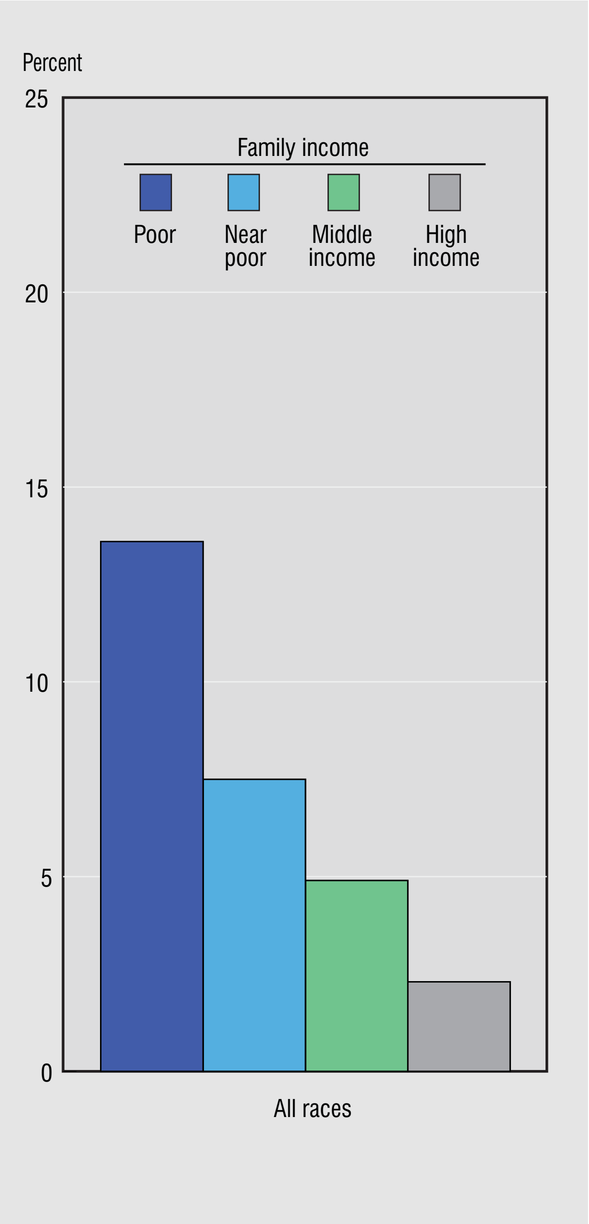
■ Lead can be absorbed by breathing air that is contaminated with lead particles, drinking water that comes from lead pipes or lead-soldered fittings, or eating foods that have been grown in soil containing lead. Adults may be exposed to lead in the environment, but the most common high-dose exposures for men come from the workplace. There are a wide variety of occupations in which a worker may be exposed to lead including smelting and refining industries, battery manufacturing plants, gasoline stations, construction, and residential painting. Elevated levels of lead in adults may have a variety of adverse effects on health including decreased reaction time, possible memory loss, anemia, kidney damage, as well as damaging male and female reproductive functions (1).

■ There is a clear gradient between income and prevalence of high blood lead in men. (Rates for women were very low and are not presented here.) In 1988–94 poor men had a greater likelihood of having high levels of lead in their blood (defined as blood lead at or above 10 µg/dL) than men with higher incomes. Over 13 percent of poor men had an elevated blood lead level, a prevalence that was 1.8 times that for near-poor men, 2.8 times that for middle-income men, and almost six times that for men with high incomes.

■ Across all race and ethnic groups, poor men had higher prevalences of elevated blood lead than men with high incomes. Non-Hispanic white men living in poverty were over three times as likely to have high blood lead as white men with middle and high incomes. Poor black and Mexican American men had a prevalence of elevated blood lead that was over twice as high as those of black and Mexican American men with middle and high incomes.

■ Non-Hispanic white and Mexican American men had similar prevalences of high blood lead levels at each income category; however, the data suggest that black men were more likely to have high blood lead levels than white or Mexican American men at each income level.

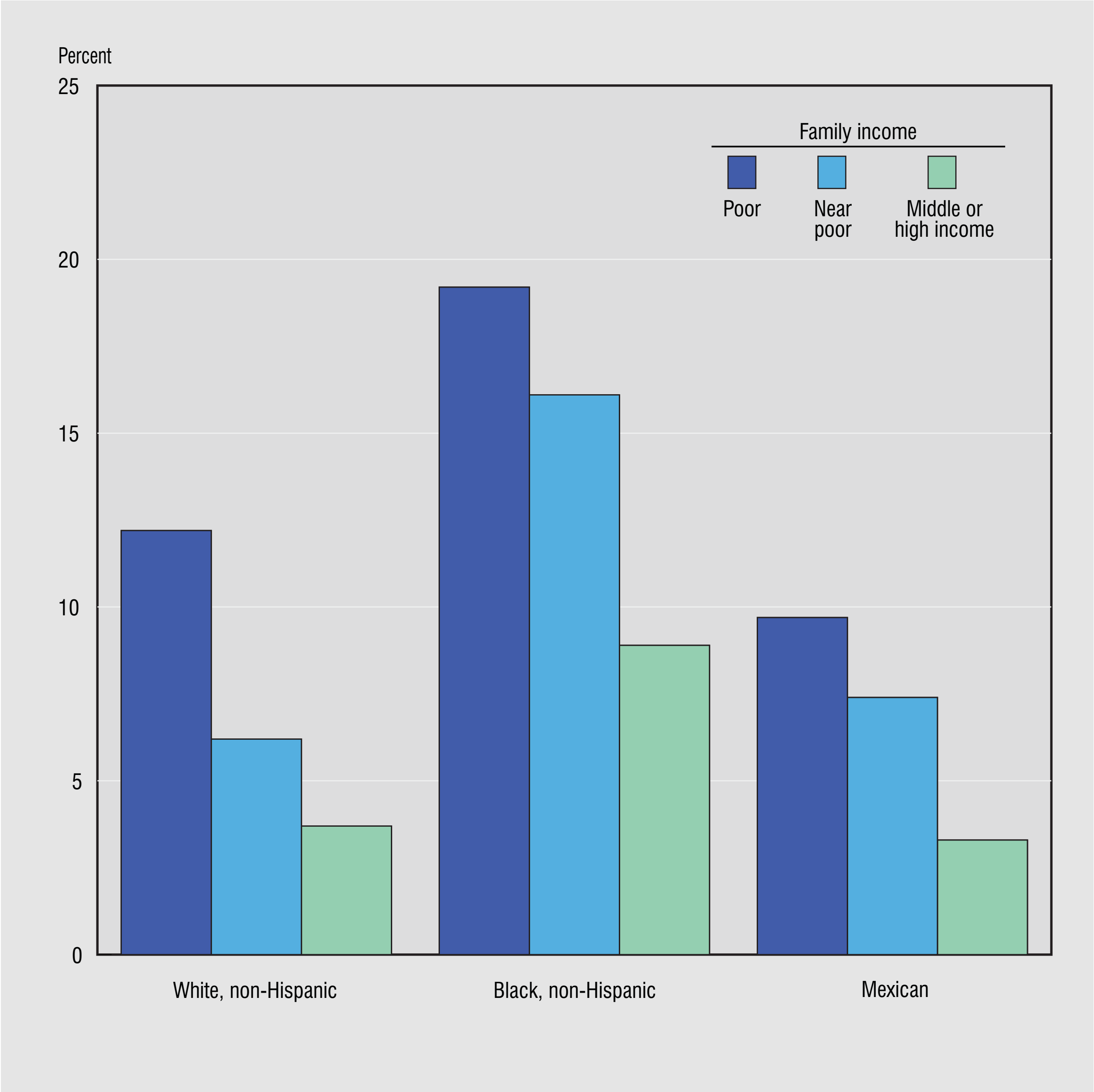
Figure 42. Elevated blood lead among men 20 years of age and over, by family income, race, and Hispanic origin: United States, average annual 1988–94



Reference

1. U.S. Department of Health and Human Services. Toxicological profile for lead. Atlanta, Georgia: Agency for Toxic Substances and Disease Registry (ATSDR). Public Health Service.1993.

Figure 42. Elevated blood lead among men 20 years of age and over, by family income, race, and Hispanic origin: United States, average annual 1988–94—Continued



NOTES: Percents are age adjusted. See Technical Notes for definition of family income categories and age adjustment procedure. An elevated blood lead level is defined as blood lead at or above 10 µg/dL.

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

Health Insurance

- Health insurance coverage is an important determinant of access to health care. Persons without either private or public health insurance coverage are less likely to have a usual source of health care, are more likely to report an unmet need for health care, and are less likely to receive preventive health care services (1,2). The *Healthy People 2000* goal is for no one to be without health insurance.

- In 1994–95, 18 percent of adults 18–64 years of age had no health insurance coverage, 73 percent had private coverage, 7 percent had Medicaid or public assistance coverage, and 2 percent had other coverage (Medicare or military). Among adults age 65 and over, the proportion who were uninsured was very low (less than 1 percent) due to Medicare coverage of older persons.

- Hispanic adults under age 65 are substantially more likely to be uninsured than white or black adults. In 1994–95, 34 percent of Hispanic adults 18–64 years of age lacked health care coverage, more than twice the percent of non-Hispanic white persons without coverage and about 60 percent more than the percent of black persons without coverage.

- The percent of adults under 65 years of age who are uninsured is strongly associated with family income. Overall, in 1994–95 poor adults were seven times as likely to be uninsured as those with high incomes and near-poor adults were six times as likely to be uninsured.

- Poor and near-poor adults were much more likely to be uninsured than those with high incomes regardless of race, ethnicity, or sex. Poor white, black, and Hispanic men were six–seven times as likely to be uninsured as their high-income counterparts. Among white women the poor were more than eight times as likely and the near poor were more than seven times as likely as those with high incomes to be uninsured. Among Hispanic women the poor and near poor were about five-six times as likely as those with high incomes to be uninsured; poor and near-poor black women were about four times as likely as those with high incomes to be uninsured.

- At each level of income Hispanic men and women were more likely to be uninsured than either their black or white counterparts. Within most income groups the percent of black men and women without coverage was somewhat higher or similar to the percent of white men and women without coverage. However, poor and near-poor black women were less likely to be uninsured than white women at those income levels due to greater Medicaid coverage among black women.

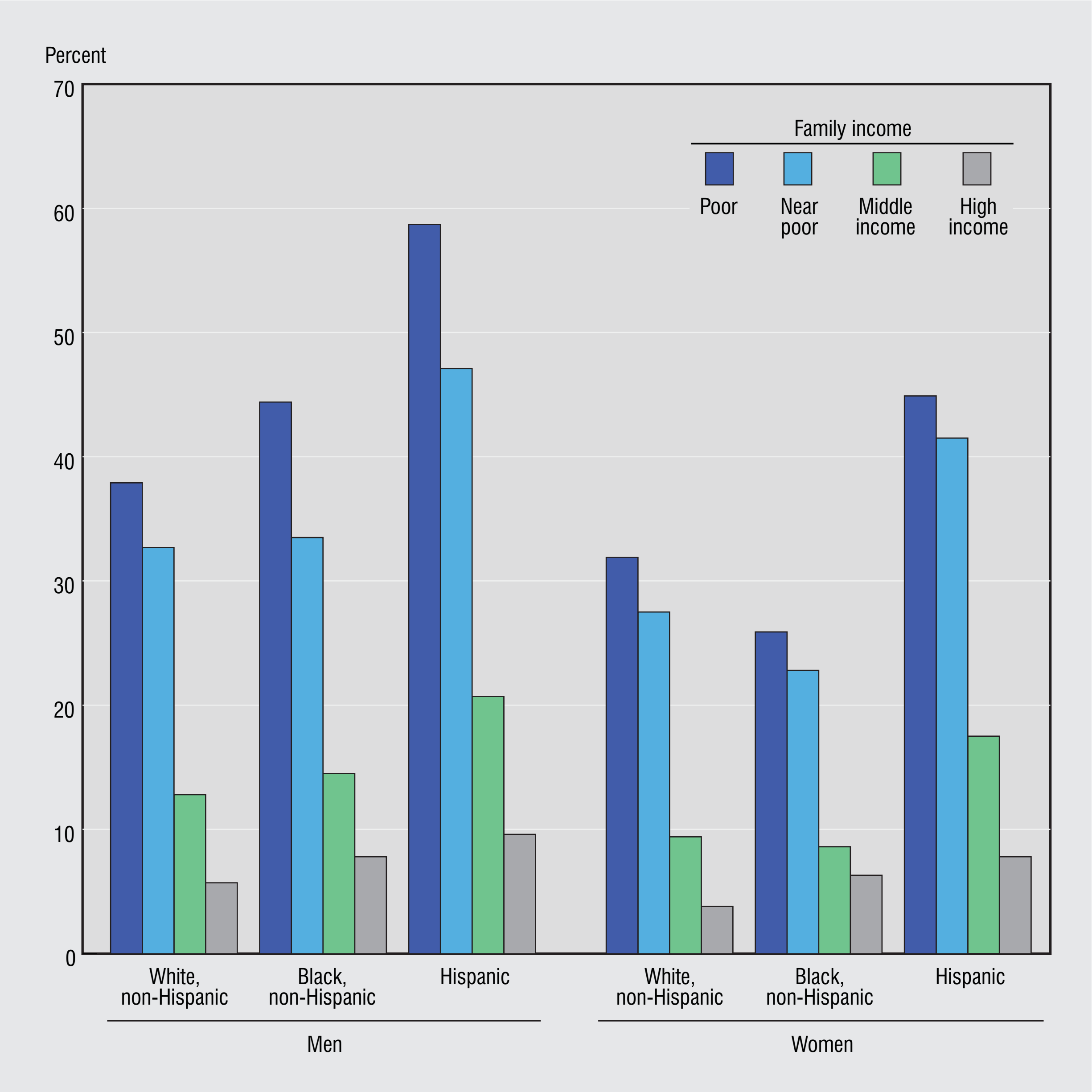
- Men were more likely than women to be uninsured and the difference was greatest among black adults. Poor black men were about 70 percent more likely than poor black women to be uninsured, primarily due to the fact that poor black women were more than twice as likely as poor black men to have Medicaid coverage (55 percent compared with 27 percent).

References

1. Bloom B, Simpson G, Cohen RA, Parsons PE. Access to health care. Part 2: Working-age adults. National Center for Health Statistics. Vital Heath Stat 10(197). 1997.

2. Makuc DM, Freid VM, Parsons PE. Health insurance and cancer screening among women. Advance data from vital and health statistics; no 254. National Center for Health Statistics. 1994.

Figure 43. No health insurance coverage among persons 18–64 years of age by family income, race, and Hispanic origin: United States, average annual 1994–95



NOTES: Percents are age adjusted. See Technical Notes for definitions of the uninsured, family income categories, and age adjustment procedure.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1998*, table 133.

No Physician Contact

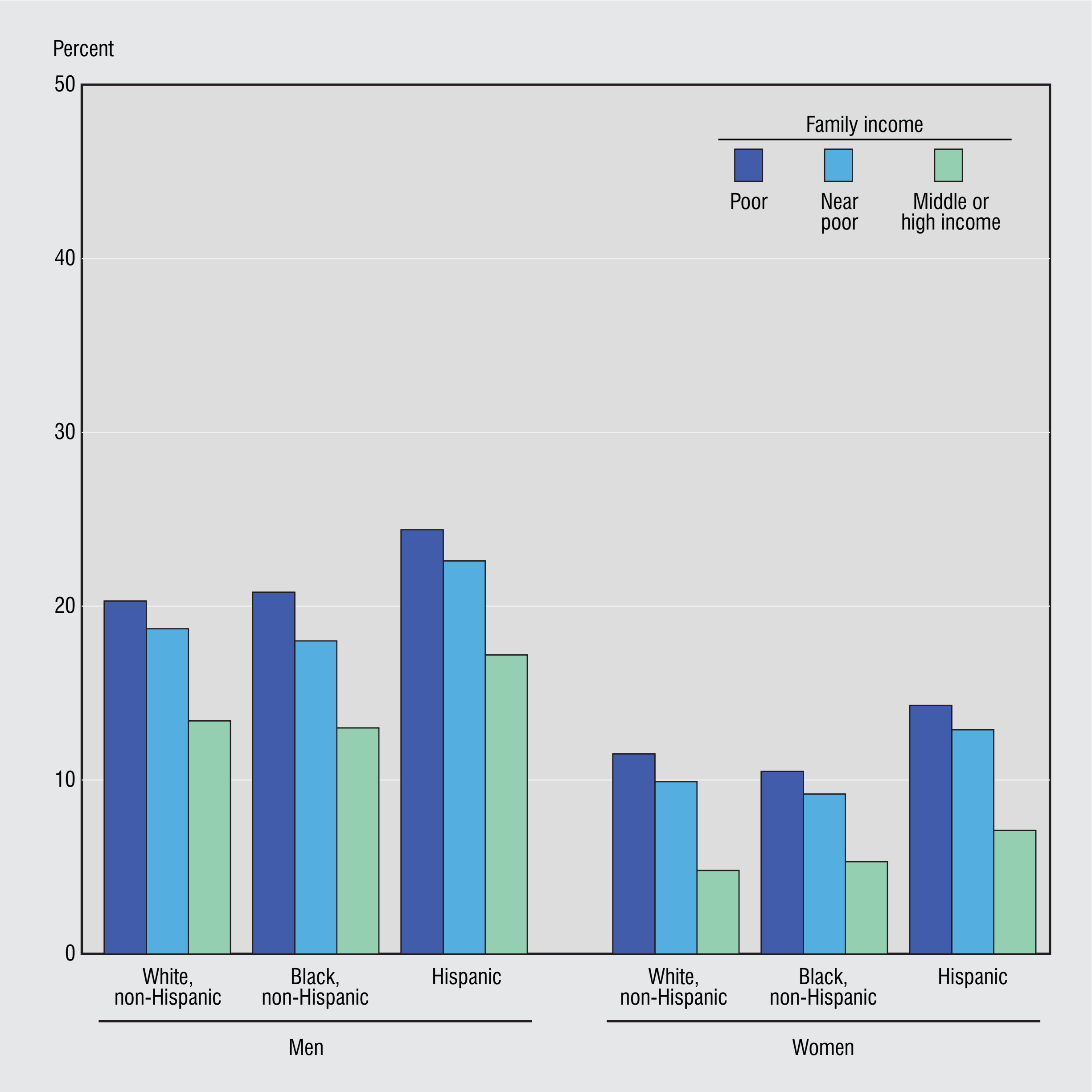
- Those who do not receive timely and appropriate ambulatory care when ill may suffer adverse health consequences that require more intensive care in the future. The proportion of adults without a physician visit within the past year among those with health problems is one measure of access to care for those who are ill and may have a need for health care.

- In 1993–95, 22 percent of persons 18–64 years of age reported a health problem, defined as reporting any one of the following: fair or poor health, a limitation in activity due to a chronic condition, or 10 or more bed-days in the past year. The percent of persons who had not visited a physician in the past year was 12 percent among those with a health problem and 31 percent among those without a health problem.

- Among adults with a health problem the percent who had not visited a physician in the past year was inversely related to family income, regardless of race, ethnicity, or sex. Poor women were almost three times as likely to be without a recent physician visit as women with high incomes and poor men were almost two times as likely to lack a recent physician visit as men with high incomes.

- Men with a health problem were more likely than women with a health problem to lack a recent physician contact, regardless of income, race, and ethnicity. Among the poor and near-poor, men were almost twice as likely as women to lack a recent physician contact, and among middle- and high-income persons men were about 2.5 times as likely as women to lack a recent physician contact.

Figure 44. No physician contact within the past year among adults 18–64 years of age with a health problem by family income, race, and Hispanic origin: United States, average annual 1994–95



NOTES: Percents are age adjusted. See Technical Notes for definitions of persons with a health problem, family income categories, and age adjustment procedure.

SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1998*, table 77.

Mammography

- Breast cancer is the most common site of new cancers among women and second to lung cancer as a leading cause of cancer deaths among women. Regular mammography screening has been shown to be effective in reducing breast cancer mortality. For women ages 50 years and over the National Cancer Institute recommends screening with mammography every 1 to 2 years. The *Healthy People 2000* goal is for 60 percent of women 50 years and older to have received a breast examination and mammogram within the past 2 years.

- Overall in 1993–94, 60 percent of women 50 years of age and over reported having a mammogram in the last 2 years. Women with high incomes were about 60–70 percent more likely than poor or near-poor women to have had a recent mammogram. The income gradient in the percent with recent mammography holds for middle-aged women 50–64 years of age as well as for older women 65 years of age and over (data not shown).

- Within each race and ethnic group women with middle and high incomes were more likely than poor or near-poor women to have recent mammography. This relationship was strongest among white women; the proportion of middle- and high-income white women with a recent mammogram was almost twice that for poor white women.

- After controlling for income, black women were as likely or more likely than white women to report having a recent mammogram. Among the poor, black women were about 60 percent more likely than white women to have a recent mammogram. Among near-poor women, Hispanic women were less likely than either white women or black women to have recent mammography screening.

Figure 45. Mammography within the past 2 years among women 50 years of age and over by family income, race, and Hispanic origin: United States, average annual 1993–94

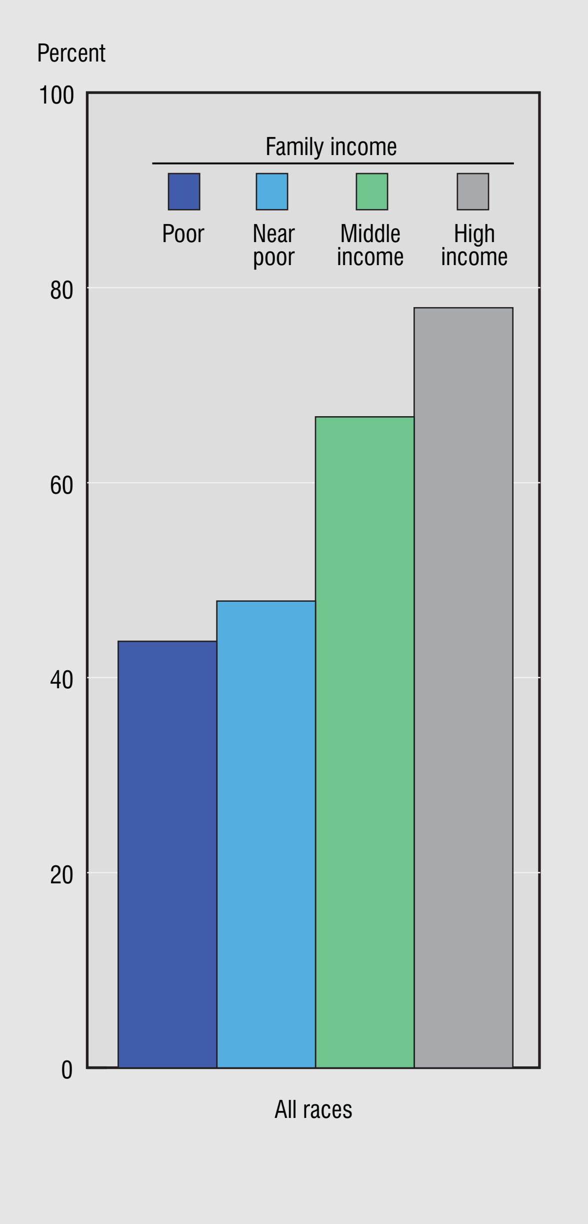
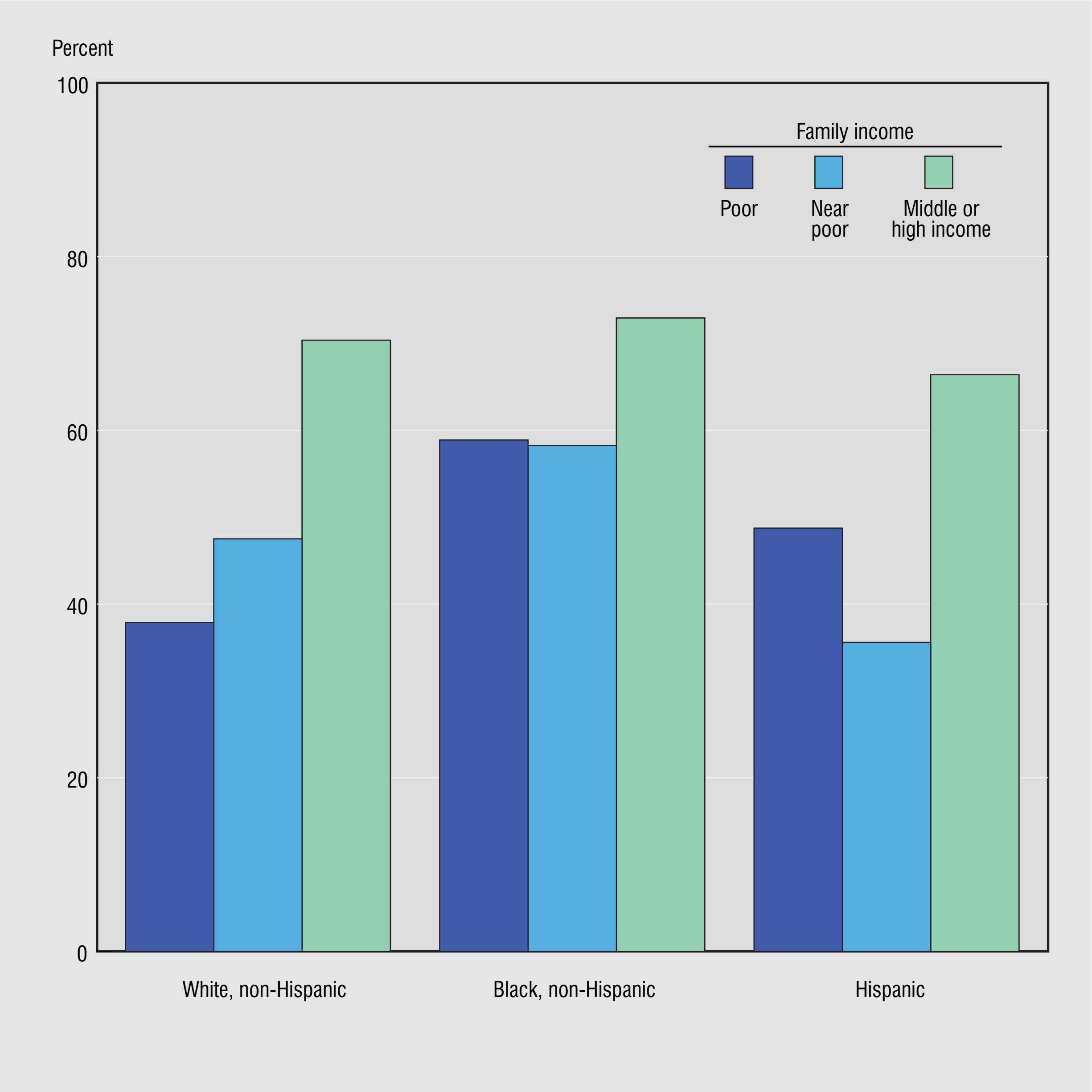


Figure 45. Mammography within the past 2 years among women 50 years of age and over by family income, race, and Hispanic origin: United States, average annual 1993–94—Continued



NOTES: Percents are age adjusted. See Technical Notes for definition of family income categories and age adjustment procedure.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1998*, table 80.

Unmet Need for Care

- Delaying or not receiving needed health care can have adverse health consequences and may eventually result in the need for more intensive care if health status worsens. One approach to measuring the extent of unmet need for health care is to ask respondents whether they delayed or received care that they needed. This approach relies on the ability of respondents to accurately determine whether care was needed.

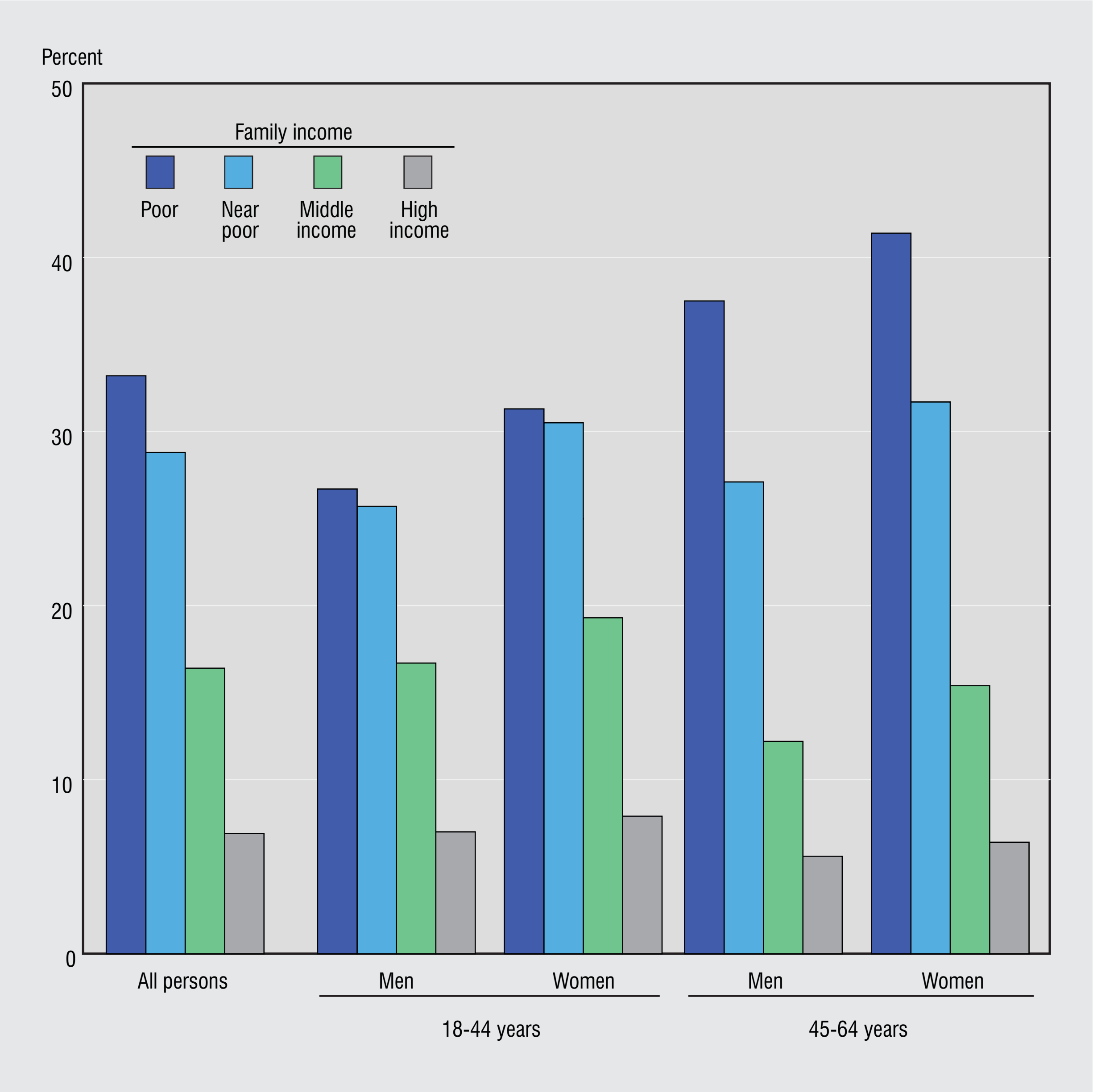
- The proportion of persons who report unmet need for health care increases sharply as income declines. In 1994–95 the age-adjusted percent of poor persons 18–64 years of age who reported unmet need for health care was almost five times that for adults with high family income, and near-poor persons were four times as likely as those with high incomes to report unmet need for health care.

- The inverse relationship between unmet need for health care and family income held true for young and middle-aged adults and for men and women. The relationship between income and having an unmet need was even stronger for middle-aged persons 45–64 years of age than for younger adults 18–44 years. Poor middle-aged men and women were almost seven times as likely as high-income men and women to report unmet need for care. Poor and near-poor men and women 18–44 years of age were almost four times as likely as their high-income counterparts to report unmet need for care.

- Among the poor the percent of persons with unmet need for health care was higher among those 45–64 years of age than younger adults, whereas among middle- and high-income persons the percent with unmet need was somewhat lower for 45–64 year olds than for younger adults. Poor men 45–64 years of age were 40 percent more likely than poor men 18–44 years of age to report unmet need for health care. Poor women 45–64 years of age were about one–third more likely than younger adult women to report unmet need for health care.

- The proportion of adult women who report unmet need for health care tended to be somewhat higher than for adult men, regardless of income or age.

Figure 46. Unmet need for health care during the past year among adults 18–64 years of age, by family income, age, and sex: United States, average annual 1994–95



NOTE: See Technical Notes for definitions of unmet need for health care and family income categories.

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

Unmet Need for Care

- Unmet need for health care increases sharply as income declines among the elderly as well as among younger adults. In 1994–95, 22 percent of persons 65 years and over who were poor reported unmet need for health care, 10 times the percent for older persons with high incomes. Twelve percent of near-poor older persons reported unmet need for health care, five times the percent for those with high incomes.

- Compared with middle-aged persons 45–64 years of age, older persons are substantially less likely to report unmet need for care, due in large part to the fact that Medicare coverage comes into effect at age 65. The drop in unmet need between middle-aged and older persons occurs in every income group. Poor persons 45–64 years of age were 1.8 times as likely to report unmet need for care as poor persons 65 years and over. Among the near-poor the percent of those 65 years and over reporting unmet need was less than one–half that for middle-aged persons.

- Among poor elderly persons and among near-poor elderly persons the percent with unmet need for health care did not differ significantly by race and Hispanic origin. However, in the middle- or high-income group, black and Hispanic older persons were about twice as likely to report unmet need as non-Hispanic white older persons. As a result the income gradient in unmet need was greater for white older persons than for black or Hispanic older persons.

Figure 47. Unmet need for health care during the past year among adults 65 years of age and over by family income, race, and Hispanic origin: United States, average annual 1994–95

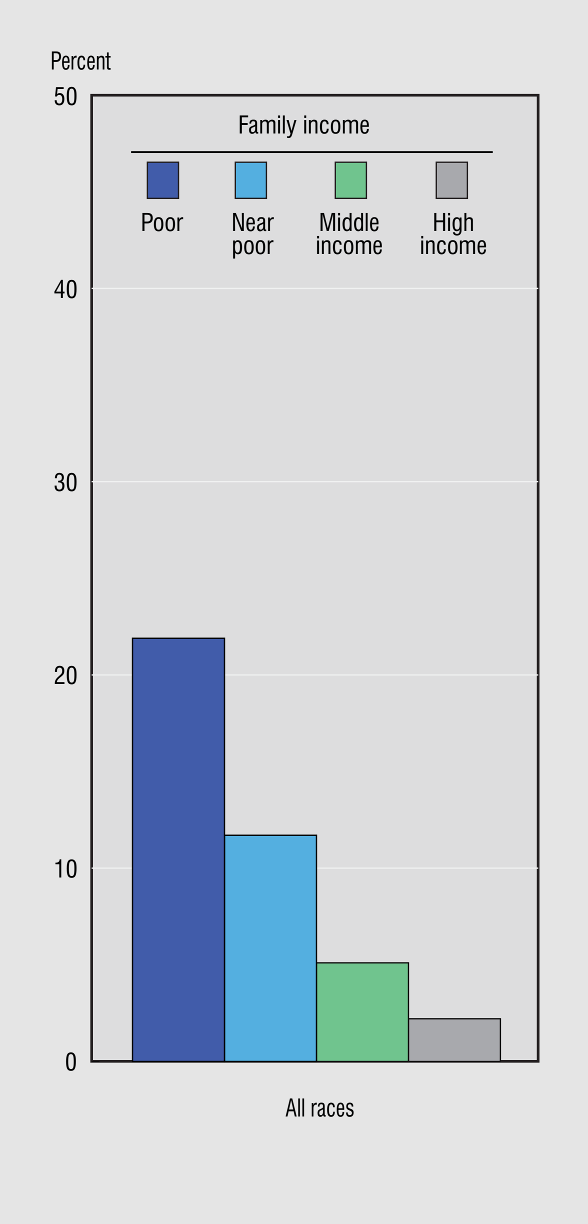
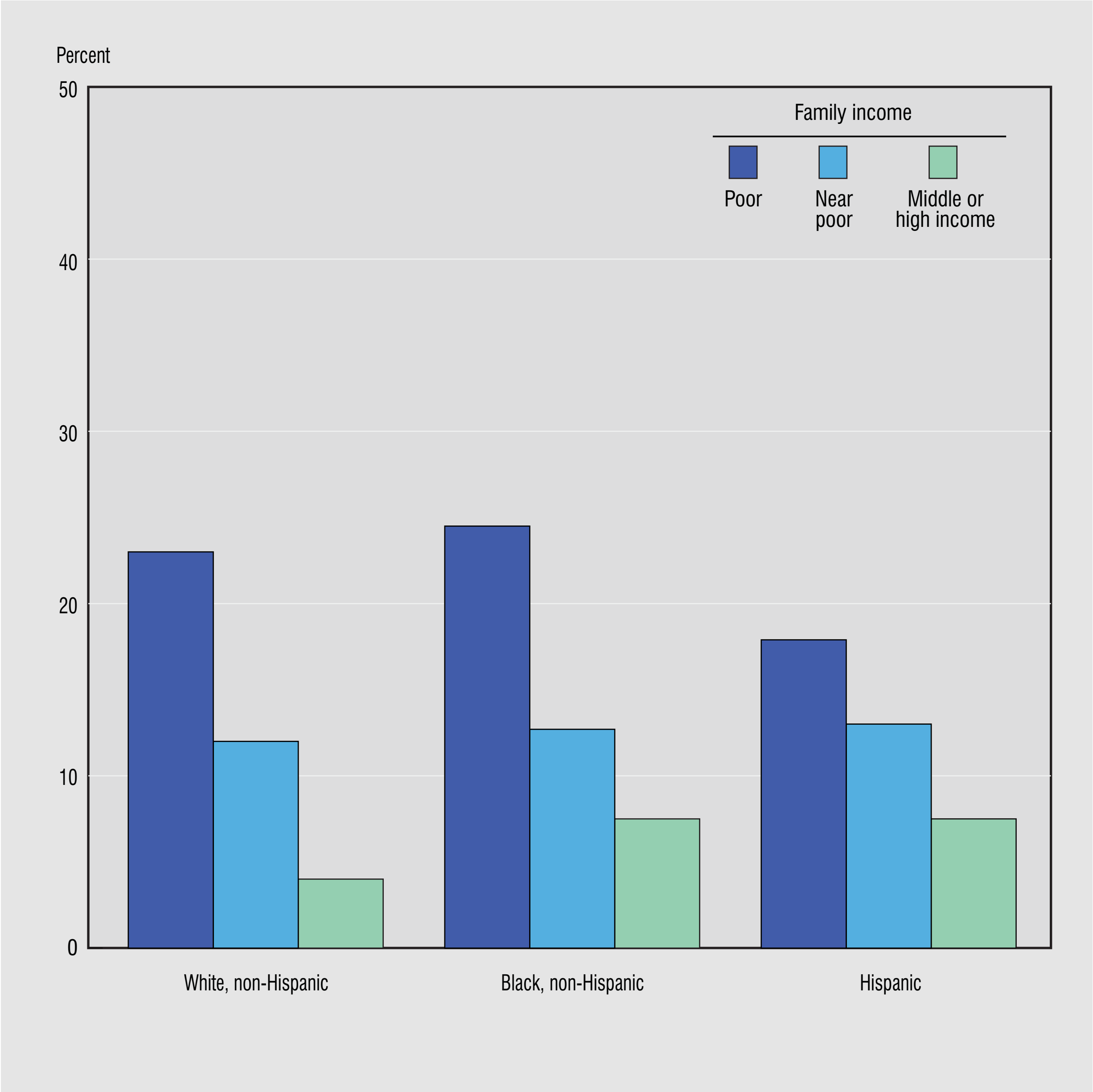


Figure 47. Unmet need for health care during the past year among adults 65 years of age and over by family income, race, and Hispanic origin: United States, average annual 1994–95—Continued



NOTE: See Technical Notes for definitions of unmet need for health care and family income categories.

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

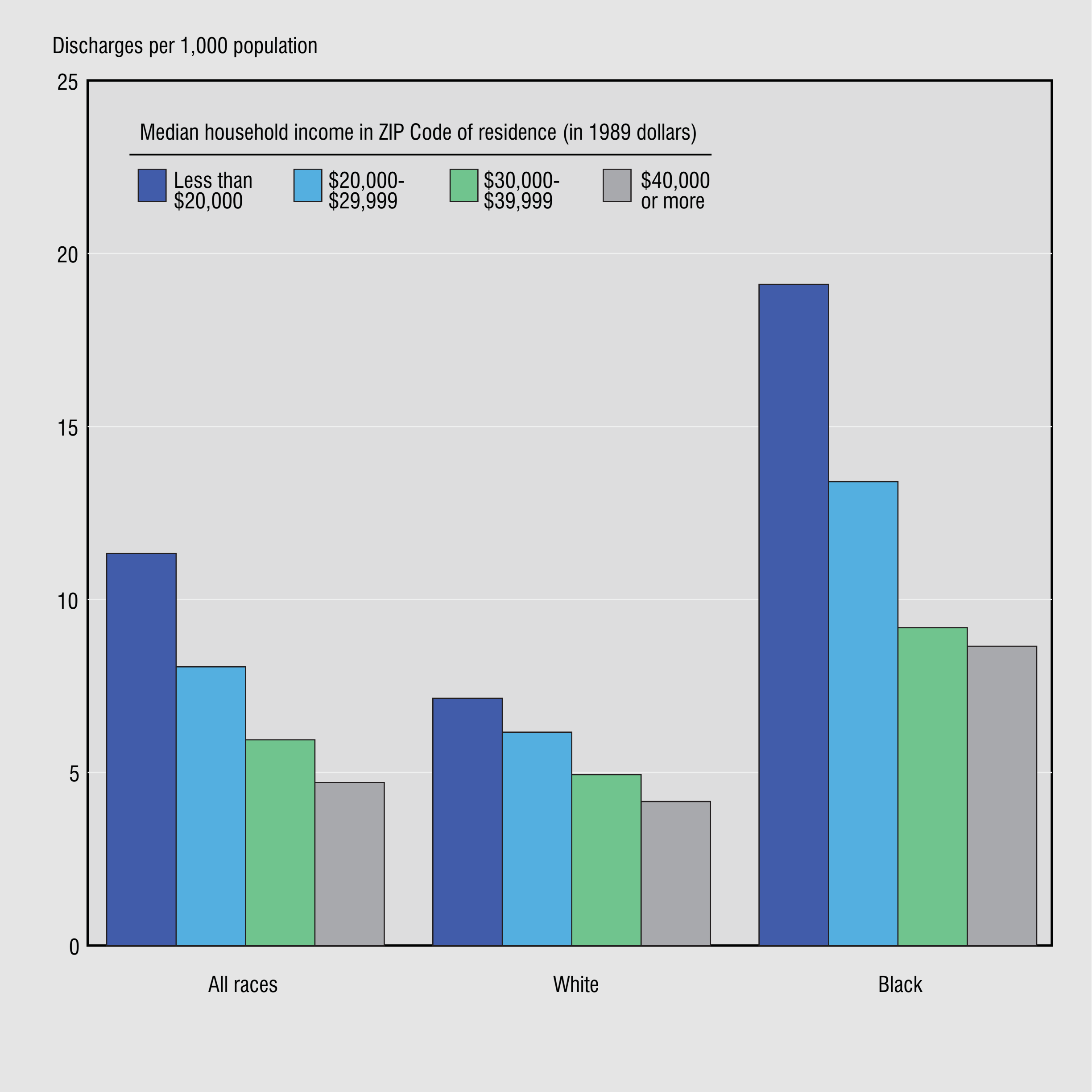
Avoidable Hospitalization

- Delaying or not receiving timely and appropriate care for chronic conditions and other health problems may lead to the development of more serious health conditions that require hospitalization. Hospital stays for specific conditions have been identified as potentially avoidable in the presence of appropriate and timely ambulatory care. Hospitalization rates for these conditions provide a measure of access to ambulatory medical care.

- The rate of avoidable hospitalizations is inversely associated with the median income of the patient's area of residence. In 1989–91 the avoidable hospitalization rate among residents of low-income areas with median household income less than $20,000 was 2.4 times that for residents of high-income areas with median income $40,000 and over. There was an income gradient in avoidable hospitalization rates for white persons and black persons. The ratio of low-income to high-income rates was 1.7 for white persons and 2.2 for black persons.

- At each level of median area income, the avoidable hospitalization rate for black persons was higher than for white persons. This racial difference was largest for residents of the lowest income areas. The rate of avoidable hospitalizations for black persons living in the lowest income areas was 2.7 times that of white persons residing in areas with the lowest median income. In areas with higher median incomes black persons had about twice the rate of avoidable hospitalizations as white persons.

Figure 48. Avoidable hospitalizations among adults 18–64 years of age by median household income in ZIP Code of residence and race: United States, average annual 1989–91



NOTES: Rates are age adjusted. See Technical Notes for definition of avoidable hospitalizations and methods.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey. U.S. Bureau of the Census, 1990 decennial Census.

Dental Care

- Regular dental visits are important for preventing and treating oral diseases. Having at least one dental visit per year is an indicator of appropriate use of dental care services. The *Healthy People 2000* objective is for 70 percent of adults 35 years and over to use the oral health care system during each year.
- In 1993, 63 percent of adults 18–64 years of age had a dental visit during the previous 12 months. The percent of adults with a recent dental visit rose sharply with income from 41 percent among the poor to 77 percent among those with high family income.
- The strength of the association between family income and dental care utilization was similar for white, black, and Hispanic persons. The percent of middle- or high-income adults with a dental visit during the past 12 months was 60–65 percent higher than the percent of poor adults with a recent dental visit within each of these three race and ethnic groups.
- Among poor adults non-Hispanic white persons were more likely to have had a dental visit in the past 12 months than black or Hispanic persons (45 percent compared with 38 and 36 percent). Among middle or high income adults a similar pattern was found with non-Hispanic white persons more likely than black or Hispanic persons to have had a recent dental visit.

Figure 49. Dental visit within the past year among adults 18–64 years of age by family income, race, and Hispanic origin: United States, 1993

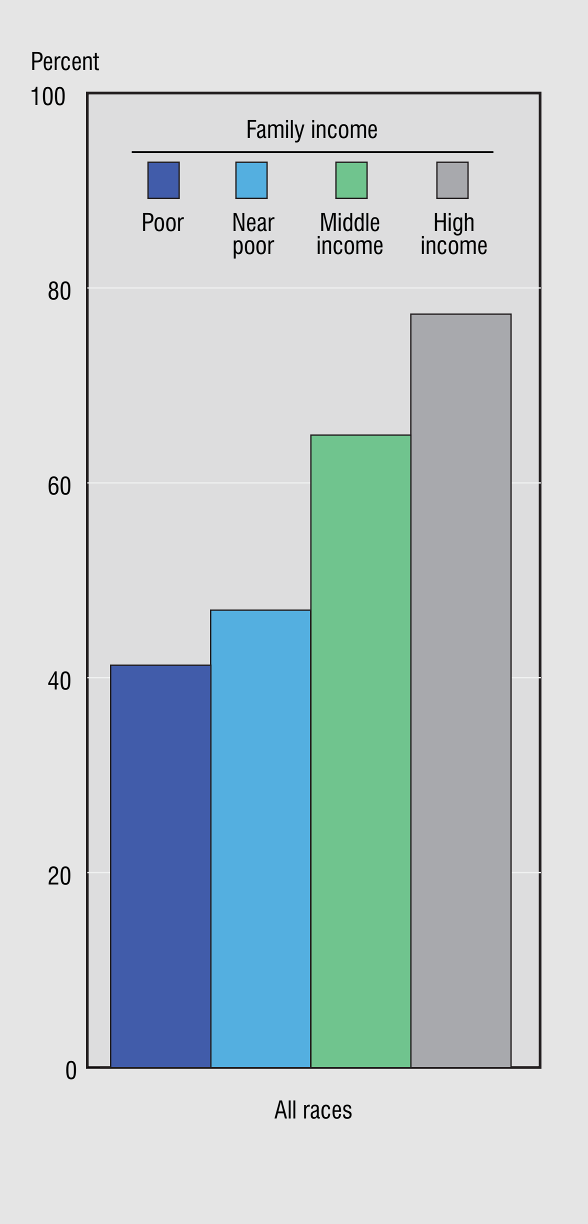
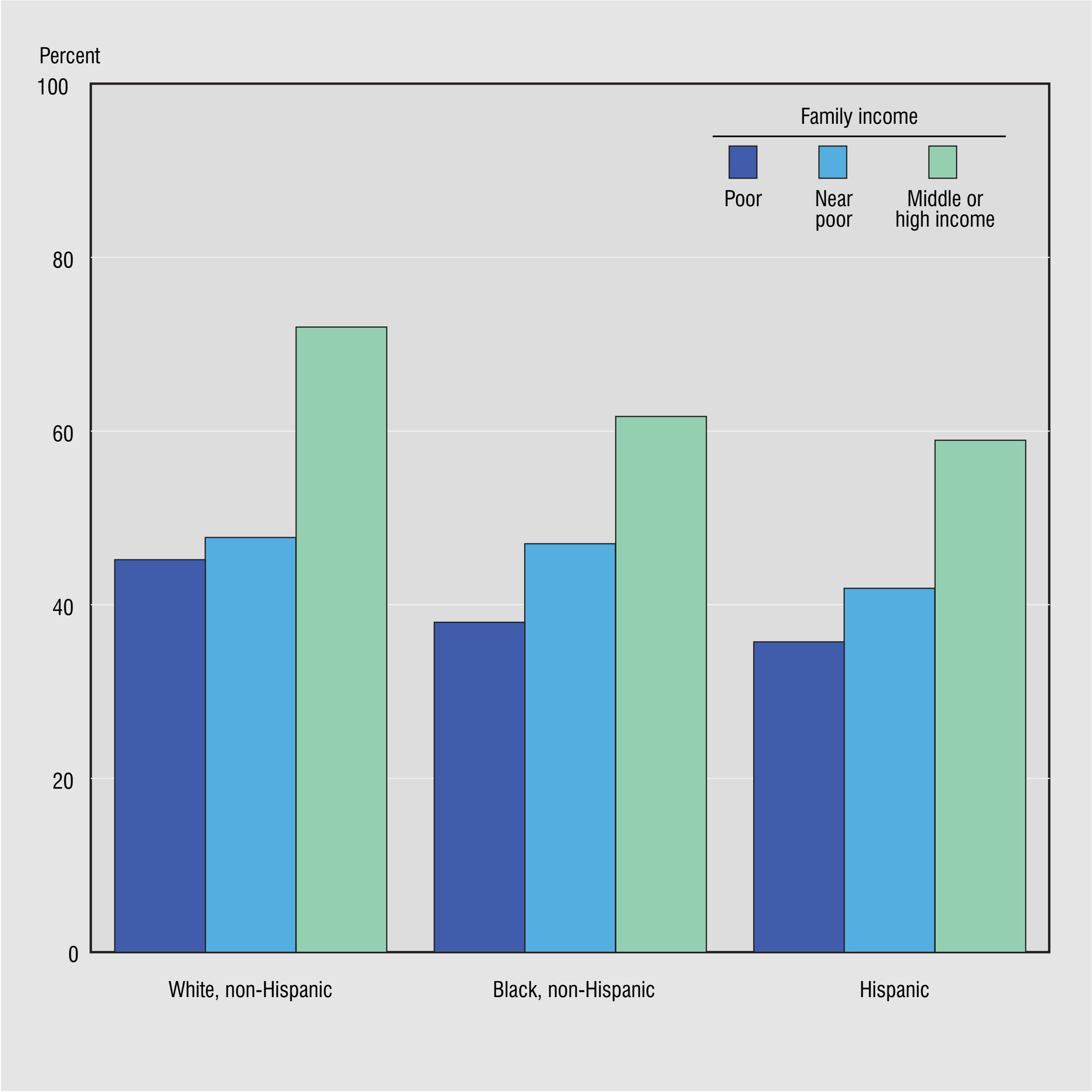


Figure 49. Dental visit within the past year among adults 18–64 years of age by family income, race, and Hispanic origin: United States, 1993—Continued



NOTES: Percents are age adjusted. See Technical Notes for definition of family income categories and age adjustment procedure.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey. See related *Health, United States, 1998*, table 83.

Data Sources

Appendix I describes the data sources used in the chartbook except for the two surveys described below.

National Longitudinal Mortality Study (figures 25 and 27–29)

The National Longitudinal Mortality Study (NLMS) is a long-term prospective study of mortality in the United States. The study is funded and directed by the National Heart, Lung, and Blood Institute and is carried out with the help of the Census Bureau and the National Center for Health Statistics.

The study population for NLMS consists of samples drawn from the Current Population Survey (CPS). The primary purpose of CPS is to provide estimates of employment, unemployment, and other characteristics of the labor force, but it also includes data needed for the record linkage with the National Death Index.

The CPS sample includes persons of all ages, both sexes, and all races. Each sample is designated as a ‘‘cohort’’ for mortality follow up; that is, the persons in the sample were known to be alive on the survey date, and therefore are eligible for follow up for survivorship from that date forward. The CPS surveys used for the full NLMS were conducted in February 1978, March 1979, April 1980, August 1980, December 1980, March 1981, March 1982, March 1983, and March 1985. Data for figures 27–29 were obtained from the NLMS Public Use File, Release 2, which includes 9 years of follow up for the five CPS surveys conducted over the period 1979–81 (1).

Youth Risk Behavior Survey (figures 15 and 17)

The 1992 Youth Risk Behavior Survey is a followback survey of children 12–21 years of age, drawn from families who were interviewed in the 1992 National Health Interview Survey (NHIS). Interviews were completed for 10,645 children. The questionnaire focused on selected types of health behaviors that could lead to a greater risk for disease and injuries among youths.

Measures of Socioeconomic Status

Income refers solely to money income before taxes and does not include the value of noncash benefits such as food stamps, Medicare, Medicaid, public housing, and employer-provided fringe benefits.

Poverty status (figures 3, 4, 21) is based on family income and family size using the poverty thresholds developed by the U.S. Bureau of the Census (see Appendix II). Poor persons are defined as having incomes below the poverty threshold. Near poor persons have incomes of 100 percent to 199 percent of the poverty threshold.

Poverty rates by State (figure 4) are grouped into the following intervals according to the percent below the poverty threshold: 6.5–10.9 percent (19 States); 11.0–14.9 percent (16 States); 15.0–18.9 percent (12 States); and 19.0–24.0 (3 States and the District of Columbia).

Occupational category (figure 7) is based on current occupation and excludes persons on full-time active duty in the military. The category ‘‘white collar’’ includes executive, administrative, and managerial occupations, professional specialty occupations, technicians and related support occupations, sales occupations, and administrative support occupations. The category ‘‘blue collar’’ includes precision production, craft and repair occupations, machine operators, assemblers and inspectors, transportation and material moving occupations, handlers, equipment cleaners, helpers, and laborers. The category ‘‘service’’ includes private household occupations, protective and other service occupations. The category ‘‘farm’’ includes farming, forestry, and fishing occupations.

Family income categories (figures 11, 14–17, 20, 22, 32–34, 36, 39–47, and 49) were defined as follows:

- **Poor** persons have family incomes below the Federal poverty level (See Appendix II). For a family of four, the Federal poverty level was $15,569 in 1995.

- **Near poor** persons have family incomes between 100 and 199 percent of the Federal poverty level.
- **Middle income** persons have family incomes at least 200 percent of the Federal poverty level but less than $50,000.
- **High income** persons have family incomes at least 200 percent of the Federal poverty level and at least $50,000.
- **Middle or high income** persons have family income at least 200 percent of the Federal poverty level.

Three or four family income categories were used in each chart, depending on whether there were sufficient numbers of observations to subdivide those persons with family incomes above twice the poverty level into two groups. Limitations in data collection required the subdivision of the group with incomes at least 200 percent of poverty to be based on family income rather than on percent of poverty level (the National Health Interview Survey and National Health and Nutrition Examination Survey had an upper income category of $50,000 or more for the survey years analyzed).

Median household income in ZIP Code of residence (figures 23, 24, and 48) based on the 1990 decennial Census was used as a measure of socioeconomic status for charts based on data sources that did not include a measure of socioeconomic status at the individual level. Four categories of median household income were used: under $20,000 (13 percent of the U.S. population), $20,000–$29,999 (39 percent of the U.S. population), $30,000–$39,999 (27 percent of the U.S. population), $40,000 and over (21 percent of the U.S. population) (2).

Race and Ethnicity

This chartbook presents data by race and ethnicity as well as socioeconomic status. In many charts, data are presented by both race and ethnicity (e.g., presenting information for Hispanic as well as non-Hispanic white and non-Hispanic black persons). The chart labels provide a complete description of the data that are presented. In the text that accompanies the charts, in some places, shorthand terms (“white” and “black”) were used for the sake of brevity. For example, where a chart presents data for black, non-Hispanic persons, the term “black” in the text refers to only non-Hispanic black persons.

Data throughout the chartbook were generally presented for each race and ethnic subgroup where data were available and numbers were sufficient to allow calculation of reliable estimates. Many charts present data only for the largest race and ethnic groups: non-Hispanic white, non-Hispanic black, and Hispanic (or Mexican-American) persons. National health data sources that permit tabulation by socioeconomic status are limited for smaller groups such as American Indians or Alaska Natives and Asians or Pacific Islanders. Figures 8 and 18 do not present trends for Hispanic births because the number of states reporting Hispanic origin on birth certificates has changed over the time period 1980–95 (See Appendix I, National Vital Statistics System). Figures 14, 16, 39, 41, and 42 present data for Mexican Americans, rather than all Hispanic persons, because Mexican Americans were oversampled in the National Health and Nutrition Examination Survey III. Figures 24 and 48, based on the National Hospital Discharge Survey, do not present data by Hispanic origin because ethnicity is not well reported in that survey.

Data are generally presented by both race and ethnicity so that data are shown for non-Hispanic white and non-Hispanic black persons rather than all white persons and all black persons. However, figures 2 and 3 present data for non-Hispanic white persons and all black persons because the data sources for these figures did not include tabulations for non-Hispanic black persons. Failing to separate black Hispanics from all black persons should not have a large effect on results for black persons, however. While 12.4 percent of the white population is Hispanic, only 2.4 percent of the black population is Hispanic.

The proportion of the black population that is of Hispanic origin by sex and age is shown in the following table.

Percent of black persons who are of Hispanic origin, United States, 1996

Age	*Male*	*Female*
0–17 years.	2.7	2.6
18–64 years.	2.4	2.4
65 years and over	0.8	1.7

SOURCE: Current Population Survey, 1996.

The method of collection of race or ethnicity varies with the data source. Most of the data sources used in the chartbook collect race and ethnicity through self-report or the report of a household member. However, in medical records-based data sources such as the National Hospital Discharge Survey these data may be obtained through some self-reports and some observer reports. Race and ethnicity on death certificates are reported by the funeral director based on information provided by an informant such as next of kin, while birth certificates may combine some self-reports and some observer reports.

Age Adjustment

The age adjustment section of Appendix II explains age adjustment procedures and defines standard populations. The standard populations used in the chartbook are consistent with those used in the detailed tables section of Health, United States and vary with the data source.

- Figures 15, 16, and 17: data were age adjusted to the 1980 U.S. resident population using two age groups: 12–14 years and 15–17 years (see Appendix II, table III).
- Figures 26–31: data were age adjusted to the 1940 U.S. standard million age distribution (see Appendix II, table I) using 10-year age groups.
- Figures 32–36, 40, 44, 45, 46, 48: data were age adjusted to the 1970 U.S. civilian noninstitutionalized population (see Appendix II, table III) using the following age groups: 18–44, 45–64, 65–74, 75 and over (figure 32); 18–24, 25–34, 35–44, 45–64, and 65 and over (figures 36, 40); 18–24, 25–34, 35–44, 45–64 (figure 33); 70–74, 75–84, 85 and over (figure 34); 25–34, 35–44, 45–64, 65 and over (figure 35); 18–44, 45–64 (figures 44, 46); 50–64, 65 and over (figure 45); 18–24, 25–34, 35–44, 45–54, 55–64 (figure 48).
- Figures 38, 39, 41, and 42: data were age-adjusted to the 1980 U.S. resident population using the following age groups: 25–34, 35–44, 45–54, 55–64, 65–74 (figure 38); 20–34, 35–44, 45–54, 55–64, 65–74, 75 and over (figures 39, 41, 42).

Other Measures and Methods

Activity limitation among children (figure 11) refers to limitation in ability to perform activities usual for children of the same age. For children under 5 years of age, the National Health Interview Survey (NHIS) asked about ‘‘the usual kinds of play activities done by most children his/her age.’’ For children ages 5 to 17, the NHIS asked whether ‘‘any impairment or health problem’’ limits school attendance, or requires the child ‘‘to attend a special school or special classes.’’ In addition, respondents are asked whether the child is ‘‘limited in any way in any activities because of an impairment or health problem.’’

Teenage childbearing (figure 12) estimates are based on the 1995 National Survey of Family Growth (NSFG). Women were asked their age at first birth and some information about their family of origin. The education level shown is education of the respondent’s mother, to provide information about the socioeconomic status of the respondent’s family of origin. This chart included only women 20–29 years of age at the time of the survey in order to reduce recall bias and reduce age-related variability in respondents’ current income.

Blood lead (figures 14 and 42) levels are based on data from the third National Health and Nutrition Examination Survey. Blood was drawn from most survey participants and the level of lead in the blood was assessed. These charts present the proportion of the population who were determined to have a high level of blood lead. An elevated blood lead level was defined as having at least 10 micrograms of lead per deciliter of blood. Data for adults are shown only for men; values for women were very low in every socioeconomic category.

Overweight among adolescents (figure 16) is measured by the body mass index (BMI), a measure of weight for height (kg/m^2). The lower boundaries for overweight in adolescents were defined by the sex-specific 95th percentile of BMI for every 6 months of age among respondents 12–17 years of age in the 1966–70 National Health Examination Survey (NHES). Adolescents in NHANES III (the third National Health and Nutrition Examination Survey) whose BMI's were greater than the 95th percentiles for NHES were defined as being overweight. Pregnant girls were excluded.

Sedentary lifestyle among adolescents (figure 17) is defined as having no heavy physical activity that resulted in sweating or heavy breathing during the past week.

Health insurance coverage (figures 20, 22, and 43) is defined as coverage during the month prior to interview in the National Health Interview Survey. The uninsured are defined as those who reported that they did not have the following types of health insurance coverage: private coverage, Medicaid, public assistance, Medicare, and military coverage. Persons who reported that they had any of these types of coverage during the month prior to interview are categorized as insured in figure 22. In the data table for figures 20 and 43 persons who had Medicaid and private coverage are classified as having Medicaid coverage.

Ambulatory care visits among children (figure 23) by median household income of ZIP Code of residence were estimated by linking records from the 1995 National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Medical Care Survey (NHAMCS) with 1990 Census data on median household income of ZIP Code of residence. Ratios of the number of ambulatory care visits during 1995 to Census population estimates in 1990 by median household income of ZIP Code of residence were estimated. The 1995 data on numbers of visits were used because 1995 was the first year with ZIP Code of residence available on NAMCS and NHAMCS. The only year for which information on median household income by ZIP Code is readily available from the Bureau of the Census is 1990.

Asthma hospitalizations among children (figure 24) include inpatient hospital stays; emergency room visits that did not result in a hospital stay are excluded. The data are based on the National Hospital Discharge Survey (NHDS). ZIP Code of the patient's place of residence from NHDS was linked with 1990 Census data on median household income by ZIP Code to produce hospitalization rates by median household income in the ZIP Code of residence. Census population estimates in 1990 by median household income of ZIP Code of residence, age, and race were used as the denominators of rates. These estimates were based on data for 1989–91 because 1990 is the only year for which information on median household income by ZIP Code is readily available from the Bureau of the Census.

Activity limitation among adults (figure 33) 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.

Activities of daily living among persons 70 years and over (figure 34) are based on the activities of daily living scale (ADL) that is used to measure functional limitation, primarily in community dwelling populations. The ADL scale is comprised of a set of self-maintenance activities specifically designed to measure the ability to perform routine personal care functions. The activities included in the measure are:

bathing or showering, dressing, eating, getting in and out of bed or chairs, walking, using the toilet, and getting outside. Questions about these activities ask whether, because of a health or physical problem, an individual has any difficulty performing the activity without personal assistance or the assistance of special equipment. If the individual has difficulty then the degree of difficulty is obtained, including whether he or she receives help from another person.

Overweight among adults (figures 38 and 39) is measured by the body mass index (BMI), a measure of weight for height (kg/m^2). Overweight is defined for men as a BMI greater than or equal to 27.8 kg/m^2, and for women as a BMI greater than or equal to 27.3 kg/m^2. These cut points were used because they represent the sex-specific 85th percentiles for persons 20–29 years of age in the 1976–80 National Health and Nutrition Examination Survey. Height was measured without shoes. Pregnant women were excluded.

Sedentary lifestyle among adults (figure 40) is defined as no self-reported leisure time physical activity during the past 2 weeks. Individuals with disabilities were asked if they had done any exercises, sports, or physically active hobbies in the past 2 weeks. All other persons were asked about the following specific activities: walking for exercise, gardening or yard work, stretching exercises, lifting weights, jogging or running, aerobics or aerobic dancing, bicycle riding, stair climbing, swimming for exercise, bowling, golfing, or playing the following sports: softball, baseball, tennis, handball/racquetball/squash, basketball, volleyball, soccer, or football. A final question was asked about doing any other sport, exercise, or physically active hobbies.

Physician contacts among adults (figure 44) are based on data from the 1993, 1994, and 1995 National Health Interview Survey. This figure presents the average annual age-adjusted proportion of adults 18–64 years of age who have not had a physician visit during the past 12 months among those who reported a health problem. Persons with a health problem are defined as those who met at least one of the following criteria: (a) respondent reported fair or poor health status, (b) a limitation in activity due to a chronic condition, or (c) 10 or more bed days within the past 12 months where a bed day is defined as staying in bed for at least half a day due to a health condition.

Mammography (figure 45) estimates are based on data from the 1993 and 1994 Healthy People Year 2000 Supplements to the National Health Interview Survey. These 1993 and 1994 supplements asked about selected topic areas related to the Department of Health and Human Service's year 2000 health objectives. These supplements were administered to one adult per family in one-half of the sampled households each year. During the 2-year period 1993–94 about 9,400 women age 50 and over responded to questions on mammography.

Unmet need for health care (figures 46 and 47) is based on data from the 1994 and 1995 Access to Care Supplements of the National Health Interview Survey. Persons who responded "yes" to at least one of the following series of questions on unmet need for care during the 12 months prior to being interviewed were categorized as having unmet need for health care: needed medical care or surgery, but did not get it; delayed medical care because of the cost; needed dental care, prescription medicine, eyeglasses, or mental health care but could not get it.

Avoidable hospitalizations (figure 48) were defined as hospital stays with a principal or first-listed diagnosis for which hospitalization may potentially be avoided if ambulatory care is provided in a timely and effective manner. Avoidable hospitalizations were defined as those with the following first-listed diagnoses based on *International Classification of Diseases, 9th Revision, Clinical Modifications* (ICD–9–CM) codes: pneumonia (481–483, 485–486); congestive heart failure (402.01, 402.11, 402.91, 428); asthma (493); cellulitis (681, 682); perforated or bleeding ulcer (531.0, 531.2, 531.4, 531.6, 532.0, 532.2, 532.4, 532.6, 533.0–533.2, 533.4–533.6);

pyelonephritis (590.0, 590.1, 590.8); diabetes with ketoacidosis or coma (250.1–250.3, 251.0); ruptured appendix (540.0–540.1), malignant hypertension (401.0, 402.0, 403.0, 404.0, 405.0, 437.2); hypokalemia (276.8); immunizable conditions (032, 033, 037, 045, 055, 072); and gangrene (785.4) (2, 3). ZIP Code of the patient's place of residence from NHDS was linked with 1990 Census data on median family income by ZIP Code to produce avoidable hospitalization rates by median family income in the ZIP Code of residence. Population estimates for denominators were based on the 1990 Census.

Dental visit estimates (figure 49) 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 during the last half of 1993. Adults defined as having a dental visit within the past year responded that they had one or more dental visits when asked the number of visits that they had made to a dentist during the past 12 months.

References

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Data Tables for Figures 1–49

Figure 1. Household income at selected percentiles of the household income distribution

Year	*Percentiles of income distribution* 20th percentile	50th percentile	80th percentile	95th percentile
1970	$14,007	$33,181	$55,698	$ 88,054
1975	14,029	32,943	57,221	91,239
1980	14,405	33,763	60,434	98,182
1985	14,582	34,439	63,881	106,830
1990	15,006	35,945	66,271	113,741
1996	14,768	35,492	68,015	119,540

Figure 2. Median household income

Year	All races	White, non-Hispanic	Black[1]	Hispanic	Asian or Pacific Islander
1980	$33,763	$36,251	$20,521	$26,025	– – –
1981	33,215	35,601	19,693	26,643	– – –
1982	33,105	35,238	19,642	24,910	– – –
1983	32,900	– – –	19,579	25,057	– – –
1984	33,849	36,451	20,343	25,660	– – –
1985	34,439	37,137	21,609	25,467	– – –
1986	35,642	38,323	21,588	26,272	– – –
1987	35,994	38,967	21,646	26,706	– – –
1988	36,108	39,224	21,760	27,002	$42,795
1989	36,575	39,301	22,881	27,737	45,681
1990	35,945	38,349	22,420	26,806	46,158
1991	34,705	37,236	21,665	26,140	41,989
1992	34,261	37,229	20,974	25,271	42,274
1993	33,922	37,105	21,209	24,850	41,638
1994	34,158	37,188	22,261	24,796	42,858
1995	35,082	38,276	23,054	23,535	41,813
1996	35,492	38,787	23,482	24,906	43,276

– – – Data not available.
[1] Includes persons of Hispanic origin.

Figure 3. Percent of persons poor and near poor

	All persons		*Children under 18 in families*		*Related children under 18 in female-headed households*	
Race and Hispanic origin	*Poor*	*Near poor*	*Poor*	*Near poor*	*Poor*	*Near poor*
All races	13.7	19.8	20.5	22.7	49.3	27.0
White, non-Hispanic	8.6	17.0	11.1	19.7	34.9	29.2
Asian or Pacific Islander	14.5	15.7	19.5	16.4	48.8	17.6
Black[1]	28.4	26.7	39.9	28.1	58.2	26.8
Hispanic	29.4	30.5	40.3	31.7	67.4	21.9

[1] Includes persons of Hispanic origin.

Figure 4. Percent of persons in poverty

State	Percent	SE	State	Percent	SE	State	Percent	SE
Alabama	16.8	1.4	Kentucky	16.7	1.4	North Dakota	11.1	1.2
Alaska	8.5	1.0	Louisiana	22.0	1.5	Ohio	12.8	0.7
Arizona	17.5	1.3	Maine	10.6	1.3	Oklahoma	16.8	1.3
Arkansas	15.8	1.3	Maryland	10.4	1.2	Oregon	11.6	1.2
California	17.2	0.6	Massachusetts	10.3	0.8	Pennsylvania	12.1	0.7
Colorado	9.5	1.1	Michigan	12.5	0.7	Rhode Island	10.6	1.3
Connecticut	10.7	1.3	Minnesota	10.2	1.1	South Carolina	15.6	1.4
Delaware	9.1	1.2	Mississippi	21.3	1.5	South Dakota	13.6	1.2
District of Columbia	22.5	1.7	Missouri	11.5	1.2	Tennessee	15.3	1.3
Florida	15.1	0.7	Montana	14.6	1.3	Texas	17.7	0.7
Georgia	13.6	1.1	Nebraska	9.5	1.1	Utah	8.0	0.9
Hawaii	10.4	1.2	Nevada	10.1	1.1	Vermont	10.2	1.2
Idaho	12.8	1.2	New Hampshire	6.5	1.1	Virginia	11.1	1.1
Illinois	12.3	0.7	New Jersey	8.7	0.6	Washington	12.0	1.2
Indiana	10.3	1.1	New Mexico	24.0	1.5	West Virginia	17.9	1.4
Iowa	10.8	1.2	New York	16.7	0.6	Wisconsin	8.8	1.0
Kansas	12.3	1.2	North Carolina	13.0	0.8	Wyoming	11.1	1.2

SE Standard error.

Figure 5. Educational attainment among persons 25 years of age and over

	Education			
Age, race, and Hispanic origin	Less than 12 years	12 years	13–15 years	16 or more years
25–64 years				
All races	14.3	33.5	26.3	25.8
White, non-Hispanic	9.5	34.4	27.3	28.8
Asian or Pacific Islander	14.0	21.0	20.0	45.1
Black, non-Hispanic	20.3	37.1	27.9	14.8
Hispanic	44.3	27.1	18.9	9.7
65 years and over				
All races	35.1	34.0	17.0	13.9
White, non-Hispanic	31.0	36.1	18.1	14.8
Asian or Pacific Islander	37.2	27.7	15.3	19.8
Black, non-Hispanic	58.6	23.5	10.5	7.4
Hispanic	69.6	16.2	8.2	6.0

Figure 6. Median family income among persons 25 years of age and over

Sex, race, and Hispanic origin	*Education* *Less than 12 years*	*12 years*	*13–15 years*	*16 or more years*
Men				
All races	$24,386	$40,000	$47,944	$66,690
White, non-Hispanic	$25,274	$41,200	$49,000	$67,952
Asian or Pacific Islander	$34,146	$44,612	$55,392	$68,327
Black, non-Hispanic	$19,957	$36,020	$42,500	$54,500
Hispanic	$24,000	$35,000	$43,734	$58,079
Women				
All races	$18,200	$35,300	$43,628	$62,050
White, non-Hispanic	$18,471	$37,000	$45,510	$64,007
Asian or Pacific Islander	$37,420	$42,658	$57,300	$65,675
Black, non-Hispanic	$13,100	$23,556	$33,162	$47,100
Hispanic	$19,310	$32,000	$38,000	$56,765

Figure 7. Current occupation for persons 25–64 years of age

	Men				*Women*			
Race and Hispanic origin	*White collar*	*Blue collar*	*Service*	*Farm*	*White collar*	*Blue collar*	*Service*	*Farm*
All races	48.4	39.2	8.7	3.8	72.9	10.2	15.8	1.1
White, non-Hispanic	52.6	37.4	6.7	3.4	77.6	8.3	13.0	1.1
Asian or Pacific Islander	60.9	27.7	8.9	2.5	68.5	15.7	15.4	0.4
Black, non-Hispanic	33.5	46.9	17.6	2.0	59.3	14.8	25.7	0.1
Hispanic	26.1	49.4	15.4	9.0	52.3	18.4	26.7	2.7

Figure 8. Infant mortality rates among infants of mothers 20 years of age and over

Maternal education and race	*1983*	*1984*	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*	*1991*	*1995*
White[1]										
Less than 12 years	12.5	12.4	12.2	11.6	11.5	11.2	10.0	9.0	8.8	7.6
12 years	8.7	8.4	8.5	8.1	7.8	7.9	7.6	7.1	6.9	6.4
13–15 years	7.8	7.2	7.1	6.8	6.4	6.4	6.3	5.8	5.5	5.2
16 or more years	6.5	6.5	6.1	6.2	5.8	5.5	5.3	5.0	4.9	4.2
Black[1]										
Less than 12 years	23.4	20.6	21.5	21.6	20.7	21.0	21.7	19.5	19.6	17.0
12 years	17.8	17.6	17.6	17.2	17.0	17.0	16.9	16.0	16.2	14.7
13–15 years	16.1	15.4	16.4	16.2	15.0	15.1	14.9	14.1	13.4	12.2
16 or more years	13.5	13.6	14.5	14.3	13.7	13.0	12.7	12.5	12.4	11.3

[1] Includes persons of Hispanic origin. Method of rate calculation changed in 1995. See Technical Notes.

Figure 9. Infant mortality rates among infants of mothers 20 years of age and over

Maternal education	*White, non-Hispanic*	*Black, non-Hispanic*	*Hispanic*	*American Indian or Alaska Native*	*Asian or Pacific Islander*
Less than 12 years	9.9	17.3	6.0	12.7	5.7
12 years	6.5	14.8	5.9	7.9	5.5
13–15 years	5.1	12.3	5.4	5.7	5.1
16 or more years	4.2	11.4	4.4	*	4.0

* Number in this category is too small for stable rate calculation.

Figure 10. Low birthweight live births among mothers 20 years of age and over

Maternal education	*All races*	*White, non-Hispanic*	*Black, non-Hispanic*	*Hispanic*	*American Indian or Alaska Native*	*Asian or Pacific Islander*
Less than 12 years	8.4	9.1	15.8	5.8	7.7	7.1
12 years	7.7	6.7	13.3	6.2	6.0	7.0
13–15 years	6.7	5.7	11.8	6.1	5.9	7.0
16 or more years	5.7	5.2	10.6	5.9	6.4	6.7

Figure 11. Activity limitation among children under 18 years of age

	1984–87		*1988–91*		*1992–95*	
Race, Hispanic origin, and family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
All races						
Poor	7.1	0.2	7.8	0.3	9.4	0.2
Near poor	5.5	0.2	5.9	0.2	7.1	0.2
Middle/high income	4.3	0.1	4.4	0.1	5.0	0.1
White, non-Hispanic						
Poor	8.1	0.4	9.0	0.5	10.9	0.4
Near poor	5.9	0.2	6.5	0.3	7.7	0.2
Middle/high income	4.4	0.1	4.5	0.1	5.0	0.1
Black, non-Hispanic						
Poor	7.0	0.3	8.1	0.4	10.4	0.5
Near poor	5.0	0.4	5.0	0.4	7.7	0.5
Middle/high income	4.2	0.3	4.2	0.3	5.2	0.4
Hispanic						
Poor	5.4	0.5	5.8	0.4	7.0	0.4
Near poor	4.2	0.4	4.8	0.4	4.7	0.3
Middle/high income	4.2	0.4	4.7	0.3	5.0	0.3

SE Standard error.

Figure 12. Percent of women 20–29 years of age who had a teenage birth

	All races		*White, non-Hispanic*		*Black, non-Hispanic*		*Hispanic*	
Respondent's mother's education	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Less than 12 years	32.4	1.6	26.7	2.6	47.6	3.5	35.6	2.8
12 years	18.7	1.2	15.5	1.3	35.3	3.2	27.1	4.1
13–15 years	12.8	1.6	10.3	1.8	18.4	4.2	23.2	5.5
16 or more years	6.5	1.1	4.2	1.1	14.9	3.5	20.3	8.0

SE Standard error.

Figure 13. Cigarette smoking during pregnancy among mothers 20 years of age and over

Maternal education	*All races*	*White, non-Hispanic*	*Black, non-Hispanic*	*Hispanic*	*American Indian or Alaska Native*	*Asian or Pacific Islander*
Less than 12 years	25.3	46.4	25.4	4.9	31.8	4.7
12 years	18.0	22.7	11.6	4.4	21.1	5.1
13–15 years	10.4	12.2	7.0	3.4	14.2	3.2
16 or more years	2.6	2.7	2.6	1.4	6.7	0.7

Figure 14. Elevated blood lead among children 1–5 years of age

	All races		*White, non-Hispanic*		*Black, non-Hispanic*		*Mexican*	
Family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Poor	12.3	1.7	8.0	1.7	21.5	3.2	6.3	1.6
Near poor	4.7	1.3	3.6	1.5	7.9	2.2	4.5	1.3
Middle income	3.6	0.9	2.6	0.8	5.9	1.5	2.4	1.3
High income	1.7	0.8						

SE Standard error.

Figure 15. Cigarette smoking among adolescents 12–17 years of age

	Total		*Boys*		*Girls*	
Family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Poor	20.3	1.7	22.0	2.1	18.5	2.4
Near poor	21.5	1.4	22.5	2.0	20.4	1.9
Middle income	21.0	1.2	19.5	1.7	22.6	1.8
High income	20.3	1.1	22.6	1.8	18.0	1.3

	White, non-Hispanic		*Black, non-Hispanic*		*Hispanic*	
Sex and family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Boys						
Poor	33.1	4.0	11.8	3.2	22.5	3.0
Near poor	26.1	2.5	7.6	2.7	20.7	4.3
Middle/high income	22.9	1.6	4.2	1.6	18.6	3.6
Girls						
Poor	31.0	4.3	8.1	2.8	14.4	3.4
Near poor	25.1	2.6	5.7	1.9	15.0	2.9
Middle/high income	21.4	1.3	7.7	3.4	22.5	4.2

SE Standard error.

Figure 16. Overweight among adolescents 12–17 years of age

	All races		*White, non-Hispanic*		*Black, non-Hispanic*		*Mexican*	
Family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Poor	16.6	3.0	18.8	5.1	13.3	2.0	12.5	2.7
Near poor	12.6	2.0	14.3	3.0	10.7	2.1	12.0	2.4
Middle/high income	8.5	1.4	7.2	1.6	17.5	3.4	19.7	5.3

SE Standard error.

Figure 17. Sedentary lifestyle among adolescents 12–17 years of age

Family income	*Boys*		*Girls*	
	Percent	*SE*	*Percent*	*SE*
Poor	16.4	1.8	29.8	2.3
Near poor	14.2	1.8	24.4	2.0
Middle income	13.3	1.5	18.8	1.6
High income	12.0	1.5	14.4	1.4

SE Standard error.

Figure 18. Prenatal care use in the first trimester among mothers 20 years of age and over

Year	*Race and maternal education*							
	White[1]				*Black*[1]			
	Less than 12 years	*12 years*	*13–15 years*	*16 or more years*	*Less than 12 years*	*12 years*	*13–15 years*	*16 or more years*
1980	66.3	83.9	87.9	91.9	55.8	66.8	74.2	84.5
1981	65.7	83.6	88.0	92.2	55.1	66.0	73.6	83.9
1982	64.6	83.3	87.9	92.4	53.8	64.8	73.1	82.8
1983	64.5	83.2	88.0	92.7	54.4	64.6	72.5	83.5
1984	64.5	83.2	87.9	92.9	55.1	65.1	72.9	83.8
1985	64.3	82.7	87.8	92.8	54.7	64.5	73.0	83.4
1986	63.6	82.3	87.8	93.0	54.0	63.7	72.7	83.7
1987	63.3	82.1	87.8	93.3	52.7	62.7	72.2	83.6
1988	62.7	82.0	87.8	93.3	52.2	62.4	72.1	83.5
1989	59.0	80.9	87.5	93.6	50.6	61.9	71.9	83.7
1990	59.2	80.9	87.6	93.9	50.6	62.1	72.6	84.8
1991	60.0	81.2	87.6	94.0	51.8	63.2	73.6	85.4
1992	62.8	82.2	88.4	94.4	53.2	65.3	75.0	86.1
1993	64.8	82.9	88.7	94.5	55.3	67.1	76.4	86.8
1994	66.6	83.6	89.1	94.7	57.7	69.2	78.1	87.4
1995	68.2	84.1	89.4	94.8	59.7	71.3	79.5	88.5
1996	69.2	84.4	89.6	94.7	61.4	72.2	80.1	88.9

[1] Includes persons of Hispanic origin.

Figure 19. Prenatal care use in the first trimester among mothers 20 years of age and over

Maternal education	*All races*	*White, non-Hispanic*	*Black, non-Hispanic*	*Hispanic*	*American Indian or Alaska Native*	*Asian or Pacific Islander*
Less than 12 years	68.0	72.2	61.3	67.2	59.7	69.3
12 years	82.0	86.1	72.2	77.1	68.7	77.9
13–15 years	87.8	90.5	80.2	83.2	75.0	84.1
16 or more years	93.9	95.0	88.9	89.0	87.4	89.7

Figure 20. Percent of children under 18 years of age with no health insurance coverage

Race, Hispanic origin, and family income	Uninsured Percent	Uninsured SE	Medicaid Percent	Medicaid SE	Private Percent	Private SE
All races						
Poor	22.0	0.7	64.5	0.8	12.7	0.6
Near poor	22.8	0.6	18.1	0.5	55.5	0.8
Middle income	8.6	0.4	3.5	0.2	85.4	0.5
High income	4.2	0.2	1.4	0.2	93.4	0.3
White, non-Hispanic						
Poor	22.2	1.2	60.0	1.4	16.5	1.0
Near poor	21.0	0.7	14.5	0.6	60.8	1.0
Middle income	7.8	0.4	2.8	0.2	87.2	0.6
High income	3.8	0.3	1.1	0.2	94.3	0.3
Black, non-Hispanic						
Poor	14.6	1.1	74.3	1.3	10.5	1.0
Near poor	18.5	1.4	30.7	1.6	46.4	1.8
Middle income	8.4	1.0	7.7	1.0	79.2	1.6
High income	5.7	1.1	4.9	1.0	88.6	1.5
Hispanic						
Poor	29.5	1.3	60.4	1.4	9.7	0.8
Near poor	32.7	1.4	21.6	1.2	43.4	1.5
Middle income	13.4	1.3	5.8	0.8	78.3	1.6
High income	7.2	1.0	3.0	0.7	88.2	1.3

Type of health insurance coverage spans the Uninsured, Medicaid and Private columns.

SE Standard error.

Figure 21. Vaccinations among children 19–35 months of age

Race and Hispanic origin	Poor Percent	Poor SE	Above poverty level Percent	Above poverty level SE
All races	69	1.5	80	0.7
White, non-Hispanic	68	2.4	81	0.8
Black, non-Hispanic	70	2.7	78	2.3
Hispanic	68	2.9	74	2.6

SE Standard error.

Figure 22. Percent of children under 6 years of age with no physician contact during the past year

Family income	All races		White, non-Hispanic		Black non-Hispanic		Hispanic		Insured		Uninsured	
	Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE
Poor	11.2	0.6	11.0	1.1	10.9	1.0	10.8	0.9	8.4	0.6	23.3	1.9
Near poor	10.1	0.5	9.9	0.6	9.3	1.3	10.7	1.0	8.7	0.6	14.9	1.3
Middle income	6.9	0.5	5.3	0.3	7.1	1.2	5.0	0.7	5.1	0.3	11.8	1.6
High income	4.1	0.4										

SE Standard error.

Figure 23. Ambulatory care visits among children under 18 years of age

Median income in ZIP Code of residence	Place of visit							
	All places		Emergency department		Outpatient department		Physician office	
	Ratio	SE	Ratio	SE	Ratio	SE	Ratio	SE
Less than $20,000	224.1	29.0	49.3	6.2	30.2	5.5	144.6	26.9
$20,000–29,999	238.5	19.1	43.1	3.2	28.1	5.1	167.3	16.3
$30,000–39,999	311.7	25.8	33.7	2.4	23.8	3.4	254.2	24.1
$40,000 or more	393.0	40.8	32.6	3.0	21.7	4.6	338.8	39.9

SE Standard error.

Figure 24. Asthma hospitalization rates among children 1–14 years of age

Race	Median income in ZIP Code of residence									
	All incomes		Less than $20,000		$20,000–29,999		$30,000–39,999		$40,000 or more	
	Rate	SE	Rate	SE	Rate	SE	Rate	SE	Rate	SE
All races	3.1	0.4	4.7	1.0	3.0	0.4	2.6	0.5	2.0	0.2
White[1]	1.9	0.3	2.2	0.6	1.8	0.3	1.9	0.4	1.4	0.2
Black[1]	6.3	1.0	7.6	1.6	5.5	0.8	5.2	1.1	4.3	1.0

SE Standard error.

[1] Includes persons of Hispanic origin.

Figure 25. Life expectancy among adults 45 and 65 years of age

	White men[1]		Black men[1]		White women[1]		Black women[1]	
Family income	*45 years*	*65 years*	*45 years*	*65 years*	*45 years*	*65 years*	*45 years*	*65 years*
Less than $10,000	27.3	14.0	25.2	14.3	35.8	19.7	32.7	18.6
$10,000–14,999	30.3	15.5	28.1	14.4	37.4	20.4	33.5	18.0
$15,000–24,999	32.4	16.3	31.3	16.3	37.8	20.5	36.3	19.4
$25,000 or more	33.9	17.1	32.6	16.8	38.5	20.7	36.5	19.9

[1] Includes persons of Hispanic origin.

Figure 26. Death rates for selected causes among adults 25–64 years of age

			Communicable diseases		
Education	*Chronic diseases*	*Injuries*	*Total*	*HIV*	*Other*
Men					
Less than 12 years	530.8	154.0	85.7	58.9	26.8
12 years	479.2	122.7	82.8	63.5	19.3
13 years or more	212.3	45.6	45.3	36.9	8.4
Women					
Less than 12 years	317.9	41.9	36.0	19.8	16.2
12 years	273.8	33.1	24.8	13.8	11.0
13 years or more	147.6	17.9	8.6	3.4	5.2

HIV Human immunodeficiency virus.

Figure 27. Heart disease death rates among adults 25–64 years of age and 65 years of age and over

	Men		Women	
Race, Hispanic origin, and family income	*25–64 years*	*65 or more years*	*25–64 years*	*65 or more years*
All races				
Less than $10,000	318.7	2524.6	126.9	1346.0
$10,000–$14,999	251.4	1920.6	74.1	1043.6
$15,000–$24,999	142.3	1715.3	51.9	969.7
$25,000 or more	126.8	1666.6	37.3	963.4
White, non-Hispanic				
Less than $10,000	324.1	2658.3	112.2	1352.6
$10,000-$14,999	255.4	1951.1	71.3	1016.2
$15,000 or more	136.9	1723.1	43.7	961.4
Black, non-Hispanic				
Less than $10,000	390.8	2216.2	184.7	1374.2
$10,000-$14,999	292.8	2079.8	119.2	1542.0
$15,000 or more	142.2	1272.5	64.8	1088.1

Figure 28. Lung cancer death rates among adults 25–64 years of age and 65 years of age and over

	Men		*Women*	
Family income	*25–64 years*	*65 or more years*	*25–64 years*	*65 or more years*
Less than $10,000	93.3	547.9	29.1	122.1
$10,000–$14,999	79.3	428.9	30.6	118.8
$15,000–$24,999	51.5	379.0	18.1	140.7
$25,000 or more	38.5	273.6	20.9	153.4

Figure 29. Diabetes death rates among adults 45 years of age and over

Family income	*Men*	*Women*
Less than $10,000	55.3	42.6
$10,000–$14,999	39.3	31.3
$15,000–$24,999	31.1	20.3
$25,000 or more	21.4	14.1

Figure 30. Homicide rates among adults 25–44 years of age

	Education		
Sex, race and Hispanic origin	*Less than 12 years*	*12 years*	*13 or more years*
Men			
White, non-Hispanic	25.0	10.6	2.9
Black, non-Hispanic	163.3	110.7	32.4
Hispanic	40.6	39.0	9.1
Women			
White, non-Hispanic	10.2	4.7	1.6
Black, non-Hispanic	38.2	22.0	9.4
Hispanic	6.7	7.5	2.4

Figure 31. Suicide rates among adults 25–44 years of age

	Education		
Sex, race, and Hispanic origin	*Less than 12 years*	*12 years*	*13 or more years*
Men			
White, non-Hispanic	56.0	38.9	15.2
Black, non-Hispanic	24.4	22.4	12.4
Hispanic	14.9	21.3	10.1
Women			
White, non-Hispanic	11.3	8.1	5.2
Black, non-Hispanic	4.6	3.8	2.5
Hispanic	1.9	3.5	2.4

Figure 32. Fair or poor health among adults 18 years of age and over

Sex and family income	All races Percent	All races SE	White, non-Hispanic Percent	White, non-Hispanic SE	Black, non-Hispanic Percent	Black, non-Hispanic SE	Hispanic Percent	Hispanic SE
Men								
Poor	31.1	1.1	30.5	1.5	37.4	2.3	26.9	2.0
Near poor	21.1	0.7	21.3	0.8	22.6	1.7	19.2	1.3
Middle income	9.8	0.3	9.3	0.3	13.1	1.1	11.9	1.2
High income	4.3	0.3	4.2	0.3	5.0	1.0	4.8	1.4
Women								
Poor	32.4	0.8	30.2	1.2	38.2	1.6	30.4	1.4
Near poor	19.8	0.6	17.9	0.7	26.1	1.6	24.3	1.4
Middle income	9.9	0.3	9.2	0.3	14.6	1.1	13.5	1.2
High income	6.0	0.3	5.8	0.3	9.2	1.7	7.0	1.2

SE Standard error.

Figure 33. Activity limitation among adults 18–64 years of age

Race and Hispanic origin, and year	Poor Percent	Poor SE	Near poor Percent	Near poor SE	Middle/high income Percent	Middle/high income SE
All races						
1984–87	30.4	0.4	20.6	0.3	10.5	0.2
1988–91	31.9	0.4	20.7	0.3	10.4	0.1
1992–95	33.6	0.4	21.5	0.3	10.9	0.1
White, non-Hispanic						
1984–87	32.1	0.6	22.1	0.4	10.9	0.2
1988–91	35.3	0.5	22.4	0.4	10.7	0.1
1992–95	37.5	0.5	23.2	0.3	11.2	0.1
Black, non-Hispanic						
1984–87	31.8	0.7	18.9	0.6	9.2	0.4
1988–91	32.8	0.7	19.1	0.6	9.6	0.3
1992–95	35.5	0.7	21.7	0.6	10.2	0.3
Hispanic						
1984–87	23.9	1.1	14.0	0.8	8.3	0.5
1988–91	23.3	0.7	14.3	0.6	8.9	0.3
1992–95	24.2	0.8	15.3	0.6	9.2	0.3

SE Standard error.

Figure 34. Difficulty with one or more activities of daily living among adults 70 years of age and over

Family income	Men Any difficulty Percent	Men Any difficulty SE	Men Receives help Percent	Men Receives help SE	Men No help Percent	Men No help SE	Women Any difficulty Percent	Women Any difficulty SE	Women Receives help Percent	Women Receives help SE	Women No help Percent	Women No help SE
Poor	35.8	2.8	20.4	2.7	15.4	2.3	42.8	1.9	19.9	1.5	22.9	1.7
Near poor	29.1	1.6	13.6	1.2	15.5	1.4	31.8	1.3	14.5	1.1	17.3	1.1
Middle/high income	20.0	1.1	8.3	0.7	11.7	0.9	27.5	1.1	13.6	0.9	13.9	0.9

SE Standard error.

Figure 35. Cigarette smoking among adults 25 years of age and over

	Education							
	Less than 12 years		*12 years*		*13–15 years*		*16 or more years*	
Sex and year	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Men								
1974	52.4	0.9	42.6	1.9	41.6	1.4	28.6	1.3
1976	49.9	1.0	41.7	1.0	40.5	1.6	28.2	1.3
1977	50.8	1.1	42.4	1.2	40.1	1.6	27.0	1.2
1978	48.0	1.6	39.5	1.4	37.8	2.2	23.6	1.5
1979	48.1	1.0	39.1	0.9	36.5	1.3	23.1	1.1
1983	47.2	1.3	37.4	0.9	33.0	1.4	21.8	1.1
1985	46.0	1.2	35.5	0.9	33.0	1.2	19.7	0.9
1987	45.7	1.1	35.2	0.8	28.4	1.0	17.3	0.7
1988	44.9	0.8	35.2	0.7	29.0	1.0	17.2	0.7
1990	41.8	1.2	33.2	0.7	25.9	0.8	14.6	0.6
1991	42.4	1.1	32.9	0.7	27.2	1.0	14.8	0.7
1993	41.0	1.6	30.5	1.1	27.4	1.4	14.6	0.9
1994	43.9	1.5	31.7	1.1	27.3	1.3	13.2	0.8
1995	39.7	1.7	32.6	1.1	24.0	1.3	13.9	0.9
Women								
1974	36.8	0.8	32.5	0.8	30.2	1.4	26.1	1.4
1976	36.9	0.9	32.7	0.7	32.4	1.3	24.7	1.3
1977	36.4	0.9	33.0	0.7	32.7	1.2	24.6	1.4
1978	36.4	1.3	32.0	0.9	29.0	1.9	25.1	2.0
1979	35.0	0.9	29.9	0.7	30.0	1.2	22.5	1.1
1983	35.3	1.1	30.9	0.7	27.5	1.2	19.2	1.1
1985	36.7	1.0	29.6	0.6	26.7	1.0	17.4	1.0
1987	36.1	0.9	29.2	0.6	26.0	0.8	16.1	0.8
1988	34.5	0.9	29.1	0.6	24.1	0.7	15.3	0.8
1990	32.1	1.0	26.3	0.5	21.1	0.8	13.6	0.8
1991	33.0	0.9	27.1	0.6	22.5	0.8	12.8	0.7
1993	31.0	1.5	26.6	0.7	21.9	1.0	12.4	0.9
1994	31.6	1.4	27.3	0.9	22.5	1.1	10.3	0.7
1995	32.1	1.4	26.3	0.9	22.0	1.1	13.3	0.9

SE Standard error.

Figure 36. Cigarette smoking among adults 18 years of age and over

	All races				*White, non-Hispanic*				*Black, non-Hispanic*				*Hispanic*			
	Men		*Women*		*Men*		*Women*		*Men*		*Women*		*Men*		*Women*	
Family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Poor	37.9	2.3	31.2	1.7	42.3	3.5	38.6	2.5	41.3	4.4	29.3	2.7	26.3	3.3	16.6	2.4
Near poor	34.3	1.6	28.0	1.3	37.5	2.0	31.6	1.7	40.1	4.5	24.9	3.0	19.7	2.5	14.7	1.9
Middle income	27.9	1.1	24.6	1.0	24.6	0.9	22.2	0.8	20.9	2.6	15.7	2.0	16.3	2.0	13.9	1.8
High income	18.3	1.2	16.8	1.2												

SE Standard error.

Figure 37. Heavy alcohol use during the past month among adults 25–49 years of age

	Heavy alcohol use during the past month							
	On 1 or more occasions				*On 5 or more occasions*			
	Men		*Women*		*Men*		*Women*	
Race, Hispanic origin, and education	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
All races								
Less than 12 years	31.5	1.5	11.3	0.8	16.3	1.1	3.9	0.5
12 years	31.2	1.2	10.3	0.7	14.0	0.8	2.6	0.3
13–15 years	27.9	1.4	10.3	0.6	9.0	0.7	2.4	0.3
16 or more years	24.1	1.2	8.6	0.6	6.1	06	1.4	0.3
White, non-Hispanic								
Less than 12 years	30.7	2.5	14.5	1.6	17.7	1.9	4.9	0.9
12 years	33.3	1.6	10.9	0.8	14.8	1.0	2.7	0.4
13 or more years	27.5	1.2	10.3	0.6	7.7	0.5	2.0	0.2
Black, non-Hispanic								
Less than 12 years	30.9	3.1	12.9	1.4	17.6	2.6	5.0	0.8
12 years	21.2	1.7	9.0	0.9	10.6	1.3	2.9	0.4
13 or more years	17.4	1.5	6.5	0.9	5.7	0.8	1.9	0.5
Hispanic								
Less than 12 years	34.1	1.9	6.0	0.7	13.6	1.3	1.8	0.4
12 years	31.6	1.9	8.6	1.1	13.5	1.6	3.2	0.9
13 or more years	26.0	1.9	7.5	1.1	8.4	1.3	1.7	0.5

SE Standard error.

Figure 38. Overweight among adults 25–74 years of age

	Men						*Women*					
	1971–74		*1976–80*		*1988–94*		*1971–74*		*1976–80*		*1988–94*	
Education	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Less than 12 years	25.2	1.3	30.0	1.5	39.5	1.7	38.0	1.4	38.1	1.3	45.8	1.8
12 years	27.9	2.0	27.7	1.3	39.8	1.8	25.1	1.0	27.1	1.4	41.8	1.6
13–15 years	28.4	2.7	26.4	1.9	37.3	2.3	19.9	2.2	22.5	1.3	35.9	2.0
16 or more years	20.1	2.2	19.8	1.5	27.9	2.3	15.4	2.1	19.2	1.8	26.3	2.1

SE Standard error.

Figure 39. Overweight among adults 20 years of age and over

	All races				*White, non-Hispanic*				*Black, non-Hispanic*				*Mexican*			
	Men		*Women*		*Men*		*Women*		*Men*		*Women*		*Men*		*Women*	
Family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Poor	30.8	2.4	46.3	1.9	26.8	3.2	42.0	3.2	29.4	1.8	55.0	2.3	36.2	1.8	54.9	2.4
Near poor	37.1	1.8	40.4	1.8	38.7	2.7	36.6	2.4	31.4	2.1	51.0	1.9	40.8	2.0	48.7	2.2
Middle	35.0	1.5	33.7	1.3	33.3	1.3	30.0	1.2	38.6	1.7	52.4	2.4	38.2	2.2	45.3	2.2
High	30.4	2.3	28.2	1.7												

SE Standard error.

Figure 40. Sedentary lifestyle among adults 18 years of age and over

Sex, race, and Hispanic origin	*Poor*		*Near poor*		*Middle income*		*High income*	
	Percent	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Men								
White, non-Hispanic	33.7	2.1	29.1	1.7	20.1	0.8	13.1	0.9
Black, non-Hispanic	35.0	3.4	29.5	3.2	23.2	2.3	11.2	3.0
Hispanic	46.7	5.0	42.4	3.9	23.3	3.2	19.1	5.3
Women								
White, non-Hispanic	35.5	1.7	30.6	1.2	22.6	0.8	17.1	1.0
Black, non-Hispanic	39.0	2.5	36.4	2.6	32.6	2.1	24.7	4.0
Hispanic	47.8	2.8	45.3	4.5	32.2	3.0	21.1	4.3

SE Standard error.

Figure 41. Hypertension among adults 20 years of age and over

Race, Hispanic origin, and family income	*Men*						*Women*					
	Hypertension		*Uncontrolled*		*Controlled with medication*		*Hypertension*		*Uncontrolled*		*Controlled with medication*	
	Percent	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
All races												
Poor	26.7	1.6	21.2	1.7	5.6	1.1	31.0	1.8	22.5	1.7	8.5	1.2
Near poor	26.3	1.7	21.7	1.5	4.6	1.5	26.1	1.3	18.5	1.2	7.7	0.7
Middle income	26.2	1.2	21.6	1.2	4.6	0.5	21.0	0.7	15.3	0.6	5.7	0.5
High income	22.4	1.7	17.8	1.7	4.5	0.8	19.3	1.1	12.7	1.0	6.6	1.1
White, non-Hispanic												
Poor	23.2	2.6	15.6	2.5	7.5	1.7	30.2	3.1	21.7	2.6	8.5	2.2
Near poor	25.3	2.3	20.5	2.1	4.9	0.8	23.9	1.7	16.3	1.6	7.6	0.9
Middle/high income	24.5	1.1	19.9	1.1	4.6	0.5	20.2	0.7	14.5	0.5	4.6	0.5
Black, non-Hispanic												
Poor	34.4	1.6	30.8	1.6	3.7	0.7	39.9	1.6	29.3	2.5	10.6	1.8
Near poor	33.3	1.6	27.0	1.8	6.2	1.0	35.9	2.2	26.5	2.1	9.5	1.0
Middle/high income	34.0	1.7	26.2	1.4	7.8	0.9	30.0	1.5	20.8	1.4	9.2	1.3
Mexican												
Poor	19.5	1.6	16.8	1.4	2.7	0.6	24.5	1.4	19.2	1.3	5.3	0.8
Near poor	24.9	2.1	21.1	1.9	2.8	0.9	22.4	1.4	20.3	1.1	2.2	0.5
Middle/high income	26.8	1.1	22.9	1.1	3.9	0.8	25.2	2.1	20.7	2.3	4.5	1.2

SE Standard error.

Figure 42. Elevated blood lead among men 18 years of age and over

Family income	*All races*		*White, non-Hispanic*		*Black, non-Hispanic*		*Mexican*	
	Percent	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Poor	13.6	1.6	12.2	2.7	19.2	2.2	9.7	1.5
Near poor	7.5	0.7	6.2	1.1	16.1	1.9	7.4	1.1
Middle income	4.9	0.7	3.7	0.7	8.9	1.2	3.3	0.7
High income	2.3	0.7						

SE Standard error.

Figure 43. Health insurance coverage among adults 18–64 years of age

	Men						*Women*					
	Uninsured		*Medicaid*		*Private*		*Uninsured*		*Medicaid*		*Private*	
Race, Hispanic origin, and family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
All races												
Poor	44.1	1.0	23.0	0.8	26.9	1.0	33.3	0.7	42.6	0.8	21.6	0.8
Near Poor	35.3	0.6	5.8	0.3	52.9	0.6	28.6	0.5	11.2	0.4	56.4	0.6
Middle income	13.8	0.3	0.9	0.1	83.1	0.3	10.2	0.2	1.6	0.1	86.2	0.3
High income	6.1	0.2	0.3	0.1	92.7	0.2	4.4	0.2	0.6	0.1	93.9	0.2
White, non-Hispanic												
Poor	37.9	1.4	22.3	1.0	32.7	1.6	31.9	1.0	37.1	1.1	28.2	1.3
Near poor	32.7	0.7	5.3	0.4	55.5	0.8	27.5	0.6	9.2	0.4	59.6	0.7
Middle income	12.8	0.3	0.8	0.1	84.3	0.3	9.4	0.3	1.3	0.1	87.4	0.3
High income	5.7	0.2	0.3	0.1	93.2	0.3	3.8	0.2	0.5	0.1	94.7	0.2
Black, non-Hispanic												
Poor	44.4	2.0	26.5	1.7	22.4	1.9	25.9	1.2	55.4	1.4	16.4	1.0
Near poor	33.5	1.6	8.6	1.1	50.6	1.8	22.8	1.2	18.8	1.1	54.2	1.4
Middle income	14.5	0.9	1.7	0.3	80.1	1.1	8.6	0.7	2.4	0.4	86.4	0.9
High income	7.8	1.0	1.1	0.4	90.0	1.1	6.3	0.9	1.4	0.4	91.4	1.0
Hispanic												
Poor	58.7	1.6	22.0	1.6	16.6	1.1	44.9	1.5	41.9	1.7	12.0	0.9
Near poor	47.1	1.4	5.6	0.7	44.6	1.4	41.5	1.3	12.3	0.9	43.4	1.3
Middle income	20.7	1.2	1.1	0.3	76.5	1.2	17.5	1.1	3.3	0.5	77.1	1.2
High income	9.6	1.0	–	. . .	89.6	1.1	7.8	0.9	1.3	0.4	89.7	1.0

– Quantity zero.
. . . Not applicable
SE Standard error.

Figure 44. No physician contact within the past year among adults 18–64 years of age with a health problem

	Men		*Women*	
Race, Hispanic origin, and family income	*Percent*	*SE*	*Percent*	*SE*
All races				
Poor	21.2	0.8	11.7	0.5
Near poor	19.1	0.7	10.3	0.5
Middle income	14.9	0.6	5.7	0.3
High income	11.4	0.7	4.0	0.3
White, non-Hispanic				
Poor	20.3	1.1	11.5	0.8
Near poor	18.7	0.8	9.9	0.5
Middle/high income	13.4	0.5	4.8	0.2
Black, non-Hispanic				
Poor	20.8	1.6	10.5	0.8
Near poor	18.0	2.0	9.2	1.2
Middle/high income	13.0	1.5	5.3	0.7
Hispanic				
Poor	24.4	1.8	14.3	1.2
Near poor	22.6	1.8	12.9	1.3
Middle/high income	17.2	1.9	7.1	1.0

SE Standard error.

Figure 45. Mammography within the past 2 years among women 50 years of age and over

	All races		*White, non-Hispanic*		*Black, non-Hispanic*		*Hispanic*	
Family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Poor	44.7	2.2	37.5	2.5	60.0	3.7	49.3	6.8
Near poor	48.2	1.5	47.9	1.8	57.4	3.7	38.2	5.1
Middle income	67.2	1.0	70.4	0.9	72.2	3.4	64.7	4.8
High income	76.3	1.8						

SE Standard error.

Figure 46. Unmet need for health care during the past year among adults 18–64 years of age

	18–64 years		*18–44 years*				*45–64 years*			
Family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Poor	33.2	0.6	26.7	0.9	31.3	0.7	37.5	1.6	41.4	1.3
Near poor	28.8	0.	25.7	0.6	30.5	0.6	27.1	1.0	31.7	0.9
Middle income	16.4	0.3	16.7	0.4	19.3	0.4	12.2	0.4	15.4	0.5
High income	6.9	0.2	7.0	0.3	7.9	0.3	5.6	0.3	6.4	0.3

SE Standard error.

Figure 47. Unmet need for health care during the past year among adults 65 years of age and over

	All races		*White, non-Hispanic*		*Black, non-Hispanic*		*Hispanic*	
Family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Poor	21.9	0.9	22.6	1.2	24.5	1.8	17.9	2.2
Near poor	11.7	0.5	11.6	0.6	12.7	1.5	13.0	2.1
Middle income	5.1	0.3	4.2	0.2	7.9	1.5	7.5	1.5
High income	2.2	0.4						

SE Standard error.

Figure 48. Avoidable hospitalizations among adults 18–64 years of age

	All races		*White*[1]		*Black*[1]	
Median income in ZIP code of residence	*Rate*	*SE*	*Rate*	*SE*	*Rate*	*SE*
Less than $20,000	11.3	1.0	7.1	0.8	19.1	2.4
$20,000–29,999	8.1	0.4	6.2	0.4	13.4	1.0
$30,000–39,999	5.9	0.3	4.9	0.4	9.2	0.8
$40,000 or more	4.7	0.3	4.2	0.2	8.6	0.9

SE Standard error.

[1] Includes persons of Hispanic origin.

Figure 49. Dental visit within the past year among adults 18–64 years of age

	All races		*White, non-Hispanic*		*Black, non-Hispanic*		*Hispanic*	
Family income	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*	*Percent*	*SE*
Poor	41.3	1.4	45.2	2.0	38.0	2.4	35.7	3.3
Near poor	46.9	1.1	47.7	1.3	47.0	3.1	41.9	3.2
Middle income	64.9	0.8	72.0	0.7	61.7	2.3	58.9	2.4
High income	77.3	1.1						

SE Standard error.

Appendixes

Appendix Contents

Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Health Statistics

National Center for HIV, STD, and TB Prevention

Epidemiology Program Office

National Center for Chronic Disease Prevention and Health Promotion

National Institute for Occupational Safety and Health

Health Resources and Services Administration
Bureau of Health Professions

Substance Abuse and Mental Health Services Administration
Office of Applied Studies

Center for Mental Health Services

National Institutes of Health
National Cancer Institute

National Institute on Drug Abuse

Health Care Financing Administration
Office of the Actuary

Appendix Contents

Glossary Tables

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 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—In 1970 mother's marital status was reported on the birth certificate by 39 States and the District of Columbia, and in 1975, by 38 States and the District of Columbia. In 1970 and 1975 data were not available from California, Connecticut, Georgia, Idaho, Maryland, Massachusetts, Montana, New Mexico, New York, Ohio, and Vermont; and in 1975 also from Nevada. In 1980 and the following years marital status of mother was reported on the birth certificates of 41–45 States and for the remaining 5–9 States that lacked the item, marital status was inferred from a comparison of the child's and parents' surnames and from other information concerning the father.

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 1994–96, 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. 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 which 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, 102–106, 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. 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 99 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. 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 in 1995 include the addition of record weights to correct for the 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; National

Center for Health Statistics, Public Use Data Tape Documentation, Linked Birth/Infant Death Data Set: 1995 Period Data, 1997.

Compressed Mortality File

The Compressed Mortality File (CMF) used to compute death rates by urbanization level is a county level national mortality and population data base. 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 the 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 follow-up 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 will consist of approximately 7,500 segments containing about 59,000 assigned households. Of these households, an expected 10,000 will be vacant, demolished, or occupied by persons not in the target population of the survey. The expected sample of 49,000 occupied households will yield a probability sample of about 127,000 persons. In 1994 there was a sample of 116,179 persons.

In 1995 the NHIS sample was redesigned again. Major design changes include 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.

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; Benson V, Marano M. Current estimates from the National Health Interview Survey, 1995. National Center for Health Statistics. Vital Health Stat 10(199). 1998.

National Immunization Survey

The National Immunization Survey (NIS) is a continuing nationwide telephone sample survey among 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 under-vaccination.

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 1995, 69 percent of households with age-eligible children completed vaccination interviews, yielding data for 31,997 children. In 1996 the response rate was 94 percent, yielding data for 33,305 children. The interviewer also collects information on the vaccination providers. In the second phase, all vaccination providers are contacted by mail. Vaccination information from providers' records was obtained for 52 percent of all children who were eligible for provider followup in 1995 and 64 percent in 1996. 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 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 Inventory (NMFI) is a comprehensive file of inpatient health facilities in the United States. The three broad categories of facilities in NMFI are hospitals, nursing and related care homes, and other custodial or remedial care facilities. To be included in NMFI, hospitals must have at least six inpatient beds; nursing and related care homes and other facilities must have at least three inpatient beds. NMFI is kept current by the periodic addition of names and addresses obtained from State licensing and other agencies for all newly established inpatient facilities. In addition, annual surveys of hospitals and periodic surveys of nursing homes and other facilities are conducted to update name and location, type of business, number of beds, and number of residents or patients in the facilities, and to identify those facilities that have gone out of business.

From 1968 to 1975 the hospital survey was conducted in conjunction with the American Hospital Association (AHA) Annual Survey of Hospitals. AHA performed the data collection for its member hospitals, while NCHS collected the data for the approximately 400 non-AHA registered hospitals. Since 1976, however, all of the data collection has been performed by AHA.

The nursing home and other facilities surveys were conducted by NCHS in 1963, 1967, 1969, 1971, 1973, 1976, 1978, 1980, 1982, 1986, and 1991. Data were collected on facilities and resident characteristics by questionnaires mailed to the facilities.

In 1986 nursing and related care homes and facilities for the mentally retarded were covered and called the Inventory of Long-Term Care Places. In 1991 nursing homes, board and care homes, home health agencies, and hospices were covered, and the survey was called the National Health Provider Inventory.

For more detailed information, see: Sirrocco A. Nursing homes and board and care homes. Advance data from vital and health statistics; no 244. Hyattsville, Maryland: National Center for Health Statistics. 1994.

National Home and Hospice Care Survey

The National Home and Hospice Care Survey (NHHCS) is a sample survey of health agencies and hospices. Initialed 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 which 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 prior to the survey.

After the samples had been 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. Upon receipt of these tapes they were subject 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 34 percent of sample hospitals in 1994) were arrayed by primary diagnoses, patient sex and age group, and date of discharge before sampling. Otherwise, the procedures for sampling discharges within hospitals is the same as that 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 1994 of the 525 hospitals selected for the survey, 512 were within the scope of the survey, and 478 participated in the survey. Data were abstracted from about 277,000 medical records. In 1995, 525 hospitals were selected, 508 were within scope, 466 participated, and 263,000 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, Gillum BS. 1994 Summary: and Graves EJ, Owings MF. 1995 Summary: National Hospital Discharge Survey. Advance data from vital and health statistics; no 278 and no 291. Hyattsville, Maryland: National Center for Health Statistics. 1996 and 1997; 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 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 1977 survey in that it included all types of nursing homes. Excluded were 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. Data from this survey should be available in the fall of 1998.

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.

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 1996 survey a sample of 3,000 physicians was selected. The physician response rate for 1996 was 70 percent providing data on 29,805 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: 1996 summary: Advance data from vital and health statistics; no 295. Hyattsville, Maryland: National Center for Health Statistics, 1997.

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 1996 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 1996 the number of Patient Record forms completed for ED's was 21,902 and for OPD's was 29,806.

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 follow up, 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 used by public health practitioners at local, State, and national levels as part of disease prevention and control activities.

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

Completeness of reporting varies because not all cases receive medical care and not all treated conditions are reported. Although State laws and regulations mandate disease reporting, reporting to CDC by States and territories is voluntary. 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. Chlamydia became notifiable starting in 1995.

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, 1996. *Morbidity and Mortality Weekly Report*, 45(53), Public Health Service, DHHS, Atlanta, GA, 1997; or write: Director, Division of Public Health Surveillance and Informatics. Epidemiology Program Office, Centers for Disease Control and Prevention, 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 varies 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, Special Focus: Surveillance for Reproductive Health. *Morbidity and Mortality Weekly Report* 1997; 46(No SS-4), August 1997; 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 Professionals to forecast the supply of physicians by specialty, activity, and State of practice. The 1986 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 1986 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 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 1996 survey is the 16th 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 was 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 1996 survey employed a multistage probability sample design. Young people (age 12–34 years), black Americans, and Hispanics were oversampled. The sample included 18,269 respondents. The screening and interview response rates were 92.7 percent and 78.6 percent, respectively.

For more information on the National Household Survey on Drug Abuse (NHSDA), see: NHSDA Series: H-1 National Household Survey on Drug Abuse Main Findings 1995, H-3 Preliminary Results from the 1996 National Household Survey on Drug Abuse, H-4 National Household Survey on Drug Abuse: Population Estimates 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.

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 77 percent was obtained in the 1995 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: The Drug Abuse Warning Network (DAWN), Annual Data, 1994, Series I, Number 14-A; Historical Estimates from the Drug Abuse Warning Network, Advance Report Number 16; DAWN Series D-1: Drug Abuse Warning Network Annual Medical Examiner Data 1995; DAWN Series D-2: Mid-Year Preliminary Estimates from the 1996 Drug Abuse Warning Network 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), formerly the National Drug and Alcoholism Treatment Unit Survey (NDATUS), 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 known drug and alcohol abuse treatment and prevention facilities in the United States and its jurisdictions. 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 Facility Register (NFR), which lists providers that are recognized by State substance abuse agencies. Listings of private providers are not complete for all States. The response rates to the survey were 82 percent, 91 percent, and 89 percent, in 1992, 1993, and 1995, respectively. Response rates increased in 1993 and 1995 due to a new policy of conducting a follow-up telephone interview of all nonrespondents to the initial mailed survey.

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, 1996.* Manderscheid RW, Sonnenschein MA, eds. DHHS Pub. No. (SMA) 96–3098. Washington: Public Health Service. 1996; 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 follow-up 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 to 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 1997, the annual senior samples are comprised of roughly 15,400 seniors in 135 public and private high schools nationwide, selected to be representative of all seniors in the continental United States. The 10th grade samples involve about 15,500 students in 125 schools in 1997, and the 1997 eighth grade samples have approximately 18,600 students in 160 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, 1975–1995, vol I, secondary students. NIH Pub. No. 96–4139. Washington: Public Health Service. 1996; or visit the NIDA home page at http://www.nida.nih.gov.

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

Source of funding estimates likewise come from a multiplicity of sources. Data on the Federal health programs are taken from administrative records maintained by the servicing agencies. Among the sources used to estimate State and local government spending for health are the U.S. Bureau of the Census' *Government Finances* and Social Security Administration reports on State-operated Workers' Compensation programs. Federal and State-local expenditures for education and training of medical personnel are excluded from these measures where they are separable. For the private financing of health care, data on the financial experience of health insurance organizations come from special Health Care Financing Administration analyses of private health insurers, 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. Approximately 700 nursing homes, which account for about 52,600 beds, are noncertified and not included in OSCAR in 1996. The number of noncertified nursing homes was obtained from the 1995 National Nursing Home Survey; due to the small sample size and/or relative standard error over 30 percent, this figure should not be assumed reliable.

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 1996 CPS sample is located in 754 sample areas, with coverage in every State and the District of

Columbia. In an average month during 1996, 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 is representative of the buying habits of about 80 percent of the noninstitutionalized population of the United States.

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

The index measures price changes from a designated reference date, 1982–84, 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 $11.83 in 1988.

The most recent revision of CPI, completed in 1987, reflected spending patterns based on the Survey of Consumer Expenditures from 1982 to 1984, the 1980 Census of Population, and the ongoing Point-of-Purchase Survey. Using this improved sample design, prices for the goods and services required to calculate the index are collected in 85 urban areas throughout the country and from about 21,000 retail and service establishments. In addition, data on rents are collected from about 40,000 tenants and 20,000 owner-occupied housing units. Food, fuels, and a few other items are priced monthly in all 85 locations. Prices of most other goods and services are collected bimonthly in the remaining areas. All price information is obtained through visits or calls by trained BLS field representatives.

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

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.

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. 1997, vol 44 no 1, Washington: U.S. Government Printing Office. Jan. 1997.

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 1995*, United Nations, New York, NY. 1995; 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 1995*, World Health Organization, Geneva, Switzerland, 1995; 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 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, 1996*, American Association of Colleges of Osteopathic Medicine: Rockville, Maryland. 1996; or visit the AACOM home page at http://www.aacom.org.

American Association of Colleges of Pharmacy

The American Association of Colleges of Pharmacy 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 Podiatric Medicine 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 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, *1995/96 Survey of predoctoral dental educational institutions*. Chicago, Illinois, 1996; 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 that were 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, (Healthcare InfoSource), *Hospital Statistics, 1998 ed*. Chicago. 1998; or visit an AHA page at http://www.aha.org.

Sources of Data

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.*, 1997/98 ed. Chicago. 1997; 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*, 116(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 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.

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 complete 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*, 1996, New York, NY; or visit the NLN home page at http://www.nln.org.

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 program counts legal abortions only. For surveillance purposes, legal abortion is defined as a procedure performed by a licensed physician or someone acting under the supervision of a licensed physician 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* 1993; 41 (supp. no. RR-17)). 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). Age-adjusted death rates are calculated using

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-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 care

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, 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 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.

coverage are age adjusted for the population under 65 years of age using three age groups: under 15 years, 15–44 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.

Health Care Surveys—Data from the three health care surveys, the National Hospital Discharge Survey (NHDS), 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.

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. In the National Master Facility Inventory, the count is of beds at the end of the reporting period; for the American Hospital Association, it is of the average number of beds, 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.

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*.

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 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. *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*.

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

	Code numbers			
Cause of death	*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.''

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 to 1992 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.

Days of care—According to the American Hospital Association and National Master Facility Inventory, 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 1 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, American Hospital Association, and National Master Facility Inventory, 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*.

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 are asked about their health insurance coverage at the time of the interview in 1984 and 1989 and in the previous month in 1993 to 1996. They are covered by private health insurance if they indicate private health insurance or they are covered by a single service hospital plan. Private health insurance includes managed care such as health maintenance organizations (HMO's). Persons are covered by Medicaid or other public assistance if they indicate they have either Medicaid or other public assistance, or if they are receiving Aid to Families with Dependent Children (AFDC) or Supplementary Security Income (SSI). Medicare or military health plan coverage is also determined in the interview. If respondents do not indicate 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. See related *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 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 and National Master Facility Inventory, 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.

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.

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

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, beginning with 1987, death statistics for HIV infection are not strictly comparable with data for earlier years.

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 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

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
Textile mill products	22
Apparel and other finished products made from fabrics and similar materials	23
Lumber and wood products, except furniture	24
Printing, publishing, and allied industries	27
Chemicals and allied products	28
Rubber and miscellaneous plastics products	30
Stone, clay, glass, and concrete products	32
Primary metal industries	33
Fabricated metal products, except machinery and transportation equipment	34
Industrial and commercial machinery and computer equipment	35
Electronic and other electrical equipment and components, except computer equipment	36
Transportation equipment	37
Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks	38
Miscellaneous manufacturing industries	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

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

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*.

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*

Table VIII. Codes for surgical categories from the *International Classification of Diseases, Ninth Revision, Clinical Modification*

Surgical category	*Code numbers*
Myringotomy	20.0
Tonsillectomy, with or without adenoidectomy	28.2–28.3
Coronary angioplasty	36.0
Direct heart revascularization (coronary bypass)	36.1
Cardiac catheterization	37.21–37.23
Pacemaker insertion or replacement	37.7–37.8
Carotid endarterectomy	38.12
Appendectomy, excluding incidental	47.0
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
Procedures to assist delivery	72, 73.0–73.3, 73.6–73.8, 73.93–73.99
Cesarean section	74.0–74.2, 74.4, 74.99
Repair of current obstetrical laceration	75.5–75.6
Reduction of fracture (excluding skull and facial)	79.0–79.5
Excision or destruction of intervertebral disc and spinal fusion	80.5, 81.0
Excision of semilunar cartilage of knee	80.6
Arthroplasty and replacement of hip[1] (Prior to 1989)	81.5–81.6
(Beginning in 1990)	81.40, 81.51–81.53
Mastectomy	85.4

[1] The ICD-9-CM codes for arthroplasty and replacement of the hip were substantially revised in October 1989. Arthroplasty data for 1989 are omitted.

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 groupings and code number inclusions are shown in table VIII; and diagnostic and other nonsurgical procedure groupings and code number inclusions are shown in table IX.

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*.

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

Procedure category	*Code numbers*
Spinal tap	03.31
Endoscopy of large or small intestine without biopsy	45.11–45.13, 45.21–45.24
Cystoscopy	57.31–57.32
Computerized axial tomography (CAT scan)	87.03, 87.41, 87.71, 88.01, 88.38
Arteriography using contrast material	88.4
Angiocardiography using contrast material	88.5
Diagnostic ultrasound	88.7
Magnetic resonance imaging (MRI) (in 1985)	88.99, 89.15, 89.29, 89.39
(Beginning in 1990)	88.91–88.97
Radioisotope scan	92.0–92.1

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*.

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 X 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

Table X. 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

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 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 X. 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*.

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 National Master Facility Inventory and American Hospital Association define 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 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 Health Provider Inventory (National Master Facility Inventory) and 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 $15,569 in 1995 and $13,359 in 1990. 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) defines a procedure as a surgical or nonsurgical operation, diagnostic procedure, or special treatment assigned by the physician and recorded on the medical record of patients discharged from the inpatient service of short-stay hospitals. All terms listed on the face sheet of the medical record under captions such as ''operation,'' ''operative procedures,'' and ''operations and/or special treatments'' are transcribed in the order listed. A maximum of four 4-digit ICD-9-CM codes are assigned per discharge. Tables in *Health, United States* that show operations or diagnostic procedure data include all operations or procedures up to a maximum of four per discharge. In accordance with ICD-9-CM coding, procedures are classified as diagnostic and other nonsurgical procedures or as surgical operations.

> *Diagnostic and other nonsurgical procedures* are procedures generally not considered to be surgery. These include diagnostic endoscopy and radiography, radiotherapy and related therapies, physical medicine and rehabilitation, and other nonsurgical procedures. Selected diagnostic and other nonsurgical procedures are listed with their ICD-9-CM code numbers in table IX. For a complete listing of nonsurgical procedures, as defined by NHDS, see Graves EJ, Kozak LJ. National Hospital Discharge Survey: Annual summary 1989. National Center for Health Statistics. Vital Health Stat 13(109). 1991.
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> *Surgical operations* encompass all ICD-9-CM procedures, except those listed under ''Nonsurgical procedures.'' Selected surgical operations are listed with their ICD-9-CM codes in table VIII. The American Hospital Association defines surgery as a major or minor surgical episode performed in the operating room. During a single episode, multiple surgical procedures may be performed, but the episode is considered only one surgical operation. In contrast the National Hospital Discharge Survey codes up to four ICD-9-CM surgical procedures per surgical episode.

See related *International Classification of Diseases, Ninth Revision, Clinical Modification*.

Proprietary hospitals—See *Hospital*.

Psychiatric hospitals—See *Hospital; Mental health organization*.

Public expenditures—See *Health expenditures, national*.

Race—Beginning in 1976 the Federal Government's data systems classified individuals into the following racial groups: American Indian or Alaskan Native, Asian or Pacific Islander, black, and white. 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. In the National Health Interview Survey, children whose parents are of different races are classified according to the race of the mother. 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 number of live births 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. (See related table V.) *Maternal mortality rate* is the number of maternal deaths per 100,000 live births. The maternal mortality rate indicates the likelihood that a pregnant woman will die from maternal causes. The number of live births used in the denominator is an approximation of 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*.

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 1993 and 1994 by asking the respondent, ‘‘Is there a particular person or place that __ usually goes to when ___ is sick or needs advice about __ health?’’ In the 1995 NHIS, the respondent was asked ‘‘Is there one doctor, person, or place that __ usually goes to when __ is sick or needs advice about ___ health?’’

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 caculated 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.

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